

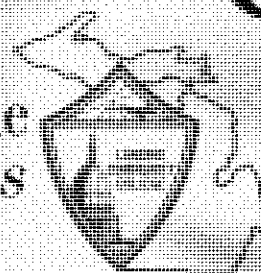
Nicole L. Alexander
GVT 2280



Catalog

1999-2000

Lansing Community College
Where Success Begins



1999-2000 College

C A T A L O G

Nicole Alexander
www.lcc.edu



400-600 North Washington Square, P.O. Box 40010, Lansing, Michigan 48901-7210
Information Center (517) 483-1620 or 1-800-644-4LCC • 24-hour-a-day assistance (517) 483-1111
Office of Disability Services Telephone Device for the Deaf, TDD (517) 483-1218
World Wide Web: <http://www.lansing.cc.mi.us>
Accredited by North Central Association of Colleges and Schools

LCC: WHERE SUCCESS BEGINS

At Lansing Community College, we've committed to excellence in education going on five decades. Since opening in 1957, we've grown from a small technical college to one of the largest, most comprehensive community colleges in the nation. We offer classes year-round on our 28-acre campus in the heart of Michigan's capital. You can choose from more than 140 degree and certificate programs and nearly 2,500 courses, or complete the first two years of a liberal arts education. And to ensure you'll have the comprehensive mix of education and training you'll need for the 21st century, we provide state-of-the-art computer labs and classrooms, and a continuously updated media services center and library within the new Abel B. Sykes, Jr., Technology and Learning Center.

In addition to our main campus, we operate the Aviation Center at Capital City Airport in Lansing, the Truck Driver Training Center near Battle Creek, and the STAR Institute career training center. Plus, our Business & Community Institute delivers customized training, business, and personal development services for business, industry, government, and working professionals.

With Learning Centers in more than 20 communities within our 30-mile service district, Lansing Community College is accessible to more people in more areas. For the ultimate in accessibility, we offer a series of Internet courses through our Virtual College, making the LCC experience available to people around the globe!

LCC is accredited by the North Central Association of Colleges and Schools, and serves nearly 40,000 people annually. Our commencement is just one symbol of our commitment to providing lifelong education for all.

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Please keep this catalog as a reference to the learning opportunities available at Lansing Community College. Education is a lifelong process, and LCC continues to be a resource for its students throughout the nation and the world. Futures not only begin at LCC, they are enriched, over and over, throughout a lifetime.

This catalog was produced by Marketing, Community and Board Relations at Lansing Community College.





MISSION STATEMENT

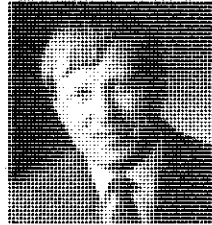
Lansing Community College exists so that all people have educational and enrichment opportunities to improve their quality of life and standard of living.

Lansing
Community
College

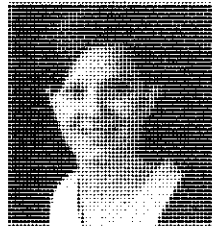
BOARD OF TRUSTEES



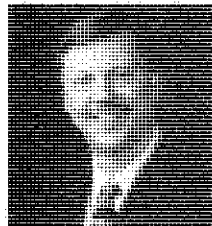
Olga A. Holden, Ph.D.
Chair



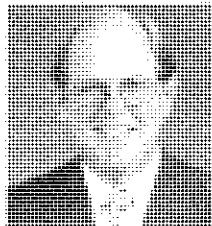
James E. Byrum
Vice Chair



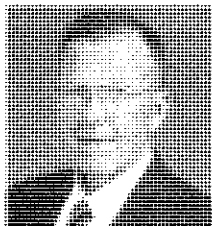
Kim G. Ross
Secretary



Brian C. Jeffries
Treasurer



C. David Patterson
Trustee



Thomas Rasmusson
Trustee



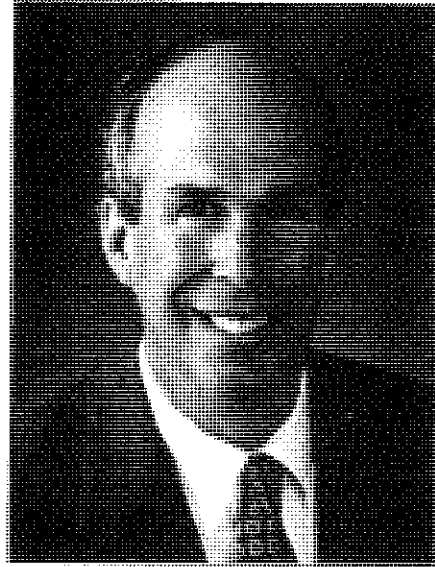
Melvin M. Villarreal, Ph.D.
Trustee

The Board of Trustees abides by the Open Meetings Act which allows opportunities for student and/or public comment.

MESSAGE FROM THE PRESIDENT

Dear Student,

Welcome to Lansing Community College. I, like many of you, am beginning my first semester at LCC. Together, we will be challenged and enriched by many new opportunities. By working positively, cooperatively, and responsibly, we can accomplish much. The faculty and staff of LCC want your experience here to improve the educational, social, and economic qualities of your life.



Whether you have come to LCC to start or continue your college career, to learn new career skills, or to pursue a personal interest, we're confident we can help you achieve your goals. We offer a multitude of opportunities, all designed for your success. Prime among our offerings are the many outstanding programs and courses, each presented with the latest teaching and technology methods. Plus, we offer a wide range of career exploration, internship, and transfer college programs to enrich your classroom experience.

Our campus provides many diverse and engaging extracurricular activities. You might enjoy and benefit from participating in opportunities offered by the Student Leadership Academy, Volunteer Services, The Lookout student newspaper, performing arts, student clubs, our radio and television stations, and athletics or athletic events.

We value your presence and are working diligently to make your LCC experience rewarding. Please help us by communicating suggestions and ideas for improving any aspect of this—YOUR College! You can do this by contacting faculty or staff members, or by communicating with me personally.

I wish you all the best.

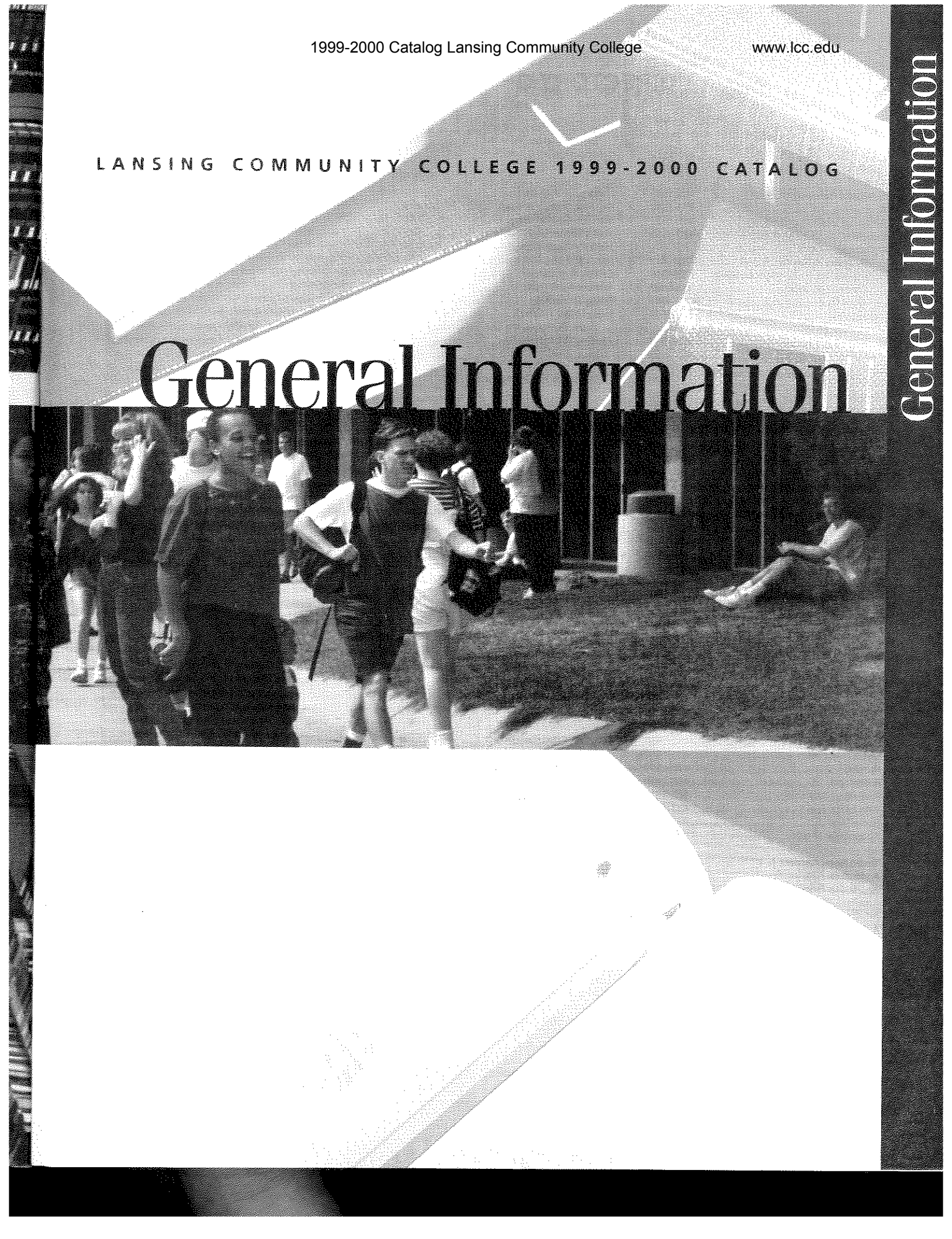
James F. Anderton, IV
President
Lansing Community College



LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

General Information

General Information



DIRECTORY OF DEPARTMENTS

(Area Code 517)

Careers Division

Career Services (GVT 211) 483-1172
Career and Employment Services 483-1172

Business Careers (OC 210) 483-1522
Accounting 483-1599
American Institute of Banking 483-1532
Business 483-1532
Computer:
 Business Software 483-1587
 Information Systems for Business 483-1546
 Office Applications 483-1587
 Word Processing 483-1587
Credit Union 483-1541
Hotel/Motel and
 Food Service Operations 483-1542
Insurance 483-1599
Labor Relations 483-1532
Legal Assistant 483-1503
Management 483-1532
Marketing 483-1532
Office Administration 483-1587
Property Valuation and
 Assessment Administration 483-1532
Real Estate 483-1532
Secretarial 483-1587
Tourism: Airline and Travel Agency 483-1542

Human, Health and Public Service Careers

(GVT 175) 483-1410
Allied Health 483-1410
Child Development 483-1410
Community Health Services 483-1410
Corrections (OC 224) 483-1570
Court Reporting (OC 224) 483-1616
Criminal Justice (OC 224) 483-1570
Dental (A&S 007)
 Assisting 483-1457
 Hygiene 483-1457
Diagnostic Medical Sonography 483-1410
Emergency Medical Technology 483-1410
Fire Science 483-1346
Gerontology/Aging 483-1410
Human Services 483-1410
Law Enforcement (OC 224) 483-1570
Massage Therapy 483-1410
Medical Assistant 483-1410
Nursing 483-1410
Paramedic 483-1410
Radiologic Technology 483-1410
Sign Language 483-1410
Social Work 483-1410
Surgical Technology 483-1410

Technology Careers (GVT 136) 483-1336
Agriculture 483-9675
Apprentice Programs 483-1336
Architecture 483-1327
Art, Design and Multimedia (AOF 314) 483-1476
Automotive/Auto Body 483-1336
Aviation (Airport)
 Avionics 483-1406
Building Maintenance 483-1404
Building Trades 483-1361
Civil Technology 483-1336
Computer-Aided Drafting and Design 483-9819
Computer Repair Technician 483-1351
Computerized Numerical Control
 Program 483-1390
Electrical Technology 483-1360
Electronics Technology 483-1352

Geographical Resource and
 Environmental Technology 483-9675
Heating, Ventilating, and Air Conditioning 483-1404
Horticulture 483-9675
Interior Design 483-9679
Landscape Architecture 483-9675
Machine Tool Technology 483-1358
Machine Maintenance 483-1358
Media Technology (TLC 123) 483-1670
Motion Picture Technology 483-1336
Photo Imaging Technology (PC 117) 483-1673
Quality Assurance 483-9678
Residential Builder 483-1361
Stage Technology 483-1505
Truck Driver Training (517) 483-1336
 (Fort Custer, Battle Creek) (616) 731-4125
Welding Technology 483-9682

Business & Community Institute

Business and Industry Training 483-1965
Continuing Professional Education 483-1414
Facilities Rentals/Conference
 Services 483-1881
Instructional Services 483-1181
Small Business Development 483-1921

Extension and Community Education

(Learning Centers) 483-1860
International Programs 483-1006
**Japan Adventure/
 Japan Horizon (OUF 228)** 483-1006

Liberal Studies Division

Office of Instruction (A&S 110) 483-1015
Military Science/ROTC 483-1015
Teacher Education Project 483-1015

Communication (A&S 211) 483-1040
Foreign Language 483-1040
Linguistics 483-1040
Speech 483-1040
Writing 483-1040

Humanities and Performing Arts

(A&S 255) 483-1018
English/Literature 483-1018
Humanities
 (History, Philosophy, Religion) 483-1018
Performing Arts
 (Dance, Music, Theater) 483-1018

Math and Computer Science

(A&S 408) 483-1087
Applied Math 483-1087
Computer Science 483-1087
Statistics 483-1087
Transfer Math 483-1087

Science (A&S 408) 483-1092
Anatomy 483-1092
Biology/Molecular Biology 483-1092

Chemistry 483-1092
Environmental Science 483-1092
Geological Science 483-1092
Integrated Science 483-1092
Physics 483-1092

Social Sciences (A&S 353) 483-1126
Economics 483-1126
Geography 483-1126
Political Science/Government 483-1126
Psychology/Education 483-1126
Sociology/Anthropology 483-1126

Police and Public Safety

Public Safety (GVT 250) 483-1800
 TDD 483-9916

Student and Academic Support Division

Athletics (GVT 452) 483-1624

Enrollment Services

Counseling (A&S 103/SPS 208) 483-1191/1184
Advising Center (A&S 103) 483-1904
Disability Support Services
 (SPS 208) 483-1207
 TDD 483-1218/1207
Student Development Courses
 (SPS 208) 483-1184
Women's Resource Center
 (SPS 208) 483-1199
Entry Services (A&S 301) 483-1266
Admissions (GVT 232) 483-1200
Limited English Proficiency
 (SPS 104A) 483-1207
Minority Outreach and Recruitment
 (SPS 103) 483-1059
Native American Leadership
 Program (SPS 102) 483-1059
Office of the Registrar (SPS 104) 483-1266
Financial Aid (SPS 112) 483-1296
Veteran's Services (SPS 114) 483-1300

Honors (SPS 215) 483-1182

Instructional and Student Support

Library Information Services
 (TLC 201A) 483-1657
 Tutorial Services (SPS 201) 483-1206
Media Services (TLC 123) 483-1670
Interactive Learning Center
 (OC 200) 483-1566
 Telecourse Hotline (TLC 123) 483-1695
 Telelearning (TLC 123) 483-1670
Student Life (GVT 200F) 483-1285

Language Skills (A&S 253G) 483-1061
Learning Center (A&S 253) 483-1050
Limited English Proficiency
 Courses (A&S 253G) 483-1061

Mathematical Skills (A&S 309JJ) 483-1073
Math Lab (A&S 309) 483-1073



ACADEMIC CALENDAR

For an up-to-date academic calendar, including start and end dates for the 1999-2000 Fall Semester, Spring Semester, and Summer Session, point your Web Browser to:

www.lansing.cc.mi.us

or call our Information Center at:

1-800-644-4LCC or 1-517-483-1620

In addition, registration information and dates are published in the *Course Schedule* for each semester, or students may call the Office of the Registrar.

Fall Semester 1999

Classes Begin	August 26
Labor Day	September 6
Thanksgiving	November 25, 26
Classes End	December 19

Spring Semester 2000

Classes Begin	January 8
Martin Luther King, Jr. Holiday	January 17
Spring Break	March 6-12
Classes End	May 5
Graduation	May 7

Summer Session 2000

Classes Begin	June 6
Independence Day	July 4
Classes End	August 1

POLICIES, PROCEDURES, AND REGULATIONS

ADMISSIONS INFORMATION

GENERAL ADMISSION CRITERIA

Lansing Community College is an open-door community college designed to extend service to applicants possessing appropriate preparation to benefit from programs and courses offered at the College. Determination and judgment of an individual's preparation and readiness to benefit from a course or program at Lansing Community College is the responsibility of the College's professional personnel.

Persons who are 18 years of age or older or who have graduated from high school are eligible to attend Lansing Community College. Persons who are under 18 years of age, enrolled in high school, and working to fulfill high school graduation requirements, may be admitted to LCC under the *Dual Enrollment* or *Special Admission Program* explained later in this section. Nonpublic home school applicants who are 14 years of age or older may be admitted under the *Nonpublic Home School Program* explained later in this section. Admission to the College does not guarantee admission to a particular program.

GENERAL ADMISSION PROCEDURES

Procedures for Completing the Admissions Application

1. Complete all items requested on the application for admission.
2. Attach the nonrefundable \$10 application fee (check or money order made payable to Lansing Community College) to the application.
3. International applicants must follow the procedures outlined under *International Applicants*.
4. Applicants in high school must follow the procedures outlined under *Dual Enrollment Program* or *Special Admission Program*.
5. Nonpublic home school applicants must follow the procedures outlined under the *Nonpublic Home School Program*.
6. Guest students must follow the procedures outlined under *Guest and International Guest Applicants*.

APPLICANTS MAY MAIL, FAX (517) 483-9688, OR BRING APPLICATIONS TO THE ADMISSIONS OFFICE LOCATED IN THE STUDENT PERSONNEL SERVICES BUILDING IN ROOM 104. ITEMS SHOULD BE MAILED TO: 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210. FOR ADDITIONAL INFORMATION CALL (517) 483-1200.

Applicants who are admitted to LCC will receive notification and information regarding registration procedures. Applicants denied admission will receive a letter stating the reason for denial and explaining the appeal process (see *Appeal Process for Denial of Admission*).

BASIC SKILLS ASSESSMENT AND ADVISING FOR STUDENT SUCCESS

General Information

Lansing Community College cares about student success and believes that success (either in college or on the job) depends on basic skills as well as knowledge in a specialty. The following basic skill areas are particularly important: reading, writing, mathematics, computing, communicating, critical thinking, and study skills.

Many courses at LCC have minimum basic skill level requirements in reading, writing, and/or mathematics which must be met before a student can enroll in those courses. Reading, writing, and mathematics levels are listed along with other prerequisites required for each course in the *College Catalog*, the *Course Schedule*, and on the College's World Wide Web home page <http://www.lansing.cc.mi.us/>. Students meet these basic skill prerequisites either by achieving the required scores on placement tests, or successfully passing specific courses at LCC. (See *Other Options to Meet Basic Skills Prerequisites* in this section for other alternatives.)

Any exceptions to prerequisites, including basic skills, are determined by the department offering the course.

The Basic Skills Tests

Students new to LCC should take a placement test in each basic skill area as part of their preparation for college. This testing is required for students participating in START (Student Testing and Registration Times) orientation sessions. START sessions are offered prior to each semester. While no appointment is required, students should call for dates and times when testing is available:

- Reading and Writing Tests: Arts and Sciences Bldg., Room 309; (517) 483-1050
- Mathematics Tests: Arts and Sciences Bldg., Room 309; (517) 483-1900

Students who have attended LCC previously may need to take or retake the basic skills tests. An advisor or counselor can determine if this is needed.

What the Tests Are Like

Reading, writing, and some mathematics tests are taken on computers. The computer chooses questions for each student from a large pool of items based on the responses to earlier questions. Every student answers the same number of questions. The tests are not timed. The average amount of time spent on a test is about 30 minutes, so students should allow about two hours for all basic skills assessment tests.

The results of the tests are available shortly after completion. In general, students may retake a test a second time. The staff in the testing centers will provide details.

Basic skills testing is also available at the off-campus Learning Centers. Contact the off-campus Learning Centers or the LCC Extension and Community Education office, (517) 483-1860, for more information.

Other Options to Meet Basic Skills Prerequisites

Students who have taken the SAT, the ACT, or Advanced Placement courses should have their scores sent to the LCC Admissions Office. The results may satisfy the reading and/or writing, or the mathematics prerequisites. The Advanced Placement examination results may also result in the awarding of credit for a specific course.

Students who have earned credits from an accredited college or university should have their official transcript sent to the LCC Admissions Office. An evaluation of transfer credits will determine if some of the courses meet basic skills prerequisites.

Students who have an earned degree (associate, bachelor, or higher) can have the reading and writing prerequisites waived. An official transcript from all institutions previously attended should be sent to the LCC Admissions Office.

Academic Advising for Student Success

Faculty advisors and counselors are available to provide information on basic skills prerequisites, help students plan class schedules, and discuss curriculum choices at LCC. Students are encouraged to meet with an advisor or counselor prior to their first semester and at least annually thereafter. As students progress in their program of study, advisors or counselors can identify courses that remain to be completed. The Counseling Services Department has advisors and counselors in Room 103 Arts and Sciences, (517) 483-1904, and in Room 208 Student Personnel Services, (517) 483-1184.

In addition to these regular advising sessions, students are encouraged to confer with the advisors or counselors about transferring to another college. Advisors and counselors have information on most Michigan colleges and universities.

Faculty advisors and counselors are also available during special advising times in the off-campus Learning Centers. Contact the Learning Center or the LCC Extension and Community Education office, (517) 483-1860, for additional information.

SPECIAL PROGRAM/SPECIAL CIRCUMSTANCE ADMISSION

Selective Admission Programs

The programs listed in this section are selective admission programs. Admission to selective admission programs is on a competitive basis, and these

programs have program admission requirements beyond those required for admission to the College. Admission to Lansing Community College does not guarantee admission to a selective admission program. Students wishing to apply for admission to a selective admission program should contact the Admissions Office for further information by calling (517) 483-1254, or writing 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210.

- Court Reporting, Associate in Business
- Dental Assistant, Certificate of Achievement
- Dental Hygienist Program, Associate in Applied Science
- Diagnostic Medical Sonography, Associate in Applied Science
- Fire Academy, Certificate of Completion
- Medical Assistant, Certificate of Achievement
- Mid-Michigan Police Academy, Certificate of Completion
- Music Commercial Performance, Associate in Applied Arts
- Music Management, Associate in Applied Arts
- Music Transfer, Associate in Applied Arts
- Nursing, LPN Option, Certificate of Achievement
- Nursing, RN Option, Associate in Applied Science
- Paramedic, Certificate of Achievement
- Radiologic Technology Program, Associate in Applied Science
- Surgical Technology, Certificate of Achievement
- Truck Driver Training, Certificate of Completion

International Applicants

International student admission procedures have been developed to create a positive experience for the international student, the service community, and the College community. Admissions requirements for international students are affected by U.S. Immigration and Naturalization Service (USINS) regulations. In accordance with USINS regulations, any individual who is not a United States citizen and who has been admitted to the United States in a temporary, nonresident status will be classified as an international student at Lansing Community College. Individuals who have refugee, immigrant, or resident alien status are not international students.

The visa classification of each international applicant determines the admission requirements and the attendance regulations applied to the applicant. For details on the requirements for international admission, the applicant should refer to the International Student Admissions Application Packet. To request the application packet, contact 1111-ADMISSIONS OFFICE, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI 48901-7210.

Admission to the College for all visa categories requires applicants to: (1) be at least 18 years old and (2) provide additional documents as required by the applicant's USINS visa classification.

International students who would like copies of documents submitted to Lansing Community College for admission purposes must request these copies no later than one year after the last semester of attendance in international student status with the College. Lansing Community College does not keep such documents beyond legally required time limits.

Admission to LCC as an international student will be considered after receipt of the application, \$10 application fee, and all required documents. Applicants outside the United States are advised to apply as early as possible to allow for mail delays, to obtain visas and exit permits, and to make travel arrangements. All admission material from applicants outside the United States must be received by the College no later than eight weeks prior to the first day of walk-in registration for the semester of attendance.

The Admissions Office will provide to admitted applicants information regarding USINS regulations, academic advising, and College policies governing international students. Prior to registering for classes, international students will be asked to take tests administered to the general College population. If evaluation of these tests indicates a need for improvement of English language skills, the student will be required to enroll in appropriate language courses.

Admission procedures are established and reviewed by the International Student Services Committee. Any changes in the procedures will be brought to the attention of the Dean of Student and Academic Support, students, applicants, LCC staff, and the service community.

The International Student Services Committee has been established in the Division of Student and Academic Support with the following membership:

1. International Admissions Specialist (Chairperson)
2. Director or Assistant Director of Entry Services
3. Director of International Programs

4. Bilingual Coordinator
5. International Student Counselor
6. A member of the teaching faculty

Dual Enrollment Program

This program is designed to provide an opportunity for qualified high school juniors and seniors to earn college credit. High school credit may or may not be granted according to the discretion of the participating high school. Dual enrollment affords students educational enrichment in specific areas where unusual ability and interest are displayed, especially in courses and academic areas not available in the students' high school.

Qualifications for the Dual Enrollment Program

Applicants must:

1. Be working toward high school graduation requirements;
2. Have attained junior or senior high school standing prior to applying for the program.

Application Procedures for the Dual Enrollment Program

Applicants must:

1. Complete a College application;
2. Submit written approval from their authorized high school official each semester of attendance;
3. Mail or bring the application, the nonrefundable \$10 application fee, letter of authorization, and transcript to the LCC Admissions Office prior to enrolling in classes.

Special Admission Program

Qualifications for the Special Admission Program

Applicants must:

1. Be working toward high school graduation requirements;
2. Have attained freshman or sophomore high school standing prior to applying for the program.

Application Procedures for the Special Admission Program

Applicants must:

1. Complete a Special Admission Supplemental Application for each class in which the student intends to enroll;
2. Submit an official high school transcript each semester of attendance;
3. Mail or bring the Special Admission Supplemental Application(s), the non-refundable \$10 application fee, and transcript to the LCC Admissions Office prior to enrolling in classes.

Nonpublic Home School Program

The Nonpublic Home School Program is designed for students who are at least 14 years old and attend a nonpublic home school. This program is provided to supplement the student's educational plan and to afford educational enrichment in courses and academic areas not available in the student's home school setting.

Qualifications for the Nonpublic Home School Program

Applicants must be at least 14 years of age prior to applying for the program.

Application Procedures for the Nonpublic Home School Program

1. Applicants 16 and 17 years of age must complete an LCC Nonpublic Home School Program Application each semester. Applicants 14 or 15 years of age must obtain department approval and complete an LCC Nonpublic Home School Program Application for each course in which the student wishes to enroll each semester.
2. Written consent from the student's parent/guardian and approval from the home school provider is required on the application.
3. Applicants must meet with a Counselor to discuss the student's educational plan each semester.
4. All students must comply with basic skills assessment and any additional approvals or prerequisites established by the department for the course(s) in which the student wishes to enroll.
5. Applicants must mail or bring the completed application and the nonrefundable \$10 application fee to the LCC Admissions Office prior to enrolling in classes.

Guest and International Guest Applicants

Guest and international guest applicants must:

1. Obtain a guest application from the Registrar's Office of the student's primary college;
2. Submit a completed guest application form to LCC each semester they wish to continue in the guest admission category;
3. Mail or bring the guest application and the nonrefundable \$10 application fee to the Admissions Office prior to enrolling in classes.

APPEAL PROCESS FOR DENIAL OF COLLEGE ADMISSION

Applicants denied admission to the College may appeal the denial. The decision to admit or uphold denial of admission will be based upon the individual merits of the appeal. Appeals submitted with insufficient time to complete the appeal process (eight working days) by the first day of class will be reviewed for the following semester. The appeal process shall consist of the following steps:

STEP 1: Admissions Counselor or Admissions Staff Member

If an Admissions Counselor or staff member denies admission to an applicant, the Admissions Counselor or staff member shall provide the applicant with a copy of the appeal process. If the applicant wishes to appeal the denial, the Counselor or staff member shall arrange an appeal meeting with the Director or Assistant Director of Entry Services within two working days of the denial.

STEP 2: Director or Assistant Director of Entry Services

(If admission was originally denied by the Director or the Assistant Director of Entry Services, the applicant may move directly to Step 3 of the appeal process.) The applicant must submit his or her appeal in writing to the Director or Assistant Director of Entry Services at least one working day prior to the appeal meeting. The Director or Assistant Director shall render a decision to the applicant within two working days of the appeal meeting and provide the applicant with a written copy of the decision. If the appeal is denied, the Director or Assistant Director shall discuss Step 3 of the appeal process with the applicant. If the applicant wishes to appeal the denial, the Director or Assistant Director shall assist the applicant in contacting the Appeals Coordinator.

STEP 3: The Board of Appeals

The Appeals Coordinator shall convene the Board of Appeals within three working days of the applicant's appeal to the Board and advise the applicant of the date, time, and location of the appeal meeting. The Board of Appeals Chairperson shall notify the applicant of the Board's decision within three working days from the date of the applicant's appeal meeting and shall provide the applicant with a written copy of the decision. The Board of Appeals shall consist of the following members:

- A. The Dean of Student and Academic Support (Chairperson) or his or her designee
- B. A member of the teaching faculty
- C. A counselor
- D. Appeals Coordinator or his or her designee (as recorder and nonvoting member)

The appeals process for international students shall have the following modification in membership:

- STEP 1: International Admissions Specialist or his or her designee
- STEP 2: Director or Assistant Director of Entry Services
- STEP 3: Board of Appeals

The International Student Board of Appeals shall consist of the following members:

- A. The Dean of Student and Academic Support (Chairperson) or his or her designee
- B. A member of the teaching faculty
- C. Bilingual Coordinator or Director of International Programs
- D. Appeals Coordinator or his or her designee (as recorder and nonvoting member)

The decision of the Admissions Board of Appeals is final and will be reached by simple majority vote. A copy of the Board of Appeals decision shall be maintained in the Admissions Office for two years.

HOUSING

Lansing Community College maintains no housing units for students, nor does it enter into third party contracts or supervise off-campus housing. However, the Student Life Office does offer a housing resource listing service. This service provides current available listings of Lansing area housing for sharing, sale, or lease. For more information, contact the Student Life Office at (517) 483-1285, or visit Room 200F in the Gannon Vocational-Technical Center. There is no fee for this service.

FINANCIAL AID INFORMATION

The Student Financial Aid/Veteran Services Department at Lansing Community College is committed to providing students with financial resources for higher education. An objective method of need determination approved by the federal government is used to award need-based programs. However, some scholarships are available based on academic achievement or talent, and low interest loan programs are also available.

Students are eligible to apply for financial assistance if they have graduated from high school, have completed a GED, or have demonstrated, through testing, the ability to benefit from courses or programs at Lansing Community College. They must enroll in LCC programs of study leading to an approved educational credential, and must be a U.S. citizen or eligible noncitizen. A student enrolling in a program of study abroad that is approved for credit by Lansing Community College is eligible for federal student financial aid consideration.

SOURCES OF FINANCIAL ASSISTANCE

Financial aid programs are funded from federal, state, college, and private sources. The four major sources of financial aid are scholarships, grants, loans, and employment. Most students receive a combination of these forms known as a financial aid "package." Need-based programs require the submission of the Free Application for Federal Student Aid (FAFSA). Please see "How and When to Apply."

Scholarships and Awards

Resources that do not have to be paid back, usually awarded for academic achievement or talent that may or may not be based on need.

- Board of Trustees Awards are awarded to outstanding district high school graduates.
- Divisional Awards are awarded to outstanding students who are residents of the district and who apply directly to the College division or department in which the student wishes to study. Students may contact the Student Financial Aid/Veteran Services Department for information.
- Athletic Scholarships are awarded through the Athletic Department. Talented athletes should contact coaches in their respective sport areas.
- Michigan Competitive Scholarships are based upon a qualifying examination given during the junior and senior years in high school. Students may receive an "honorary" award not based on need or a monetary award based upon need.
- Private Scholarships are available through the College or private organizations. Please consult the Office of Student Financial Aid/Veteran Services Department or Office of Admissions for information about private scholarships, grants, loans, employment, and college transfer scholarships available to LCC students.
- Foundation Scholarships are provided through the Lansing Community College Foundation Office.
- Additional information on these as well as a free scholarship search service are available at <http://www.lansing.cc.mi.us/sas/finaid/>.

Grants

Money that does not have to be paid back, usually based upon need.

- Federal Pell Grants are based on need and range from \$400 to \$3,125.
- Federal Supplemental Educational Opportunity Grants are awarded to "high" need students who receive Federal Pell Grants.
- Michigan Educational Opportunity Grants are awarded to needy students who have been Michigan residents for at least 12 consecutive months.

- Michigan Adult Part-time Grants are awarded to self-supporting, part-time (3-11 credits), needy students who have been out of a high school program for at least two years and who have been Michigan residents for the past 12 months.
- Michigan Tuition Incentive Program (TIP) pays in-district community college tuition and fees for students from low-income families who meet the basic criteria and low-income financial guidelines. Eligible students must be United States Citizens and residents of Michigan according to institutional criteria, must be under 20 years of age, and must apply for certification to the State of Michigan prior to graduation from high school or completing the General Education Development (GED) Certificate.
- Lansing Community College grants are awarded to needy students who do not qualify for Federal Pell Grants on a funding available basis.
- Lansing Community College's Women's Resource Center Grants are available for tuition and child care for displaced homemakers and special populations. Students apply through the Women's Resource Center, Student Personnel Services Building, 2nd floor.
- Center for Aging Education Tuition Assistance is available to persons 60 years of age or older for up to four (4) credits per semester. Students must meet moderate income guidelines. Students apply through the Community Education and Services Department at (517) 483-1180.

Loans

Money that must be repaid beginning six months after graduation or enrollment of less than six (6) credits, with the exception of the PLUS loans which must begin repayment upon disbursement.

- William D. Ford Federal Direct Student Loan Program includes both Subsidized and Unsubsidized Student Loans and the Parent Loan for Undergraduate Students (PLUS). Specific guidelines pertaining to eligibility and the application process are available in the Student Financial Aid/Veteran Services Department.
 1. Subsidized and Unsubsidized William D. Ford Direct Student Loans are available for students who meet eligibility requirements. Students apply by completing and submitting a Free Application for Federal Student Aid (FAFSA), an LCC Admissions Application, an LCC Financial Aid Application, and an LCC application for William D. Ford Direct Subsidized and Unsubsidized Student Loans.
 2. Parent Loans for Undergraduate Students (PLUS) are available to parents of undergraduate dependent students to pay college costs not covered by other financial aid. Applications for William D. Ford Direct PLUS loans are available in the Student Financial Aid/Veteran Services Department.
- MI-LOAN is a Middle Income Loan provided by the State of Michigan. This is a credit-based loan.
- Short-Term Loans are available from Lansing Community College on a limited basis through the Student Financial Aid/Veteran Services Department.

Student Employment

Job opportunities are available to assist students in earning money to meet part of their educational expenses. Employment at the College is based upon skills and abilities and not necessarily upon need. Students may be employed by the College, public nonprofit organizations, private businesses and industry.

- Federal Work Study is awarded to needy students.
- Michigan Work Study is awarded to needy students who are Michigan residents.
- Career and Employment Services at LCC posts federal work study jobs, student employee jobs, and off-campus part- and full-time jobs. Students obtain information at the Career and Employment Services Office and must interview at the department's or employer's office.
- Community Service Learning off-campus employment opportunities are available to students who are awarded Federal Work Study. Inquiries regarding these employment opportunities should be made to the Career and Employment Services Department.

Special Situation Funds

The College's Student Financial Aid/Veteran Services Department has information regarding the availability of funds and application procedures for the following programs:

- Armed Services
- Veterans' Benefits

- Children of Disabled or Deceased Veterans
- Federal Bureau of Indian Affairs
- Michigan Indian Tuition Waiver
- Michigan Rehabilitation Services
- Clubs, Organizations, and Business Scholarships
- Private Donor Scholarships

HOW AND WHEN TO APPLY

Students wishing to receive financial aid at Lansing Community College should submit a Free Application for Federal Student Aid (FAFSA) no later than February 15 for priority State aid consideration and at least three months prior to enrollment for all other aid programs. Federal income tax information is necessary to complete the form. FAFSA forms are available at LCC or from high school counselors. There are three options available for submission:

1. The completed FAFSA form may be submitted via the World Wide Web through the Financial Aid lab located in the Student Personnel Services Building, Student Financial Aid/Veteran Services Department. Processing time is 14 to 21 working days after the student enters the application. Call (517) 483-1296 to schedule an appointment. Staff is available to assist students with filing the application. The Student Aid Report (SAR) results are then mailed to the student.
2. The completed FAFSA form may be mailed in the enclosed envelope to the federal processor. In four to six weeks the processor will send a Student Aid Report (SAR) to the student. The Financial Aid Office at LCC must receive these results to award aid. LCC must be listed as a college choice on the FAFSA in order for LCC to receive the information electronically.
3. The completed FAFSA form may be submitted via the Internet (FAFSA on the WEB). The URL is <http://www.fafsa.ed.gov/>. All necessary instructions are provided. Please note all signature requirements.

Students will receive an Award Letter no later than four weeks after their results are received and their financial aid file is completed. Application for Financial Aid must be completed each academic year that a student plans to attend college.

To apply for financial assistance at the College, new students must also complete the LCC Application for Admission and return it to: 1111 ADMISSIONS, LANSING COMMUNITY COLLEGE, PO BOX 40010, LANSING, MI, 48901-7210. All students must complete the Free Application for Federal Student Aid (FAFSA) and submit the application to the federal processor prior to being awarded.

William D. Ford Federal Direct Student Loans (Subsidized, Unsubsidized, and PLUS) are available by completing the aforementioned forms and the loan application form. Loan applications are available in the Student Financial Aid/Veteran Services Office.

LCC Board of Trustees Scholarship forms are available through district high schools' counseling offices. Scholarship forms are also available at the LCC Admissions Office and the Student Financial Aid/Veteran Services Department.

Divisional Scholarships are available from the respective College division or department of the student's major area of study.

The LCC Foundation has scholarships available throughout the year. Please consult the Student Financial Aid/Veteran Services Department, or call the LCC Foundation Office at (517) 483-1985 for additional information.

Processing of the student's application for financial assistance will be completed and the student will be notified when the student has submitted the LCC Application for Admission to the Admissions Office and when the Student Financial Aid/Veteran Services Department receives the results of the federal application for student financial assistance. Students transferring from other colleges mid-year must submit a Financial Aid Transcript from their previous colleges when they apply for financial assistance, along with any additional documents requested by the Student Financial Aid/Veteran Services Department.

The amount of the student's award will be based on a standardized cost of attending LCC, less the expected student's and family's contribution. The College will attempt to meet a student's need based upon available funds. All financial assistance applications are confidential.

RIGHTS AND RESPONSIBILITIES OF STUDENTS RECEIVING FINANCIAL AID

As a recipient of financial aid, a student enters into an agreement with Lansing Community College which affects the receipt and continuation of assistance. Therefore, students should be sure to read this information carefully.

NEED AND FINANCIAL AID PACKAGE

Financial need is determined by subtracting the expected family contribution (as determined by the FAFSA) and other financial resources from the appropriate College budget. The College will attempt to meet the student's need within the limitations of available resources. Also, if any errors are made by the College in determining eligibility for assistance or awarding of aid, they will be corrected. Should any major changes occur in the student's financial circumstances or should other aid be provided to the student, the student will report these changes to the Student Financial Aid/Veteran Services Department.

EXPECTED FAMILY CONTRIBUTION

If a student is a dependent student (as determined by the FAFSA), the College and the federal government assume that parents and students have the primary obligation to provide for the student's cost of education to the extent that they are able, based on a standardized method of determining parental contribution. The second obligation falls upon the student to contribute to his or her own education from personal assets and earnings, which may include the use of student loan funding.

If a student is a self-supporting or independent student (as determined by the FAFSA), the College assumes that since a student is the prime beneficiary of education, the student has a primary obligation to provide for the cost of education to the extent the student is able, based on a standardized method of determining student contribution. The student's expected contribution will come from personal earnings, spouse's earnings, if applicable, savings and assets, which may include the use of student loan funding.

SELECTION CRITERIA

Students are awarded need-based financial aid on a first-come first-served basis. Students with the highest need are selected first until available funds are exhausted. Students with bachelor's degrees may receive Federal Work Study if funds permit. These students may also apply for Federal Direct Student Loans.

FALSIFICATION OF INFORMATION

Falsification of information submitted by the student or parents for the purpose of receiving financial assistance may result in cancellation of assistance, billing back for assistance received, and referral to the appropriate federal authorities. If you purposely give false or misleading information, you may be fined \$10,000, sent to prison, or both by the federal government.

The Student Financial Aid/Veteran Services Department may be required to verify information provided on the Financial Assistance Form by requiring income tax statements or other documentation of financial status.

CREDIT HOUR LOAD

Fall and Spring Semester

Financial aid is offered to students based on enrollment as a full-time student, 12 credit hours or more per semester. However, if a student enrolls for fewer than 12 credits, his or her award may be prorated to meet enrollment costs. For example, if a student enrolls for 9-11 credits, he or she would receive 75 percent of his or her award. If a student enrolls for 6-8 credits, he or she would receive 50 percent of his or her award. If a student enrolls for fewer than six credit hours, he or she may be eligible for some federal programs. An independent student enrolled for 3-11 credits may be eligible for the Michigan Adult Part-time Grant.

Summer Session

Summer Session is shorter than Fall and Spring Semesters. Six credits is considered full-time for financial aid purposes, five credits is considered three-quarter time, and three credits is considered half-time. Enrollment for fewer than three credits will make a student ineligible for most financial aid. The length of the summer session also makes a difference in the calculation for the maximum financial aid allowable for that period. Generally, the amount of financial aid will be less for a student enrolled in the summer session compared to the regular fall and spring semesters.

SHORT COURSE ELIGIBILITY

Payment for courses that are less than a semester in length is permitted. Students who enroll in a short course, receive payment for the course, and then do not attend will be required to repay any financial assistance attributed to that course. In addition, students who receive payment for a short course that is subsequently canceled will be required to repay any financial assistance attributed to that course.

STUDENT BUDGETING OF THE FINANCIAL AID PACKAGE

The student is responsible for properly budgeting all financial aid offered for each semester. The financial aid package will be distributed to the student in the following manner:

1. ALL student financial aid will be applied toward tuition and fees during registration. If sufficient funds are available after tuition and fees are paid in full, the student will receive a financial assistance advance check during the first full week of classes for part of the balance of grants, loans, or scholarships; and
2. The student will receive any remaining balance of grants, loans, or scholarships approximately 14 days after the first day of the semester.

The student must be prepared to meet his or her living expenses during the period prior to check distribution.

FINANCIAL AID REFUNDS

Check Distribution

Checks are issued two times each semester at the Cashier's Office if financial aid awards exceed the amount of tuition and fee charges. Students use this money for books, supplies, transportation, and room and board. Advance checks are printed during the first week of the semester. Advance checks are automatically calculated for financial aid students if their awards are complete and if they are registered by the last day of on-campus registration. The financial assistance advance check will be calculated by subtracting the amount of tuition and fees owed for the semester from the adjusted amount based on credit enrollment and writing a check for a portion of the remainder.

Final checks are printed by the 14th day of the semester. Students who receive an advance check normally receive a final check.

COLLEGE WORK STUDY/STUDENT EMPLOYMENT

If a student has been offered Federal Work Study or plans to use campus employment to meet expenses, the student must first secure employment through the Career and Employment Services Office (Room 211, Gannon Vocational-Technical Center). Students will receive a paycheck every two weeks based upon hours worked.

TUITION REFUNDS/WITHDRAWALS

Tuition refunds for financial aid students are based on federal regulations. Refunds for first-time students who completely withdraw are made through the first 60 percent of the semester. Students who are not first-time students and completely withdraw will have refunds through the first 50 percent of the semester. Tuition will be refunded in the following order for any programs received that semester:

- a. To outstanding balances on Federal Direct Loans: Unsubsidized Federal Direct Loan, Subsidized Federal Direct Loan, Federal PLUS Loan
- b. To Federal Pell Grant Awards
- c. To Federal SEOG awards
- d. To state financial aid awards
- e. To institutional financial aid awards
- f. To private or public donor awards
- g. To the student

An administrative fee of the lesser of five percent of the refund or \$100 will be held by the College.

REPAYMENT OF GRANTS

If a student withdraws from Lansing Community College or is withdrawn by the College because of nonattendance, a portion of any grants paid to the student may have to be repaid, and grades received for these courses may affect continuation of aid.

SATISFACTORY ACADEMIC PROGRESS POLICY FOR FINANCIAL AID ELIGIBILITY

To receive or continue on financial assistance, students must maintain satisfactory academic progress (SAP) each semester. Satisfactory academic progress for students receiving financial assistance is defined as follows:

1. Students must maintain a grade point average (GPA) of a 2.0 or above on a semester and cumulative basis.
2. Students must earn 70 percent or more of all credits attempted on a semester and cumulative basis. Credit "earned" is defined as a grade of 1.0 or higher or P; Grades of W, I, Z, N and 0.0 are considered attempted and not earned for determining financial aid satisfactory academic progress. Credit attempted includes all repeated courses.
3. Students must complete all requirements for their educational program within 150 percent of the minimum number of credit hours required for their educational program. This limit is further explained below under the heading *Maximum Eligibility*.

Satisfactory Academic Progress for Federal or State Loan Programs

Students applying for a federal or state loan program—including the Federal William D. Ford Direct Student Loan and the Michigan MI-Loan—must have completed at least one semester of prerequisites or core courses with a 2.0 or higher GPA and at least 70 percent completion of attempted credits prior to applying for a loan. A student borrower must earn a minimum of six credits, maintain a 2.0 minimum GPA each semester of the loan period, and maintain at least 70 percent completion of cumulative credits attempted. Students who do not meet these minimum guidelines will have any remaining scheduled loan disbursements canceled.

Financial Aid Academic Probation

New students receiving financial aid at Lansing Community College for their first semester who do not make satisfactory academic progress will receive an academic warning letter instructing them to meet with an academic counselor. They will remain eligible to enroll and receive assistance for an additional semester.

Federal regulations state that an Academic Progress Policy must include a review of all periods of enrollment, whether or not aid was received. Students with more than one but less than five graded semesters at Lansing Community College who have failed to maintain satisfactory academic progress in accordance with GPA or completion percent, may be allowed to re-enroll on financial aid under a Success Contract (educational agreement). While on a Success Contract, a student will be considered to be making satisfactory academic progress for financial aid programs as long as the student abides by the terms of the educational agreement, or until the student has raised his or her cumulative grade point average to a 2.0 or greater and has completed at least 70 percent of all credit hours attempted, but not beyond the completion of the fifth semester.

Students who do not successfully complete the semester of their Success Contract will have their future semesters of financial aid canceled, subject to the appeals process described below.

After five semesters of enrollment, students with cumulative GPAs lower than 2.0, and/or students who have earned less than 70 percent of credit hours attempted, will have their financial aid eligibility canceled. Eligibility for financial aid may be automatically reinstated after a student completes sufficient credit hours to raise his or her cumulative GPA to a 2.0 or above and cumulative credit completion to 70 percent or higher financed with his or her own resources. This is subject to all maximum eligibility requirements.

Appeal of Unsatisfactory Academic Progress

A student failing to maintain satisfactory academic progress who is placed on probation or terminated from financial aid, may appeal this action. All appeals must be submitted in writing to the office of Student Financial Aid/Veteran Services, and should document circumstances beyond the student's control. Extenuating circumstances that may be considered include personal illness or accident, serious illness or death within immediate family, long-term absence from school, or

other circumstances beyond the reasonable control of the student. The condition or situation must be documented by: a letter from a physician, attorney, social services agency, licensed therapist or counselor, or clergy; or an obituary notice or divorce decree. The condition or situation must have existed or occurred during a period the student was enrolled at Lansing Community College, and must no longer exist.

Reinstatement of Financial Aid Eligibility

A designated financial aid advisor, in consultation with at least one other financial aid advisor or administrator, will review the appeal and supporting documentation and notify the student in writing of the decision. Results of an appeal may include denial of reinstatement, reinstatement with restrictions such as limiting credit load to part-time or requiring 100 percent completion of enrolled credits, up to full reinstatement without further probation if the student has regained satisfactory academic progress.

Maximum Eligibility

Students who have attempted 150 percent of the credit hours required for their program of study at Lansing Community College are not considered to be making satisfactory academic progress and are no longer eligible for financial assistance beyond this maximum time frame. Transfer students will not be awarded financial aid beyond 150 percent of the credit hours required for their program of study, including credits transferred into the College which meet program requirements.

Exceptions to Maximum Eligibility time frame: Since many programs of study require substantially more than the minimum number of credit hours for a general associate degree, financial aid applicants will be reviewed on an individual basis if and when they approach 150 percent of their program, including any transfer credits. Students who have had to complete prerequisite, developmental, or English as a second language (ESL) course work in preparation for regular academic program requirements may have these credits excluded in the measurement of the 150 percent maximum time frame.

Students requesting financial aid consideration for semester(s) beyond 150 percent of their program will be required to document in an academic completion plan (ACP), approved by a lead academic advisor, reason(s) why they need additional credits to complete their program of study.

APPEALS

It is the student's right to appeal in writing or in person any decisions made regarding the assistance application or package. The student may meet with a financial assistance advisor to discuss his or her package. The student may meet with a financial assistance advisor to discuss extenuating circumstances to above policies or any other policies affecting the student as an assistance recipient. Extenuating circumstances are those considered beyond the student's control and must be documented. A financial assistance review committee will meet periodically to consider written appeals.

RIGHTS TO INFORMATION

It is the student's right to obtain information pertaining to financial aid programs available through the College and to discuss with a financial aid advisor information pertinent to the student's assistance application, file folder (records), and assistance package. However, all student information is confidential and will not be released over the telephone or to anyone other than the student.

RENEWAL OF FINANCIAL ASSISTANCE

Financial assistance is not automatically renewed. Awards are granted for one academic year only. A student must reapply for assistance for the following year by completing all required application forms by stated deadlines on the application. For renewal, a student must be enrolled in a certificate or degree program.

To continue on financial assistance, the student must not be in default on any past educational loans at LCC or other colleges. Also, the student must not owe any repayments for educational grants due to withdrawing from college or being withdrawn from college because of nonattendance.

A student will not be awarded federal financial assistance at Lansing Community College beyond the maximum time frame of 150 percent of the credit hours required for his or her program of study. A transfer student will not be awarded federal financial assistance beyond the maximum time frame of 150

percent of the credit hours required for his or her program of study, including transfer credits accepted by LCC.

STUDENT FINANCIAL AID COMMITTEE

A college-wide committee on student financial assistance has been established at Lansing Community College. The membership of this committee is as follows:

1. The Director of Student Financial Aid/Veteran Services (Chairperson)
2. One faculty member from each of the instructional divisions to be appointed by the appropriate deans
3. Two students to be appointed by the Director of Student Life
4. The Director of Student Life
5. The Business Manager (or his or her designee)
6. The Dean of Student and Academic Support Division (or his or her designee)
7. Two counselors from Counseling Services

The functions for this committee are:

1. To assist in the development of programming and procedure with the Student Financial Aid/Veteran Services Department of the College;
2. To assist in the evaluation of existing procedures and programming within the Student Financial Aid/Veteran Services Department of the College;
3. To assist in the area of communications about the student financial assistance program and to provide input from the various sub-populations of the College.

VETERANS INFORMATION

Veteran Services helps veterans file applications for education, counseling, loans, tutorial assistance, and/or any other entitlements allowed through the Veterans Administration. Lansing Community College is approved as a school for veterans of military service under provisions of Chapters 30, 31, 32, 35, and 1606 of the U.S. Code.

Lansing Community College cautions veterans matriculating under this program to be prepared to pay their expenses for at least two months after the beginning of the academic year. ALL TUITION AND FEES MUST BE PAID AT THE TIME OF REGISTRATION. Once the veteran's application is approved and the award processed, monthly checks will be issued if the veteran is prompt in maintaining satisfactory academic progress and following a chosen curriculum.

New student veterans and veterans wishing advance payment should apply at the Student Financial Aid/Veteran Services Department at least five (5) weeks prior to the beginning of a semester. Monetary allowances provided for by the G.I. Bill vary according to the level at which the veteran is pursuing an academic program as indicated by the following schedule:

LEVEL OF ATTENDANCE	REQUIRED CREDIT HOURS
Full time	Minimum of 12
Three-quarter time	9, 10, or 11
Half time	6, 7, or 8

After enrollment, veterans should direct their inquiries concerning eligibility to the Student Financial Aid/Veteran Services Department in the Student and Academic Support Division.

Lansing Community College, in recognition of the special needs of active-duty service persons in having access to and completing programs, has been designated as a Servicemember's Opportunity College.

In addition, the College participates in the Army College Fund, Michigan National Guard Co-op, Air Force ROTC Program, Army ROTC Program, and USMC Open Admissions Program.

Satisfactory Progress for Veterans' Benefits Eligibility

In compliance with Veterans Administration statutory requirements of subparagraph 56, section 1775 of chapter 36, Title 38 U.S. Code, Lansing Community College student veterans' benefits recipients will not be certified as eligible for benefits when their academic progress (cumulative grade point average) places them in the academic warning range (probation) beyond two semesters of enrollment. Re-certification of eligibility for benefits will not be considered until after the semester in which the student regains academic good standing (*Academic Standing Policy*).

Certification Policy for Veterans Administration Educational Benefit Recipients

Lansing Community College will notify the U.S. Department of Veterans Affairs if a student receiving veteran's educational benefits is awarded a grade of 0.0, "W" or "Z" for course work pursued. It is the recipient's responsibility to notify Student Financial Aid/Veteran Services of all enrollment changes (drops) including the non-attendance of any or all courses. In the event that a recipient fails to report these changes, the College will report the first day of the certified attendance period as the last date of attendance (in absence of other documentation). Recipients appealing this determination may provide documentation such as a statement signed by the instructor verifying course attendance. Veterans' educational benefit recipients neglecting to request an official evaluation for credits earned at colleges other than Lansing Community College and for active duty military service will not have their enrollment certified beyond their second semester of attendance.

REGISTRATION INFORMATION

REGISTRATION PROCEDURES

Each semester Lansing Community College publishes the *Course Schedule*, which identifies courses offered for that semester. This booklet includes general information on the dates, times, and location of registration. Students may register for classes according to instructions which are published in the booklet.

Some courses require basic skills proficiency levels which must be met prior to enrollment. Students are strongly encouraged to arrange for orientation, testing, and advising prior to registration.

VIRTUAL COLLEGE

Virtual College allows students to earn a **general associate degree with an emphasis in business**, utilizing the power and connectivity of the Internet. This program presents a new learning option to students. Independent, highly motivated learners, as well as those who face time and place constraints, will find the option especially attractive. Students enrolled in LCC's Virtual College program will be guided by a dedicated staff of instructors whose courses have been specifically designed to deliver all the benefits of traditional learning, in addition to enhancements not otherwise available. See the current *Course Schedule* or visit the Virtual College Web site at <http://vcollege.lansing.cc.mi.us/> for more information.

TUITION AND FEES

Residency

1. Eligibility for Paying Resident Tuition

A. A student must be an American citizen, refugee, immigrant, or permanent resident and meet one of the following qualifications before being eligible to pay resident tuition.

1. The following applies to students under 18 years of age:
 - a. The student's parents or legal guardians have resided within the LCC district for at least six months immediately prior to the first day of the semester.
 - b. The student is married and has resided within the LCC district at least six months immediately prior to the first day of the semester.
 - c. The student is unmarried and is recognized as "emancipated" (receives no financial support from parent or legal guardian) and has resided within the LCC district for at least six months immediately prior to the first day of the semester.
 - d. The student is enrolled under the provisions of Act 245, Public Acts of 1935, as amended by Act 371, Public Acts of 1965 (students receiving benefits under the Michigan Veterans' Trust Fund).
 - e. The student is an employee of a business or industrial firm within the LCC district, and the employer agrees in writing to pay directly to the College all tuition and fees of the sponsored student for employer-approved classes.

2. The following applies to students 18 years of age or older:
- The student has resided within the LCC district at least six months immediately prior to the first day of the semester.
 - The student is an employee of a business or industrial firm within the LCC district, and the employer agrees to pay directly to the College all tuition and fees of the sponsored student for employer-approved classes.
 - The student is enrolled under the provisions of Act 245, Public Acts of 1935, as amended by Act 371, Public Acts of 1965 (students receiving benefits under the Michigan Veterans' Trust Fund).

II. Proof of Residency

All students must provide proof of residency at the time of admission and registration (Michigan House Bill No. 4166, 1985). Lansing Community College reserves the right to make the final decision on residency eligibility. New students must verify residency at the time of admission. Current students whose mail is returned to the College are required to provide proof of residency in person prior to future enrollments.

Residency is based on where a student has resided for the six months immediately prior to the first day of the semester of enrollment. Any one of the following documents is acceptable as proof of residency, providing that the six months prior to the first day of the semester for which residency is being sought is covered.

- Current Michigan driver's license or State identification card issued not less than six months prior to the first day of the semester in which residency is being sought
- Paid property tax receipts
- Rental or lease agreement
- Utility bills with the student's name and address for each of the six months prior to the first day of the semester

III. Residency Classification

- Resident Students*** — Students who provide proof of residency within the LCC district for the six months immediately prior to the first day of the semester of enrollment are charged resident tuition.
- Nonresident Students*** — Students who provide proof of residency within the State of Michigan, but outside the LCC district for the six months immediately prior to the first day of the semester of enrollment are charged nonresident tuition.
- Out-of-State*** — Students who provide proof of residency in a state other than Michigan for the six months immediately prior to the first day of the semester of enrollment are charged out-of-state tuition.
- International Students** — Students who have been admitted to the United States in a temporary, nonresident status are charged international tuition. Individuals who have refugee, immigrant, or resident alien status are not international students.
- Foreign nationals** who are enrolling in Virtual College courses and reside outside the United States or are admitted to the United States in a temporary, nonresident status will be charged international tuition. U.S. Nationals who are enrolling in Virtual College courses and are outside the United States will be charged domestic tuition.

*International Students are not eligible for the resident, nonresident, or out-of-state residency classifications.

IV. Residency Status for Military Personnel and Dependents

Residency is based on the location of the present domicile of the applicant with the six-month requirement waived if the applicant can provide any of the documents listed below. This waiver is extended to the dependents (spouse and children) of the person named on the Department of Defense 214 or 899 who reside at the same address.

- Department of Defense 214, Separation from Active Duty Form, showing separation date within 120 days from the first day of the semester;
- Department of Defense 899, Change of Station Form, showing the Lansing area as the duty station;
- Department of Defense 899, Change of Station Form, showing a change of duty station for the head-of-household to an overseas destination or as the result of an emergency mobilization.

V. Petitioning for a Change in Residency Status

Upon registering, a student shall be notified of his or her residency status.

- If the student feels that his or her residency status is not correct, the

student may furnish the required proof of residency and the residency status will be corrected.

- After acceptance into the College as a nonresident or out-of-state resident, a student who has resided in the College district for six (6) months and furnishes the required proof of residency can have his or her residency status changed.
- If a change of residency status is approved by the published deadline date and the student is eligible for a refund, the difference between the previous residency status and the new residency status shall be refunded.
- Adjustments in tuition due to a change in residency are not retroactive to previous semesters.

VI. Nonresident Owners of In-District Property

Nonresident students or their guardians owning property in the LCC district will receive credit once a year for property taxes paid in support of the College by himself or herself or his or her guardian. The taxes paid must be in support of the current academic year and the credit cannot exceed the differential between resident and nonresident tuition rates for the current academic year. To obtain this credit, the student must provide the Office of the Registrar with the paid property tax receipt.

Payment of Tuition and Fees*

All students attending Lansing Community College must pay tuition and fees at the time of registration or by the published payment deadline. Tuition and fees are as follows:

TUITION PER CREDIT HOUR*	
Resident Students	\$ 49.50
Nonresident Students	\$ 78.50
Out-of-State Students	\$107.50
International Students	\$107.50

Tuition for apprenticeship students varies according to the program of study.

FEES FOR ALL STUDENTS*

Application Fee (new students and guest students, not refundable)	\$10.00
Registration Fee (all students, each semester, not refundable)	\$20.00
Activities Fee (each semester)	
.01-6 credit hours	\$ 1.50
6.01-11 credit hours	\$ 4.50
11.01 or more credit hours	\$ 7.50

A fee will be charged for dishonored check or credit card transactions. Course fees vary and are published in the *Course Schedule* booklet each semester. *TUITION AND FEES ARE SUBJECT TO CHANGE THROUGH THE ACTION OF THE BOARD OF TRUSTEES.

Refund Policy for Semester-Length Courses

Fall and Spring Semesters and Summer Session

Withdrawal during first week of semester	100% of tuition and fees
Withdrawal during second week of semester	50% of tuition only
Withdrawal after second week of semester	No refund

Students receiving financial aid will receive refunds only if repayment to financial aid sources is not required.

Refunds are not retroactive to previous semesters. Questions relating to refunds should be addressed to the Cash Operation Office.

VARIABLE DATE COURSES

It is the student's responsibility to process all drops by the established deadline dates. To withdraw from class, the student must fill out a Variable Date Drop Form in the Office of the Registrar or through the department offering the course. Refunds are automatically issued for courses canceled by the College. The application and registration fees are nonrefundable.

UP TO AND INCLUDING THREE-DAY COURSES

100% Refund*	Prior to start of course
Drop with no course shown	Prior to start of course
	Students with a valid reason for exception to this policy may fax, mail, or present their support documentation to the Office of the Registrar or the department offering the course.
Change credit/audit status	Prior to end of course meeting

FOUR-DAY – LESS THAN EIGHT-WEEK COURSES

100% Refund*	Prior to start of course
Drop with no course shown	Prior to start of course
	Students with a valid reason for exception to this policy may fax, mail, or present their support documentation to the Office of the Registrar or the department offering the course.
Change credit/audit status:	Through midpoint of course (using calendar date—beginning through ending dates of course)

EIGHT-WEEK – LESS THAN 16-WEEK COURSES

100% Refund	During the first week of the course
50% Refund (of tuition only):	During the second week of the course
Drop with no course shown:	During the second week of the course
Change credit/audit status:	Prior to the end of the fourth week of the course

*The 100 percent refund period for variable date courses offered through the Business & Community Institute is 48 hours notice prior to the start of the course. Questions should be directed to the department offering the course.

STUDENT CREDIT REQUIREMENTS

Student credit requirements are as follows:

FALL AND SPRING SEMESTERS

Full-time enrollment	12 credits
Three-quarters enrollment	9 credits
One-half enrollment	6 credits

SUMMER SESSION (8 WEEKS)

Full-time enrollment	6 credits
Three-quarters enrollment	5 credits
One-half enrollment	3 credits

CANCELED CLASSES

The College reserves the right to cancel classes which do not have sufficient enrollment. Students enrolled in classes that are canceled will have the opportunity to add another class or receive a refund.

SCHEDULE CHANGES

During the schedule change period specified in the *Course Schedule*, a student may make changes in his or her schedule. A student may withdraw from a course before the end of the sixth week of the semester without academic penalty. Drops will not be processed after the last day of the semester.

Schedule changes involve the following procedures which must be completely carried out by the student so that the student's records in the Office of the Registrar may be accurately maintained:

1. Pick up a Drop-Add Form during the registration process or at the Office of the Registrar.
2. Fill out the form completely with information requested.
3. Return the form to the registration assistant or to the Office of the Registrar for proper recording. Do not leave until processing of the form has been completed and a copy has been received.

Departmental signatures and grade at time of drop are required on all drop forms after the sixth week of the semester.

AUDITING COURSES

A student who registers as an auditor attends class regularly, but does not take the final examination, does not receive an achievement grade, and does not receive credit for the course. Students wishing to audit must meet all prerequisites required for the course and indicate their intention to audit at the time they register for the course. Audited courses cannot be applied toward a degree or certificate and cannot be used to meet prerequisites.

The College allows students to change from *credit* to *audit* or from *audit* to *credit* by the end of the sixth week for 16-week classes (and other equivalent dates as specified for variable length courses). Students electing to change from *audit* to *credit* are responsible for having course work up to date at the time the change is made and must have instructor approval after the first week of the semester. Changes from *credit* to *audit* through the end of the sixth week for 16-week courses (and other equivalent dates as specified for variable length courses) do not require instructor approval. In addition, students should be aware that exercising this option may have an impact on their financial assistance or on student employment at the College. Any student balance due created by a change in credit or audit status must be paid by the student. Changes in audit or credit status must be requested by the student through the Office of the Registrar.

WITHDRAWAL**I. Student-Initiated Withdrawal**

- A. If a student finds it necessary to withdraw from the College, he or she should contact the Office of the Registrar immediately and complete a drop-add form.
- B. If the withdrawal takes place within the established refund period for each semester, a student withdrawing will receive a refund.
- C. If a student withdraws from a semester-length class prior to the end of the sixth week of the semester (or other equivalent dates as specified for variable length courses), instructor approval is not needed, a final grade is not issued, and the withdrawn class is not recorded on the academic record. A copy of the student-initiated drop-add form is maintained in the Office of the Registrar.
- D. A student may withdraw from a semester-length class after the end of the sixth week of the semester (or other equivalent dates as specified for variable length courses) only if he or she is completing the course requirements at a passing level (1.0 or higher) at the time the W is requested. If the instructor finds that the student was not able to apply for the W in a timely fashion, the instructor may grant the student's request for a W if the student was passing the course on the date of the event that caused the application for withdrawal. A student may withdraw from a class up until the last week of the class unless a different date is specified in the course syllabus. The instructor's signature is required to withdraw and the student will receive a grade of W.

II. Administrative Withdrawal

It may be in the best interest of the student and/or the College community that a student be withdrawn from a class or a group of classes. This process is known as "administrative withdrawal."

An administrative withdrawal may be initiated by a classroom instructor in accordance with written procedures established by each department and with the co-recommendation of the respective departmental chairperson. An administrative withdrawal may be based on the following: (1) student nonattendance; (2) lack of prerequisites for a particular course; and/or (3) student behavior that interferes with the instructional process.

- A. When a student fails to meet the attendance requirements of the class, the instructor may initiate an administrative withdrawal through the Office of the Registrar.
- B. When a student does not have the prerequisites for a particular course, the classroom instructor consults with the student regarding the potential of administrative withdrawal. The instructor has the right to initiate an administrative withdrawal through the Office of the Registrar.
- C. When a student behaves in a manner that interferes with the instructional process, the classroom instructor consults with the student regarding the potential of administrative withdrawal and establishes guidelines in writing for retaining enrollment in the class. If the guidelines are not satisfactorily met by the student, or if the student does not respond to an invitation to

meet with the classroom instructor, the classroom instructor, with the co-recommendation of the appropriate departmental chairperson, may initiate an administrative withdrawal. The classroom instructor, with the co-recommendation of the appropriate departmental chairperson, may also recommend that a member of the counseling staff meet with the instructor and the student to review the circumstances of the student's behavior and to work out a possible alternative.

In all cases of administrative withdrawal, a student who is withdrawn from a semester-length class prior to the end of the sixth week of the semester (or other equivalent dates as specified for variable length courses) will not receive a grade, and a record of attempting the class will not appear on the academic record. A copy of the administrative withdrawal form is maintained in the Office of the Registrar. After the sixth week of the semester (or equivalent date as specified for variable length courses), the student will receive a W grade only if he or she was completing the course requirements at a passing level (1.0 or higher) up until the date of the event that caused the administrative withdrawal. If the student has not done passing work, he or she will receive a 0.0.

Any student who is administratively withdrawn may appeal the withdrawal. Lines of appeal for administrative withdrawal are presented in the catalog in the section entitled *Due Process* under the heading entitled *Student Appeals*.

III. Procedure for Resolving Health-Related Student Problems

In a situation in which a serious (physical or emotional) health-related problem becomes evident in a student, the College's responsibilities are to assist the student and take necessary action to maintain order consistent with a positive learning environment for other students. If a student's health-related behavior becomes disruptive or clearly inappropriate, the following procedures shall be followed:

- A. Call the Department of Public Safety and the Office of the Dean of the Student and Academic Support Division if:
 1. Emergency health services are required, or
 2. It appears that there has been or is likely to be a violation of the law.
- B. Call only the Office of the Dean of Student and Academic Support if it appears that there has been a violation of a College regulation that is not also a violation of the law.
- C. If there is no apparent violation of the law or College regulation and no emergency exists, the student should be encouraged to seek help from an appropriate health or counseling office or agency, on or off campus. Assistance from the Office of the Dean of Student and Academic Support and/or College counselors should be sought if needed.
- D. If there appears to be a violation of the law or a College regulation, the Office of the Dean of Student and Academic Support (or designee) shall contact the counseling staff, and a member of the counseling staff will meet with the student and recommend:
 1. Continued counseling if the problem is within the ability of the Counseling Department to handle.
 2. Referral back to the Office of the Dean of Student and Academic Support when no health-related problem is evident or when it is determined that the Counseling Department can be of no further service.
 3. Referral to other appropriate professional assistance if the problem is beyond the ability of the Counseling Department to handle. If the problem significantly compromises the rights or safety of other persons at the College, or if a professional recommendation to withdraw the student is made, the Office of the Dean of Student and Academic Support may institute procedures for administrative withdrawal of the student from the College until he or she provides evidence from a licensed and appropriate health care professional stating that the student is able to function effectively with the stresses and demands of a College setting. The student may appeal the withdrawal decision to the Board of Appeals.
 4. Whenever possible, the counseling staff, working with the student's physician and/or relatives, shall make a recommendation to the student as to his or her future course of action.

ACADEMIC INFORMATION

ACADEMIC DEFINITIONS

The following are definitions of academic terms commonly used at Lansing Community College.

Associate Degree: The associate degree consists of a minimum of 60 semester credits in designated courses. It is earned with a minimum of a 2.0 cumulative GPA, successful completion of the LCC General Education Core, and is recorded on the official academic record. At least 20 semester credits must be earned in attendance at Lansing Community College.

Certificate of Achievement: The certificate of achievement consists of a minimum of 30 specifically designated semester credits in occupational areas. It is earned with a minimum of a 2.0 cumulative GPA and is recorded on the official academic record. At least 10 semester credits must be earned in attendance at Lansing Community College.

Certificate of Completion: The certificate of completion consists of fewer than 30 specifically designated semester credits in occupational areas. It is earned with a minimum of a 2.0 cumulative GPA and is recorded on the official academic record. At least one-third of the credits required for this certificate must be earned in attendance at Lansing Community College.

Credit Hour: A credit hour is an instructional unit carried out for the expressed purpose of eliciting some measure of educational change in a learner or group of learners. A credit can be awarded on a student's academic transcript when he or she successfully completes a unit of instruction of not fewer than 800 instructional minutes.

Course: A course is a sequence of planned learning experiences leading to a set of expected learning outcomes. Course activities are normally scheduled over an academic semester. A student's successful completion of a course earns academic credit based on contact hours in class or in laboratories. The student also earns an academic grade which evaluates the student's success in achieving the expected outcomes. A course routinely includes tests, quizzes, a final examination, and regular out-of-class assignments. At Lansing Community College, a standard college-wide course syllabus has been created for each course. A course is publicized in the *College Catalog* and the *Course Schedule*. A seminar, workshop, or fee-for-service learning/training unit is not a course.

Curriculum: A curriculum is a structured program of study. Each curriculum is assigned a number.

Major: A major is the predominant subject area within a curriculum.

Prerequisite: A prerequisite is a course or other requirement that must be successfully fulfilled prior to participation in a subsequent course or activity. It may also be a skill or behavior that is judged essential to learning a subsequent, more complex skill or behavior.

Program: A program is the organizational structure of the College which provides or delivers instruction and/or services.

GRADING SYSTEM

The following numerical system is used at Lansing Community College to evaluate academic work:

COLLEGE STANDARD	NARRATIVE EQUIVALENT	RECOMMENDED GUIDELINE FOR PERFORMANCE ACHIEVEMENT OF OBJECTIVES*
4.0	Excellent	91% to 100%
3.5		86% to 90%
3.0	Good	81% to 85%
2.5		76% to 80%
2.0	Satisfactory	71% to 75%
1.5		66% to 70%
1.0	Poor	60% to 65%
0.0	Failure	0% to 59%

* THIS GUIDELINE IS RECOMMENDED ONLY. STUDENTS SHOULD SEE THEIR INSTRUCTOR REGARDING THE GRADING SYSTEM USED FOR A SPECIFIC COURSE.

Instead of a numerical grade, students may receive an alphabetical letter for their course work if they have audited a course (X), withdrawn from a course (W), or did not complete course work (I). Specific regulations regarding these alphabetical letters are as follows:

1. In order to extend the College's commitment to student academic success, instructors may utilize "Incompletes" ("I" grades) as temporary placeholders

for grades. "Incompletes" will not be counted toward the establishment of an earned grade point average (GPA) or toward graduation from Lansing Community College. An instructor may assign an "I" when a student is unable to complete a course for some good and serious reason such as incapacitating illness, legal involvement that cannot be rescheduled, or changing work obligation, and the student has demonstrated successful progress in class.

An instructor may approve a student-initiated request for an Incomplete if 80 percent of the course work is completed and the reason appears sound. It is recognized that the 80 percent figure is a benchmark, since weighting of exams and other work varies among programs and courses. The intent is that only a small portion of the work remains. When an instructor issues an "I" grade, the instructor will also indicate what grade will be assigned if no further work is completed. All incompletes must be made up by the end of the next regular semester (Summer session is excluded) or earlier if an earlier date is established by the instructor or department. An extension may be granted if requested in writing by the student and approved by the instructor and department by the last day of the deadline; otherwise the "I" will be converted to the grade specified if no further work is completed.

- An "X" (audit) grade is given when a student chooses to audit a course. No credit is granted, but enrollment is reflected on the student's academic record.
- A "W" (withdrawal) indicates a withdrawal from a course with achievement in the course above the failure level at the time of withdrawal. If a request for withdrawal from a semester-length class is received by the Office of the Registrar prior to the end of the sixth week of the semester (or other equivalent dates as specified for variable length courses), no grade will be recorded on the student's academic record. For withdrawals after the sixth week of the semester (or other equivalent dates as specified for variable length courses), a W is given only if the student has done passing work (1.0 or higher). If the student has not done passing work, he or she will receive a 0.0.

COMPUTING GRADE POINT AVERAGE

A student's grade point average is determined on the following basis:

NUMERICAL GRADE	HONOR POINTS
4.0	4.0
3.5	3.5
3.0	3.0
2.5	2.5
2.0	2.0
1.5	1.5
1.0	1.0
0.0	0.0

"W", "X", and "I" grades are not included in calculating grade point averages. Thus, a student who receives five credit hours of 4.0, five credit hours of 3.0 and five credit hours of 2.0 would have a total of 45 honor points. To compute the grade point average (GPA), the number of honor points earned is divided by the number of credit hours taken during the semester.

PASS/FAIL GRADING (P-Z)

The pass (P)/fail (Z) grading system has been established as a departmental option. This system is reserved for special course offerings where a pass/fail grading system is most appropriate for the goals and objectives of the course.

- Course prerequisites and other criteria for enrolling in courses offered on the P-Z grading system shall be determined by the department offering the course.
- Courses using the P-Z grading system will be published as being graded on the P-Z grading system only, and the course syllabus shall be explicit regarding this fact.
- Courses graded on the P-Z system may be counted toward an associate degree or certificate based on approval of the appropriate dean. A maximum of 10 percent of the total credits required for a degree or certificate may be acquired on the P-Z system.

Grading procedure of the pass/fail system is as follows:

- Grades on the P-Z system are not included in computing the semester or cumulative grade average.

- The grades granted on the P-Z system are determined with definition of "P" and "Z" as follows:

- P (pass) represents a level of performance equivalent to a regular number grade of 2.0 or above on a 4.0 system; credit is granted.
- Z (fail) represents a level of performance less than a 2.0 on a 4.0 system; no credit is granted.

All courses attempted on the P-Z grading system will appear on the student's academic record.

REPEATING A COURSE

When a student repeats a course for a higher grade, the student's academic record and transcript will reflect every grade received for the course. However, only the highest grade is used in computing the LCC cumulative GPA and credits earned.

GRADE REPORTS

An official academic grade report will be mailed to the student approximately 7 to 10 business days after the close of each semester. The grade report will be withheld if the student has an overdue indebtedness to the College.

GRADE CHANGES

Students may petition an instructor for a grade change of a final grade in a course. The line of formal appeal for grade change petitions can be found in the College's Due Process statement. A student's final grade in a course may be changed by the course instructor. Grade changes by instructors are initiated by submitting signed grade change forms to the departmental office for review and approval by the departmental chair or lead faculty member. The completed grade change form is then forwarded to the Office of the Registrar for posting on the student's permanent academic record. Completed grade change forms are not to be carried by the petitioning student to the Office of the Registrar and will not be processed if they are so received. Students will be officially notified in writing by the Office of the Registrar after a grade change has been completed.

ACADEMIC STANDING POLICY

Students must maintain at least a 2.00 cumulative Grade Point Average (GPA) at Lansing Community College to remain in Good Standing, which indicates satisfactory academic progress. Students whose cumulative GPA falls below 2.00 will be placed on either "Warning" or "Probationary" standing which indicate unsatisfactory academic progress. While on Warning or Probationary standing, the student may have limits on registration for classes. In addition, students on Warning or Probationary standing may be required to meet with a counselor and sign a Success Contract prior to registering. Students can return to Good Standing by earning a cumulative GPA of 2.00 or higher. Continuing to earn a GPA below 2.00 may result in being academically recessed from LCC.

NOTE: Only course work completed at LCC is considered for determination of academic standing. The academic standing is determined at the end of each semester (Fall, Spring, Summer).

Summary of Academic Standing Policy

- Good Standing:** Cumulative Grade Point Average (GPA) 2.00 or above
- Warning:** Cumulative GPA below 2.00; suggested that the student meet with a counselor
- Probation:** Continued cumulative GPA below 2.00; registration limited to 12 or fewer credits for Fall and Spring Semesters and six or fewer for Summer Session, and student is required to meet with a counselor
- Academic Recess:** Continued cumulative GPA below 2.00; student not eligible to register; and must sit out one semester or Summer Session. Upon return following the semester of recess, a student must meet with a counselor to plan his or her academic success and sign a Success Contract. Satisfactory completion of this plan as well as term-by-term subsequent plans will allow further enrollment until a satisfactory cumulative GPA places the student in good standing.

Students receiving financial aid or veterans benefits are required to satisfy specific additional academic standards to continue receiving financial assistance. See the *Financial Aid* section of this Catalog.

Students in certain selective admission programs may have different standards for academic standing.

STUDENT RECORDS

STUDENT TRANSCRIPTS

The Office of the Registrar maintains the permanent official transcript of every student who attends the College. The transcript is a copy of the student's academic record and contains the College seal and signature of the Registrar. The transcript includes courses waived, courses attempted and completed, courses and credits transferred, credits awarded for experiential learning, credit hours, honor points, Lansing Community College grade point average, associate degrees, certificates of achievement, and certificates of completion awarded at the College.

Students may request that a copy of their official transcript be given or mailed to any party by submitting a request in writing to the Office of the Registrar. Transcript requests require two working days to process, and a \$2.00 fee is charged for each transcript. A hold may be applied to the release of the transcript of any student or former student who has an indebtedness to the College.

RECORDS POLICY

Lansing Community College shall not distribute student lists to non-college agencies except as required by law.

In compliance with the Family Educational Rights and Privacy Act of 1974, Lansing Community College provides the following information.

1. Students and/or a parent of a student, if the student is a dependent, have the right to access, inspect, and review all educational records directly related to the student. Upon presentation of pictured identification and a written request from the student to the Office of the Registrar in Room 104 of the Student Personnel Services Building, access to all educational records shall be provided within a reasonable period of time (not to exceed 45 days from the date the request is submitted).
2. Educational records include all information maintained by the College which is directly related to the student with the exception of:
 - a. Financial records of the student's parents.
 - b. Confidential letters of recommendation prior to January 1, 1975.
 - c. Confidential letters and recommendations associated with admissions, application for employment, or receipt of an honor or honorary recognition to which students have waived rights of inspection and review.
 - d. Educational records containing information about more than one student. However, the College must permit access to that part of the record which pertains only to the inquiring student.
 - e. Reports made by physicians, psychiatrists, or psychologists in connection with their treatment.
 - f. Records of instructional, supervisory, administrative, and certain educational personnel which are in the sole possession of the originator.
 - g. Records of the law enforcement unit of the College if compiled for law enforcement purposes.
 - h. Records which relate exclusively to individuals in their capacity as College employees.
3. Directory information may be released at the discretion of College officials for any student who has not submitted a completed Request to Prevent Disclosure of Directory Information form to the Office of the Registrar by the end of the first week of the semester. The disclosure prevention form remains in effect until the student provides a written release to the Office of the Registrar. Directory information includes, but is not limited to:
 - a. Name of student
 - b. Date of birth
 - c. Dates of attendance
 - d. Enrollment status
 - e. Awards, degrees, or certificates received
 - f. Participation in officially recognized activities
 - g. Sport, weight, and height of members of athletic teams
 - h. Previous educational agency or institution attended

Copies of the Request to Prevent Disclosure of Directory Information form and the Family Educational Rights and Privacy Act are available upon request in the Office of the Registrar and the Office of the Dean of Student and Academic Support.
4. Lansing Community College prohibits the release of personally identifiable information other than directory information from educational records without the student's written consent. Exceptions to this statement are listed below:
 - a. Academic and administrative officials, staff, and persons who have en-

- tered into a partnership or contract with Lansing Community College and whom the College has determined to have legitimate educational interest.
- b. Other educational institutions in which the student is enrolled or intends to enroll.
- c. Individuals and organizations who provide financial aid or scholarships to the student.
- d. Authorized representatives of the Comptroller General of the United States, the Secretary of the Department of Health and Human Services, the Department of Veterans Administration, the Department of Education, and administrative heads of state and federal educational agencies authorized by law.
- e. Accrediting organizations to carry out their accrediting functions.
- f. Appropriate authorities in compliance with judicial orders and pursuant to lawfully issued subpoenas. The student shall be notified of any such orders or subpoenas unless the subpoena or order prohibits notification by the College. The College shall comply with the subpoena ten (10) days after an attempt to notify the student of the request.
- g. Appropriate parties in an emergency if knowledge of the information is necessary to protect the health or safety of the student or other individuals.
- h. Parents who have established the student's status as a dependent according to Internal Revenue Code of 1954, Section 152.
- i. An alleged victim of any crime of violence of the results of any disciplinary proceeding conducted by the College against the alleged perpetrator of the crime.
- j. Military recruiters for the purpose of federal military recruiting as stated in Public Law 104-206, Section 509(2).

Lansing Community College will maintain a record of each disclosure of identifiable information from the external individuals or agencies listed above. The record will be maintained in the Office of the Registrar and will include the date, the name and address of the requesting party, the information requested, and the reason for requesting the information. The College reserves the right to correct any error made on an academic record or evaluation and will notify the student in writing of any record or evaluation correction. Staff of the College are subject to the requirements of the Family Educational Rights and Privacy Act of 1974, as amended.

Students have the right to request correction or amendment of information on educational records that are inaccurate, misleading or which violate privacy rights. Due process procedures for requesting correction or amendment to educational records are stated in the *College Catalog* under *Student Appeals*.

Students who feel their rights under the Family Educational Rights and Privacy Act have been abridged may file complaints with the Family Policy and Regulations Office, U.S. Department of Education, Washington, D.C. 20202.

TRANSFER OF CREDITS

A student expecting to transfer to a four-year institution is advised to examine the current catalog of the college he or she expects to enter and to follow as closely as possible its recommendations for particular programs of study. More specific information about transferring credits may be obtained from a counselor or advisor.

ACCEPTANCE AND EVALUATION OF TRANSFER CREDITS FROM OTHER INSTITUTIONS OF HIGHER EDUCATION

Only official transcripts will be evaluated for transfer credit. The credit value of each of the courses will be determined by Lansing Community College. The College will accept as official transcripts only incoming transcripts that have appropriate signatures and official college seals and that are mailed directly to the Lansing Community College Admissions Office from an issuing institution. Transcripts or copies of transcripts carried by individuals may be used for academic advising or counseling, but transfer credits will NOT be posted to the Lansing Community College academic record from transcripts that are not received directly from the issuing institution. It is the function of the Admissions Office of the College to verify the official status of all incoming transcripts prior to the evaluation and posting of transfer credit. All transcripts submitted to LCC for evaluation become the property of LCC.

The following evaluation information applies to transcripts received from both accredited and non-accredited institutions of higher education. Additional evaluation information which applies to transcripts from non-accredited institutions may be found under the section entitled *Non-Accredited Institutions*.

Accredited and Non-Accredited Institutions

1. Freshman and sophomore level courses are accepted in transfer. Higher level credits are accepted if they correspond to a specific course at Lansing Community College. In most cases, an accepted course will be considered an equivalent of a corresponding Lansing Community College course or an elective credit. In cases where Lansing Community College does not have a department or area similar to the courses on incoming transcripts, no credit will be given.
2. Credits only, not grades, are transferred. When the overall grade point average of a transferring student is at or above a 2.0 on a 4.0 scale, the 1.0-1.5 or "D" grades will be accepted. Credits transferred in to specifically fulfill LCC General Education Core requirements and MACRAO requirements, however, must be graded 2.0 ("C") or higher. When the transferring overall grade point average is below 2.0 on a 4.0 scale, only courses graded 2.0 ("C") or higher will be accepted. With the exception of credits transferred in to fulfill LCC General Education Core requirements, the student may petition the departmental chairperson of his or her academic department to waive a degree or certificate course requirement(s) in which he or she has previously earned the 1.0-1.5 or "D." Waiver of a course requirement does not provide credit for a course. The departmental chairperson of the department concerned will notify the Office of the Registrar of waivers.
3. No evaluation is made when a student has received a two- or four-year degree from another institution. This may be done upon request, but it is assumed that the student is pursuing an entirely different curriculum and will not need previous course work.
4. A student may request a change in the evaluation if he or she feels that a course description differs from the way in which it was evaluated. A determination on the evaluation will be made by the departmental chairperson in conjunction with the evaluation specialist in the Office of the Registrar. Verification of the change can be made through the Office of the Registrar.

Non-Accredited Institutions

The following evaluation information applies to transcripts from non-accredited institutions:

1. The Office of the Registrar will forward a transcript from a non-accredited institution to the departmental chairperson of the department in which the student has enrolled.
2. The departmental chairperson has the following four prerogatives in evaluating transcripts issued by non-accredited institutions:
 - a. Credit may be granted with demonstration by the student of skills commensurate with the performance required for satisfactory completion of existing courses.
 - b. Credit may be granted upon review of the content, goals, and objectives of a particular course with determination of whether the course is on a par with existing courses of the College. It is the responsibility of the student to provide requested materials to enable proper evaluation.
 - c. Credit may be granted upon demonstration of proficiency in a particular existing course by a comprehensive examination.
 - d. Credit may not be granted.
3. The departmental chairperson will return the transcript to the Office of the Registrar and indicate in writing the credits granted and the course equivalency at Lansing Community College. The final transcript evaluation will have the signature of the appropriate divisional dean.
4. When two or more instructional departments are involved, the departmental chairperson of the department in which the student is enrolled will be responsible for consulting with the additional departmental chairpersons. When two or more departments are involved, the written reply to the Office of the Registrar will include the signatures of each respective departmental chairperson and the respective dean.
5. Credits from non-accredited institutions are evaluated by the departmental chairperson of the area in which the student enrolled. If the student changes his or her curriculum, he or she should notify the Office of the Registrar, because there may be a difference in the evaluation.

CREDIT FOR PREVIOUSLY ACQUIRED KNOWLEDGE AND LEARNING EXPERIENCE

Lansing Community College recognizes that learning outside of the classroom is valid. Therefore, the College assesses extra-institutional learning as part of its credentialing function. Any student who is currently enrolled at Lansing

Community College may apply for experiential learning credit by obtaining an Experiential Learning Processing Form from the Office of the Registrar, Student and Academic Support Building, (517) 483-1266.

NOTE: Lansing Community College's decision to award credit for experiential learning does not obligate any other institution to accept such credits in transfer. Receiving institutions reserve the right to assess transcripts of incoming students and award credit as they see fit. Credits received by students that are based on experiential learning may not be used for financial aid or veteran's benefits eligibility. Some Lansing Community College courses are excluded from experiential learning consideration.

Lansing Community College does not accept the transfer of credit for experiential learning awarded at other institutions.

Application Procedures

Relevant aspects of personal and professional experience gained through actual job-related activities and special training experiences may be applied to an academic program at Lansing Community College. Learning experiences must directly relate to a specific course or courses required within a Lansing Community College program (curriculum) or the LCC General Associate Degree. These experiences must have been obtained from a nonacademic source or not otherwise be available for academic credit through the transfer process outlined earlier. The student will be asked to declare his or her program of study on the Experiential Learning Application.

Prior to payment of the processing fee and submitting a portfolio of supporting documents, the student is advised to review with the academic department in which credit is being sought the probability of credit being granted. Students must then submit the completed Experiential Learning Processing Form to the Office of the Registrar, including as much supporting documentation as possible. The student must also attest by his or her signature that the information submitted is true to the best of his or her knowledge. The processing fee must accompany submission of the form and portfolio. The processing fee is not refundable.

Upon completion of the portfolio assessment, a fee of the resident tuition rate per credit hour will be charged for those credits which are determined awardable and which apply to the student's program (curriculum). Fees are subject to change by the Board of Trustees without prior notice.

Documentation

All experiential learning must be documented by the student. The purpose of the documentation is to substantiate that a student's knowledge and/or experience equates to specific Lansing Community College courses. The documentation must therefore be arranged within the application portfolio on a course-by-course basis and should demonstrate knowledge and/or skill equivalent to at least 80 percent of the course objectives. Documentation may be defined as, but not limited to, complete job descriptions, copies of course materials and outlines, certificates, training reports, signed supervisory verifications and evaluations on letterhead, and any other descriptive information that may provide a clear understanding of a student's background and competencies. Lansing Community College requires certification that the work or training experience is the student's own. The portfolio containing the Experiential Learning Processing Form and all supporting documents will be retained by the College.

Assessment of Portfolio

The completed Experiential Learning Processing Form and portfolio of supporting documents will be forwarded by the Office of the Registrar to the appropriate divisional instructional leader. The instructional leader will assign the portfolio to an appropriate and impartial assessor for review and credit assessment. Assessors have the responsibility for evaluation and assignment of academic credit for experiential learning.

In the evaluation process, the assessor will verify the relevance of the information stated on the Experiential Learning Processing Form and the accompanying documentation as it equates to the courses requested. The authorization of credit must be stated in terms of equivalent courses that are offered by Lansing Community College.

Applicability of Credit

In determining whether it is appropriate to accept a student's experiential learning for credit, the major considerations should be the student's educational objective and extra-institutional learning achievement. The assessor will determine

from documentation submitted the courses for which the student can be granted experiential learning credit. The student is responsible for determining how these courses may fit within their academic program (curriculum). Credit for experiential learning will be recorded on a student's official transcript on the basis of course-by-course equivalency and shall be prominently identified as credit for experiential learning. A maximum of 40 semester hours of experiential learning credit may be applied towards an LCC associate degree. (Twenty credits must be earned in attendance at Lansing Community College.)

Student Appeal Procedures

Students who believe the evaluation of their experiential learning is incorrect may file a written appeal to the dean of the division in which the experiential learning credit is being sought. Appeals must be received within six months from the date the credit application was assessed. In such instances, the dean will conduct a procedural review to ensure that the student has been treated in a fair and nondiscriminatory manner. The decision of the dean shall be final.

CREDIT BY EXAMINATION

Comprehensive Exams

A student may obtain credit for certain courses at the discretion of an instructor and department head by passing comprehensive examinations only during the semester in which the student is enrolled. The procedure a student uses to obtain comprehensive examination credit is as follows:

1. The student picks up an application for credit by examination at the Office of the Registrar.
2. The student completes the required information on the application and takes the application to the department for instructor and departmental chairperson signatures of approval.
3. After obtaining the required signatures, the student returns the signed application to the Cashier's Office for payment of tuition.
4. The student will complete an examination for each course in which he or she hopes to receive credit.
5. An examination will not be given by the instructor until the student presents the appropriate payment receipt. No more than one examination will be given for a single payment.
6. The examination, after being evaluated by the instructor, will be maintained on file in the departmental office.
7. The Office of the Registrar will contact the department and request the grade which was earned upon completion of the examination. A grade will be recorded for each comprehensive examination given.
8. The student will receive an official notice of the grade earned at the end of the semester in which the examination was taken or when processing has been completed.

Other Examinations

Lansing Community College accepts credit based on results from the following examinations: College Level Examination Program (CLEP) and the Advanced Placement Examination (APE). Students in need of information about these examinations should contact the Registrar's Office.

GRADUATION REQUIREMENTS, CERTIFICATES, AND DEGREES

INSTITUTIONAL REQUIREMENTS FOR CERTIFICATES OF ACHIEVEMENT AND CERTIFICATES OF COMPLETION

Certificates of achievement and certificates of completion are groups of designated courses in occupational areas. To receive a certificate of achievement or certificate of completion from Lansing Community College, a student must meet the following institutional graduation requirements:

1. Complete a course of study approved by the College and consisting of a minimum of 30 semester credits for a certificate of achievement and 29 or fewer semester credits for a certificate of completion, with no more than

10 percent of these credits acquired on the pass/fail (P-Z) grading system. (See the *Degree and Certificate Programs* section of this catalog.)

2. Maintain a minimum grade point average of 2.0.
3. Earn toward graduation at least one-third of the semester credits for the certificate in attendance at Lansing Community College.
4. File an application for graduation with the Office of the Registrar at least one semester preceding the semester of graduation.
5. Satisfy all general and specific requirements of Lansing Community College.

NOTE: Students seeking a certificate of achievement or certificate of completion may not follow curricular guides which predate their first semester of enrollment.

INSTITUTIONAL REQUIREMENTS FOR ASSOCIATE DEGREES

To receive an associate degree from Lansing Community College, a student must meet the following institutional graduation requirements:

1. Complete a course of study approved by the College and consisting of a minimum of 60 semester credits, with no more than 10 percent of these credits acquired on the pass/fail (P-Z) grading system. (See the *Degree and Certificate Programs* section of this catalog.)
2. Maintain a minimum grade point average of 2.0.
3. Earn toward graduation at least 20 semester credits in attendance at Lansing Community College.
4. Satisfy the College's General Education Core Area Requirements, including demonstrated competency in mathematics.
5. Satisfy all general and specific requirements of Lansing Community College.
6. File an application for graduation with the Office of the Registrar at least one semester preceding the semester of graduation.

NOTE: Students seeking an associate degree may not follow curricular guides which predate their first semester of enrollment. Students who were enrolled at Lansing Community College prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, are not required to satisfy the College's General Education Core Requirements. They must, however, complete a course in political science. POLS 120, American Political System, or POLS 121, State and Local Government, will satisfy this requirement for all degree programs with an expiration date of summer 2000 or before. (LABR 208, Labor Relations, will satisfy this requirement for certain programs only as indicated on specific curriculum guides.)

Those students who maintain a 3.75 or higher grade point average will be graduated *summa cum laude*; those who maintain a 3.50-3.74 grade point average will be graduated *magna cum laude*; those with a 3.25-3.49 will be graduated *cum laude*. Students must complete 40 semester credit hours of work at Lansing Community College to qualify for honors.

General requirements for associate degrees offered by Lansing Community College are presented below. (For specific degree requirements, see the *Degree and Certificate Programs* section of this catalog.)

Associate in Arts: This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year institution to pursue a baccalaureate degree in such fields as liberal arts, education, humanities, or the social sciences. Requirements: 60-63 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, additional general education requirements, subject matter concentrations (humanities, for example), and institutional associate degree requirements.

Associate in Science: This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year institution to pursue a baccalaureate degree in such fields as mathematics, engineering, or the sciences. Requirements: 60-63 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, additional general education requirements, subject matter concentrations (mathematics, for example), and institutional associate degree requirements.

Associate in Applied Arts: This degree is designed for students who seek education and the acquisition of skills needed to enter the job market or to advance their current careers. This degree includes a concentration of courses in fields such as the visual arts or the performing arts. Requirements: 60-72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements, and institutional associate degree requirements.

Associate in Applied Science: This degree is designed for students who seek education and the acquisition of skills needed to enter the job market or to

advance in their current careers. This degree includes a concentration of courses in fields such as health care, manufacturing, and construction. Requirements: 60-72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements, and institutional associate degree requirements.

Associate in Business: This degree is designed for students who seek business education and the acquisition of business-related skills needed to enter the job market or to advance in their current careers. This degree includes a concentration of courses in areas such as marketing, management, and office administration. Requirements: 60-72 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, specific career program requirements in business-related areas (marketing, for example), and institutional associate degree requirements.

General Associate Degree: This degree is a customized program of study which should be approved by an advisor. It includes one or more areas of concentration of the student's own choosing. Requirements: 60 credits, including a minimum of 12 LCC General Education Core credits, demonstrated mathematics competency, and institutional associate degree requirements.

LCC GENERAL EDUCATION REQUIREMENTS

In order to meet the needs of life-long learners in a constantly changing world, Lansing Community College believes that a common core of skills, knowledge, understanding, and reasoning is indispensable for all students granted an associate degree. This background is essential to every person as a productive worker and citizen and is a foundation upon which an individual can build a life-long pursuit of knowledge and education. In keeping with these beliefs, the College has established General Education Core requirements in the areas of mathematics, global perspectives and diversity, science and technology, speech communication, and writing for students seeking an LCC associate degree. The student outcomes expected for each of the Core areas are presented below.

1. Mathematics

- Use the strategies of arithmetic, geometry, and algebra to solve problems which include the concepts of length, area, volume, angle, percent, ratio, and proportion.
- Use and interpret expressions involving symbols in one and two variables which include parentheses, exponents, and radicals.
- Use, interpret, and produce graphs in one or two variables.

2. Global Perspectives and Diversity

- Describe and analyze the ways in which different world societies/civilizations establish social, political, and economic order and the effect of these on individuals and societies/civilizations.
- Describe and analyze the ways in which different world societies/civilizations view themselves.
- Describe and analyze how different world societies/civilizations have searched for truth, justice, and an understanding of what it means to be human.
- Describe and analyze how the major concepts within world societies/civilizations have resulted in peaceful and/or violent solutions to conflicts.
- Describe and analyze how major ideas, issues, values, institutions, in world societies/civilizations have shaped cultures and the effect these have on individuals.
- Describe and analyze how the United States includes and/or excludes diverse perspectives of different gender and ethnic groups.
- Describe and analyze how the arts reflect the major social, political, and individual concerns of world societies/civilizations.

3. Science and Technology

- Exhibit basic knowledge of the nature, scope, purposes, and limitations of science and technology, as well as the connections between them.
- Demonstrate ability to gather, analyze, interpret, and draw conclusions from scientific and/or technical information.
- Understand and apply methods of science and technology by demonstrating appropriate experimental, problem-solving, and decision-making skills in a scientific and/or technological context.
- Understand the historical role, contemporary importance, and social and ethical implications of science and technology.

- Evaluate the impact of scientific and/or technological change on, for example, occupations; world, national and regional economies; business, industry, and social institutions.

4. Speech Communication

- Define and explain the nature and components of the communication process.
- Use language and nonverbal behavior to express ideas and feelings clearly and responsibly in interpersonal encounters.
- Participate constructively in group discussions as a leader or member.
- Research, prepare, and deliver public speeches effectively.
- Listen, with both literal and critical comprehension, to spoken messages in a variety of communication situations.

5. Writing

- Understand, analyze, and synthesize abstract concepts and concrete principles and information.
- Properly locate, incorporate, and attribute sources of information.
- Conform to conventions of grammar, punctuation, spelling, and diction, as appropriate to the purpose of the writing.
- Produce effective writings, including summaries, reports, and analyses.

HOW STUDENTS CAN SATISFY LCC GENERAL EDUCATION CORE REQUIREMENTS

As of fall 1996, all new students, and any previously enrolled students following an LCC curriculum guide with an expiration date of summer 2001 or beyond, must fulfill LCC General Education Core requirements in order to be awarded an associate degree. The ways in which students can satisfy these requirements are presented below. Because these may be revised each academic year, students should consult an academic advisor or the most recent edition of the *College Catalog* to stay informed of current options for satisfying Core requirements. Students should also be aware that not all courses that satisfy the LCC Core transfer to all institutions. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

How to Satisfy the General Education Core Requirements for Mathematics

To satisfy the General Education Core requirements for mathematics, a student must demonstrate mathematics competency. This can be done in any of the following ways:

1. Passing the MATH 112 Proficiency Examination with the equivalent of a 2.0 grade or higher. (This exam is administered free of charge in the Learning Center, Room 309, Arts and Sciences Building. It may be taken up to two times for purposes of satisfying the Mathematics Core.)
2. Achieving a grade of 2.0 or better in one of the following approved Mathematics Core courses:

MATH 112	Intermediate Algebra	(4)
MATH 115	Technical Math II	(4)
MATH 117	Math for Business	(4)

(Descriptions of these courses can be found in the *Course Descriptions* section of this catalog.)

3. Achieving a grade of 2.0 or better in any of the following non-Core mathematics courses:

MATH 121	College Algebra I	(4)
MATH 122	College Algebra II and Trigonometry	(3)
MATH 130	Finite Mathematics	(3)
MATH 126	College Algebra and Trigonometry	(5)
MATH 141	Calculus with Applications	(3)
MATH 151	Calculus I	(4)
MATH 152	Calculus II	(4)
MATH 201	Math for Liberal Arts	(3)
MATH 253	Calculus III	(4)
MATH 254	Introduction to Differential Equations	(3)
MATH 260	Linear Algebra	(3)

(NOTE: Achieving a grade of 2.0 or higher in one of these courses implicitly demonstrates competency. Descriptions of these courses can be found in the *Course Descriptions* section of this catalog.)

4. Establishing credit for an approved Mathematics Core course listed in #2

- above or a non-Core mathematics course listed in #3 above through the Experiential Learning Process. (See section entitled *Credit for Previously Acquired Knowledge and Learning Experience* in this catalog.)
- Transferring comparable course credit—general credit does not apply—for an approved Mathematics Core course listed in #2 above or a non-Core mathematics course listed in #3 above from an accredited institution. (See section entitled *Acceptance and Evaluation of Transfer Credits from Other Institutions of Higher Education* in this catalog.)
 - Establishing course credit for an approved Mathematics Core course listed in #2 above or a non-Core mathematics course listed in #3 above through the Advanced Placement Examination (APE), the College Level Examination Program (CLEP), or others as recognized by Lansing Community College.
 - Presenting evidence of an earned baccalaureate degree from an accredited college or university. This would fulfill all General Education Core requirements.

How to Satisfy the General Education Core Requirements for Global Perspectives and Diversity, Science and Technology, Speech Communication, and Writing

Students can satisfy the General Education Core requirements for the areas of global perspectives and diversity, science and technology, speech communication, and writing in any of the following ways (a minimum of three credits is required for each of the areas):

- Achieving a grade of 2.0 or higher in an approved Core course (credits in parentheses):
 - Global Perspectives and Diversity**

ENGL 211	World Literature I	(4)
ENGL 212	World Literature II	(4)
HUMS 211	History of Art I	(4)
HUMS 212	History of Art II	(4)
HUMS 213	World Civilizations I	(4)
HUMS 214	World Civilizations II	(4)
MGMT 234	Diversity in the Workplace— A Domestic and Global Perspective	(3)
OADM 275	Cultural Differences in Business	(3)
PHIL 211	World Philosophies I	(4)
PHIL 212	World Philosophies II	(4)
POLS 260	Comparative Political Systems	(3)
SOCL 120	Introduction to Sociology	(4)
 - Science and Technology**

ASTR 201	Introductory Astronomy	(4)
BIOL 210	Natural Resource Conservation	(4)
CHEM 135	Chemistry In Society	(4)
CHEM 151/161	General Chemistry Lecture I and Laboratory I	(4/1)
CISB 200	Information Systems Technology and Problem Solving	(3)
ISCI 121	Integrated Science for Education I	(4)
ISCI 131	Integrated Science-Physical: The Science of the Water Planet	(4)
METR 220	Introduction to Meteorology	(4)
PHGY 202	Human Physiology	(4)
PHYS 215/225	Physics I: Mechanics and Laboratory	(5/1)
 - Speech Communication**

SPCH 110	Oral Communication in the Workplace	(3)
SPCH 120	Dynamics of Communication	(3)
 - Writing**

ENGL 122	Writing about Literature and Ideas	(4)
ENGL 132	Honors Writing about Literature and Ideas	(4)
WRIT 121	Composition I	(4)
WRIT 122	Composition II	(4)
WRIT 124	Technical Writing	(3)
WRIT 127	Business Communications	(3)
WRIT 131	Honors Composition I	(4)
WRIT 132	Honors Composition II	(4)

Descriptions for each of the above courses can be found in the *Course Descriptions* section of this catalog.

- Passing a Comprehensive Examination for an approved Core area course listed in #1 above in cases where such exams are available. Upon successfully completing the exam, a student would receive LCC credit for the course. The student is also required to pay tuition for the course prior to taking the exam. (See the section entitled *Credit by Examination* in this catalog.)
- Establishing credit for an approved Core course listed in #1 above through the Experiential Learning Process. (See section entitled *Credit for Previously Acquired Knowledge and Learning Experience* in this catalog.)
- Transferring comparable course credit—general credit does not apply—for an approved Core course listed in #1 above from an accredited institution. (See section entitled *Acceptance and Evaluation of Transfer Credits from Other Institutions of Higher Education* in this catalog.)
- Establishing Core course credit for courses listed in #1 above through the Advanced Placement Examination (APE), the College Level Examination Program (CLEP), or others as recognized by Lansing Community College.
- For global perspectives and diversity, writing, and science and technology, presenting evidence of satisfying MACRAO requirements at an accredited college or university other than LCC, provided the student has earned a 2.0 or higher for each course. (NOTE: This does not satisfy the speech communication requirement.)
- Presenting evidence of an earned baccalaureate degree from an accredited college or university. This would fulfill all General Education Core requirements.

If a student has successfully completed an approved General Education Core course in any LCC curriculum, the student will have met that Core area requirement even if he or she changes to another curriculum. However, in the newly chosen curriculum, the student may need to take a *required* course that satisfies a Core area requirement that he or she has already fulfilled.

The following do NOT satisfy or waive LCC General Education requirements: evidence of an earned associate degree or certificate, placement test scores, a waiver of a specific Core course, completion of higher-level courses that are not approved Core courses (with the exception of mathematics), combinations and/or portions of courses.

HOW TO APPLY FOR THE ASSOCIATE DEGREE, CERTIFICATE OF ACHIEVEMENT, OR CERTIFICATE OF COMPLETION

Prior to submitting an application for a degree or certificate, students should consult with an advisor to review progress toward completing requirements. Substitutions or waivers for program requirements must be approved on an authorized form signed by the department offering the program. (Substitutions and waivers are not allowed for institutional degree or certificate requirements. See *Institutional Requirements for Certificates of Achievement and Certificates of Completion* and *Institutional Requirements for Associate Degrees* in this section.) The process of applying for a degree or certificate takes approximately one semester, so students should apply at least one semester in advance of the semester they plan to graduate.

Procedures are as follows:

- Complete an Application for Diploma/Certificate. This application is available in the Registrar's Office.
- Attach a copy of the curricular guide (program of study) for the degree or certificate being sought. NOTE: Students may not follow a curricular guide that predates their first semester of enrollment. The requirements must be met by the semester the curricular guide expires.
- Return the application and the curricular guide to the Registrar's Office. If a department has authorized program substitutions or waivers, the completed and signed form(s) must accompany the application.
- If the Registrar's Office determines that there are requirements NOT met, the student will receive a report specifying the unmet requirements which must be completed. Students have until one year after the date of the application to satisfy the unmet requirements.
- If all the requirements are met, the student will receive a letter indicating that the degree or certificate will be awarded.
- The official LCC transcript will show the degree or certificate awarded.

7. Diplomas are mailed to students during the semester after degrees or certificates have been awarded.

SEMESTER TRANSITION PROGRAM COMPLETION INFORMATION

In the fall of 1993, Lansing Community College changed from a quarter to a semester system. Students who first enrolled at the College for Fall Semester 1993 and thereafter are considered semester students.

Students who started degree or certificate programs at LCC prior to Fall Semester 1993 and are continuing their studies on the semester system are considered transition students. In order to complete college requirements or curriculum requirements for their declared major, transition students should meet with an academic advisor to complete a Curriculum Completion Plan.

PLEASE NOTE: All Curriculum Completion Plans must be approved by departmental chairpersons. All students must follow a semester curricular guide.

Most Lansing Community College curricular guides are valid for a period of five years. The inclusive dates are printed on each guide. All quarter-based curricular guides expired at the end of Summer Session 1997.

TRANSFER

Students planning to transfer to another institution should be aware that universities and colleges differ widely in the courses they accept for transfer. A student intending to transfer should follow the transfer curriculum guide of the institution to which he or she intends to enroll. Transfer guides are not LCC degree guides. In order to achieve maximum transferability of courses, students should consult with an academic advisor. (See the *Degree and Certificate Programs* section of this catalog for more information about transfer programs.)

REGULATION FOR THE GRANTING OF ADDITIONAL ASSOCIATE DEGREES

Any student who has received an associate degree from Lansing Community College or any other accredited community college may be awarded a second associate degree subject to the following stipulations:

1. For each additional associate degree, a minimum of 10 semester credit hours must be completed at LCC in the division in which the degree is sought, non-repetitive of previously earned credits. (NOTE: The institutional associate degree requirement of 20 credits earned at LCC must be met by those students not receiving their first degree at LCC.)
2. All requirements for an associate degree in either arts, applied arts, business, science, or applied science must be met.
3. The College's General Education Core requirements, including demonstrated competency in mathematics, must be satisfied.*
4. No additional degree will be granted in the same program or curriculum in which the first degree was earned.
5. An additional degree must be within a specific program or curriculum.
6. Exceptions to the above should be appealed to the office of the respective dean.

*Students who were enrolled at Lansing Community College prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, are not required to satisfy the College's General Education Core Requirements. They must, however, complete a course in political science. POLS 120, American Political System, or POLS 121, State and Local Government, will satisfy this requirement for all degree programs with an expiration date of summer 2000 or before. LABR 208, Labor Relations, will satisfy this requirement for certain programs only as indicated on specific curriculum guides.)

REGULATION FOR GRANTING AN ASSOCIATE DEGREE WHEN THE STUDENT HAS AN EARNED BACHELOR'S DEGREE

A student who has earned a bachelor's degree from an accredited American college or university which has a general education requirement may be awarded an associate degree at Lansing Community College subject to the following requirements:

1. For each associate degree, a minimum of 10 semester credit hours must be completed at Lansing Community College in the division in which the associate degree is sought. The Lansing Community College cumulative grade point average must be at or above a 2.0 level.

2. All requirements for an associate degree in either arts, applied arts, business, science, or applied science must be met.
3. The College's General Education Core requirements are waived.*
4. The associate degree must be within a specific program or curriculum.
5. Exceptions to the above should be appealed to the office of the dean of the division in which the associate degree is sought.

*For students who were enrolled at LCC prior to fall 1996, and who are following an LCC curriculum guide with an expiration date of summer 2000 or before, the College's requirement of completing a political science course is waived.

ASSURANCE OF QUALITY

Lansing Community College offers assurance—a guarantee—to its students; prospective employers; and receiving transfer colleges, universities, and technical training institutions, that individuals who have earned LCC degrees or certificates are competent to perform in their areas of major study.

Transferring students who have earned an official Lansing Community College certificate or degree should be able to perform competently in the area in which they majored or specialized at Lansing Community College.

Non-transferring students who have earned an official Lansing Community College certificate or degree should be able to perform competently in the area in which they majored or specialized at Lansing Community College.

A Lansing Community College graduate may be permitted to retake a specified course or courses, when next offered, with no tuition or fee charge by submitting his or her request to the Office of the Registrar along with supporting documentation from the institution to which he or she has transferred or from his or her employer, whichever is appropriate.

Because unused skills and knowledge can decay rapidly, the assurances offered herein will be in effect for one year from the date the course or courses in question were taken at Lansing Community College.

STUDENT RIGHTS, RESPONSIBILITIES, AND CONDUCT

The College adheres to the principle that the campus climate provide for students maximum freedom and necessary order. In order to ensure this principle, the College has established procedures for the redress of grievances by the individuals accused in such proceedings. In addition, general rules and regulations have been established by the College to ensure the protection of student rights and the efficient operation of College programs. In cases of noncompliance with these regulations, the College will impose discipline which is consistent with the impact of the offense on the College community. The College also reserves the right to pursue criminal and/or civil action where warranted.

GENERAL RULES AND REGULATIONS

Assaults

Assault and/or battery, and threatening, attempting, or using physical force or intimidation against (a) any person on the College premises or at a College-sponsored function (athletic events, activities, etc.), or (b) any College student or employee in connection with the performance of his or her College duties, are prohibited. For the purpose of this regulation, assault is defined as an attempt or offer, with force and violence, to do corporal hurt to another, with apparent present means of carrying out the attempt. Battery is an injury which results from an assault. Battery is an injury, regardless of intent, actually done to a person by another in an angry, revengeful, rude, or insolent manner.

Assembly

No person or persons shall assemble in a manner which obstructs the free movement of persons about the campus or the free and normal use of College buildings and facilities, or prevents or obstructs the normal operations of the College.

Attendance

Students are expected to attend all sessions of each course in which they are enrolled. Failure to do so will result in academic penalty or withdrawal from the class. Absence for any reason, including illness or late registration, in no way relieves the student of the responsibility for completing all work in the course to the satisfaction of the instructor in charge. When a student receives a faculty-initiated notice of nonattendance, it is the student's responsibility to contact the instructor.

When a student cannot attend class due to illness or other extenuating reasons, the class instructor should be notified. This can be done by telephoning the departmental office in which the instructor is a member and leaving a message for that instructor.

Cheating

Each student is expected to be honest in his or her work. Cheating is dishonest. The term "cheating" includes, but is not limited to: (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the College faculty or staff. Any interaction between students in a testing situation may be interpreted as cheating. Academic honesty is twofold on the part of the student; first, not to cheat, and second, not to enable others to cheat.

Computer Resources – Acceptable Use

The *LCC Acceptable Use Policy* describes the policies and guidelines for the use of the College's computer resources. Use of College-owned computer resources is a privilege extended by the College to students, employees, and other authorized users as a tool to promote the mission of the College. All users agree to be bound by the terms and conditions of the *LCC Acceptable Use Policy* at the time they complete an account application form. Copies of the *LCC Acceptable Use Policy* are available at the Library Circulation Desk and may also be accessed on the World Wide Web. The URL is <http://www.lansing.cc.mi.us/lccinfo/aup.html>

Conduct – Interim Due Process Suspension

If a student's misconduct gives cause for belief that the physical or emotional safety of any member of the College community is threatened, or that any personal or public property is jeopardized, the student's right to be on campus can be immediately suspended. A suspension of this type, called an Interim Due Process Suspension, will take effect immediately upon direction of the dean of the division where the misconduct occurred and will last for no more than 10 days. A procedural due process hearing with proper notifications will be established during this 10-day period. (See section entitled *Due Process*.)

Disclosure of Health Concerns

Lansing Community College takes appropriate and reasonable precautions to protect the health and safety of students in the classroom. However, some courses may require students to work with chemicals and/or equipment which may be hazardous to some students, such as those with certain medical conditions. Students should inform instructors of any special health-related conditions which may be negatively affected by instructional materials or equipment used in the classroom. Students with special health concerns are strongly encouraged to raise any questions about such matters prior to their enrolling in a class.

Dress

Students are expected to dress in an appropriate fashion, having in mind the activity in which they are engaged, while on College property and when attending College-sponsored events. Specific attire, not limited to but including appropriate footwear, safety glasses, safety hats, shields and aprons, may be required when the health and safety of the individual student or other members of the College community are to be protected.

Drug and Alcohol Regulations

In recognition of (1) the serious health risks associated with the illegal use of controlled substances and (2) the abuse of alcohol, and in conformance with the Board of Trustees policies 4416 and 7820, as well as the Drug-Free Schools and

Communities Act Amendments of 1989 (20 U.S.C. 3171, et seq.), the following regulations are effective immediately:

1. Students, employees, and guests may not manufacture, distribute, dispense, possess, or use alcoholic beverages on College premises.
2. Students, employees, and guests may not unlawfully possess, use, or distribute controlled substances and alcohol on College premises or when engaged in College activities such as conferences or field trips.
3. No College student activity funds will be used for the purpose of purchasing alcoholic beverages or controlled substances.
4. Being under the influence of alcohol or any controlled substance while on College premises or engaged in College activities is prohibited.
5. Students, employees, and guests are personally accountable for knowledge of federal, state, and local laws relating to alcoholic beverages and controlled substances, the minimum drinking age, transporting open containers of alcoholic beverages, and false representation of age by a minor.
6. As a condition of his or her employment, each employee of the College shall agree to abide by the terms contained within this policy. Violation of any of these terms by College employees may result in disciplinary action, up to and including termination. The College may require satisfactory participation in a substance or alcohol abuse assistance or rehabilitation program for an employee who violates any of the prohibitions listed above.
7. As a further condition of his or her employment, each employee of the College shall agree to notify the College of any criminal drug statute conviction for a violation occurring on College premises or while engaged in College activities, no later than five (5) days after such a conviction. Upon receiving notice of such conviction, the College shall take appropriate disciplinary action within thirty (30) days thereafter.
8. Violation of this regulation by students may result in disciplinary action up to and including expulsion from the College and referral for prosecution. A lack of legal conviction or relevant laws is not a defense in a charged violation of this regulation.
9. Guests on College premises are expected to follow the above requirements. Failure to do so may result in a request to leave College property or College activities.
10. In the spirit of providing a safe, healthy and drug-free environment, the College will:
 - a. Continue to offer educational programs that support a drug-free campus and workplace as a normative social value;
 - b. Continue to offer opportunities for substance abuse counseling accessible by students and College employees;
 - c. Continue to make referrals to appropriate counseling professionals and/or agencies within the community to help students and employees who may benefit from such counseling;
 - d. Incorporate in classes throughout the curriculum, where appropriate, references and class-related assignments related to the medical, legal, social, and wellness issues inherent in a drug-free campus and workplace;
 - e. Distribute copies of this regulation to all new students and employees.
11. Substance abuse is a serious but treatable condition or disease that can lead to short-term or long-term physical and psychological consequences, including but not limited to dependence, damage to the nervous system, heart and respiratory conditions, and death.
12. A "controlled substance" is defined as one: 1) which is not legally obtainable; 2) which is being used in a manner different from that prescribed; or 3) which is legally obtainable but has not legally been obtained. (21 U.S.C.821:MCLA, 333.7101, et. seq.)
13. A "conviction" under this policy is defined as a defendant pleading guilty or no contest and/or a guilty finding by a court of law.

Examinations

Students are required to take examinations at the appointed time and place in order to receive credit for a course. Generally, examinations are given during the regularly scheduled class period during the last week of the semester.

Field Trips

Students participating in all College-sponsored activities, including field trips and athletic events, must abide by all College rules. Student organization field trips must be planned, organized, and approved according to the Student Life Policies and Procedures for Student Organizations, and, where applicable, the parking and transportation services unit of the Public Safety Department. Organizations which

function outside of these policies and procedures may be put on probation and suspended if appropriate.

Fighting

Fighting on College property is prohibited except for contests or exhibitions held or sponsored by the College or a recognized College organization.

Financial Responsibility

Students owing money to the College in respect to such matters as fees, loans, library fines, driving or parking penalties, etc., will be subject to disciplinary action if such accounts are not paid when due. In particular, it should be noted that if any accounts are outstanding at the end of an academic semester, the publication of the student's grade report and/or official transcripts will be delayed, and the student will not be permitted to register for a succeeding semester until such accounts are paid.

Games and Recreational Activities

Games of any kind may only be played in the recreational or athletic facilities which have been designated for such games. Applications for permission to play any game other than in an area designated for that purpose must be obtained from the Director of Student Life.

Guest Speakers

College regulations with respect to the participation of guest speakers are outlined in the Policy for Guest Speakers. The College requires orderly conduct, noninterference with College functions or activities, and identification of the sponsoring groups or individuals. Under no circumstances are members of the College community to be forced to be involuntary audiences.

Identification Cards

All Lansing Community College students are issued an identification card. Students are expected to show their I.D. card whenever they check out books at the College libraries, vote in student elections, etc., or when they are requested by a member of the faculty or staff of the College. Misuse of College identification to obtain privileges to which the student or to which others are not entitled under existing regulations is a College offense that may result in suspension or dismissal.

Laws

Students shall obey the laws enacted by federal, state, and local governments. It is appropriate that the students be aware of Act 26 of the Public Acts of 1970:

Sec. 1. A person is guilty of a misdemeanor, punishable by a fine of not more than \$500.00, or by incarceration in the county jail for not more than 30 days, or both:

1. When the chief administrative officer of a publicly owned and operated institution of higher education, or his or her designee, notifies the person that he or she is such an officer or designee and that the person is in violation of the properly promulgated rules of the institution; and
2. When the person is in fact in violation of such rules; and
3. When, thereafter, such officer or designee directs the person to vacate the premises, building, or other structure of the institution; and
4. When the person thereafter willfully remains in or on such premises, building, or other structure; and
5. When, in so remaining therein or thereon, the person constitutes:
 - a. A clear and substantial risk of physical harm or injury to other persons or of damage to or destruction of the property of the institution, or
 - b. An unreasonable prevention or disruption of the customary and lawful functions of the institution, by occupying space necessary therefore or by use of force or by threat of force.

Sec. 2. A person is guilty of a misdemeanor, punishable by a fine of not less than \$200.00 and not more than \$1,000.00, or by incarceration in the county jail for not more than 90 days, or both, who enters on the premises, building, or other structure of a publicly owned and operated institution of higher education, with the intention to, and therein or thereon does in fact, constitute (a) a clear and substantial risk of physical harm or injury to other persons or of damage to or destruction of the property of the institution, or (b) an unreasonable prevention

or disruption of the customary and lawful function of the institution, by occupying space necessary therefore or by use of force or by threat of force.

Sec. 3. This act shall take effect August 1, 1970.

Obstructing and Jostling

Obstructing or threatening to obstruct College property without authorization/permission from a College official is prohibited. (To obstruct is to impede free and uninterrupted passage, or free and uninterrupted use of College property). Jostling, or roughly crowding other persons on College property, is also prohibited.

Organizations

No student or student organization may use campus facilities, solicit funds, business, or support on the College campus unless such a student or student organization has been authorized by the Director of Student Life. Approval of College clubs and organizations must be in accordance with guidelines documented in the Student Life Office.

Pets

In order to protect the health and safety of the members of the College community and preserve order on the campus, no pets, including but not limited to, dogs, cats, birds, and rodents, shall be permitted within the buildings of Lansing Community College. This is not intended to exclude Seeing Eye dogs used by the visually impaired or animals designated for laboratory experimentation purposes.

Plagiarism

Each student is expected to be honest in his or her work. Plagiarism is dishonest. Plagiarism includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers and/or other academic materials.

Records

It is the responsibility of the student to give honest and complete replies to all questions included in application forms and other documents required by the College. Alteration, duplication, or falsification of a College document, form, or authorized signature is considered by the College to be an extremely serious offense and is subject to disciplinary action.

Smoking

In continuing compliance with the Michigan Clean Indoor Act, P.A. 198 of 1986, and in the interest of providing a safe and healthy environment for the College's students, employees, and visitors, smoking will not be permitted in Lansing Community College facilities.

Student Evaluation of Instructional Quality

Because students expect quality in their learning experiences, Lansing Community College provides opportunities for students to participate in the evaluation and improvement of instruction. These opportunities include the following:

1. Completing Student Evaluation Forms at the conclusion of each course. The forms are distributed by a person other than the instructor, and the instructor is not present at the time the students complete the forms.
2. Presenting suggestions regarding instructional quality to their instructors, their instructor's departmental chairperson or the instructor's divisional dean. These written or verbal suggestions are also reviewed by the College to improve instruction and assess instructional effectiveness.
3. Serving on various councils, boards, and committees of the College in order to provide input and student perspective in the development and evaluation of both instructional and support-service programs. These councils, boards, and committees are located in the various divisions of the College. Those students who have interest in serving on or contacting members of these bodies may contact the Student Life Office or the office of the dean in the appropriate divisions.

Specific questions regarding student participation in the evaluation of instruction may be directed to the Office of the Dean of Student and Academic Support for clarification or appropriate referral.

Vandalism/Theft

Property of the College, as well as that of individuals, should be respected. Vandalism or theft of any kind, the destruction or mutilation of computer or media resources, materials, equipment, buildings, or grounds of the College, is inconsistent with the objectives of the College and good citizenship and will result in disciplinary action.

Video Cassette

The federal copyright law, Title 17 of the United States Code, provides copyright protection of "original works of authorship," including "motion pictures and other audiovisual works." Thus, the use of video cassettes and films is restricted to private showings, and public showings are prohibited without the copyright owner's consent. Under the "fair use" limitation, copyrighted cassettes, motion pictures, and other audiovisual works may be used for purposes such as "teaching (including multiple copies for classroom use), scholarship, or research" without violation, and audiovisual materials purchased or rented by the College have the written consent of the copyright owners and, therefore, are legally appropriate for classroom use.

Weapons and Explosives

Illegal or unauthorized possession of firearms, explosives, other weapons, or dangerous chemicals is not permitted on College property. The foregoing shall not prohibit fencing foils and other athletic equipment intended for such use, nor shall it apply to persons holding concealed weapons permits and duly constituted police officers who are authorized by law to carry weapons.

CRIMINAL AND/OR CIVIL ACTIONS

When the actions or conduct of a student warrant the involvement of the Public Safety Department, a complaint report is initiated. Should a student initiate the complaint and the Public Safety Department is involved, a complaint report is taken.

A crime committed on the College campus is investigated and referred to the Ingham County Prosecutor's Office. The decision to prosecute is made by the Prosecutor's Office. This action is separate from the Due Process procedure of the College.

DUE PROCESS

Lansing Community College holds firm to the philosophy that matriculation in college does not deny any rights of citizenship to a student. At the same time, matriculation in college does not relieve a student of the essential responsibilities of citizenship. Thus, the College is constantly aware of the joint responsibilities, shared by the student body and the College, to uphold the principles of "due process" in all disciplinary action.

It is the College's intention to foster and promote an environment of cooperation among faculty, staff, and students. However, conflicts that require third-party intervention sometimes exist. While there are formal processes for resolving conflicts, it is the goal of the College to achieve resolution as rapidly and as close to the origin of conflict as possible through mediation. To this end, the director of Student Relations and the Director of Equal Opportunity are empowered to mediate situations at their lowest level or to direct the parties involved to the person(s) or department(s) that can best mediate the occurrence. This mediation is predicated on the voluntary agreement of both parties. Matters that are considered too extreme may require immediate referral to the formal process.

Due Process is the guarantee of student civil rights under the Constitution of the United States and the laws and regulations of Michigan and Lansing Community College. Due Process is that process which prevents rights from being taken away from an individual without a fair hearing.

Student Appeals and Complaints

LCC students may initiate Due Process through established appeal and complaint procedures. In the appeal process, students may appeal disciplinary action or academic decisions. In the complaint process, students may lodge complaints

regarding persons, policies, or procedures at the College. The Judicial Board will hear cases referred to it by administrative officers of the College or by individual students through the established appeal and complaint processes. The student has the right to request a public or private hearing, but the decision rests with the College, after considering the wishes of the parties involved.

Student Appeals

A "line of appeal" is defined as the appropriate sequence of communication to be followed when appealing a decision or action. An "appeal" is defined as a request to review a previous decision and/or the process used in reaching the decision. Before initiating the formal appeal process at the divisional level, students are encouraged to first meet with the initial decision-maker involved (the instructor, for example) to attempt to resolve issues in an informal manner. The following describes a recommended sequence of communication for resolving issues in an informal manner:

1. The student may speak with the person who initiated the decision or action in question and request a reconsideration.
2. If the student is not satisfied with the resolution proposed by the person who initiated the decision or action, he or she may speak with the head of the department in which the decision or action in question was initiated and request assistance in resolving this issue.
3. If the student is not satisfied with the resolution proposed by the head of the department, he or she may speak with the dean (or his or her designee) of the division in which the decision or action in question was initiated and request assistance in resolving the issue.
4. If the student is not satisfied with the resolution proposed by the dean or the dean's designee, he or she may speak with the Dean of Student and Academic Support (or his or her designee) and request assistance in resolving the issue.

If the student believes he or she is being treated unfairly at any point in the informal process, the student may begin the formal appeal process of the College. The line of formal appeal to be followed will depend upon the type of case involved. In all cases, students are required to state their appeal in writing at the time they begin the formal appeal process. The following describes the different types of cases and the appropriate lines of appeal to be used in each case.

1. Student Appeal of Disciplinary Action for Violation of General Rules and Regulations

When a student is accused of violating general rules and regulations of the College, except those involving academic rules and regulations, the procedures described below will be followed:

The student will receive written notification that an alleged violation has occurred. In the letter, the student will be directed to make an appointment with the appropriate College official to review the facts concerning the alleged violation in order to determine if formal charges should be prepared. In the event that the student fails to contact the appropriate College official within 10 (ten) class days of receiving written notification (excluding Saturday and Sunday), a "hold" will be placed on the student's record which will result in the student's enrollment being delayed.

If a decision is made to prepare formal charges, the student shall be notified by an appropriate College official that he or she is being accused of violating a regulation and that he or she may elect to do one of the following:

- a. The student may admit the alleged violation and request, in writing, that the administrative officer take whatever action seems necessary;
- b. The student may admit the alleged violation and request a hearing before the Judicial Board regarding the discipline imposed;
- c. The student may deny the alleged violation, in which case the administrative officer shall refer him or her to the Judicial Board.

When formally appealing a disciplinary action based on a violation of general rules and regulations of the College (explosives, alcoholic beverages, or mistreatment of college property, for example), the student shall use the following line of appeal:

- a. The Dean of the Student and Academic Support Division (or his or her designee);
- b. The Judicial Board of the College;
- c. The President (or his or her designee).

Examples of disciplinary action include the following:

- Reprimand
- Probation
- Restrictions on activities or privileges
- Requirements of restitution

- Denial or revocation of a College honor or degree
- Suspension
- Dismissal
- Permanent dismissal

NOTE: At each level of the appeal process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

2. Student Academic Appeals (of Grades, of a Violation of Academic Rules and Regulations, or of Academic Disciplinary Action)

When formally appealing an academic decision or action—such as a grade, an academic charge based on a violation of the academic rules and regulations (cheating or plagiarism, for example), or an academic disciplinary action (loss of credit, for example)—the student shall use the following line of appeal:

- a. The dean of the division involved (or his or her designee)
- b. The Judicial Board of the College
- c. The President (or his or her designee)

NOTE: At each level of the appeal process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level. When a student wishes to appeal a grade, he or she must do so by the end of the sixth week of the following semester or summer session.

3. Student Appeal of Administrative Withdrawal from Classes (for Nonattendance, Lack of Course Prerequisites, or Inappropriate Classroom Behavior)

Whenever the Office of the Registrar receives a recommendation for an administrative withdrawal, the Office of the Registrar will notify the student in writing that he or she is being administratively withdrawn. The lines of appeal for administrative withdrawal decisions are as follows:

- a. The dean of the division involved (or his or her designee)
- b. Judicial Board of the College
- c. President (or his or her designee)

NOTE: In cases of administrative withdrawal, a student will have up to 5 (five) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

4. Student Appeal of Educational Records

Students have the right to request correction or amendment of information on educational records that are inaccurate, misleading, or which violate privacy rights or other rights as stated in the Family Education Rights and Privacy Act of 1974, as amended. The student shall use the following line of appeal:

- a. The director or leader of the department responsible for the record (or his or her designee)
- b. The dean of the division involved (or his or her designee)
- c. The Judicial Board of the College
- d. The President (or his or her designee)

If the request for correction or amendment of information is denied after the appeal process has been completed, the student may place a brief statement in the record commenting on the decision of the College.

NOTE: A student will have up to five (5) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

Student Complaints

Before initiating the formal appeal process at the divisional level, students are encouraged to first meet with the initial decision-maker involved (the instructor, for example) to attempt to resolve issues in an informal manner. When a student wishes to lodge a formal complaint regarding a person—except in cases of sexual harassment/discrimination (which is found in this catalog under *Student and Staff Sexual Harassment and Discrimination*)—the student is encouraged to use the following line of appeal:

- a. The dean of the division involved (or his or her designee)
- b. The Judicial Board of the College
- c. The President (or his or her designee)

NOTE: At each level of the complaint process, a student will have up to 10 (ten) calendar days (excluding Saturday and Sunday) to appeal a decision after notification of that decision at a prior level.

Judicial Board

Due Process is the guarantee of student civil rights under the Constitution of the United States and the laws and regulations of Michigan and Lansing Community College. Due Process is that process which prevents rights from being taken away from an individual without a fair hearing. The student has the right to request a public or private hearing, but the decision rests with the College, after considering the wishes of the parties involved.

The Judicial Board shall hear the case and render a decision.

1. Prior to a Judicial Board hearing, the student shall be entitled to the following:
 - a. Written notification of the time and place of the hearing;
 - b. A written statement of a decision rendered and/or charges so that the student may prepare his or her defense;
 - c. Written notification of the names of the witnesses directly responsible for having reported the alleged violation OR written notification of how the alleged violation came to the College's attention.
2. In hearings involving more than one student, the Chairperson of the Judicial Board, in his or her discretion, may permit the hearings concerning each student to be conducted separately.
3. The student shall be entitled to appear in person and present his or her defense to the Judicial Board and may call witnesses on his or her behalf. The student may waive the right to appear before the Judicial Board. Should he or she elect not to appear, the student shall be considered to have waived the right to appeal, and the decision at the prior level stands.
4. The student shall be entitled to be accompanied by a person of his or her choice. If this person is in the form of legal counsel, the student must notify the Office of the Dean of the Student and Academic Support Division at least 10 (ten) days prior to the scheduled hearing date.
5. The student has the right to be assisted by any advisor he or she chooses, at his or her own expense. The advisor may be an attorney. The student is responsible for presenting his or her own case and, therefore, advisors are not permitted to speak or to participate directly in any hearing before a Judicial Board.
6. All procedural questions are subject to the final decision of the chairperson of the Judicial Board.
7. Admission of any person to the hearing shall be at the discretion of the Chair of the Judicial Board.
8. The student shall be entitled to an expeditious hearing of his or her case.
9. The student shall be entitled to receive the decision of the Judicial Board in writing.
10. The College shall make a record of the hearing. The record shall be the property of the College.
11. A student who wishes to contest the decision of the Judicial Board may request that the President of the College (or his or her designee) review the decision of the Judicial Board. The student must request this review within 10 (ten) scheduled class days (excluding Saturday and Sunday) of notification of the Judicial Board's decision. Decisions rendered by the President (or his or her designee) will be final.

The Judicial Board's determination shall be made on the basis of whether it is more likely than not that the earlier determination is appropriate. Decisions rendered by the Judicial Board will be made by a simple majority vote of the total membership of the Judicial Board. Decisions rendered by the Judicial Board will be final unless appealed to the President. In addition, the Judicial Board is empowered to make recommendations based on decisions rendered.

Membership of the Judicial Board

The Judicial Board will consist of the following members:

1. The Dean of the Student and Academic Support Division or his or her designee; (NOTE: This member will serve as chairperson. However, when the Judicial Board is hearing an appeal based on a disciplinary decision of the Office of the Dean of the Student and Academic Support Division, the Dean of the Student and Academic Support Division will relinquish the chair, and a temporary chairperson will be elected by the remaining members of the Judicial Board from the remaining members of the Judicial Board.)
2. One College administrator appointed by the Dean of the Student and Academic Support Division;

3. Two students from the student body, selected by the members of the Leadership Academy, with consent of the Director of Student Life. One alternate will be appointed in the same way to serve in the absence of any student member;
4. Two faculty members appointed by the dean of the division in which the decision or action in question was initiated, with one alternate faculty member appointed in the same way, to serve in absence of any faculty member.
5. In the event two or more divisions are involved, one faculty representative from each division and an equal number of student representatives will be in attendance.

Regulation Revisions and Additions

Lansing Community College reserves the right to change or add to the rules and regulations at any time.

STUDENT AND STAFF SEXUAL HARASSMENT, NONDISCRIMINATION, AND EQUAL OPPORTUNITY POLICY AND PROCEDURES

Lansing Community College is an equal educational opportunity institution and does not discriminate on the basis of race, color, sex, age, religion, national origin, disability, marital status, height, weight, or sexual orientation in any education opportunity. The investigation of all sexual harassment and/or discrimination complaints will be handled through the Office of Equal Opportunity and Diversity Programs.

Sexual harassment/discrimination is unlawful and is not acceptable behavior on the College campus or at College-sponsored events off campus.

Sexual harassment is defined in the Michigan Elliot-Larson Civil Rights Act (MIL.37.2101, et seq., as amended) as follows:

"... Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct or communications of a sexual nature when:

1. Submission to such conduct or communication is made a term or condition, either explicitly or implicitly to obtain employment, public accommodations or public services, education or housing;
2. Submission to or rejection of such conduct or communication by an individual is used as a factor in decisions affecting such individual's employment, public accommodations or public services, education or housing;
3. Such conduct or communication has the purpose or effect of substantially interfering with an individual's employment, public accommodations or public services, education or housing environment."

What Constitutes Sexual Harassment?

Some examples that may constitute sexual harassment are:

- Subtle pressure for sexual activity
- Unnecessary physical brushes or touches
- Offensive sexual graffiti
- Repeated requests or pressure for dates
- Unwanted offensive contacts outside the workplace
- Disparaging sexual remarks about one's gender or sexual orientation
- Physical aggression such as pinching or patting
- Verbal sexual abuse disguised as fun
- Obscene gestures
- Offensive sexual jokes

These examples do not include all types of conduct that can constitute sexual harassment. Each situation must be considered in light of the specific facts and circumstances to determine if sexual harassment has occurred.

For the purpose of the above regulation, the College interprets "unwelcome" to mean:

1. Conduct or communication which a reasonable person in a similar circumstance would consider unwelcome;

2. Conduct or communication which continues after notice is given that the conduct or communication is unwelcome.

Other notable laws and public acts that prohibit discrimination include:

1. Title VII of the Civil Rights Act of 1964, as amended and the 1992 Civil Rights Act which prohibits discrimination on the basis of race, color, sex, religion, or national origin.
2. Title IX of the Education Amendment of 1972, which prohibits discrimination on the basis of sex.
3. Americans with Disability Act (ADA) which prohibits discrimination on the basis of disability.
4. Age Discrimination in Employment Act (ADEA) which prohibits discrimination on the basis of age, 40 and over.

FILING EO/DISCRIMINATION COMPLAINTS

The guidelines/procedures below apply to LCC students and staff who bring forth informal complaints or desire to file a formal complaint regarding sexual harassment/discrimination. The investigation of these complaints will be handled through the Office of Equal Opportunity and Diversity Programs, 108 North House, telephone number (517) 483-1858.

I. Responsibility to Report

Sexual harassment/discrimination must be reported to the Director of Equal Opportunity. Prompt reporting of all complaints is very critical, since it is often difficult to trace the facts of an incident or incidents long after they have occurred. It is recommended that complaints be filed within 60 (sixty) calendar days of the alleged incident. All complaints will be investigated.

II. Retaliation/Reprisal

It is unlawful for any individual (student or staff) to be subjected to retaliation and/or discrimination because he or she has opposed any practice, made a charge, testified, assisted or participated in an investigation/fact finding in any manner.

III. Receiving a Complaint

Students and staff who feel they are being sexually harassed or discriminated against should contact the Director of Equal Opportunity (517/483-1858). Complaint forms are available in the offices of College Human Resources, Divisional Deans, Vice Presidents, and Equal Opportunity. Students and staff should not investigate or discuss the complaint with others. Confidentiality should be maintained by all involved in the complaint to protect the credibility and integrity of the fact finding process.

After receiving a complaint, the Director of Equal Opportunity may investigate the complaint or designate a person or persons who have been trained to investigate the alleged complaint.

A. Functions of the Investigation Team

1. To help educate the Lansing Community College faculty, staff, and students about sexual harassment/discrimination.
2. To assist in the investigation of complaints of sexual harassment/discrimination brought by LCC students or employees.
3. To make recommendations for resolution and/or corrective action.

B. Timetable

An investigation will begin no later than 20 (twenty) working days following the receipt of the sexual harassment/discrimination complaint form or immediately following a request from the EO Officer.

C. Complainants

The EO Officer will contact the complainant and inform him or her when the investigation will occur. The complainant may be asked to submit additional information, if necessary, for the investigation to continue. An exit interview will be conducted with the complainant to review the results of the fact finding.

D. Notification

The EO Officer will inform the alleged harasser/discriminator of the complaint as soon as is practicable or if appropriate, within the timeliness specified within the designated Master Agreement. The divisional leader and immediate supervisor will also receive notification that an investigation is in progress. The results

of the investigation will be reviewed with the alleged harasser/discriminator in the exit interview upon the completion of the fact finding.

E. Confidentiality

Students and/or staff who bring forth formal or informal complaints of discrimination/sexual harassment should maintain confidentiality throughout the entire complaint process. Sharing information pertaining to a complaint should be on a "need to know" basis only. *It should be noted, however, the College cannot guarantee confidentiality beyond the limits of the investigation.*

At each step of this procedure, the College will take appropriate action to protect the privacy of individuals involved in the complaint. Both in fact finding and in the final disposition of the complaint, efforts will be made to maintain confidentiality.

During the investigation stage, the College may have to contact witnesses or other individuals. This will not be considered a breach of confidentiality. All witnesses will be requested to maintain confidentiality in the fact finding process. Witnesses should understand that they may be called upon to testify in a civil hearing or an arbitration case at some future date.

IV. RESOLUTION

Based on the results of the investigation, appropriate action will be taken by the College. Complaints may be dismissed or resolution could include disciplinary action up to and including dismissal or expulsion.

If through an investigation of sexual harassment/discrimination other wrongdoings are found, these issues will be dealt with separately from the sexual harassment/discrimination complaint.

STUDENT LIFE PROCEDURES

POSTER REGULATIONS FOR STUDENTS AND STUDENT ORGANIZATIONS

Lansing Community College is continually sensitive to the fact that there is a need for students, staff, and offices to communicate regarding various activities, events, and services. The College is also sensitive to the right of freedom of expression, particularly as provided for in the First Amendment of the Constitution of the United States. At the same time, the College is responsible for providing reasonable procedures and regulations to protect public and private property, and provide for the general safety and welfare of all members of the College community, and which preclude disruption of the normal functions of the College.

The following statements are designed to regulate the use of posters within the College facilities while providing students, College personnel, and College properties reasonable protection from commercial exploitation and court suits. While the courts have said that College property is considered a "public trust," these same courts have ruled that College property is not "public property" subject to unregulated use by any and all individuals. This regulation is designed to facilitate communication through the use of posters while complying with the legislated instructional mission of the College.

DEFINITION: A poster is any written communication designed to apply to a wall or other surface for the purpose of relating information about an event, service, idea, or activity. A poster may be in the format of, but not limited to, a sign, an announcement, or banner.

General Poster Regulations

1. Within any and all buildings, placement of all signs and posters is restricted to approved bulletin boards.
2. Each poster must identify the sponsoring organization, department, or individual (no abbreviations). Each poster must display a telephone number or an office location where more complete information can be obtained.
3. Each poster is required to have in the lower left-hand corner, its posting date (month, day, and year) and in the lower right-hand corner, its date (month, day, and year) to be removed. Each poster should be up for a reasonable length of time depending upon the activity.
4. Designated bulletin boards are available in each building for the posting of student and staff personal notices. All student and staff personal notices will be confined to these designated bulletin boards.

5. A poster shall not exceed 18 inches by 24 inches.
6. No poster shall be placed in such a way that it covers all or part of a previously posted approved poster whose take-down date has not expired.
7. The removal of posters at or prior to the take-down date shall be the responsibility of the sponsoring organization or individual. No posters shall be removed prior to the take-down date by unauthorized individuals.
8. Lansing Community College respects the constitutional rights of freedom of expression. There are, however, responsibilities which are attendant to the exercising of these constitutional rights. The following statement is made to provide an operational balance between the rights and responsibilities of the freedom of expression regarding the contents of posters: The content of posters shall avoid the liabilities of libel; obscenity; invasion of privacy; and incitement of disorder, violence, and disruption of the normal operation of the College.
9. Students and student organizations wanting to post posters must gain approval in the Office of Student Life for compliance with general regulations.
10. College staff and faculty must gain approval in their departmental office or from the office of their administrative supervisor.
11. Student and College staff personal notices placed in designated bulletin boards within the College buildings do not need approval. Examples of personal notices are selling used books, sharing a ride, sharing an apartment, and selling personal articles. Profit-making commercial notices are not considered personal and will be removed.

Student or Student Organization Appeal of Poster Denial or Removal

If a student or student organization feels that a denial of posting or removal of a poster infringes upon their First Amendment rights or is in violation of this regulation, an informal appeal may be made by the poster sponsor to the Director of Student Life. A meeting will be held between the appealing poster sponsor or sponsors with the Director of Student Life to discuss the appeal. If the appeal is not resolved, a formal appeal may be presented to the Director of Student Relations. This appeal must be in writing, must indicate the reason(s) for the appeal, and must be dated and signed by the appealing party. The Director of Student Relations will gather information and respond to the appealing party within five (5) days of receipt of the appeal. If the student or student organization is not satisfied with the response of the Director of Student Relations, a second written appeal may be made to the Dean of Student and Academic Support Division. This written appeal must contain the reason(s) for the appeal, and a copy of the poster must be made available to the Dean of Student and Academic Support Division for review. The appeal to the Dean of Student and Academic Support Division must be dated and signed by the appealing party. The Dean of Student and Academic Support Division will gather information and respond to the appealing party within five (5) days of receipt of the appeal, giving the decision rendered and reason(s) therefore. The decision of the Dean of Student and Academic Support Division shall be final.

Failure to comply with the above regulations will lead to the denial of approval, the removal of posters, and/or disciplinary action. In order to protect the student body, individual members of the College community and the resources of the College, the College reserves the right and accepts the responsibility to deny approval or remove any poster or posters which it believes to cause significant disruption of the normal function and operation of the College.

Poster Regulations for Off-Campus Organizations and Individuals

Lansing Community College is sensitive to the fact that there is a need for some off-campus organizations and individuals involved in non-commercial enterprises to communicate with Lansing Community College students and staff members concerning various activities, events, and services. The College is also sensitive to the right of expression, particularly as provided for in the First Amendment of the Constitution of the United States. At the same time, the College is responsible for providing reasonable procedures and regulations to protect public and private property and providing for the general safety, welfare, and positive learning environment for all members of the College community.

Therefore, the College has provided a kiosk, centrally located on the downtown campus, for the use of noncommercial groups and individuals who are not affiliated with the College. Such groups and individuals may place their posters on this kiosk without seeking prior approval from any College office, and the College disclaims any and all responsibility for items posted.

REGULATIONS FOR USE OF STUDENT LITERATURE TABLE

Lansing Community College is continually aware of and supportive of the concepts of freedom of expression, particularly those provided by the First Amendment of the Constitution of the United States. The College also perceives that one of its functions is to provide a wide range of learning experiences and learning opportunities for the students of the College. At the same time, the College is mandated to provide orderly processes which avoid material disruption, protect public and private property, and provide for the general safety and welfare of students, faculty, and College staff.

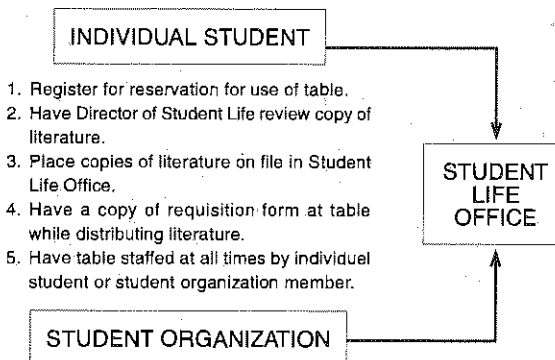
The following statements are designed to facilitate student distribution of literature within the College facilities, while providing students and College personnel and property reasonable protection from commercial exploitation and legal actions. Court rulings have determined that College buildings, while considered a public trust, are not considered public property subject to unregulated use by any and all individuals. The procedural regulations below are designed to facilitate the legislated instructional mission of the College to serve the citizens of the College community. The following procedural regulations shall be followed:

1. The distribution of literature within College buildings by students shall be limited to student literature tables made available for such distribution. Student literature tables will be made available in the following areas within the College buildings:
 - a. In the entry lobby outside the second floor cafeteria of the Arts and Sciences Building.
 - b. In the the second floor lobby of the Gannon Vocational-Technical Center.
 - c. In the second floor lobby area of the Old Central Building.
 At least two single tables will be available in each of these areas. The maximum number of tables made available in any area will be determined in a reasonable manner based on the use of the area and regulations regarding fire safety and student welfare.
2. Only registered students and College-recognized student clubs and organizations shall have access to the student literature tables. Non-students who wish to use college facilities must gain permission by following procedures established for this purpose through the Student Life Office.
3. The student literature tables will be available Mondays through Thursdays from 8 A.M. to 10 P.M. and Fridays 8 A.M. to 5 P.M. during the days of regularly scheduled semesters.
4. Registered students and College-recognized clubs and organizations are required to register for the use of the student literature tables with the Student Life Office at least 72 hours prior to the time of desired use. Registrations will be accepted on a first request-first serve basis. Individual students and recognized student clubs or organizations may register for the use of a table for three consecutive days. If there are no pending requests, a registration may be renewed at the end of a previous registration. If there are no pending requests, a recognized student club or organization may request the use of more than one table or more than one location. If during the use of multiple tables or locations, additional students or recognized student groups request the use of a table or location and additional tables or locations are not available, the multiple user or users will be required to give up the multiple use of tables and locations to provide for the new request.
5. A copy of the completed registration form obtained from the Student Life Office must be available at the student literature table while distribution is taking place.
6. In order to determine accountability, a sample of the material to be distributed must be placed on file with the Student Life Office at the time of the registration for use. In addition, a recognized student club or organization must have a copy of the material to be distributed on file with the club's or organization's advisor.
7. The student literature table will be staffed at all times by the individual student or members of the recognized student club or organization registered for the use of the tables while the distribution of materials is taking place. The registered student or recognized club or organization will have the responsibility to ensure that the distribution process is orderly at all times and that the general area surrounding the student literature tables is not littered.
8. Individuals shall have the option to pick literature from the tables or receive a copy from the individuals sitting at the tables. No literature shall be forced upon any individual nor shall there be any obstructions created in the path of the general flow of traffic.
9. Individual students or recognized student clubs and organizations may collect funds for worthy causes, such as muscular dystrophy, blood drives,

or College-sponsored activities. There shall be no commercial solicitations of funds or business, nor shall individual students solicit funds for personal gain.

10. The College has the right and responsibility to halt the distribution of literature which it believes to be libelous, obscene, an invasion of privacy, or literature designed and reasonably believed that it will have the effect to cause immediate disruption of classes, violence, or substantial disorder of the normal operations of the College.
11. Failure to comply with the above procedural regulations may lead to the denial of the use of the student literature tables and/or may lead to disciplinary action.

Literature Table Use Request Flow Chart

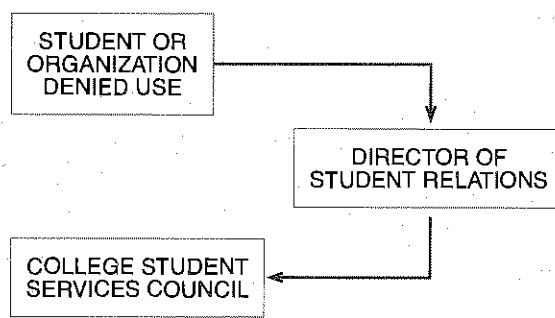


Appeal of Denial of Use of Literature Table

Any individual, registered student, or recognized student club or organization which has been denied access to the student literature tables or has been required to halt distribution based on procedure 10 may appeal the denial or requirement to halt distribution. The appeal shall be in writing and shall be directed to the Director of Student Relations within 10 calendar days of the denial or requirement to halt distribution. The Director of Student Relations shall make a prompt investigation of the appeal, contacting the parties involved, and shall, within 10 calendar days from the date of appeal, make a decision to reinstate the distribution rights denied or halted or to uphold the original decisions. If the decision of the Director of Student Relations is not satisfactory, the individual student or recognized student club or organization may appeal the decision to the College Student Services Council. This second appeal must be in writing and presented to the Chairperson of the College Student Services Council within 10 calendar days of the decision of the Director of Student Relations. The College Student Services Council shall make a prompt investigation of the appeal, contacting parties involved, and shall within 10 calendar days from the date of the appeal, make a decision to reinstate the distribution rights or upholding the denial or required halt of distribution. The decision of the College Student Services Council shall be final.

Where it is contemplated that a violation of the student literature distribution procedural regulation warrants the imposition of disciplinary action upon an individual student, disciplinary action shall be taken in accordance with Due Process as outlined in the *Lansing Community College Catalog*.

Appeal of Denial Flow Chart



COLLEGE RESPONSIBILITIES*

Lansing Community College is committed to providing an environment and resources which promote student learning. All College employees contribute to this goal. Our commitment to learning is reflected by these responsibilities.

1. The College will maintain appropriate prerequisites so that students will enter courses with a reasonable chance of success.
2. The College will provide facilities that are safe, secure, clean, and conducive to learning.
3. The College will provide a clear and fair process for handling student complaints and concerns.
4. Faculty will be articulate and enthusiastic about their field and will establish a positive, stimulating learning atmosphere.
5. Faculty will prepare for each class; organize course concepts and present them clearly; exhibit comprehensive knowledge of the subject; teach the application of skills appropriate to course content; and make appropriate and timely use of student and instructional support services.
6. Faculty will respect students as individuals, recognizing learning styles and managing student learning accordingly.
7. Faculty will encourage classroom discussion when appropriate and represent various sides of an issue.
8. Faculty will give students a standard course syllabus at the beginning of the semester; provide appropriate instructional materials and assistance; and meet classes at the scheduled times.
9. Faculty will evaluate students fairly and objectively, maintain records of student achievement, and keep students informed of their progress.
10. Faculty will encourage students to think intelligently and independently.
11. Faculty will be available to assist students outside the classroom, including during regularly scheduled and posted office hours.
12. Faculty will know curriculum/program requirements and general career opportunities in their field. They will be able to advise students in their program area and refer students for academic and/or career counseling.

*SOURCES: Recommendations of the College-Wide Faculty Evaluation Committee; Current Agreement between the Board of Trustees and the Lansing Community College Chapter of the Michigan Association for Higher Education.

STUDENT RESPONSIBILITIES

In order to be successful learners, students must assume an active role in the learning process. The student responsibilities listed below emphasize behaviors that contribute directly to student academic success, and they apply to all students enrolled at the College.

1. Students will take responsibility for their own learning and for succeeding in their courses by:
 - a. Following course requirements as presented in course syllabi;
 - b. Attending all of their classes;
 - c. Preparing for classes and completing assignments on time;
 - d. Contacting their instructor regarding work missed in the case of an absence;
 - e. Cooperating with their instructor and other students to create a positive learning atmosphere;
 - f. Contributing effectively to class activities.
2. Students will be academically and intellectually honest in all classes, examinations, and learning activities. (The College, by regulation, will discipline students who cheat and/or copy the work of others; dishonesty is a serious offense and will be dealt with appropriately.)
3. Students will contribute to a positive learning environment by conducting themselves appropriately. (The College prohibits acts which interfere with the rights of others to seriously pursue an education. For more details on the regulations of the College, see section entitled *Student Rights, Responsibilities, and Conduct*.)

SPECIAL PROGRAMS AND SERVICES

Lansing Community College provides many special programs and services for students, including those which are briefly described below. For a comprehensive listing, descriptions, and locations of all special programs and services available at the College, students should consult *The Student's Handbook*. Copies of *The Student's Handbook* may be obtained from the Student Life Office, Room 200F, Gannon Vocational-Technical Center.

Career and Employment Services offers career testing, planning, and counseling services for members of the community, local businesses, industry, and students. Services also include assistance with job search, full- and part-time employment (including college Work Study), help with writing resumes and cover letters, and information about interviewing and other techniques for use in seeking employment. All services provided are related to career planning and employment readiness.

Counseling and Advising Services include personal counseling to identify and assist in resolving students' personal and interpersonal issues and concerns; referral to community human services agencies for further professional assistance; career counseling and educational planning to facilitate career decisions, choice of major, and course selection.

Extension and Community Education provides information about and coordination for LCC off-campus classes conducted in school district locations within a 30-mile radius of the College's main Lansing campus and for the Weekend Degree Program.

International Programs coordinates overseas study through such programs as the Japan Adventure and a network of sister college exchange relationships and offers ESL courses for international students at the English Language and Culture Center.

The Lansing Community College Foundation supports students, faculty, programs, and facilities through private sector fund-raising in the community. Scholarship awards to students and allocations to LCC programs are coordinated by the Foundation Board of Directors in support of the mission and goals of the College.

Library Information Services provides information and research assistance, library resources, a computerized catalog, interlibrary loan service, book renewals by phone, library orientations, and Internet access to the library catalog and electronic databases from on and off-campus. The library also has 600 study seats, including 33 multimedia and 15 group study rooms.

The Limited English Proficiency Program provides counseling, academic advising, registration assistance, financial aid assistance, and intensive English training for students with limited English skills.

Minority Outreach and Recruitment provides a Special Assistant to interact with all offices providing student support services in order to facilitate minority student access to these services. The Special Assistant recruits potential minority students; develops and maintains community contact with various minority organizations, clubs, and associations; identifies problems and barriers of the minority student population and proposes appropriate responses; coordinates and plans special cultural/ethnic observations and celebrations; and serves as an advocate on behalf of minority students.

The Student Life Office enhances student leadership, development, and success through involvement in and exposure to diverse experiences and opportunities. These include Student Senate, a comprehensive student leadership development experience consisting of the Student Advisory Committee to the President, Student Organization Council, and the Student Leadership Academy; student clubs and organizations; student activities, such as low-cost travel opportunities; campus programming of guest artists and student workshops, lectures and forums; and opportunities to work on the staff of *The Lookout*, Lansing Community College's student newspaper. The Student Life Office also includes the Office of Volunteer Services, which provides volunteer mentoring and service learning opportunities for students to nurture, promote, and instill the spirit of volunteerism. The Student Life Office also provides a housing resource listing service.

Tutorial Services, offered through Library Information Services, provides free tutoring to students enrolled in LCC courses. Professional tutor technicians and peer tutors help students develop course competencies and study skills. Individual appointments, study groups, supplemental instruction, and drop-in tutoring sessions are available on a first-come-first-served basis.

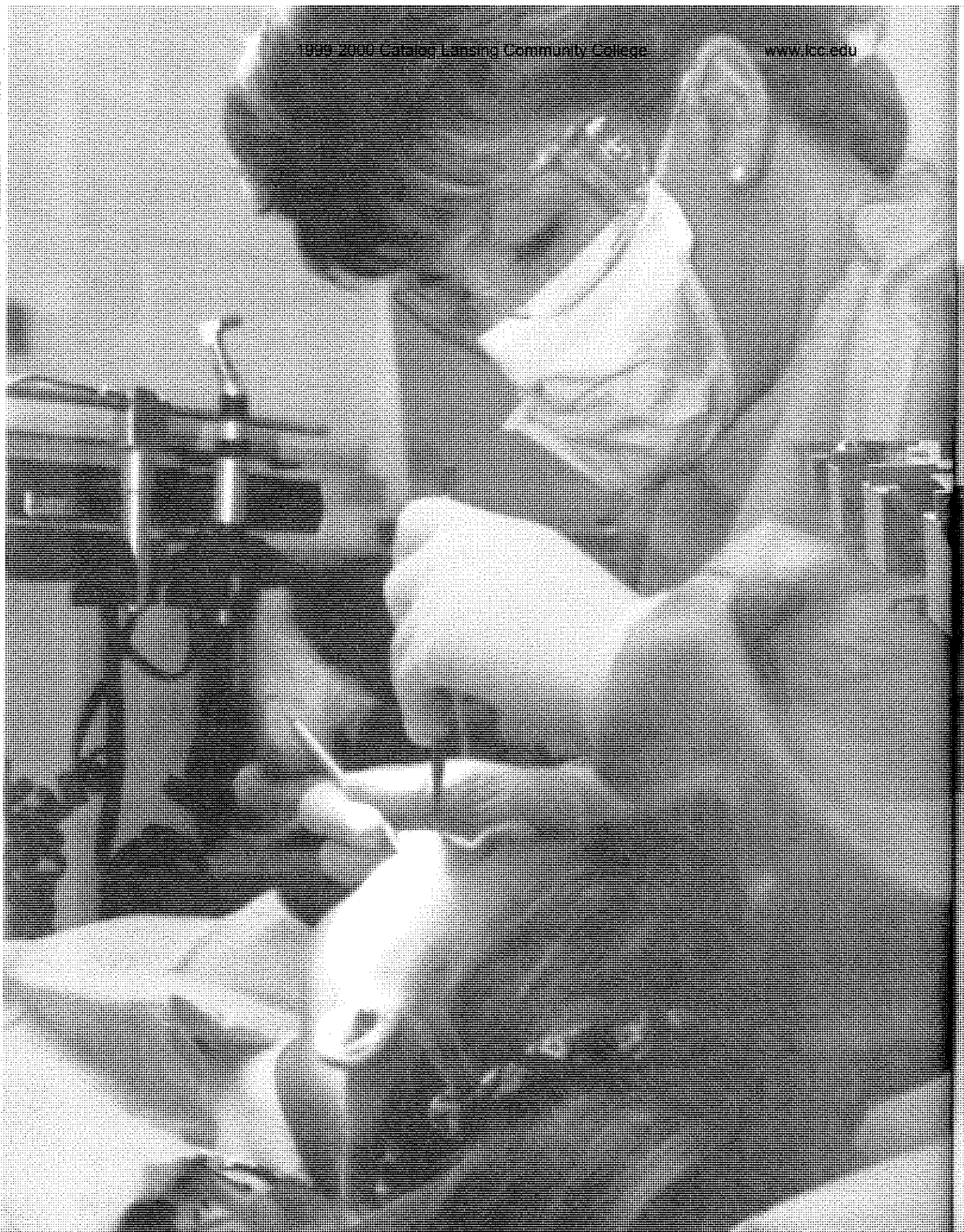
The Women's Resource Center offers services and programs in support of women and men at Lansing Community College, including financial assistance, displaced homemaker services, childcare assistance, and referral services.

INFORMATION FOR PERSONS WITH DISABILITIES

Lansing Community College is committed to making accommodations and providing services for persons with disabilities. The College has administrative and faculty specialists who respond to visual, hearing, mobility, and alternative learning accommodation needs. They can be reached in the Office of Disability Support Services (517) 483-1184 (Voice), or (517) 483-1207 (Voice/TTY). The College adheres to the standards and guidelines set forth in the Americans With Disabilities Act.

To be eligible for services and accommodations through ODSS, students are required to provide written verification of their disability. If documentation is not available, services may be provided for the first semester only. Documentation must be signed and dated by a qualified professional who has diagnosed the disability. If necessary, the ODSS staff can help students find the appropriate professionals to diagnose their disability.

Handicap-accessible parking is available and clearly identified at Lansing Community College. For more information, call the office of Parking Services at (517) 483-1798.

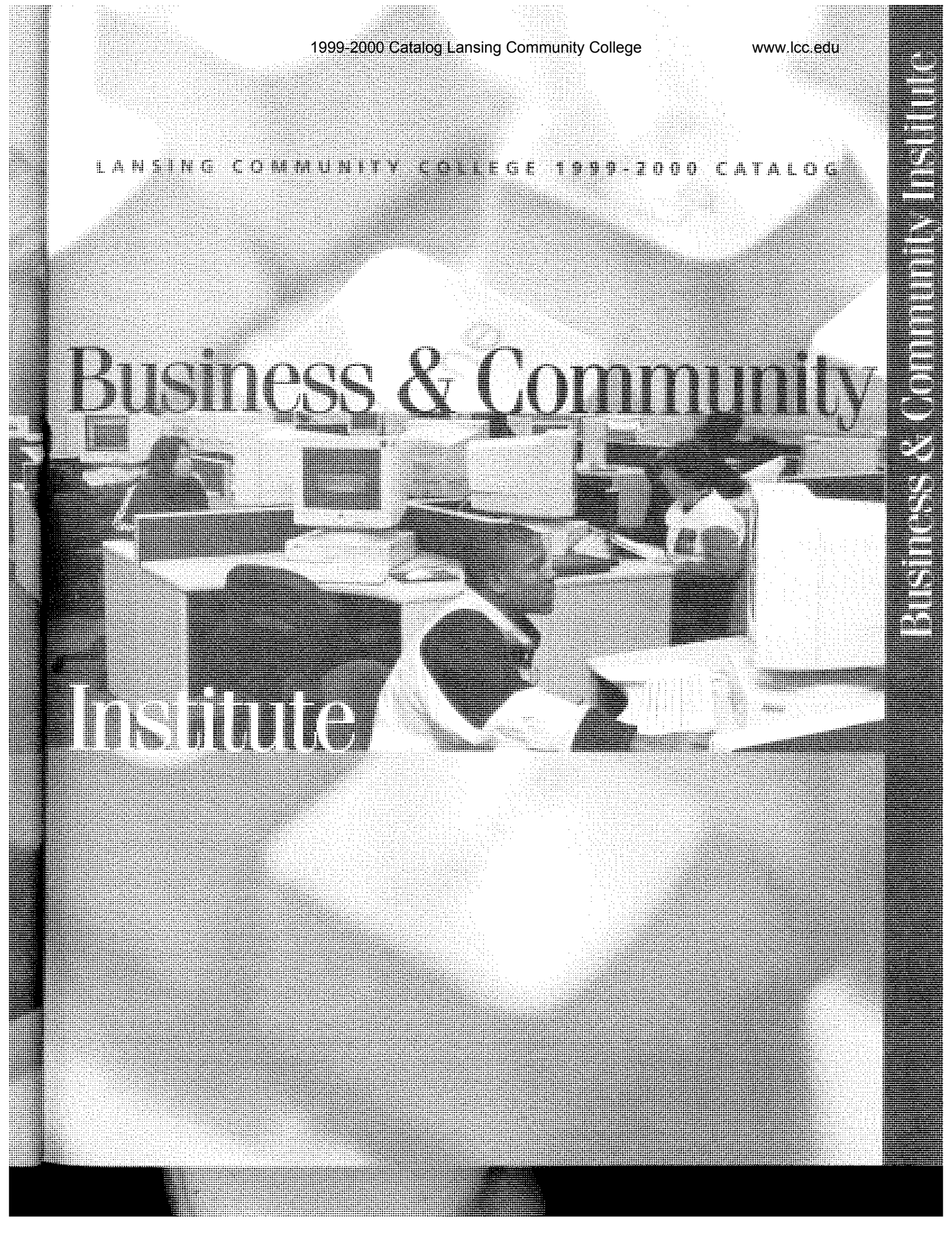


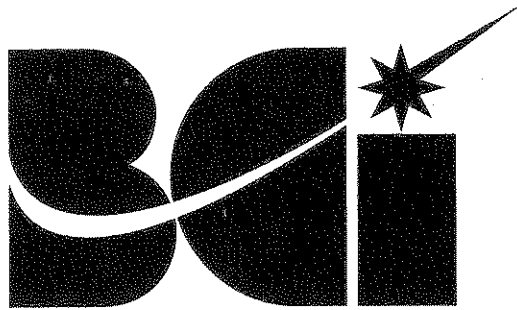
LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

Business & Community

Institute

Business & Community Institute





**BUSINESS & COMMUNITY
INSTITUTE**
LANSING COMMUNITY COLLEGE

Training and Services
for Business, Industry,
Government and
Professionals

Mission/Purpose of the Business & Community Institute

We deliver customized business and personal development services that contribute to our customers' success. We build partnerships for workforce, economic and community development.

What BCI Can Do for You

The Business & Community Institute (BCI) can work with your business or organization to develop the training and business solutions needed in today's business climate. BCI provides customized training and consulting in a wide variety of leadership, management, supervisory, and technical areas.

BCI's account executives will help you to identify training programs that will increase productivity and reduce costs at your company, or that will help you to meet your staff members' professional continuing education goals. BCI specializes in designing custom training programs to meet the workforce development needs of a variety of organizations. Employees of more than 350 different organizations have used these services in the past year.

Types of Programs and Services Offered

BCI can provide your organization with a variety of programs, either non-credit/CEU-based courses and seminars or college credit courses selected from this Catalog. Other services of BCI include training needs assessment, job profiling and skill development, organization development consulting, and facilities rental and conference services. The Small Business Development Center offers counseling and training to help you start and maintain your own small business.

Here is a sampling of areas addressed by our training programs:

- Small Business Development
- Microcomputer Software Applications/Business Software
- Technical Skills
- Human Resource Development
- Quality Assurance and Productivity Improvement
- Nursing and Dental Continuing Education
- EMT/Paramedic and Allied Health Training
- Criminal Justice
- Leadership and Management Skills
- Computer-Aided Design and Computer-Aided Manufacturing (CAD/CAM)
- Continuing Medical Education for Physicians (New)

Where Programs Are Offered

Programs can be offered on-site at your place of business. Programs may also be held on the LCC campus in downtown Lansing, at the Howell Extension Center, at one of our suburban Learning Center sites, or at any suitable location arranged between BCI and the sponsoring employer. Our Laptop Lab has traveled to many companies to provide on-site computer software training. We can train on-site using company equipment for some customized technical training programs. You choose what best suits your needs.

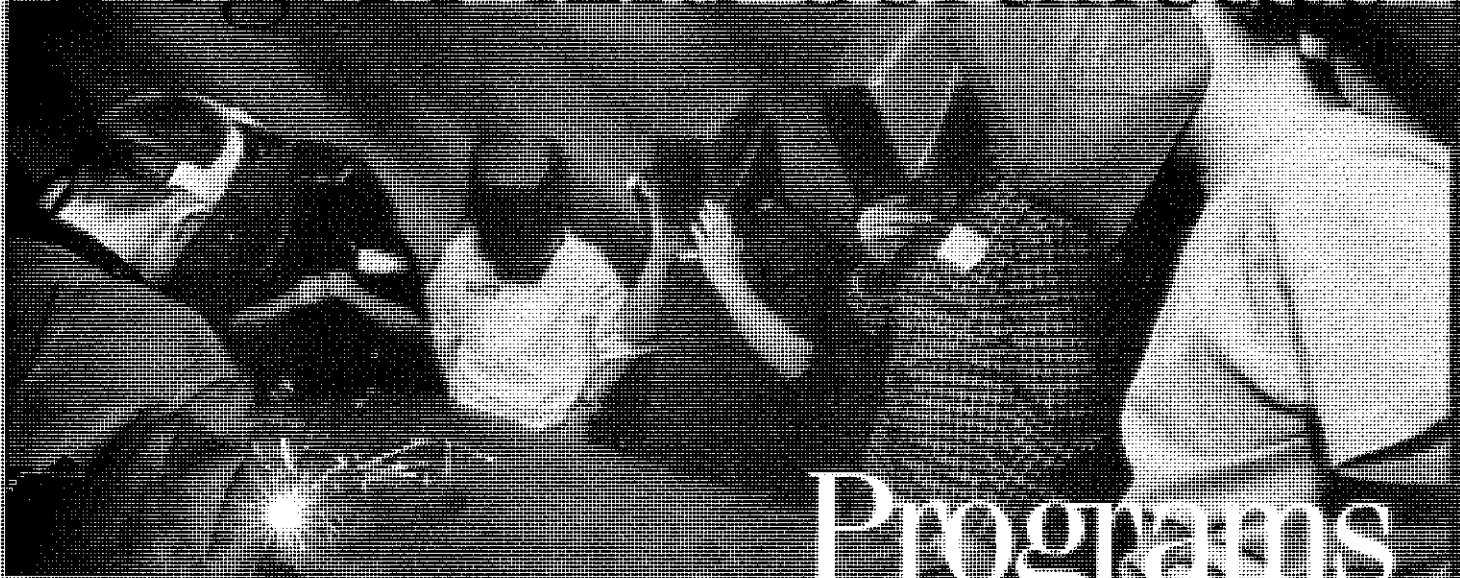
Let BCI staff partner with you to meet your business needs in a cost-effective way. Call the Business & Community Institute at (517) 483-1857. Or call LCC's toll-free line at 1-800-644-4LCC and ask to be connected to the BCI today.

LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

Degree and Certificate

Programs

Degree and Certificate Programs



ASSOCIATE IN ARTS DEGREE

EFFECTIVE FALL 1999-SUMMER 2004

This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year college or university to pursue a baccalaureate degree in such disciplines or subject areas as the following:

Pre-Accounting	Fine Arts	Philosophy
African American History	Foreign Language	Political Science
American Studies	Geography	Psychology
Art History	History	Religion
Pre-Business	Humanities	Secondary Education
Criminal Justice	International Studies	Social Science
Pre-Economics	Liberal Arts	Sociology
Elementary Education	Literature	Speech Communication

The specific requirements for this degree are presented below. A minimum of 60 credits is required. This degree guide consists of General Education Requirements and a Subject Area Concentration which may include Limited Choice Electives. The curriculum is structured to enable students to satisfy the LCC General Education Core Requirements, as well as the MACRAO Transfer Agreement between two-year and four-year institutions in Michigan.

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

NOTE: Students should be aware that general education and subject area requirements vary from one college or university to another. Prior to beginning this curriculum, students should see an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904), obtain an appropriate transfer guide (also in the Counseling and Advising Center), and/or contact the school to which they will transfer for specific transfer institution requirements. (See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available.)

In addition, students may request specific course substitutions by submitting a Course Substitution and Waiver Authorization for Degree Screening Form to the Liberal Studies Office of Instruction, Room 110 of the Arts and Sciences Building.

I. GENERAL EDUCATION REQUIREMENTS Minimum 35 credits

By following the directions in this section, students will automatically be able to satisfy the following general education requirements:

- Lansing Community College General Education Core Requirements in the areas of mathematics, global perspectives and diversity, writing, science and technology, and speech communication. (Complete information about LCC Core requirements can be found on page 22 of this catalog.)
- The MACRAO Transfer Agreement. (See *Transfer Information* in this section of the Catalog for a complete list of MACRAO requirements.)
- Additional General Education Requirements established specifically for this Associate in Arts Degree.

Students who complete Core courses other than those indicated below, and who wish to apply those credits toward the Associate in Arts Degree, should contact a faculty advisor or counselor in Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904.

Before selecting general education courses, students should consult II (SUBJECT AREA CONCENTRATIONS AND LIMITED CHOICE ELECTIVES) below for possible recommendations and requirements. Credits for each course have been indicated in parenthesis.

(NOTE: In this section, courses that satisfy the LCC General Education Core Requirements are underlined.)

1. English Composition 8 credits

Completing any one of the courses listed in this section satisfies the LCC General Education Core Requirement in writing.

- Complete one course from the following:
WRIT 121 (4) or WRIT 131 (4)
AND

- Complete one course from the following:
WRIT 122 (4) ENGL 122 (4) WRIT 132 (4) ENGL 132 (4)
OR

- if WRIT 121 is waived, select ENGL 122 or WRIT 122, AND a second WRIT or ENGL course with a number of 200 or higher.

2. Science and Mathematics Minimum of 8 credits

Completing at least one underlined course from A or B will satisfy the LCC General Education Core Requirement in Science and Technology. If C is not chosen in this category, then the LCC Core requirement for Mathematics must be met by one of the options described on page 22 of this catalog.

A minimum of 8 credits must be chosen from two of the three categories below (A, B, C).

- A. Physical Science
- | | | |
|-------------------------------|---------------------|-------------------------------|
| <u>ASTR 201 (4)</u> | GEOL 222 (4) | <u>METR 220 (4)</u> |
| <u>CHEM 135 (4)</u> | GEOL 230 (4) | PHYS 201 & 225 (5) |
| <u>CHEM 151 & 161 (5)</u> | <u>ISCI 121 (4)</u> | <u>PHYS 215 & 225 (6)</u> |
| GEOL 221 (4) | <u>ISCI 131 (4)</u> | |

- B. Biological Science
- | | | |
|--------------|---------------------|---------------------|
| ANAT 145 (4) | BIOL 127 (4) | BIOL 265 (4) |
| ANAT 151 (3) | BIOL 128 (4) | ISCI 122 (4) |
| ANAT 201 (4) | <u>BIOL 210 (4)</u> | MICR 203 & 204 (4) |
| BIOL 121 (4) | BIOL 260 (4) | <u>PHGY 202 (4)</u> |

- C. Mathematics
- | | | |
|---------------------|---------------------|--------------|
| <u>MATH 121 (4)</u> | <u>MATH 141 (3)</u> | STAT 170 (3) |
| <u>MATH 122 (3)</u> | <u>MATH 151 (4)</u> | STAT 215 (4) |
| <u>MATH 126 (5)</u> | <u>MATH 152 (4)</u> | |
| <u>MATH 130 (3)</u> | <u>MATH 201 (3)</u> | |

3. Social Science Minimum of 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the LCC General Education Core Requirement in Global Perspectives and Diversity.

- Complete one course in Political Science from the following:
POLS 120 (4) OR POLS 121 (4)
- Complete one course or course pair from the following:
ECON 120 (4) GEOG 200 (4) SOCL 120 (4)
ECON 201 & ECON 202 (6) PSYC 200 (4)

4. Humanities 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the LCC General Education Core Requirement in Global Perspectives and Diversity.

- Complete one course from group A and one from group B. It is recommended that the Group A course be completed before the Group B course.

- GROUP A
- | | | |
|---------------------|---------------------|---------------------|
| <u>ENGL 211 (4)</u> | <u>HUMS 211 (4)</u> | <u>PHIL 211 (4)</u> |
| HIST 211 (4) | <u>HUMS 213 (4)</u> | RELG 211 (4) |

- GROUP B
- | | | |
|---------------------|---------------------|---------------------|
| <u>ENGL 212 (4)</u> | <u>HUMS 212 (4)</u> | RELG 212 (4) |
| HIST 212 (4) | <u>HUMS 214 (4)</u> | <u>PHIL 212 (4)</u> |
| HIST 214 (4) | | |

5. Speech 3 credits

Complete the following course: SPCH 120 (3)

II. SUBJECT AREA CONCENTRATIONS AND LIMITED CHOICE ELECTIVES Minimum of 25 credits

The following Subject Area Concentrations list the remaining required and recommended courses that will apply toward an Associate in Arts Degree. Some concentrations also contain Limited Choice Electives which are presented at the end of this section. Courses should be selected in consultation with an academic advisor or counselor to determine their transferability to a specific four-year school. Credits for each course have been indicated in parenthesis.

PRE-ACCOUNTING

Curriculum Code: 10254

1. Complete ECON 201 and ECON 202 to satisfy part of the Social Science General Education Requirements.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirements.
3. Complete the following required courses (15 credits):

ACCG 210	Principles of Accounting I (4)
ACCG 211	Principles of Accounting II (4)
MATH 141	Calculus with Applications (3)
STAT 215	Intro to Probability and Stats (4)
4. Complete one of the following (3-4 credits):

CISB 100	Intro to Computer Info Systems (3)
CISB 120	Intro to Programming/Logic (4)
CPSC 120	Introduction to Computers (3)
5. Complete one of the following (3 credits):

MATH 122	College Algebra II and Trig (3)
MATH 130	Finite Mathematics (3)
6. Complete a minimum of 2-3 credits from the list of Limited Choice Electives at the end of this section.

AFRICAN AMERICAN HISTORY

Curriculum Code: 10137

1. Complete courses other than HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):

HIST 150	African-American History (4)
HIST 211	U.S. History to 1877 (4)
HIST 212	U.S. History: 1877 to the Present (4)
HIST 214	African History (4)
HIST 260	Conflict & Revolution in South Africa (4)
3. Complete a minimum of 7 credits from the following:

ENGL 260	African-American Literature (4)
SOCL 255	Contemporary Social Problems (3)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

AMERICAN STUDIES

Curriculum Code: 10142

1. Complete courses other than HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):

ENGL 255	American Literature I (4)
ENGL 256	American Literature II (4)
HIST 211	U.S. History to 1877 (4)
HIST 212	U.S. History: 1877 to Present (4)
HUMS 215	American Civilization (4)
3. Complete a minimum of 8 credits from the following:

ENGL 260	African-American Literature (4)
HIST 150	African-American History (4)
HIST 220	Michigan History (4)
POLS 120	American Political System (4)

ART HISTORY

Curriculum Code: 10746

1. Complete HIST 211 or HUMS 213 and complete HIST 212, HIST 214 or HUMS 214 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (20 credits):

HUMS 160	Mythology (4)
HUMS 211	History of Art I (4)
HUMS 212	History of Art II (4)
RELG 211	World Religions I (4)
RELG 212	World Religions II (4)
3. Complete a minimum of 8 credits from the following:

ENGL 211	World Literature I (4)
ENGL 212	World Literature II (4)
HUMS 120	Western Art and Music History (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

PRE-BUSINESS

Curriculum Code: 10232

1. Complete ECON 201 and ECON 202 in addition to POLS 120 or POLS 121 to satisfy the Social Science General Education Requirement.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete the following required courses (11 credits):

ACCG 210	Principles of Accounting I (4)
ACCG 211	Principles of Accounting II (4)
BUSN 118	Introduction to Business (3)
4. Complete one of the following (3 credits):

CISB 100	Intro to Computer Info Systems (3)
CPSC 120	Introduction to Computers (3)
5. Complete one of the following (3-4 credits):

ECON 213	U.S. Economic/Business History (3)
MATH 141	Calculus with Applications (3)
MATH 151	Calculus I (4)
PSYC 200	Introduction to Psychology (4)
SOCL 120	Introduction to Sociology (4)
STAT 215	Intro to Probability and Stats (4)
6. Complete a minimum of 5-6 credits from the list of Limited Choice Electives at the end of this section.

CRIMINAL JUSTICE

Curriculum Code: 10146

1. Complete the following required courses (15 credits):

CJUS 101	Intro to Criminal Justice (3)
CJUS 102	Crime Causes and Conditions (3)
CJUS 103	Criminal Law (3)
CJUS 106	Intro to Juvenile Justice (3)
CJUS 131	Introduction to Corrections (3)
2. Complete a minimum of 10 credits from the following:

CJUS 255	Human Relations/Criminal Just (3)
PSYC 200	Introduction to Psychology (4)
PSYC 202	Psychology of Personality (3)
PSYC 203	Social Psychology (3)
PSYC 205	Human Growth and Development (3)
PSYC 250	Abnormal Psychology (3)
SOCL 120	Introduction to Sociology (4)
SOCL 255	Contemporary Social Problems (3)
SOCL 260	Minority Groups (3)

PRE-ECONOMICS

Curriculum Code: 10230

1. Complete ECON 201 and ECON 202 to satisfy part of the Social Science General Education Requirements.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirements.
3. Complete the following required courses (**6 credits**):
CPSC 120 Introduction to Computers (3)
MATH 122 College Algebra II and Trig (3)
4. Complete a minimum of **17 credits** from the following:
ACCG 210 Principles of Accounting I (4)
ACCG 211 Principles of Accounting II (4)
ECON 213 U.S. Economic/Business History (3)
MATH 141 Calculus with Applications (3)
MATH 151 Calculus I (4)
MATH 152 Calculus II (4)
MATH 253 Calculus III (4)
MATH 254 Intro: Differential Equations (3)
MATH 260 Linear Algebra (3)
PSYC 200 Introduction to Psychology (4)
SOCL 120 Introduction to Sociology (4)
STAT 215 Intro to Probability and Stats (4)
Any foreign language with course numbers 121, 122, 201, or 202 (4).
A second science course so that you complete both a biological science and a physical science (4-6)

ELEMENTARY EDUCATION

Curriculum Code: 10747

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**20 credits**):
ARTS 240 Art for Elementary Teachers (3)
CPSC 120 Introduction to Computers (3)
EDUC 201 Teacher Education Practicum (2)
EDUC 220 Introduction to Education (3)
MATH 201 Math for Liberal Arts I (3)
MUSC 200 Music Fund for Elem Teachers (3)
PSYC 204 Educational Psychology (3)
3. Complete *two* of the following three choices (A, B, C) (**6-8 credits**):
A. GEOG 121 Physical Geography (3)
or
GEOG 200 World Regional Geography (4)
B. PSYC 205 Human Growth and Development (3)
or
PSYC 221 Child Psychology (3)
C. ANTH 270 Cultural Anthropology (3)
or
SOCL 120 Introduction to Sociology (4)
or
SOCL 260 Minority Groups (3)

FINE ARTS

Curriculum Code: 10748

1. Complete HUMS 211 and HUMS 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (**12 credits**):
ARTS 102 2-Dimensional Design (3)
ARTS 103 3-Dimensional Design (3)

ARTS 131 Drawing I (3)
ARTS 132 Life Drawing (3)

3. Complete **6 credits** from the following:

ARTS 140 Printmaking I (3)
ARTS 141 Printmaking II (3)
ARTS 145 Screen Printing I (3)
ARTS 146 Screen Printing II (3)
ARTS 200 Painting I (3)
ARTS 201 Painting II (3)
ARTS 204 Watercolor I (3)
ARTS 205 Watercolor II (3)

4. Complete a minimum of **7 credits** from the list of Limited Choice Electives at the end of this section.

FOREIGN LANGUAGE

Curriculum Code: 10132

1. Complete the following required course (**3 credits**):
SPCH 280 Intercultural Communication (3)
2. Complete *one* of the following *four* choices (A, B, C, D) (**16 credits**):
A. FREN 121 Elementary French I (4)
FREN 122 Elementary French II (4)
FREN 201 Intermediate French I (4)
FREN 202 Intermediate French II (4)
B. GRMN 121 Elementary German I (4)
GRMN 122 Elementary German II (4)
GRMN 201 Intermediate German I (4)
GRMN 202 Intermediate German II (4)
C. JAPN 121 Elementary Japanese I (4)
JAPN 122 Elementary Japanese II (4)
JAPN 201 Intermediate Japanese I (4)
JAPN 202 Intermediate Japanese II (4)
D. SPAN 121 Elementary Spanish I (4)
SPAN 122 Elementary Spanish II (4)
SPAN 201 Intermediate Spanish I (4)
SPAN 202 Intermediate Spanish II (4)
3. Complete a minimum of **8 credits** of any foreign language with course numbers 121, 122, 201, or 202 *other than* those chosen as the major language of concentration from the choices in Number 2 above.

GEOGRAPHY

Curriculum Code: 10749

1. Complete GEOG 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**9 credits**):
GEOG 120 Introduction to Geography (3)
GEOG 121 Physical Geography (3)
GEOG 202 Geography of North America (3)
3. Complete a minimum of **16 credits** from the following:
ANTH 270 Cultural Anthropology (3)
ECON 120 Power, Authority and Exchange (4)
GEOG 203 Economic Geography (3)
GRET 205 Principles Geographic Info Sys (3)
METR 220 Introduction to Meteorology (4)
POLS 260 Comparative Political Systems (3)
POLS 270 International Relations (3)
SOCL 120 Introduction to Sociology (4)
STAT 170 Introduction to Statistics (3)
Any foreign language with course numbers 121, 122, 201, or 202 (4)

HISTORY

Curriculum Code: 10197

- Complete courses *other than* HIST 211, HIST 212, and HIST 214 to satisfy the Humanities General Education Requirement.
- Complete the following required courses (12 credits):

HIST 211	U.S. History to 1877 (4)
HIST 212	U.S. History: 1877 to Present (4)
HIST 214	African History (4)
- Complete a minimum of 16 credits from the following:

ENGL 255	American Literature I (4)
ENGL 256	American Literature II (4)
HIST 150	African-American History (4)
HIST 210	Studies in American History (4)
HIST 220	Michigan History (4)
HIST 230	British History (4)
HIST 260	Conflict & Revolu Southn Africa (4)
RELG 250	Religions of East Asia (4)

HUMANITIES

Curriculum Code: 10119

- Complete courses *other than* HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement.
- Complete the following required courses (8 credits):

HUMS 213	World Civilizations I (4)
HUMS 214	World Civilizations II (4)
- Complete a minimum of 20 credits from the following:

ENGL 201	Introduction to Poetry (4)
ENGL 202	Introduction to Drama (4)
ENGL 203	Introduction to Prose (4)
ENGL 211	World Literature I (4)
ENGL 212	World Literature II (4)
ENGL 255	American Literature I (4)
ENGL 256	American Literature II (4)
HIST 211	U.S. History to 1877 (4)
HIST 212	U.S. History: 1877 to Present (4)
HUMS 120	Western Art and Music History (4)
HUMS 160	Mythology (4)
HUMS 211	History of Art I (4)
HUMS 212	History of Art II (4)
PHIL 151	Intro: Logic & Critical Think (4)
PHIL 152	Introduction to Ethics (4)
PHIL 153	Knowledge and Reality (4)
PHIL 211	World Philosophies I (4)
PHIL 212	World Philosophies II (4)
RELG 211	World Religions I (4)
RELG 212	World Religions II (4)

INTERNATIONAL STUDIES

Curriculum Code: 10252

- Complete GEOG 200 and POLS 120 to satisfy the Social Science General Education Requirement.
- Complete HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement and the Global Diversity Core Requirement.
- Complete *one of* the following (3 credits):

POLS 260	Comparative Political Systems (3)
POLS 270	International Relations (3)
- Complete 8 credits of any foreign language with course numbers 121, 122, 201, or 202.

- Complete a minimum of 14 credits from the following:

ANTH 270	Cultural Anthropology (3)
ANTH 271	Medical Anthropology (3)
ECON 120	Power, Authority and Exchange (4)
ECON 201	Principles of Economics—Micro (3)
ECON 202	Principles of Economics—Macro (3)
ENGL 211	World Literature I (4)
ENGL 212	World Literature II (4)
GEOG 203	Economic Geography (3)
HIST 214	African History (4)
HIST 230	British History (4)
PHIL 211	World Philosophies I (4)
PHIL 212	World Philosophies II (4)
POLS 280	Politics & Government of Japan (3)
PSYC 200	Introduction to Psychology (4)
RELG 211	World Religions I (4)
RELG 212	World Religions II (4)
SOCL 120	Introduction to Sociology (4)
SOCL 185	The Africans (2)
SOCL 260	Minority Groups (3)
SOCL 280	Intro to Japanese Culture (3)

LIBERAL ARTS

Curriculum Code: 10251

Complete a minimum of 25 credits from the list of Limited Choice Electives at the end of this section. A maximum of 6 of those credits may come from any courses numbered 110 to 119 or with course codes ENRI, READ, or SPCL. The following courses are recommended choices.

BIOL 210	Natural Resource Conservation (4)
CHEM 135	Chemistry in Society (4)
CPSC 120	Introduction to Computers (3)
ENGL 256	American Literature II (4)
MATH 201	Math for Liberal Arts I (3)
PHIL 152	Introduction to Ethics (4)
PSYC 200	Introduction to Psychology (4)
SOCL 120	Introduction to Sociology (4)
SPCH 280	Intercultural Communication (3)

Any foreign language course with number 121, 122, 201, or 202 (4)

LITERATURE

Curriculum Code: 10124

- Complete the following required courses (12 credits):

ENGL 201	Introduction to Poetry (4)
ENGL 202	Introduction to Drama (4)
ENGL 203	Introduction to Prose (4)
- Complete a minimum of 16 credits from *one of* the following choices (A,B):

A.	ENGL 255	American Literature I (4)
	ENGL 256	American Literature II (4)
	ENGL 260	African-American Literature (4)
	ENGL 266	British Literature I (4)
	ENGL 267	British Literature II (4)
	ENGL 290	Shakespeare (4)
	HUMS 160	Mythology (4)
	PHIL 151	Intro: Logic & Critical Think (4)
	RELG 241	Old Testament Literature (4)
	Any foreign language with course numbers 121, 122, 201, or 202 (4)	
B.	EDUC 201	Teacher Education Practicum (2)
	EDUC 220	Introduction to Education (3)
	ENGL 255	American Literature I (4)
	ENGL 256	American Literature II (4)
	PSYC 200	Introduction to Psychology (4)
	PSYC 204	Educational Psychology (3)

PHILOSOPHY

Curriculum Code: 10159

1. Complete courses *other than* PHIL 211 and PHIL 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (**12 credits**):

PHIL 151	Intro: Logic & Critical Think (4)
PHIL 211	World Philosophies I (4)
PHIL 212	World Philosophies II (4)
3. Complete a minimum of **16 credits** from the following:

HUMS 120	Western Art and Music History (4)
HUMS 213	World Civilizations I (4) (<i>See Note 1</i>)
HUMS 214	World Civilizations II (4) (<i>See Note 1</i>)
HUMS 225	Grt Lake Native Amer: Hist & Trad (4)
PHIL 152	Introduction to Ethics (4) (<i>See Note 2</i>)
PHIL 153	Knowledge and Reality (4) (<i>See Note 2</i>)
PHIL 260	Contemporary Ethical Problems (4)
RELG 250	Religions of East Asia (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

NOTES

1. HUMS 213 and HUMS 214 may be used to fulfill the General Education Requirement if not already selected to fulfill the Humanities General Education Requirement listed in number 1 above.
2. Students may elect to take either PHIL 152 *OR* PHIL 153 but not both.

POLITICAL SCIENCE

Curriculum Code: 10750

1. Complete POLS 120 *and* SOCL 120 to satisfy the Social Science General Education Requirement.
2. Complete ISCI 131 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete HIST 211 and 212 to satisfy the Humanities General Education Requirement.
4. Complete the following required courses (**7 credits**):

POLS 121	State and Local Government (4)
POLS 260	Comparative Political Systems (3)
5. Complete a minimum of **18 credits** from the following:
 (Note: If STAT 170 is selected, then select MATH 121 to satisfy part of the Science and Mathematics General Education Requirement.)

CPSC 120	Introduction to Computers (3)
ECON 120	Power, Authority and Exchange (4)
ECON 201	Principles of Economics—Micro (3)
ECON 202	Principles of Economics—Macro (3)
GEOG 200	World Regional Geography (4)
POLS 205	Government Internship (3)
POLS 240	Introduction to Public Policy (3)
POLS 250	Amer Pol Parties/Interest Grps (3)
POLS 270	International Relations (3)
POLS 280	Politics & Government of Japan (3)
PSYC 200	Introduction to Psychology (4)
SOCL 255	Contemporary Social Problems (3)
SOCL 260	Minority Groups (3)
STAT 170	Introduction to Statistics (3)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

PSYCHOLOGY

Curriculum Code: 10215

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete MATH 121 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete *one* of the following two courses (**3 credits**):

PSYC 203	Social Psychology (3)
PSYC 204	Educational Psychology (3)
4. Complete *one* of the following three courses (**3 credits**):

PSYC 205	Human Growth and Development (3)
PSYC 221	Child Psychology (3)
PSYC 222	Adolescent Psychology (3)
5. Complete *one* of the following two courses (**3 credits**):

PSYC 209	Cognitive Psychology (3)
PSYC 210	Biological Psychology (3)
6. Complete *one* of the following two courses (**3 credits**):

PSYC 202	Psychology of Personality (3)
PSYC 250	Abnormal Psychology (3)
7. Complete a minimum of **10 credits** from the following:

ANTH 270	Cultural Anthropology (3)
ANTH 271	Medical Anthropology (3)
CPSC 120	Introduction to Computers (3)
POLS 240	Introduction to Public Policy (3)
PSYC 175	Psychology of Death: A Preparation for Living (3)
PSYC 240	Psychology of Human Sexuality (3)
SOCL 120	Introduction to Sociology (4)
SOCL 254	Marriage and Family (3)
STAT 170	Introduction to Statistics (3)
STAT 215	Intro to Probability and Stats (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

RELIGION

Curriculum Code: 10751

1. Complete courses *other than* RELG 211 and RELG 212 to satisfy the Humanities General Education Requirement.
2. Complete the following required courses (**8 credits**):

RELG 211	World Religions I (4)
RELG 212	World Religions II (4)
3. Complete a minimum of **19–20 credits** from the following:

ANTH 270	Cultural Anthropology (3)
PHIL 152	Introduction to Ethics (4) (<i>See Note 1</i>)
PHIL 260	Contemporary Ethical Problems (4) (<i>See Note 1</i>)
RELG 241	Old Testament Literature (4)
RELG 242	New Testament Literature (4)
RELG 250	Religions of East Asia (4)

 Any foreign language with course numbers 121, 122, 201, or 202 (4)

NOTE

1. Students may elect to take either PHIL 152 *OR* PHIL 260 but not both.

SECONDARY EDUCATION

Curriculum Code: 10752

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**11 credits**):
 CPSC 120 Introduction to Computers (3)
 EDUC 201 Teacher Education Practicum (2)
 EDUC 220 Introduction to Education (3)
 PSYC 204 Educational Psychology (3)
3. Complete *one* of the following five courses (**3-4 credits**):
 ANTH 270 Cultural Anthropology (3)
 PSYC 205 Human Growth and Development (3)
 PSYC 222 Adolescent Psychology (3)
 SOCL 120 Introduction to Sociology (4)
 SOCL 260 Minority Groups (3)
4. Complete *one* of the following two courses (**4 credits**):
 MATH 112 Intermediate Algebra (4)
 MATH 121 College Algebra I (4)
5. Complete a minimum of **6-7 credits** from the list of Limited Choice Electives at the end of this section in the subject area in which you plan to teach.

SOCIAL SCIENCE

Curriculum Code: 10121

1. Complete SOCL 120 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**11 credits**):
 ECON 201 Principles of Economics - Micro (3)
 GEOG 200 World Regional Geography (4)
 PSYC 200 Introduction to Psychology (4)
3. Complete one course from *two* of the following choices (A, B, C, D, E) (**6 credits**):
 - A. ECON 202 Principles of Economics - Macro (3)
 - B. GEOG 120 Introduction to Geography (3)
 GEOG 121 Physical Geography (3)
 GEOG 202 Geography of North America (3)
 - C. POLS 240 Introduction to Public Policy (3)
 POLS 250 Amer Pol Parties/Interest Grps (3)
 POLS 260 Comparative Political Systems (3)
 POLS 270 International Relations (3)
 - D. PSYC 202 Psychology of Personality (3)
 PSYC 203 Social Psychology (3)
 PSYC 204 Educational Psychology (3)
 PSYC 205 Human Growth and Development (3)
 PSYC 221 Child Psychology (3)
 PSYC 222 Adolescent Psychology (3)
 PSYC 250 Abnormal Psychology (3)
 - E. ANTH 270 Cultural Anthropology (3)
 ANTH 271 Medical Anthropology (3)
 ANTH 275 Physical Anthr and Archeology (3)
 ANTH 276 World Archeology (3)
 SOCL 254 Marriage and Family (3)
 SOCL 255 Contemporary Social Problems (3)
 SOCL 260 Minority Groups (3)
4. Complete a minimum of **8 credits** numbered 120 or higher from the list of Limited Choice Electives at the end of this section. Courses in social sciences, foreign languages, statistics, computer science, and mathematics are recommended.

SOCIOLOGY

Curriculum Code: 10753

1. Complete POLS 120 *and* SOCL 120 to satisfy the Social Science General Education Requirement and the Global Diversity Core Requirement.
2. Complete ISCI 131 to satisfy part of the Science and Mathematics General Education Requirement.
3. Complete HUMS 213 and 214 to satisfy the Humanities General Education Requirement.
4. Complete the following required courses (**6 credits**):
 ANTH 270 Cultural Anthropology (3)
 SOCL 255 Contemporary Social Problems (3)
5. Complete a minimum of **19 credits** from the following:
 ANTH 271 Medical Anthropology (3)
 CPSC 120 Introduction to Computers (3)
 ECON 120 Power, Authority and Exchange (4)
 ECON 201 Principles of Economics-Micro (3)
 ECON 202 Principles of Economics-Macro (3)
 GEOG 200 World Regional Geography (4)
 GEOG 203 Economic Geography (3)
 MATH 121 College Algebra I (4)
 POLS 240 Introduction to Public Policy (3)
 POLS 260 Comparative Political Systems (3)
 POLS 270 International Relations (3)
 PSYC 200 Introduction to Psychology (4)
 PSYC 203 Social Psychology (3)
 SOCL 254 Marriage and Family (3)
 SOCL 260 Minority Groups (3)
 SOCL 280 Introduction to Japanese Culture (3)
 STAT 170 Introduction to Statistics (3)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)

SPEECH COMMUNICATION

Curriculum Code: 10136

1. Complete SOCL 120 to satisfy part of the Social Science General Education Requirement.
2. Complete the following required courses (**9 credits**):
 SPCH 130 Fundamentals of Public Speaking (3)
 SPCH 140 Interpersonal Communication (3)
 SPCH 280 Intercultural Communication (3)
3. Complete a minimum of **6 credits** from the following:
 SPCH 110 Oral Communic in the Workplace (3)
 SPCH 260 Nonverbal Communication (3)
 SPCH 270 Mass Communication (3)
4. Complete a minimum of **10 credits** from the following:
 (NOTE: Students who elect foreign language courses are encouraged to take both first-year courses (121 and 122) in the language of their choice.)
 ANTH 270 Cultural Anthropology (3)
 CPSC 120 Introduction to Computers (3)
 LING 230 Introduction to Linguistics (3)
 PHIL 151 Intro: Logic & Critical Think (4)
 POLS 260 Comparative Political Systems (3)
 PSYC 200 Introduction to Psychology (4)
 Any foreign language with course numbers 121, 122, 201, or 202 (4)

LIMITED CHOICE ELECTIVES FOR ASSOCIATE IN ARTS DEGREE

Some concentrations include limited choice electives. Those limited choice electives must be selected from the following:

1. Courses numbered 120 to 294 with any of the course codes listed below:

ANAT	CPSC	GEOG	HUMS	MATH	PHYS	SOCL	WRIT
ANTH	ECON	GEOL	ISCI	METR	POLS	SOWK	
ASTR	EDUC	GRMN	JAPN	MICR	PSYC	SPAN	
BIOL	ENGL	HIST	JRNL	PHGY	READ	SPCH	
CHEM	FREN	HONR	LING	PHIL	RELG	STAT	

2. Courses on the list below:

ACCG	210, 211, 220, 221, 230, 231, 240, 241, 250, 260, 271, 280, 290
ARTS	102, 103, 131, 132, 137, 140, 141, 145, 146, 151, 162, 171, 175, 200, 201, 203, 204, 205, 206, 253
BUSN	118, 201, 250
CHDV	101, 111, 120, 121, 188, 189, 220, 221
CISB	100, 120, 122, 170, 175, 180, 250, 260, 280, 281
CJUS	101, 102, 103, 106, 130, 131, 133, 134, 135, 201, 203, 204, 250, 255

DANC	100, 101, 102, 103, 104, 111, 112, 113, 114, 126, 132, 134, 165, 191, 201, 202, 203, 204, 211, 212
EMSA	100
GRMN	115, 116
HUSE	240, 241, 242, 244
IMAG	101
LEGL	215, 216
MATH	112
MGMT	225
MKTG	140, 200, 202, 221
MUSC	101, 102, 108, 119, 123, 133, 138, 139, 144, 145, 155, 156, 163, 164, 168, 169, 179, 180, 182, 183, 188, 193, 194, 199, 200, 240, 241, 245, 248, 249, 251, 253, 263, 264, 270, 276, 280, 293, 294, 297
SIGN	161, 162, 163, 164
SOWK	101
THEA	110, 120, 181, 210, 234, 285, 295, 296

3. A maximum of two credit hours from courses with any of the course codes listed below:

PFAQ	PFDA	PFHC	PFIS	PFPR
PFCW	PFFT	PFHW	PFOA	PFTS

ASSOCIATE IN SCIENCE DEGREE

EFFECTIVE FALL 1999 – SUMMER 2004

This is primarily a transfer degree. It is designed for students who intend to transfer to a four-year college or university to pursue a baccalaureate degree in such disciplines or subject areas as the following:

Biology	Geoscience
Chemistry	Mathematics/Pre-Engineering
Computer Science	Medical Pre-Professional
Environmental Science	Physics/Pre-Engineering

The specific requirements for this degree are presented below. A minimum of 60 credits is required. This degree guide consists of General Education Requirements and a Subject Area Concentration. The curriculum is structured to enable students to satisfy the LCC General Education Core Requirements, as well as the MACRAO Transfer Agreement between two-year and four-year institutions in Michigan.

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

NOTE: Students should be aware that general education and subject area requirements vary from one college or university to another. Prior to beginning this curriculum, students should see an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904), obtain an appropriate transfer guide (also in the Counseling and Advising Center), and/or contact the school to which they will transfer for specific transfer institution requirements. (See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available).

In addition, students may request specific course substitutions by submitting a Course Substitution and Waiver Authorization for Degree Screening Form to the Liberal Studies Office of Instruction, Room 110 of the Arts and Sciences Building.

I. GENERAL EDUCATION REQUIREMENTS Minimum of 35 credits

By following the directions in this section, students will automatically be able to satisfy the following general education requirements:

- Lansing Community College General Education Core Requirements in the areas of mathematics, global perspectives and diversity, writing, science and technology, and speech communication. (Complete information about LCC Core requirements can be found on page 22 of this catalog.)
- The MACRAO Transfer Agreement. (See *Transfer Information* in this section of the Catalog for a complete list of MACRAO requirements.)
- Additional General Education Requirements established specifically for this Associate in Science Degree.

Before selecting general education courses, students should consult II (SUBJECT AREA CONCENTRATIONS) below for possible recommendations and requirements. Credits for each course have been indicated in parenthesis.

(NOTE: In this section, courses that satisfy the LCC General Education Core Requirements are underlined.)

1. English Composition 9 credits

Completing any one of the courses listed in this section satisfies the LCC General Education Core Requirement in writing.

- Complete *one* course from the following:

WRIT 121 (4) WRIT 131 (4)

AND

- Complete *one* course from the following:

WRIT 122 (4) ENGL 122 (4)

WRIT 132 (4) ENGL 132 (4)

OR

- If WRIT 121 is waived, complete ENGL 122 or WRIT 122, AND a second WRIT or ENGL course with a number of 200 or higher.

2. Science and Mathematics Minimum of 8 credits

Completing at least one underlined course from A or B will satisfy the LCC General Education Core Requirement in science and technology. If C is not chosen in this category, then the LCC Core requirement for Mathematics must be met by one of the options described on page 22 of this catalog.

A minimum of 8 credits must be chosen from two of the three categories below (A, B, and C).

A. Physical Science

<u>CHEM 151 & 161</u> (5)	GEOL 222 (4)	PHYS 201 & 225 (5)
GEOL 221 (4)	<u>METR 220</u> (4)	<u>PHYS 215 & 225</u> (6)

B. Biological Science

ANAT 201 (4)	BIOL 128 (4)	BIOL 265 (4)
BIOL 121 (4)	<u>BIOL 210</u> (4)	MICRO 203 & 204 (4)
BIOL 127 (4)	BIOL 260 (4)	<u>PHGY 202</u> (4)

C. Mathematics

<u>MATH 121</u> (4)	<u>MATH 141</u> (3)	STAT 170 (3)
<u>MATH 122</u> (3)	<u>MATH 151</u> (4)	STAT 215 (4)
<u>MATH 126</u> (5)	<u>MATH 152</u> (4)	
<u>MATH 130</u> (3)	<u>MATH 201</u> (3)	

3. Social Science Minimum of 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the institutional Core requirement in Global Perspectives and Diversity.

- Complete *one* course in Political Science from the following:

POLS 120 (4) OR POLS 121 (4)

- Complete *one* course or course pair from the following:

ECON 120 (4) GEOG 200 (4) SOCL 120 (4)

ECON 201 & 202 (6) PSYC 200 (4)

4. Humanities 8 credits

Completing at least one underlined course from Category 3 OR Category 4 will satisfy the institutional Core requirement in Global Perspectives and Diversity.

Complete *one* course from group A and *one* from group B. It is recommended that the Group A course be completed before the Group B course.

GROUP A

<u>ENGL 211</u> (4)	<u>HUMS 211</u> (4)	<u>PHIL 211</u> (4)
HIST 211 (4)	<u>HUMS 213</u> (4)	RELG 211 (4)

GROUP B

<u>ENGL 212</u> (4)	<u>HUMS 212</u> (4)	RELG 212 (4)
HIST 212 (4)	<u>HUMS 214</u> (4)	<u>PHIL 212</u> (4)
HIST 214 (4)		

5. Speech 3 credits

Complete the following course: SPCH 120 (3)

II. SUBJECT AREA CONCENTRATIONS Minimum of 25 credits

The following Subject Area Concentrations list the remaining required and recommended courses that will apply toward an Associate in Science degree. Courses should be selected in consultation with an academic advisor or counselor to determine their transferability to a specific four-year school. Credits for each course have been indicated in parenthesis.

BIOLOGY

Curriculum Code: 10221

1. Complete MATH 121, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (15 credits):
 - BIOL 127 Cell Biology (4)
 - BIOL 128 Organismal Biology (4)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Lab II (1)
 - STAT 170 Introduction to Statistics (3)
3. Complete a minimum of 12 credits from the following:
 - BIOL 210 Natural Resource Conservation (4)
 - BIOL 260 Botany (4)
 - BIOL 265 Zoology (4)
 - BIOL 270 Human Genetics (3)
 - BIOL 275 Molecular Biology I (4)
 - CHEM 251 Organic Chemistry Lecture I (4)
 - CHEM 272 Organic Chemistry Laboratory (2)
 - MICR 203 Microbiology (3)
 - MICR 204 Microbiology Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II
BIOL 127	BIOL 128
CHEM 151	CHEM 152
CHEM 161	CHEM 162
MATH 121	STAT 170

CHEMISTRY

Curriculum Code: 10117

1. Complete MATH 151, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (20 credits):
(Note: In order to complete sequences, MATH 253, PHYS 216, and PHYS 226 are also recommended.)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Lab II (1)
 - CHEM 251 Organic Chemistry Lecture I (4)
 - CHEM 252 Organic Chemistry Lecture II (4)
 - CHEM 262 Quantitative Analysis (2)
 - CHEM 272 Organic Chemistry Laboratory (2)
 - MATH 152 Calculus II (4)
3. Complete a minimum of 8 credits from the following:
 - BIOL 127 Cell Biology (4)
 - PHYS 215 Physics I: Mechanics (5)
 - PHYS 225 Physics I Lab (1)
 - STAT 215 Intro to Probability and Stats (4)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152	CHEM 251	CHEM 252
CHEM 161	CHEM 162	CHEM 262	CHEM 272
MATH 151	MATH 152		

COMPUTER SCIENCE

Curriculum Code: 10169

1. Complete MATH 151, PHYS 215, and PHYS 225 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (20 credits):
 - CPSC 230 Algorithms and Computing w/ C++ (4)
 - CPSC 231 Computing and Data Structures (4)
 - CPSC 260 Computer Science Structures (4)
 - MATH 152 Calculus II (4)
 - MATH 253 Calculus III (4)
3. Complete a minimum of 6 credits from the following:
(NOTE: In order to complete sequences, PHYS 216 is also recommended.)
 - MATH 254 Intro: Differential Equations (3)
 - MATH 280 Linear Algebra (3)
 - PHYS 216 Physics II: Electrom/Waves/Optic (5)
 - PHYS 226 Phys II Laboratory (1)
 - STAT 215 Intro to Probability and Stats (4)

ENVIRONMENTAL SCIENCE

Curriculum Code: 10755

1. Complete HUMS 213 and HUMS 214 to satisfy the Humanities General Education Requirement.
2. Complete MATH 121, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
3. Complete the following required courses (22 credits):
 - BIOL 128 Organismal Biology (4)
 - BIOL 210 Natural Resource Conservation (4)
 - CHEM 182 Introductory Organic Chemistry (3)
 - CHEM 192 Intro Organic Chemistry Lab (1)
 - CPSC 120 Introduction to Computers (3)
 - GEOL 230 Environmental Geology (4)
 - STAT 170 Introduction to Statistics (3)
4. Complete a minimum of 4 credits from the following:
 - BIOL 260 Botany (4)
 - BIOL 265 Zoology (4)
 - GEOG 121 Physical Geography (3)
 - GRET 203 Beginning MicroStation (3)
 - METR 220 Introduction to Meteorology (4)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	BIOL 128	BIOL 210	GEOL 230
CHEM 161	CHEM 182		
CPSC 120	CHEM 192		
MATH 121	STAT 170		

GEOSCIENCE

Curriculum Code: 10174

1. Complete MATH 122, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (16 credits):
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Lab II (1)
 - GEOL 221 Physical Geology (4)
 - GEOL 222 Historical Geology (4)
 - GEOL 230 Environmental Geology (4)
3. Complete a minimum of 10 credits from the following:
(NOTE: PHYS 215 and 216 may be substituted for PHYS 201 and 202 with the appropriate math background.)
 - CPSC 120 Introduction to Computers (3)
 - GEOL 210 Geology Field Studies (1)
 - METR 220 Introduction to Meteorology (4)
 - PHYS 201 Introductory Physics I (4)
 - PHYS 202 Introductory Physics II (4)
 - PHYS 225 Physics I Laboratory (1)
 - PHYS 226 Physics II Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152		GEOL 230
CHEM 161	CHEM 162		
GEOL 221	GEOL 222		
MATH 122			

MATHEMATICS/PRE-ENGINEERING

Curriculum Code: 10200

1. Complete MATH 151 and PHYS 215 and 225 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (19 credits):
 - MATH 152 Calculus II (4)
 - MATH 253 Calculus III (4)
 - MATH 254 Intro: Differential Equations (3)
 - MATH 260 Linear Algebra (3)
 - PHYS 216 Phys II: Electrom/Waves/Optic (5)
3. Complete a minimum of 6 credits from the following:
 - CPSC 230 Algorithms and Computing w/ C++ (4)
 - CPSC 231 Computing and Data Structures (4)
 - CPSC 260 Computer Science Structures (3)
 - MATH 281 Honors Math Seminar I (1)
 - PHYS 226 Phys II Laboratory (1)
 - STAT 215 Intro to Probability and Stats (4)

MEDICAL PRE-PROFESSIONAL

Curriculum Code: 10754

(NOTE: Students who are planning a career in dentistry, pharmacology, medicine, physical therapy, physicians assistant, etc. could follow this curriculum.)

1. Complete PSYC 200 to satisfy part of the Social Science General Education Requirement.
2. Complete MATH 122, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
3. Complete the following required courses (16 credits):
 - BIOL 127 Cell Biology (4)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Lab II (1)
 - PHYS 201 Introductory Physics I (4)
 - PHYS 202 Introductory Physics II (4)
4. Complete a minimum of 10 credits from the following:
 - ANAT 201 Human Anatomy (4)
 - CHEM 251 Organic Chemistry Lecture I (4)
 - CHEM 252 Organic Chemistry Lecture II (4)
 - CHEM 272 Organic Chemistry Laboratory (2)
 - PHYS 225 Physics I Laboratory (1)
 - PHYS 226 Physics II Laboratory (1)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 127	CHEM 152	PHYS 201	PHYS 202
CHEM 151	CHEM 162		
CHEM 161	PSYC 200		
MATH 122			

PHYSICS/PRE-ENGINEERING

Curriculum Code: 10112

1. Complete MATH 151, CHEM 151, and CHEM 161 to satisfy the Science and Mathematics General Education Requirement.
2. Complete the following required courses (20 credits):
 - MATH 152 Calculus II (4)
 - MATH 253 Calculus III (4)
 - PHYS 215 Physics I: Mechanics (5)
 - PHYS 225 Physics I Laboratory (1)
 - PHYS 216 Phys II: Electrom/Waves/Optic (5)
 - PHYS 226 Physics II Laboratory (1)
3. Complete a minimum of 7 credits from the following:
 - BIOL 127 Cell Biology (4)
 - CHEM 152 General Chemistry Lecture II (3)
 - CHEM 162 General Chemistry Lab II (1)
 - CPSC 150 Fortran (3)
 - CPSC 230 Algorithms and Computing w/ C++ (4)
 - MATH 254 Intro: Differential Equations (3)
 - MATH 260 Linear Algebra (3)
 - STAT 215 Intro to Probability and Stats (4)

NOTE: The following is a suggested course sequence for required courses. If you are unable to follow this sequence, contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	MATH 152	MATH 253	PHYS 216
CHEM 161		PHYS 215	PHYS 226
MATH 151		PHYS 225	

GENERAL ASSOCIATE DEGREE

Curriculum Code: 10863

EFFECTIVE FALL 1999 – SUMMER 2004

This degree is a customized program of study which should be approved by an advisor. A minimum of 60 credits is required and includes the LCC General Education Core requirements. Students must also complete EITHER a minimum of 12 related credits in an area of study of their own choosing OR they must complete the credits listed on a transfer institution curriculum guide. (See *Transfer Information* in this section of the Catalog for a list of institutions for which transfer guides are available.) Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, some students may find it necessary to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

The requirements for this program of study are outlined below. Prior to beginning this program, students should meet with an academic advisor or counselor in the Counseling and Advising Center (Room 103 of the Arts and Sciences Building, telephone number (517) 483-1904, or (517) 483-1191), or in the Counseling Services Department (Room 208 of the Student Personnel Services Building, telephone number (517) 483-1184).

REQUIREMENTS	TOTAL: 60 CREDITS
General Education Core Areas	12 Credits
<i>(Mathematics competency required—See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
Customized Options (Choose One Option - See Note 1)	48 Credits
Option A	
Credits in a Selected Area of Study	12
Elective Credits	36
Option B	
Transfer Guide Requirements (See Note 2)	Variable
Elective Credits (See Note 3)	Variable
MINIMUM TOTAL	60

NOTES

- Students should meet with an academic advisor or counselor prior to selecting courses for customized options.
- Students should complete the credits required by a transfer institution on a transfer curriculum guide. See *Transfer Information* in this section of the catalog for a list of institutions for which transfer guides are available.
- After completing transfer guide requirements, students selecting this option may also have to complete elective credits in order to meet the 60-credit minimum required for this degree.

APPLIED DEGREES AND CERTIFICATES

The programs presented in this section lead to an associate degree in applied arts, an associate degree in applied science, an associate degree in business, or a certificate. These degree and certificate programs are designed primarily for students who seek education and the acquisition of skills needed to enter the job market or to advance their current careers. Not all courses in these programs transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

ACCOUNTING	COMPUTERS	HEATING, AIR CONDITIONING, AND REFRIGERATION	OFFICE CAREERS
Accounting, AB 50	Computer Networking and Communications, AB 78	Heating, Air Conditioning, and Refrigeration, AAS 112	Administrative Assistant, AB 144
Accounting, CA 50	Computer Security and Controls, AB 79	Heating and Air Conditioning, CA 112	Executive Secretary, AB 145
Accounting, CPA Exam Preparation, AB 51	Electronics Technology, Computer Technician, AAS 80		Information/Word Processing, AB 146
Managerial Accounting, AB 52	Computer Repair Technician, CA 81		Information/Word Processing, CA 146
	Internet for Business, CA 81		Automated Office Specialist, CA 147
AGRICULTURE	Microcomputer Support Specialist, AB 82		Legal Secretary, AB 148
Precision Agriculture and Sustainable Development, AAS 53	Microcomputer Systems, AB 83		Medical Administrative Assistant, AB 149
Precision Agriculture and Sustainable Development, CA 53	Microcomputer Systems, CA 84		Medical Transcriptionist, AB 150
	Programmer/Analyst, AB 85		Office Skills Training, CC 151
			Office Support, CA 151
			Records Management, AB 152
ARCHITECTURE	COMPUTERS - ADVANCED	HOSPITALITY	
Architectural Technology, Computer Graphics Option, AAS 54	Advanced Microcomputer Application Specialist, CC 86	Hotel-Motel/Food Management Specialist, AB 113	
Architectural Technology, Core Option, AAS 55	Microcomputer User Support Specialist, CC 86		HUMAN SERVICES CAREERS
Architectural Technology, Residential Design Option, AAS 56	Windows Programming Specialist, CC 87		Child Development, AAS 114
			Child Development, CA 115
ART, DESIGN, AND MULTIMEDIA	CONSTRUCTION		Gerontology, AAS 116
Airbrush Illustration, CA 57	Residential Building, AAS 88		Gerontology, CA 117
Computer Graphics, Animation, AAA 58	Residential Building, CA 88		Human Services, General, AAS 118
Computer Graphics, Multimedia, AAA 59			Substance Abuse, AAS 119
Computer Graphics, Multimedia, CA 60	COURT REPORTING		Substance Abuse, CA 120
Figure Studies, CA 60	Court Reporting, AB 89		
Fine Art Foundation, AAA 61			INDUSTRIAL
Graphic Design, AAA 62	CREDIT UNION MANAGEMENT		Computerized Numerical Control Programmer, AAS 121
Humorous Illustration, CA 62	Credit Union Management, AB 90		Industrial Technology, AAS 122
	Credit Union Management, CC 90		Industrial Technology, CA 122
AUTOMOTIVE			Machine Maintenance, AAS 123
Air Conditioning and Electrical Accessories, CC 63	CRIMINAL JUSTICE		Machine Repair, CA 123
Alternate Fuels, CC 63	Criminal Justice, Corrections, AB 91		Millwright, CA 124
Auto Body Repair, AAS 64	Criminal Justice, Law Enforcement, AB 92		Machinist Toolmaker, AAS 125
Auto Body Repair, CA 64	Mid-Michigan Police Academy, CC 93		Tool and Die Maker, CA 125
Automotive Drive Lines, CC 65			Welding Technology, AAS 126
Automotive Steering, Suspension, and Brakes, CC 65	ELECTRICAL		Welding Technology, CA 126
Automotive Technology, AAS 66	Electrical Technology, AAS 94		
Automotive Technology, CA 66	Electrical Technology, Construction, CA 94		INTERIOR DESIGN
Engine Performance and Diagnosis, CC 67	Electrical Technology, Control and Maintenance, CA 94		Interior Design Technology, Pre-Professional, AAS 127
	Electronics Technology, AAS 96		
	Electronics Troubleshooter, CA 96		LANDSCAPE CAREERS
AVIATION			Horticulture, AAS 128
Airframe Maintenance Technology, AAS 68	ENVIRONMENTAL TECHNOLOGY		Landscape Architecture, AAS 129
Aviation Flight Technology, AAS 68	Environmental Resource Management Technology, AAS 97		
Avionics, AAS 69	Geographic Resources and Environmental Technology, AAS 98		LEGAL ASSISTANT
Avionics Installation, CC 70			Legal Assistant, AB 130
Powerplant Maintenance Technology, AAS 70	FIRE SCIENCE		Legal Assistant, Post-Baccalaureate, CA 131
	Fire Science Academy, CC 99		
BUILDING	Fire Science Technology, AAS 100		MANAGEMENT
Building Maintenance, AAS 71			Human Resource Management, AB 132
Building Maintenance, CA 72	HEALTH CAREERS		Lebor Relations, CC 133
	Dental Assistant, CA 101		Management, AB 134
BUSINESS	Dental Hygienist, AAS 102		Management, CA 135
Business Administration, AB 73	Diagnostic Medical Sonography, CA 103		Management, Advanced, CA 136
International Business, AB 74	Emergency Medical Services, AAS 104		Small Business Management, CC 136
	Basic Emergency Medical Service, CA 105		
CIVIL TECHNOLOGY	Massage Therapy, CC 105		MARKETING
Civil Technology, AAS 75	Medical Assistant, CA 106		Computer Sales Specialist, AB 137
	Multi-Skilled Patient Care Technician, CC 106		Field Sales and Marketing, AB 138
COMPUTER-AIDED DRAFTING AND DESIGN	Nursing, LPN Option, CA 107		Field Sales and Marketing, CA 138
CAD/CAM Technician, AAS 77	Nursing, RN Option, AAS 108		Marketing, AB 139
Computer-Aided Drafting and Design Technician, AAS 76	Paramedic, CA 109		Marketing, CA 139
Computer-Aided Drafting and Design Technician, CA 76	Radiologic Technology, AAS 110		
	Surgical Technology, CA 111		MEDIA TECHNOLOGY
			Media Technology, AAS 140
			MOTION PICTURE
			Motion Picture Direction, AAS 141
			Motion Picture Production, AAS 142
			Motion Picture Production, CA 143
			PERFORMING ARTS
			Dance Transfer and Dance Career, AAA 153
			Music Commercial Performance, AAA 154
			Music Management, AAA 155
			Music Transfer, AAA 156
			Thaatre-Acting Transfer, AAA 157
			PHOTOGRAPHIC IMAGING
			Photographic Imaging, AAS 158
			QUALITY ASSURANCE
			Quality Assurance, AAS 159
			Quality Management, AAS 159
			Quality Technician, CA 160
			Supervision Manufacturing, AAS 161
			Supervision Manufacturing, CA 162
			REAL ESTATE
			Real Estate, AB 163
			Real Estate, CC 163
			SCIENCE - APPLIED
			Chemical Process Technology, AAA 164
			Chemical Process Technology, CA 165
			Chemical Technology, AAS 166
			Molecular Biotechnology, AAS 167
			Veterinary Technology, AAS 168
			SIGN LANGUAGE
			Sign Language Interpreter, AAA 169
			Sign Language Interpreter, CA 170
			STAGE TECHNOLOGY
			Stage Technology, AAA 171
			Stage Technology, CA 172
			TECHNOLOGY - GENERAL
			Customer Energy Specialist, CA 173
			General Technology, AAS 174
			TRAVEL/TOURISM
			Tourism: Airline and Travel Agency Operation, AB 175
			TRUCK DRIVER TRAINING
			Truck Driver Training, CC 176
			KEY
			AB Associate Degree Business
			AAA Associate Degree Applied Arts
			AAS Associate Degree Applied Science
			CA Certificate of Achievement
			CC Certificate of Completion

**ACCOUNTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10162 (Effective Fall 1999 – Summer 2004)

Graduates of this program are qualified to work as a paraprofessional in most areas of accounting, such as financial reporting, cost accounting, governmental accounting, tax preparation, and auditing. Typically the paraprofessional works under the supervision of a professional accountant, but may be doing essentially the same types of work. Job titles include full-charge bookkeeper, tax preparer, and internal auditor, among others. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 31 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 230	Cost Accounting	4
ACCG 240	Federal Income Tax I	4
ACCG 260	Accounting Systems	4
LEGL 215	Busn Law I, Basic Principles	3

LIMITED CHOICE REQUIREMENTS TOTAL: 29-30 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Accounting Specialty Area	11-12 Credits
ACCG 160 Payroll Systems and Taxes	2
ACCG 231 Managerial Accounting	4
ACCG 235 Budgeting	2
ACCG 241 Federal Income Tax II	4
ACCG 250 Advanced Accounting	4
ACCG 280 Governmental Accounting	4
ACCG 290 Auditing	3
CHOICE 3: Other Accounting & Business Related <i>(See Note 1)</i>	6 Credits
ACCG 245 Accounting Internship	2
ACCG 271 Principles of Finance	3
INSU 265 Principles Risk and Insurance	3
LEGL 219 Adv Busn Law for Acct Majors	4
MINIMUM TOTAL	60

NOTES

- Students may also select from unchosen courses in Choice 2.
- For graduation from this program, a student must have earned a minimum 2.00 grade point average in courses with an ACCG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
LEGL 215	ACCG 260	ACCG 230	Lim.Ch.
Lim.Ch.	Lim.Ch.	ACCG 240	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		Lim.Ch.

**ACCOUNTING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10714 (Effective Fall 1999 – Summer 2004)

Certificate holders qualify for clerical-level accounting positions that frequently include the need for general office skills in addition to accounting. Job titles include billing clerk, bookkeeper, payroll clerk, accounts receivable clerk, and accounts payable clerk. In smaller companies, a certificate holder may do all accounting tasks other than those handled by the company's CPA firm or other outside accountants.

REQUIREMENTS		TOTAL: 17 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 160	Payroll Systems and Taxes	2
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 260	Accounting Systems	4
OADM 215	Records and Info Management I	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12-15 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Accounting Specialty	2-3 Credits
ACCG 140 Income Tax Preparation	3
ACCG 235 Budgeting	2
CHOICE 2: Word Processing	4 Credits
CABS 113 Microsoft Word Office/Int Key	4
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2
CABS 219 Advanced Microsoft Word	2
CHOICE 3: Office Skills	3-4 Credits
OADM 195 Human Behavior in Work Place	3
OADM 216 Records and Info Management II	4
OADM 220 Administrative Office Mgmt	4
CHOICE 4: Written Communication	3-4 Credits
WRIT 121 Composition I	4
WRIT 127 Business Communications	3

ELECTIVES TOTAL: 2 CREDITS
Complete the indicated number of credits in courses of your choice.

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ACCG 210	ACCG 160
OADM 215	ACCG 211
Lim.Ch.	ACCG 260
Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.
	Elec.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ACCOUNTING, C.P.A. EXAM PREPARATION
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10255 (Effective Fall 1999 - Summer 2004)

This curriculum is intended for people with a bachelor's degree in another field who want to make a career change to accounting. The focus is on learning the material necessary to pass the exam to become a Certified Public Accountant (C.P.A.). Virtually all jobs in accounting and auditing are available to the C.P.A. The main job a C.P.A. is eligible to do that other accountants cannot is that of external auditor, which involves expressing an independent opinion on financial statements prepared by others. Some public accounting experience is required prior to certification in some states. The student is advised to review the requirements for certification as defined by the State Board of Accountancy. In addition, students should contact the Board of Accountancy, State of Michigan, Consumer and Industry Services to receive an authoritative list of requirements to sit for the C.P.A. exam.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 42 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 230	Cost Accounting	4
ACCG 240	Federal Income Tax I	4
ACCG 241	Federal Income Tax II	4
ACCG 260	Accounting Systems	4
ACCG 290	Auditing	3
LEGL 215	Busn Law I, Basic Principles	3
LEGL 219	Adv Busn Law for Acct Majors	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 18-20 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 12 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Governmental/Fund Accounting 4 Credits

ACCG 250	Advanced Accounting	4
ACCG 280	Governmental Accounting	4

CHOICE 3: Accounting Related 2-4 Credits

ACCG 231	Managerial Accounting	4
ACCG 295	CPA Review - Tax, Man, Cost, Gov	1
ACCG 296	CPA Review - Business Law	1
ACCG 297	CPA Review - Auditing	1
ACCG 298	CPA Review - Fin Acct/Report	1
ECON 201	Principles of Economics-Micro	3

MINIMUM TOTAL

60

NOTES

1. Presenting evidence of an earned baccalaureate degree from an accredited college or university would fulfill all General Education Core requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
LEGL 215	ACCG 260	ACCG 230	ACCG 241
Lim.Ch.	LEGL 219	ACCG 240	ACCG 290
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
			Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MANAGERIAL ACCOUNTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10247 (Effective Fall 1999 – Summer 2004)

This program combines study in Accounting and Quality Assurance. Historically these skills lead to jobs in manufacturing. Today, however, service, merchandising, and governmental organizations are emphasizing cost and quality control. There should be an increasing demand for graduates of this program to assist management in budgeting, pricing, problem solving, statistical analysis, and controlling costs and quality. Job titles might be quality control auditor or cost accountant. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 34 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 230	Cost Accounting	4
ACCG 231	Managerial Accounting	4
ACCG 260	Accounting Systems	4
QUAL 100	Intro Quality Assurance	3
QUAL 103	Probability/Stats Qual Assur	4
QUAL 205	Cost of Quality	3

LIMITED CHOICE REQUIREMENTS TOTAL: 27-28 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Accounting Related 9 Credits

ACCG 160	Payroll Systems and Taxes	2
ACCG 235	Budgeting	2
ACCG 240	Federal Income Tax I	4
ACCG 241	Federal Income Tax II	4
ACCG 280	Governmental Accounting	4
ACCG 290	Auditing	3

CHOICE 3: Quality Related (Choose one subchoice) 6-7 Credits

Subchoice 3A

QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3

Subchoice 3B

QUAL 121	Intro Statistical Process Cont	3
QUAL 203	Quality Planning/Systems Mgmt	4

MINIMUM TOTAL 61

NOTES

- For graduation from this program, a student must have earned a minimum 2.00 grade point average in courses with an ACCG prefix and QUAL prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 231
QUAL 100	ACCG 260	ACCG 230	Lim.Ch.
QUAL 103	QUAL 205	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**PRECISION AGRICULTURE AND SUSTAINABLE DEVELOPMENT
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10896 (Effective Fall 1999 – Summer 2004)

This program prepares students for positions in site specific agricultural management and related technological applications in today's agribusiness operations. Positions such as integrated pest management technologists, custom applicators, technology resource managers, crop advisory specialists, and dealer consultants are some of the newly-evolving careers in this exploding technology field. Emphasis on the geospatial computer technologies of Geographic Information Systems (GIS) and Global Positioning Systems (GPS) as well as remote sensing will be stressed. In addition, State Department of Agriculture pesticide re-certification credits are available upon successful completion of specific courses within this program. The National Science Foundation has selected this program as a national model curriculum. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 52 CREDITS
CODE	TITLE	CREDIT HOURS
AGRI 101	Principles/Precision Agritech	2
AGRI 106	Disease/Insect Agrinomic Crops	2
AGRI 200	Vegetation and Weed Management	3
AGRI 201	Prin/Sustainable Agriculture	3
AGRI 202	Agri Soils and Crop Management	3
AGRI 211	Agricultural Crop Production	3
AGRI 212	Vegetable Crop Production	3
AGRI 213	Ag Site Specific Research Tech	3
GRET 205	Principles Geographic Info Sys	3
GRET 210	Global Positioning Systems	3
GRET 240	Basic Map Orient/Construction	3
GRET 241	Air Photo/Remote Sensing	3
GRET 243	ORACLE/Geographic Info Sys	3
GRET 253	Basics of ARC/View	1
GRET 255	Beginning ARC/Info	3
GRET 256	Advanced ARC/Info	3
HORT 102	Intro Ornamental Horticulture	2
LAND 282	Computer Draft/Dsgn Land Arch	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 9 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
MINIMUM TOTAL	61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AGRI 101	AGRI 106	AGRI 200	AGRI 201
GRET 205	AGRI 202	AGRI 211	AGRI 212
GRET 240	GRET 241	GRET 210	AGRI 213
HORT 102	GRET 253	GRET 243	GRET 256
LAND 282	WRIT 124	GRET 255	Lim.Ch.
Lim.Ch.	Lim.Ch.		

**PRECISION AGRICULTURE AND SUSTAINABLE DEVELOPMENT
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10852 (Effective Fall 1999 – Summer 2004)

Students completing this certificate will be prepared for entry-level positions in precision agriculture and its various application areas in the agribusiness arena. Positions as pest scouts, custom applicators, technology resource technicians, and crop advisory specialists are a few of the positions available. This certificate provides basic computer skills as well as background and hands-on experience in GIS and GPS technologies.

REQUIREMENTS		TOTAL: 30 CREDITS
CODE	TITLE	CREDIT HOURS
AGRI 101	Principles/Precision Agritech	2
AGRI 106	Disease/Insect Agrinomic Crops	2
AGRI 200	Vegetation and Weed Management	3
AGRI 201	Prin/Sustainable Agriculture	3
AGRI 202	Agri Soils and Crop Management	3
GRET 205	Principles Geographic Info Sys	3
GRET 210	Global Positioning Systems	3
GRET 253	Basics of ARC/View	1
GRET 255	Beginning ARC/Info	3
HORT 102	Intro Ornamental Horticulture	2
LAND 100	Intro to Landscape Drafting	2
LAND 282	Computer Draft/Dsgn Land Arch	3
MINIMUM TOTAL		30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AGRI 101	AGRI 200
AGRI 106	AGRI 201
GRET 205	AGRI 202
GRET 253	GRET 210
HORT 102	GRET 255
LAND 100	
LAND 282	

**ARCHITECTURAL TECHNOLOGY, COMPUTER GRAPHICS OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10226 (Effective Fall 1999 – Summer 2004)

This architectural degree option places emphasis on the development of computer-aided design and drafting skills, which supplements a student's basic knowledge of architecture technology. This option provides students with a working knowledge of and the opportunity to work with the latest CAD softwares in use in today's architectural offices. Basic, advanced, and independent study courses are taught using the major computer software systems: AutoCAD, DataCAD, MicroStation, and AES. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 26 CREDITS
ARCH 101	Architectural Drafting I	4	
ARCH 102	Architectural Drafting II	4	
ARCH 121	Visual Communication I	3	
ARCH 201	Architectural Drafting III	4	
ARCH 271	Structural Theory	4	
BLDT 281	BOCA/Uniform Code	3	
MATH 121	College Algebra I	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 44-45 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See Note 1)	

CHOICE 2: Computer Graphics 18 Credits

ARCH 221	Architectural DataCAD I	4
ARCH 222	Architectural DataCAD II	4
ARCH 225	Arch DataCAD Independent Study	1-4
ARCH 231	Architectural AutoCAD I	4
ARCH 232	Architectural AutoCAD II	4
ARCH 235	Arch AutoCAD Independent Study	1-4
ARCH 237	Arch Computer Rendering	3
ARCH 251	Architectural MicroStation I	4
ARCH 252	Architectural MicroStation II	4
ARCH 255	MicroStation Independent Study	1-4

CHOICE 3: History and Preservation	3 Credits	
ARCH 141	Architectural History I	3
ARCH 142	Architectural History II	3
ARCH 146	Preser/Adaptive Reuse Architect	3

CHOICE 4: Materials, Structures, and Systems	7-8 Credits	
ARCH 273	Environmental Systems	4
ARCH 276	Alternative Structures	3
ARCH 278	Energy Efficient Design	4
ARCH 283	Materials of Construction	4
BLDT 277	Construction Cost Estimating	4

CHOICE 5: Architectural Related (See Note 2)	4 Credits
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MINIMUM TOTAL 70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Allows completion of courses which relate to specific career preparation for the field of architectural computer graphics and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 101	ARCH 102	ARCH 201	Lim.Ch.
ARCH 121	ARCH 271	Lim.Ch.	Lim.Ch.
MATH 121	BLDT 281	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

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**ARCHITECTURAL TECHNOLOGY, CORE OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10233 (Effective Fall 1999 – Summer 2004)

The Architectural Studies Program offers students interested in the field of architecture three degree options. This degree option makes available a comprehensive program of study, involving all aspects of the contemporary architectural profession. Graduates of this comprehensive program are prepared to work as para-professionals in the offices of registered architects, engineers, interior designers, residential designers and builders, component suppliers and manufacturers, assisting those offices with the preparation of drawn documentation, design work, research, and field supervision. Students within this option area are also prepared to pursue a higher degree in architecture. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 33 CREDITS
ARCH 101	Architectural Drafting I	4	
ARCH 102	Architectural Drafting II	4	
ARCH 121	Visual Communication I	3	
ARCH 201	Architectural Drafting III	4	
ARCH 202	Architectural Drafting IV	4	
ARCH 211	Design Studio I	3	
ARCH 271	Structural Theory	4	
BLDT 281	BOCA/Uniform Code	3	
MATH 121	College Algebra I	4	

LIMITED CHOICE REQUIREMENTS TOTAL: 37-41 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area 3
- Speech Communication Core Area 3
- Science/Technology Core Area 3
- Global Perspectives and Diversity Core Area 3
- Mathematics Competency (See Note 1)

CHOICE 2: Computer Graphics 7-8 Credits

- ARCH 221 Architectural DataCAD I 4
- ARCH 222 Architectural DataCAD II 4
- ARCH 231 Architectural AutoCAD I 4
- ARCH 232 Architectural AutoCAD II 4
- ARCH 237 Arch Computer Rendering 3
- ARCH 251 Architectural MicroStation I 4
- ARCH 252 Architectural MicroStation II 4

CHOICE 3: Materials, Structures, and Systems 7-8 Credits

- ARCH 273 Environmental Systems 4
- ARCH 276 Alternative Structures 3
- ARCH 278 Energy Efficient Design 4
- ARCH 283 Materials of Construction 4
- BLDT 277 Construction Cost Estimating 4

- CHOICE 4: History and Preservation 6 Credits**
- ARCH 141 Architectural History I 3
- ARCH 142 Architectural History II 3
- ARCH 146 Preser/Adaptive Reuse Architec 3

- CHOICE 5: Design 2-3 Credits**
- ARCH 128 Residential Planning 2
- ARCH 181 Barrier-Free Design 3
- ARCH 182 Universal Design 3
- ARCH 212 Design Studio II 3
- ARCH 213 Facilities Design 3

- CHOICE 6: Architectural Related (See Note 2) 3-4 Credits**

MINIMUM TOTAL 70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Allows completion of courses which relate to specific career preparation for the field of architecture and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 101	ARCH 102	ARCH 201	ARCH 202
ARCH 121	ARCH 211	ARCH 271	Lim.Ch.
MATH 121	BLDT 281	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**ARCHITECTURAL TECHNOLOGY, RESIDENTIAL DESIGN OPTION
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10758 (Effective Fall 1999 – Summer 2004)

This degree option will provide architectural students with the opportunity to study all aspects of single- and multi-family residential design and construction. Areas of required study include residential design theory, preparation of residential working drawings, construction techniques, construction materials, residential landscaping, residential interiors, computer graphics, presentation techniques, structural design, and architectural history. Students will have the opportunity to take a cross-disciplinary array of technology courses, preparing for work in all segments of the residential design/build markets. Not all courses in this program transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Architectural Studies Center, Gannon Vocational-Technical Center, Room 450, telephone number (517) 483-1327.

REQUIREMENTS

TOTAL: 26 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 101	Architectural Drafting I	4
ARCH 102	Architectural Drafting II	4
ARCH 121	Visual Communication I	3
ARCH 128	Residential Planning	2
ARCH 271	Structural Theory	4
BLDT 281	BOCA/Uniform Code	3
LAND 132	Residential Landscaping	2
MATH 121	College Algebra I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 44-50 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See Note 1)	

CHOICE 2: Computer Graphics 7-8 Credits

ARCH 221	Architectural DataCAD I	4
ARCH 222	Architectural DataCAD II	4
ARCH 225	Arch DataCAD Independent Study	1-4
ARCH 231	Architectural AutoCAD I	4
ARCH 232	Architectural AutoCAD II	4
ARCH 235	Arch AutoCAD Independent Study	1-4
ARCH 237	Arch Computer Rendering	3

CHOICE 3: Building Trades 7-8 Credits

BLDT 100	Introduction to Construction	3
BLDT 121	Residential Framing	4
BLDT 277	Construction Cost Estimating	4

CHOICE 4: Materials Structures and Systems 7-8 Credits		
ARCH 273	Environmental Systems	4
ARCH 276	Alternative Structures	3
ARCH 278	Energy Efficient Design	4
ARCH 283	Materials of Construction	4

CHOICE 5: History 3 Credits		
ARCH 142	Architectural History II	3
ARCH 146	Preser/Adaptive Reuse Architect	3
INTR 232	Twentieth Century Interiors	3

CHOICE 6: Interior Design 6-7 Credits		
INTR 151	Computer-Aided Kitchen Design	3
INTR 190	Interior/Materials/Equipment	3
INTR 240	Interior Environmental Systems	3
INTR 246	Residential Interiors	3

CHOICE 7: Architectural Related (See Note 2) 2-4 Credits	
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MINIMUM TOTAL

70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Allows completion of courses which relate to specific career preparation for the field of residential design and have not been applied in any of the above categories.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARCH 121	ARCH 101	ARCH 102	LAND 132
ARCH 128	BLDT 281	ARCH 271	Lim.Ch.
MATH 121	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.	Lim.Ch.	

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**AIRBRUSH ILLUSTRATION
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10858 (Effective Fall 1999 -- Summer 2004)

This certificate program consists of practical hands-on courses that provide students with the technical knowledge and skills needed to create airbrush artwork on a variety of surfaces and materials. Students are prepared for an entry-level position in fields such as automotive customization, sign painting, photo retouching, nail design, and the fashion industry.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 22 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 195	Employ/Busn Issues for Artists	2
ARTS 221	Airbrush Techniques I	3
ARTS 222	Airbrush Techniques II	3
ARTS 224	Automotive Airbrush Techniques	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 9 CREDITS**
Complete the indicated number of credits from each **CHOICE** listed below.

ARTS 162	Typography	3
ARTS 200	Painting I	3
ARTS 213	Illustration Fundamentals	3
ARTS 216	Humorous Illustration I	3

MINIMUM TOTAL **31**

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 195
ARTS 131	ARTS 137	ARTS 224
ARTS 221	ARTS 222	Lim.Ch.
Lim.Ch.	Lim.Ch.	

COMPUTER GRAPHICS ANIMATION ASSOCIATE IN APPLIED ARTS DEGREE

Curriculum Code: 10284 (Effective Fall 1999 – Summer 2004)

A computer animator is an artist who designs for video and film and uses a computer as a primary tool. Animators must have creative abilities and design, drawing, problem-solving, production, communication, and presentation skills. Computer animators are employed in advertising, video production, the motion picture industry (special effects to full cartoon features), and in the growing multimedia industry, creating games, training materials, and presentations. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

CODE	TITLE	TOTAL: 60 CREDITS CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 151	Computer Graphics/Illustration	3
ARTS 162	Typography	3
ARTS 171	Computer Graphics/Photography	3
ARTS 175	Electronic Design	3
ARTS 195	Employ/Busn Issues for Artists	2
ARTS 216	Humorous Illustration I	3
ARTS 228	Advanced Digital imaging	3
ARTS 231	Comp Graphics/Advanced Illustr	3
ARTS 232	Comp Graphics/2-D Animation	4
ARTS 233	Comp Graphics/2-D Interactive	4
ARTS 234	Comp Graphics/3-D Animation I	4
ARTS 235	Comp Graphics/3-D Animation II	3
ARTS 236	Computer Graphics/Production	3
ARTS 269	The Portfolio (See Note 1)	1
ARTS 281	Art Internship	3
IMAG 118	Film Production I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

MINIMUM TOTAL

72

NOTES

- The Portfolio is considered to be the final course in this curriculum. All other courses must already be completed or be taken concurrently with ARTS 269.
- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars - Introduction to Windows NT and Introduction to the Macintosh. Students should consult with an advisor in the Art, Design and Multimedia Program if they are not sure about their computer skill level.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 132	ARTS 175	ARTS 195
ARTS 131	ARTS 137	ARTS 216	ARTS 228
IMAG 118	ARTS 151	ARTS 231	ARTS 232
Lim.Ch.	ARTS 162	ARTS 234	ARTS 235
Lim.Ch.	ARTS 171	Lim.Ch.	Lim.Ch.

V

ARTS 233
ARTS 236
ARTS 269
ARTS 281

**COMPUTER GRAPHICS, MULTIMEDIA
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10194 (Effective Fall 1999 – Summer 2004)

A multimedia designer is a computer artist who uses many electronic tools to create interactive art. Multimedia designers must have creative abilities and design, drawing, problem-solving, production, communication, and presentation skills. Multimedia is a cooperative process. The multimedia designer should expect to work as part of a team which may include animators, graphic designers, photographers, audio and video producers, writers, and others. Employment can be with advertising agencies, on-line magazines and newspapers, in-house training in the public and private sector, and the education/ entertainment industry.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 48 CREDITS
ARTS 131	Drawing I	3	
ARTS 151	Computer Graphics/Illustration	3	
ARTS 162	Typography	3	
ARTS 171	Computer Graphics/Photography	3	
ARTS 228	Advanced Digital Imaging	3	
ARTS 232	Comp Graphics/2-D Animation	4	
ARTS 233	Comp Graphics/2-D Interactive	4	
ARTS 234	Comp Graphics/3-D Animation I	4	
ARTS 235	Comp Graphics/3-D Animation II	3	
ARTS 236	Computer Graphics/Production	3	
ARTS 269	The Portfolio (See Note 1)	1	
ARTS 281	Art Internship	3	
CISB 102	Intro Internet in Business	2	
CISB 200	Info Sys Tech/Problem Solving	3	
CISB 258	Dev Multimedia Home Pages WWW	2	
IMAG 118	Film Production I	4	

LIMITED CHOICE REQUIREMENTS TOTAL: 23-26 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 2)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Basic Photography 2-4 Credits
IMAG 101 Basic Photog for Non-Majors 2
IMAG 111 Intro to Photographic Tech I 4

CHOICE 3: Specialty (Choose one subchoice) 12-13 Credits

Subchoice 3A: Art Specialty

ARTS 102	2-Dimensional Design	3
ARTS 132	Life Drawing	3
ARTS 216	Humorous Illustration I	3
ARTS 231	Comp Graphics/Advanced Illustr	3

Subchoice 3B: Photography Specialty

IMAG 112	Design for Imaging Tech	3
IMAG 113	Lighting Concepts/Applications	3
IMAG 114	Intro Photographic Color Tech	3
IMAG 119	Intermediate Lighting	4

MINIMUM TOTAL 71

NOTES

- The Portfolio is considered to be the final course in this curriculum. All other courses must already be completed or be taken concurrently with ARTS 269.
- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars - Introduction to Windows NT and Introduction to the Macintosh. Students should consult with an advisor in the Arts, Design and Multimedia Program if they are not sure about their computer skill level.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Subchoice 3A: Art Specialty

I	II	III	IV
ARTS 102	ARTS 132	ARTS 216	ARTS 228
ARTS 131	ARTS 151	ARTS 231	ARTS 232
CISB 102	ARTS 162	ARTS 234	ARTS 235
CISB 200	ARTS 171	CISB 258	Lim.Ch.1
IMAG 118	Lim.Ch.2		Lim.Ch.1

V

ARTS 233
ARTS 236
ARTS 269
ARTS 281
Lim.Ch.1

Subchoice 3B: Photography Specialty

I	II	III	IV
CISB 102	ARTS 131	ARTS 151	ARTS 228
CISB 200	IMAG 114	ARTS 162	ARTS 232
IMAG 112	IMAG 118	ARTS 171	ARTS 234
IMAG 113	IMAG 119	CISB 258	Lim.Ch.1
Lim.Ch.2	Lim.Ch.1	Lim.Ch.1	

V

ARTS 233
ARTS 235
ARTS 236
ARTS 269
ARTS 281

**COMPUTER GRAPHICS, MULTIMEDIA
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10857 (Effective Fall 1999 – Summer 2004)

This certificate of achievement is designed for students who hold a post secondary degree (A.A., B.A., B.F.A., or M.F.A.) in the visual arts and wish to acquire or enhance their computer graphics skills to prepare for employment in the animation and multimedia fields.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found of page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 38 CREDITS	
CODE	TITLE		CREDIT HOURS
ARTS 151	Computer Graphics/Illustration (See Note 2)		3
ARTS 171	Computer Graphics/Photography (See Note 2)		3
ARTS 195	Employ/Busn Issues for Artists		2
ARTS 228	Advanced Digital Imaging		3
ARTS 231	Comp Graphics/Advanced Illustr		3
ARTS 232	Comp Graphics/2-D Animation (See Note 2)		4
ARTS 233	Comp Graphics/2-D Interactive		4
ARTS 234	Comp Graphics/3-D Animation I		4
ARTS 235	Comp Graphics/3-D Animation II		3
ARTS 236	Computer Graphics/Production		3
ARTS 269	The Portfolio		1
ARTS 281	Art Internship		3
CISB 258	Dev Multimedia Home Pages WWW		2
MINIMUM TOTAL			38

NOTES

- It is recommended that all students entering this curriculum have computer experience in both Windows NT and Macintosh Operating Systems. This experience may come from life or work experience, or other studies, as well as CABS 100 Seminars - Introduction to Windows NT and Introduction to the Macintosh. Students should consult with an advisor in the Art, Design and Multimedia Program if they are not sure about their computer skill level.
- Students in this curriculum may be granted approval to waive the prerequisites for this course by contacting an advisor in the Art, Design and Multimedia Program.
- For graduation, a student must have earned a minimum grade point of 2.0 in all courses with an ARTS and IMAG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 151	ARTS 231	ARTS 228	ARTS 236
ARTS 171	ARTS 232	ARTS 233	ARTS 269
ARTS 195	ARTS 234	ARTS 235	ARTS 281
			CISB 258

**FIGURE STUDIES
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10850 (Effective Fall 1999 – Summer 2004)

This certificate of achievement is designed for artists who want to concentrate on the human figure as a subject matter in their artwork. Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 36 CREDITS	
CODE	TITLE		CREDIT HOURS
ARTS 102	2-Dimensional Design		3
ARTS 131	Drawing I		3
ARTS 132	Life Drawing (See Note 1)		3
ARTS 133	Surface Anatomy for Artists		2
ARTS 136	Figure Sculpture		3
ARTS 195	Employ/Busn Issues for Artists		2
ARTS 203	Figure Painting (See Note 2)		3
ARTS 276	Art Independent Study		3
HUMS 211	History of Art I		4
HUMS 212	History of Art II		4

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Art	6 Credits
ARTS 140	Printmaking I	3
ARTS 141	Printmaking II	3
ARTS 145	Screen Printing I	3
ARTS 146	Screen Printing II	3
ARTS 151	Computer Graphics/Illustration	3
ARTS 204	Watercolor I	3
ARTS 205	Watercolor II	3
ARTS 206	Advanced Watercolor	3
ARTS 216	Humorous Illustration I	3
MINIMUM TOTAL		42

NOTES

- ARTS 132 must be taken three times for a total of 9 credits.
- ARTS 203 must be taken once toward the requirements for this certificate, and may also be taken up to two additional times toward Choice 1 requirements for a total of 9 credits.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 132
ARTS 131	ARTS 132	ARTS 136
HUMS 211	ARTS 133	ARTS 195
Lim.Ch.	HUMS 212	ARTS 203
	Lim.Ch.	ARTS 276

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**FINE ART FOUNDATION
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10271 (Effective Fall 1999 – Summer 2004)

This curriculum is designed for artists who wish to expand their creative horizons or refine their artistic style. The emphasis is on the exploration of an artist's abilities through the use of traditional materials and techniques. Painting, drawing, printmaking, and watercolor are fine arts. A career in fine arts requires dedication, discipline, and sacrifice. Success can come slowly in this visual art, and most artists do their best work after years of experience. Fine artists are self-employed professionals who sell their work through artist's representatives, galleries, art fairs, and juried exhibitions. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS		TOTAL: 38 CREDITS
CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 103	3-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing (See Note 1)	3
ARTS 133	Surface Anatomy for Artists	2
ARTS 136	Figure Sculpture	3
ARTS 140	Printmaking I	3
ARTS 145	Screen Printing I	3
ARTS 190	Matting and Framing Techniques	1
ARTS 200	Painting I	3
ARTS 204	Watercolor I	3
HUMS 211	History of Art I	4
HUMS 212	History of Art II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 30 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 2)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Art	21 Credits.
ARTS 132	Life Drawing (See Note 1) 3
ARTS 137	Perspective Drawing 2
ARTS 141	Printmaking II 3
ARTS 146	Screen Printing II 3
ARTS 151	Computer Graphics/Illustration 3
ARTS 171	Computer Graphics/Photography 3
ARTS 195	Employ/Busn Issues for Artists 2
ARTS 201	Painting II 3
ARTS 203	Figure Painting 3
ARTS 205	Watercolor II 3
ARTS 206	Advanced Watercolor 3
MINIMUM TOTAL	68

NOTES

- ARTS 132 must be taken once toward the requirements for this degree and may also be taken one more time toward Choice 2 requirements for a total of 6 credits.
- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 103	ARTS 136	ARTS 190
ARTS 131	ARTS 132	ARTS 204	Lim.Ch.1
ARTS 140	ARTS 133	HUMS 212	Lim.Ch.2
ARTS 145	ARTS 200	Lim.Ch.1	Lim.Ch.2
Lim.Ch.1	HUMS 211	Lim.Ch.2	
V			
		Lim.Ch.2	
		Lim.Ch.2	
		Lim.Ch.2	
		Lim.Ch.2	

**GRAPHIC DESIGN
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10219 (Effective Fall 1999 – Summer 2004)

A graphic designer is an artist who creatively and effectively designs informational or promotional materials for publication and/or use in a variety of mass media situations. Artistic skills related to producing effective visual information are essential for a graphic designer. An understanding of the principles of typography, color theory, computer graphic applications, and pre-press techniques is necessary. Graphic designers are employed by design studios, advertising agencies, printing companies, publishers, newspapers, sign companies, and businesses that generate their own publications. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 59 CREDITS
ARTS 102	2-Dimensional Design	3	
ARTS 131	Drawing I	3	
ARTS 132	Life Drawing	3	
ARTS 137	Perspective Drawing	2	
ARTS 162	Typography	3	
ARTS 171	Computer Graphics/Photography	3	
ARTS 175	Electronic Design	3	
ARTS 195	Employ/Busn Issues for Artists	2	
ARTS 228	Advanced Digital Imaging	3	
ARTS 251	Graphic Design I	4	
ARTS 252	Graphic Design II	4	
ARTS 253	Graphic Design III	4	
ARTS 257	Computer Prepress Prod Tech	4	
ARTS 269	The Portfolio	1	
ARTS 281	Art Internship	3	
ARWS 133	Introduction to Pagemaker	1	
CABS 195	Microsoft Windows	2	
HUMS 211	History of Art I	4	
HUMS 212	History of Art II	4	
MKTG 140	Introduction to Advertising	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Illustration 3 Credits

ARTS 213	Illustration Fundamentals	3
ARTS 231	Comp Graphics/Advanced Illustr	3

MINIMUM TOTAL 71

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ARTS 102	ARTS 132	ARTS 171	ARTS 228
ARTS 131	ARTS 137	ARTS 252	ARTS 253
ARTS 162	ARTS 175	ARWS 133	ARTS 257
HUMS 211	ARTS 251	CABS 195	ARTS 281
Lim.Ch.1	HUMS 212	MKTG 140	Lim.Ch.2

V
ARTS 195
ARTS 269
Lim.Ch.1
Lim.Ch.1

**HUMOROUS ILLUSTRATION
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10854 (Effective Fall 1999 – Summer 2004)

This certificate of achievement program consists of practical hands-on courses that provide students with the necessary technical knowledge and skills needed to create humorous illustrations, cartooning, and caricatures. Certificate holders may improve their opportunities for advancement in this or a related field. Additional education enhances an individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Art, Design and Multimedia Program, Academic and Office Facility, Room 314, telephone number (517) 483-1476.

REQUIREMENTS

TOTAL: 30 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 102	2-Dimensional Design	3
ARTS 131	Drawing I	3
ARTS 132	Life Drawing	3
ARTS 137	Perspective Drawing	2
ARTS 162	Typography	3
ARTS 195	Employ/Busn Issues for Artists	2
ARTS 213	Illustration Fundamentals	3
ARTS 216	Humorous Illustration I	3
ARTS 217	Humorous Illustration II	3
ARTS 227	Humorous Illustration III	3
ARTS 269	The Portfolio	1
ARWS 131	Intro to Comp Illus Workshop	1

MINIMUM TOTAL 30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ARTS 102	ARTS 132	ARTS 213
ARTS 131	ARTS 137	ARTS 227
ARTS 162	ARTS 195	ARTS 269
ARTS 216	ARTS 217	
	ARWS 131	

**AIR CONDITIONING AND ELECTRICAL ACCESSORIES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10846 (Effective Fall 1999 – Summer 2004)

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 10.5 CREDITS
AUTO 100	Auto Service I	3	
AUTO 110	Auto Electrical Theory	5	
AUTO 160	Autg Heat & Air Conditioning	2.5	
MINIMUM TOTAL			10.5

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AUTO 100	AUTO 160
AUTO 110	

**ALTERNATE FUELS
CERTIFICATE OF COMPLETION**

Curriculum Code: 10855 (Effective Fall 1999 – Summer 2004)

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are trained specifically in the area of alternative fuels and are prepared to take the State of Michigan Mechanics Certification Tests to become automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 18 CREDITS
AUTO 100	Auto Service I	3	
AUTO 215	Engine Performance/Tune-Up	5	
AUTO 225	Automotive Computers	5	
AUTO 260	Intro to Alternative Fuels	2	
AUTO 261	Alternative Fuels - CNG	3	
MINIMUM TOTAL			18

NOTES

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
AUTO 100	AUTO 225	AUTO 261
AUTO 215	AUTO 260	

**AUTO BODY REPAIR
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10188 (Effective Fall 1999 – Summer 2004)

Auto body repair technicians possess the necessary skills to perform collision repair and refinishing according to the "manufacturer's specifications." Using hand and power tools, they straighten bent frames and body sections, replace badly damaged parts, smooth out minor dents and creases, remove rust, fill small holes, and renew painted surfaces. Auto body repair technicians are employed by collision repair shops, new car dealerships, refinishing businesses and auto restoration shops. Formal training is highly desirable, because advances in technology in recent years have greatly changed the structure, the components, and even the materials used in automobiles. This program does not provide state certification. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 53 CREDITS
AUTO 100	Auto Service I	3	
AUTO 110	Auto Electrical Theory	5	
AUTO 141	Non-Structural Repair (See Note 1)	3	
AUTO 142	Advanced Non-Structural Repair	5	
AUTO 143	Auto Body Welding and Cutting (See Note 1)	5	
AUTO 144	Auto Body Structural Repair	5	
AUTO 145	Introduction to Refinishing (See Note 1)	5	
AUTO 146	Advanced Refinishing	5	
AUTO 147	Collision Repair Estimating	3	
AUTO 148	Automotive Plastic Repair	3	
AUTO 150	Auto Steering & Suspension	2.5	
AUTO 160	Auto Heat & Air Conditioning	2.5	
AUTO 285	Automotive Internship (See Note 1)	6	

LIMITED CHOICE REQUIREMENTS

TOTAL: 16-17 CREDITS

Complete the indicated number of credits from each CHOICE listed below:

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Automotive Related 4-5 Credits

AUTO 188 Auto Body Repair and Painting	4
AUTO 215 Engine Performance/Tune-Up	5
AUTO 225 Automotive Computers	5

MINIMUM TOTAL 69

NOTES:

1. Students must obtain department approval from the Technology Careers Department prior to registering for these courses.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AUTO 100	AUTO 110	AUTO 144	AUTO 147
AUTO 141	AUTO 142	AUTO 146	AUTO 148
AUTO 143	Lim.Ch.	AUTO 160	AUTO 150
AUTO 145	Lim.Ch.	Lim.Ch.	AUTO 285
		Lim.Ch.	Lim.Ch.

**AUTO BODY REPAIR
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10166 (Effective Fall 1999 – Summer 2004)

This program provides the technical knowledge and skills needed to perform collision repair and refinishing. Students will be prepared for an entry-level position. This program does not provide state certification. State certification tests are available at any Michigan Secretary of State Office.

REQUIREMENTS

TOTAL: 35 CREDITS

CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 141	Non-Structural Repair (See Note 1)	3
AUTO 142	Advanced Non-Structural Repair	5
AUTO 143	Auto Body Welding and Cutting (See Note 1)	5
AUTO 144	Auto Body Structural Repair	5
AUTO 145	Introduction to Refinishing (See Note 1)	5
AUTO 146	Advanced Refinishing	5
MATH 050	Math-Principles and Practices	4

MINIMUM TOTAL 35

NOTES

1. Students must obtain department approval from the Technology Careers Department prior to registering for these courses.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AUTO 100	AUTO 142
AUTO 141	AUTO 144
AUTO 143	AUTO 146
AUTO 145	MATH 050

**AUTOMOTIVE DRIVE LINES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10856 (Effective Fall 1999 – Summer 2004)

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page B of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 15.5 CREDITS
AUTO 100	Auto Service I	3	
AUTO 120	Auto Drive Train	2.5	
AUTO 121	Automatic Transmissions I	5	
AUTO 122	Automatic Transmissions II	2.5	
AUTO 130	Automotive Engines	2.5	

MINIMUM TOTAL 15.5

NOTES

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

AUTO 100
AUTO 120
AUTO 121
AUTO 122
AUTO 130

**AUTOMOTIVE STEERING, SUSPENSION, AND BRAKES
CERTIFICATE OF COMPLETION**

Curriculum Code: 10851 (Effective Fall 1999 – Summer 2004)

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared to take the State of Michigan Mechanics Certification Tests and become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page B of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 11 CREDITS
AUTO 100	Auto Service I	3	
AUTO 140	Automotive Brakes	2.5	
AUTO 150	Auto Steering & Suspension	2.5	
AUTO 230	Anti-Lock Braking Systems	3	

MINIMUM TOTAL 11

NOTES

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

AUTO 100 AUTO 230
AUTO 140
AUTO 150

**AUTOMOTIVE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10238 (Effective Fall 1999 – Summer 2004)

This program prepares individuals to work in the automotive field as a technician. Students learn all aspects of automobile repair, diagnosis, and maintenance. This program prepares the individual to take the State of Michigan Mechanics Certification Tests and become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 44 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 120	Auto Drive Train	2.5
AUTO 121	Automatic Transmissions I	5
AUTO 122	Automatic Transmissions II	2.5
AUTO 130	Automotive Engines	2.5
AUTO 140	Automotive Brakes	2.5
AUTO 150	Auto Steering & Suspension	2.5
AUTO 160	Auto Heat & Air Conditioning	2.5
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 230	Anti-Lock Braking Systems	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 18 CREDITS
Complete the indicated number of credits from each CHOICE listed below:

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	

CHOICE 2: Automotive Related	9 Credits	
AUTO 133	Small Engine Repair	2.5
AUTO 141	Non-Structural Repair	3
AUTO 145	Introduction to Refinishing	5
AUTO 280	Automotive Service Laboratory	6
AUTO 285	Automotive Internship	6
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4

MINIMUM TOTAL 62

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AUTO 100	AUTO 121	AUTO 120	AUTO 230
AUTO 110	AUTO 160	AUTO 122	Lim.Ch.
AUTO 130	AUTO 215	AUTO 150	Lim.Ch.
AUTO 140	Lim.Ch.	AUTO 225	Lim.Ch.
WRIT 124		Lim.Ch.	

**AUTOMOTIVE TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10140 (Effective Fall 1999 – Summer 2004)

This certificate program prepares individuals to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

REQUIREMENTS		TOTAL: 38 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 130	Automotive Engines	2.5
AUTO 140	Automotive Brakes	2.5
AUTO 150	Auto Steering & Suspension	2.5
AUTO 160	Auto Heat & Air Conditioning	2.5
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 280	Automotive Service Laboratory	6
MATH 050	Math-Principles and Practices	4
MINIMUM TOTAL		38

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
AUTO 100	AUTO 140	AUTO 225
AUTO 110	AUTO 150	AUTO 280
AUTO 130	AUTO 160	
MATH 050	AUTO 215	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ENGINE PERFORMANCE AND DIAGNOSIS
CERTIFICATE OF COMPLETION****Curriculum Code: 10848 (Effective Fall 1999 – Summer 2004)**

This certificate program is intended for individuals who are currently employed in the automotive repair industry. Students are prepared to take the State of Michigan Mechanics Certification Tests to become licensed automotive technicians through the Secretary of State. State certification tests are available at any Michigan Secretary of State Office.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 20 CREDITS
CODE	TITLE	CREDIT HOURS
AUTO 100	Auto Service I	3
AUTO 110	Auto Electrical Theory	5
AUTO 215	Engine Performance/Tune-Up	5
AUTO 225	Automotive Computers	5
AUTO 251	Advanced Computer Diagnosis	2
MINIMUM TOTAL		20

NOTES

1. Prerequisites to courses may be waived based on experience. See a program advisor prior to registration for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
AUTO 100	AUTO 225
AUTO 110	AUTO 251
AUTO 215	

**AIRFRAME MAINTENANCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10757 (Effective Fall 1999 – Summer 2004)

Airframe maintenance technicians maintain aircraft in accordance with Federal Aviation Regulations. Airframe technicians perform a wide variety of repairs and alterations to sheet metal and composite aircraft structures. In addition, they inspect and repair or replace complex aircraft components associated with hydraulic/pneumatic, communication/navigation, fuel and flight control systems. Aviation maintenance technicians are employed throughout the world maintaining aircraft for major air carriers, commuter airlines, air freight operators, corporate flight departments, fixed base operators, and a variety of other specialized aviation businesses. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS		TOTAL: 56 CREDITS
CODE	TITLE	CREDIT HOURS
AVAF 125	Aircraft Systems I	2
AVAF 126	Aircraft Systems II	6
AVAF 127	Aircraft Systems III	3
AVAF 134	Aircraft Instruments	2
AVAF 208	Aircraft Structures I	4
AVAF 209	Aircraft Structures II	4
AVAF 210	Aircraft Structures III	3
AVAF 211	Aircraft Electrical I	4
AVAF 212	Aircraft Electrical II	4
AVAF 246	National Airframe Cert Proced	1
AVEL 200	Flight Line Testing	2
AVGM 111	Aviation General I	4
AVGM 112	Aviation General II	6
AVGM 113	Aviation General III	4
AVGM 114	Material and Processes	5
WELD 210	Aircraft Welding	2

LIMITED CHOICE REQUIREMENTS **TOTAL: 12 CREDITS**
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas	12 Credits
(See the GENERAL EDUCATION section above)		
	Writing Core Area	3
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
	MINIMUM TOTAL	68

NOTES

- Students must complete each course with a minimum grade of 70 percent and pass Pre-Tests for General and Airframe with a minimum grade of 80 percent to be approved for the Federal Aviation Administration written tests.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVGM 111	AVAF 125	AVAF 127	Lim.Ch.
AVGM 112	AVAF 126	AVAF 134	Lim.Ch.
AVGM 113	AVAF 208	AVAF 209	Lim.Ch.
AVGM 114	AVAF 211	AVAF 210	Lim.Ch.
	WELD 210	AVAF 212	
		AVAF 246	
		AVEL 200	

**AVIATION FLIGHT TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10259 (Effective Fall 1999 – Summer 2004)

The commercial flight training program provides all required ground, simulator, and in-flight technical training to meet Federal Aviation Administration requirements for Commercial Pilot Certification. This program will conduct ab-initio training (no previous experience) or build on previous experience of the student. Students entering this program are required to accomplish an F.A.A. Class II medical exam prior to entering training. Normal motor skills and academic ability will provide functional competency to support certification. Graduates are initially employed as instructor pilots by flight training schools. As the graduates achieve 1200 to 1500 flight hours, they are competitive for hiring by regional or commuter airlines as first Officers.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS		TOTAL: 41 CREDITS
CODE	TITLE	CREDIT HOURS
AVAF 134	Aircraft Instruments	2
AVFT 201	Flight Training I	7.5
AVFT 202	Flight Training II	5
AVFT 203	Flight Training III	5.5
AVFT 204	Flight Training IV	5
AVGS 101	Private Pilot Ground School	4
AVGS 211	Instrument Pilot Ground School	4
AVGS 221	Commercial Pilot Ground School	4
AVST 211	Flight Simulator I	1
AVST 212	Flight Simulator II	1
AVST 213	Flight Simulator III	1
AVST 214	Flight Simulator IV	1

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

LIMITED CHOICE REQUIREMENTS **TOTAL: 22 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas **12 Credits**
(See the *GENERAL EDUCATION* section on previous page)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

CHOICE 2: Advanced Flight Training **10 Credits**

AVFT 205	CFI Flight Training	3.5
AVFT 206	Flight Inst Instrument Flight	2.5
AVFT 207	Multi-Engine Flight Training	1.5
AVFT 208	Multi-Engine Instructor Flight	0.75
AVFT 224	Tail Wheel Transition	1
AVGS 222	Flight Instruct Ground School	4
AVST 215	Multi-Engine Flight Simulator	1

MINIMUM TOTAL **63**

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVFT 201	AVFT 202	AVAF 134	AVFT 204
AVGS 101	AVGS 211	AVFT 203	AVST 214
AVST 211	AVST 212	AVGS 221	Lim.Ch.
		AVST 213	Lim.Ch.
V	VI		
Lim.Ch.	Lim.Ch.		
Lim.Ch.	Lim.Ch.		
Lim.Ch.			

AVIONICS
ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10260 (Effective Fall 1999 – Summer 2004)

Aviation electronics (avionics) is the application of electronics to aviation. Avionics technicians install and service complex communication, navigation, radar, and autopilot equipment. The avionics work environment is clean, well-lighted, and temperature-controlled. Students will find employment opportunities at airlines, airports, electronics manufacturers, and government agencies. LCC Avionics students can qualify for several industry training certificates from Allied Signal Aerospace. In addition, LCC offers on-site testing for the General Radiotelephone Operator License. Although students do not need any special skills to start the Avionics Program, they should be aware that color blindness may cause them difficulty because various electronic components are color-coded.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

REQUIREMENTS **TOTAL: 66 CREDITS**

CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installat/Generat	2
AVEL 151	Avionics Installat/Generat Lab	1
AVEL 190	Receiver Troubleshooting	2
AVEL 191	Receiver Troubleshooting Lab	1
AVEL 200	Flight Line Testing	2
AVEL 201	Flight Line Testing Lab	1
AVEL 220	Avionics Systems I	3
AVEL 221	Avionics Systems I Lab	2
AVEL 225	Avionics Licensing/Regulations	1
AVEL 226	FAA Rules/Regs Avionics Techs	1
AVEL 230	Avionics Systems II	3
AVEL 231	Avionics Systems II Lab	2
AVIR 140	Avionics Instruments I	1
CISB 200	Information Systems Technology	3
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 211	Linear Circuits I	3
ELCT 212	Linear Circuits II	3
ELCT 231	Advanced Digital Electronics	4
SPCH 110	Oral Communications for Business	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 3 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas **3 Credits**
(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

MINIMUM TOTAL **69**

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVAF 130	AVEL 150	AVEL 190	AVEL 220
AVIR 140	AVEL 151	AVEL 191	AVEL 221
ELCT 101	CISB 200	AVEL 200	ELCT 211
ELCT 109	ELCT 112	AVEL 201	ELCT 231
ELCT 110	ELCT 120		Lim.Ch.
SPCH 110	ELCT 131		
V			
AVEL 225			
AVEL 226			
AVEL 230			
AVEL 231			
ELCT 212			
WRIT 124			

**AVIONICS INSTALLATION
CERTIFICATE OF COMPLETION**

Curriculum Code: 10847 (Effective Fall 1999 – Summer 2004)

Aviation electronics (avionics) is the application of electronics to aviation. This program is designed for students who are interested in installing and testing complex communication, navigation, radar, and autopilot equipment in aircraft. Employment opportunities are at airports that have avionics sales and service facilities, airlines and aircraft manufacturers.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS

TOTAL: 23 CREDITS

CODE	TITLE	CREDIT HOURS
AVAF 130	Avionics Airframe Applications	3
AVEL 150	Avionics Installat/Generat	2
AVEL 151	Avionics Installat/Generat Lab	1
AVEL 200	Flight Line Testing	2
AVEL 201	Flight Line Testing Lab	1
AVIR 140	Avionics Instruments I	1
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 120	Programming Preparation	2

LIMITED CHOICE REQUIREMENTS

TOTAL: 2 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Practical Experience	2 Credits
AVEL 297	Avionics Internship	2
AVEL 299	Advanced Avionics Laboratory	2
MINIMUM TOTAL		25

NOTES:

- Although students do not need any special skills to start the Avionics Certificate Program, they should be aware that color blindness may cause them difficulty because various electronic components are color coded.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
AVAF 130	AVEL 150	AVEL 200
AVIR 140	AVEL 151	AVEL 201
ELCT 101	ELCT 120	Lim.Ch.
ELCT 109		
ELCT 110		

**POWERPLANT MAINTENANCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10745 (Effective Fall 1999 – Summer 2004)

Powerplant Maintenance Technicians maintain aircraft in accordance with the Federal Aviation Regulations. Technicians perform inspections, repairs, and alterations to aircraft powerplants, propellers, and their related systems. In addition, they troubleshoot the operation of induction, cooling, exhaust, fuel metering, ignition, electrical, starting, lubrication, propeller, and other associated systems. Powerplant maintenance technicians are employed throughout the world maintaining aircraft for major air carriers, commuter airlines, air freight operators, corporate flight departments, fixed base operators, and a variety of other specialized aviation businesses. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Aviation Program at the LCC Aviation Center, telephone number (517) 483-1406.

REQUIREMENTS

TOTAL: 59 CREDITS

CODE	TITLE	CREDIT HOURS
AVAF 212	Aircraft Electrical II	4
AVGM 111	Aviation General I	4
AVGM 112	Aviation General II	6
AVGM 113	Aviation General III	4
AVGM 114	Material and Processes	5
AVPP 241	Reciprocating Engine	8
AVPP 251	Reciprocating Engine Systems	2
AVPP 253	Reciprocating Ignition Systems	5
AVPP 255	Reciprocating Induction System	4
AVPP 257	Aircraft Propeller Systems	4
AVPP 259	Turbine Engine I	4
AVPP 261	Turbine Engine II	4
AVPP 263	Turbine Engine Systems	2
AVPP 265	Powerplant Instruments	2
AVPP 267	National Powerplant Cert Proc	1

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>		
	Writing Core Area	3
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
MINIMUM TOTAL		12

NOTES

- Students must complete each course with a minimum grade of 70 percent and pass Pre-Tests for General and Powerplant with a minimum grade of 80 percent to be approved for the Federal Aviation Administration written tests.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
AVGM 111	AVAF 212	AVPP 253	AVPP 261
AVGM 112	AVPP 241	AVPP 255	AVPP 263
AVGM 113	AVPP 251	AVPP 257	AVPP 265
AVGM 114	Lim.Ch.	AVPP 259	AVPP 267
			Lim.Ch.
			Lim.Ch.
			Lim.Ch.

**BUILDING MAINTENANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10211 (Effective Fall 1999 – Summer 2004)

Building maintenance workers are required to maintain the aesthetic and structural integrity of buildings. These include houses, apartments and commercial, industrial, and institutional buildings. They may be responsible for maintenance and upkeep of all mechanical, plumbing, and electrical equipment, as well as grounds keeping. They should also be versatile enough to do routine painting, drywall, plastering, woodworking, pool and lawn maintenance, as well as some custodial work. Building maintenance workers can either be self-employed or work for apartment complexes, hospitals, office complexes, hotels, schools, commercial buildings, or restaurants.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 59 CREDITS

CODE	TITLE	CREDIT HOURS
BLDR 101	Basic Woodworking	2
BLDR 132	General Home Maintenance	2
BLDT 121	Residential Framing	4
BLDT 126	Interior Carpentry	4
ELTE 100	Electrical Safety Practices	1
ELTE 112	Basic Wiring Installation	2
HORT 105	Pest/Problem Ornamental Plants	2
HVAC 100	Fundamentals of HVAC	3
HVAC 105	Sheet Metal Fabrication/Instal	2
HVAC 110	Applied Electricity I	2
HVAC 111	Applied Electricity II	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 211	Schematics	3
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
HVAC 230	Air Conditioning II	4
HVAC 240	Refrigeration I	4
HVAC 241	Refrigeration II	4
LAND 133	Home Landscape Maintenance	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

MINIMUM TOTAL 71

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BLDR 101	ELTE 112	BLDR 132	BLDT 126
ELTE 100	HVAC 111	BLDT 121	HVAC 221
HVAC 100	HVAC 120	HORT 105	HVAC 230
HVAC 105	HVAC 130	HVAC 220	HVAC 240
HVAC 110	HVAC 211	Lim.Ch.	LAND 133
Lim.Ch.	Lim.Ch.	Lim.Ch.	

V

HVAC 241

**BUILDING MAINTENANCE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10237 (Effective Fall 1999 – Summer 2004)

This program consists of practical hands-on courses that provide students with the necessary technical knowledge and skills needed for an entry-level position in the maintenance of residential and commercial buildings.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 37 CREDITS
CODE	TITLE	CREDIT HOURS
BLDR 101	Basic Woodworking	2
BLDR 132	General Home Maintenance	2
ELTE 100	Electrical Safety Practices	1
ELTE 112	Basic Wiring Installation	2
HVAC 100	Fundamentals of HVAC	3
HVAC 105	Sheet Metal Fabrication/Instal	2
HVAC 110	Applied Electricity I	2
HVAC 111	Applied Electricity II	2
HVAC 120	Heating I	4
HVAC 130	Air Conditioning I	4
HVAC 211	Schematics	3
HVAC 220	Heating II	4
HVAC 221	Introduction to Hydronics	3
LAND 133	Home Landscape Maintenance	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 4 CREDITS**
Complete the indicated number of credits from each **CHOICE** listed below.

CHOICE 1:	Maintenance Related	Credits
BLDT 121	Residential Framing	4
BLDT 126	Interior Carpentry	4
HVAC 230	Air Conditioning II	4
HVAC 240	Refrigeration I	4
MINIMUM TOTAL		41

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELTE 100	ELTE 112	BLDR 101	BLDR 132
HVAC 100	HVAC 111	HVAC 105	HVAC 130
HVAC 110	HVAC 120	HVAC 220	HVAC 221
LAND 133	HVAC 211	Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**BUSINESS ADMINISTRATION
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10243 (Effective Fall 1999 – Summer 2004)

This degree program provides basic instruction in key business areas, such as management, marketing, finances, computers, and other business-related areas. Graduates of this program may qualify for entry level/hands-on positions. Additional education will enhance an individual's employment and advancement opportunities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 41 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 200	Info Sys Tech/Problem Solving	3
ECON 201	Principles of Economics-Micro	3
LEGL 215	Busn Law I, Basic Principles	3
MATH 117	Math for Business	4
MGMT 200	Creative Thinking for Business	3
MGMT 225	Principles of Management	3
MGMT 234	Diversity in the Workplace	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 20-23 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0
Mathematics Competency	0

CHOICE 2: Management Related (See Note 2) 5-6 Credits

CHOICE 3: Marketing Related (See Note 3) 5-6 Credits

CHOICE 4: Computer Related (See Note 4) 4-5 Credits

CHOICE 5: Business Related 6 Credits

ACCG 211	Principles of Accounting II	4
ECON 202	Principles of Economics-Macro	3
ECON 213	U.S. Economic/Business History	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	3

MINIMUM TOTAL

61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.
2. Choose courses with a MGMT prefix that are not already used to meet degree requirements. Up to 3 credits total from the T.I.M.E. Series may be used (MGMT 240 - MGMT 279). BUSN 295 may also be used.
3. Choose courses with a MKTG prefix that are not already used to meet degree requirements. BUSN 229 and/or BUSN 250 may also be used.
4. Choose CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	ACCG 210	LEGL 215
MATH 117	CISB 200	ECON 201	Lim.Ch.
SPCH 110	MGMT 234	MGMT 200	Lim.Ch.
WRIT 127	MKTG 200	MGMT 225	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**INTERNATIONAL BUSINESS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10240 (Effective Fall 1999 – Summer 2004)

International business managers plan, organize, and control projects from start to finish for businesses and organizations with international connections. They help their company achieve its goals in differing cultural and governmental situations. Graduates of this program may work for a variety of organizations and businesses, both in this hemisphere and overseas. Knowledge of a foreign language and a technical or business specialty increases one's employability. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 37 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 100	Intro Computer Info Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

LIMITED CHOICE REQUIREMENTS TOTAL: 23 CREDITS
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits
(See the *GENERAL EDUCATION* section above)

- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Foreign Language (Choose 1 Subchoice) 8 Credits

- Subchoice 2A**
- FREN 121 Elementary French I 4
- FREN 122 Elementary French II 4
- Subchoice 2B**
- GRMN 121 Elementary German I 4
- GRMN 122 Elementary German II 4
- Subchoice 2C**
- JAPN 121 Elementary Japanese I 4
- JAPN 122 Elementary Japanese II 4
- Subchoice 2D**
- SPAN 121 Elementary Spanish I 4
- SPAN 122 Elementary Spanish II 4

CHOICE 3:	International/Business Related	15 Credits
ACCG 211	Principles of Accounting II	4
BUSN 295	Small Business Management	3
GEOG 200	World Regional Geography	4
GEOG 203	Economic Geography	3
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4
LEGL 215	Busn Law I, Basic Principles	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MGMT 237	Managing/Continual Improvement	3
MGMT 280	Management Internship	3
POLS 270	International Relations	3

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	ACCG 210	MGMT 234
CISB 100	ECON 201	CISB 200	Lim.Ch.2
SPCH 110	MKTG 119	ECON 202	Lim.Ch.3
WRIT 127	MKTG 200	Lim.Ch.2	Lim.Ch.3
Lim.Ch.3	Lim.Ch.3		

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**CIVIL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10178 (Effective Fall 1999 – Summer 2004)

Civil engineering technicians apply theory and principles of civil engineering in planning, designing, and overseeing the construction and maintenance of structures and facilities in the highway system. They may work at construction or survey sites, offices, or in testing labs with engineers, surveyors, supervisors, managers, or skilled trade workers. The successful civil engineering technician must have a working knowledge of college algebra and trigonometry, civil drafting, communications, construction materials, surveying, and must be computer literate. Civil engineering technicians work for construction, engineering, and architecture firms, government agencies, mapping agencies and private petroleum and mining companies.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS **TOTAL: 60 CREDITS**

CODE	TITLE	CREDIT HOURS
CIVL 101	Civil Drafting	4
CIVL 120	Surveying	4
CIVL 124	Route Survey	4
CIVL 131	Traffic Technology	3
CIVL 132	Construction Materials	5
CIVL 135	Soils Technology	3
CIVL 136	Hydrology and Highway Tech	5
CIVL 200	Civil Mathematics	5
CIVL 241	Statics/Strength of Materials	5
GRET 203	Beginning Microstation	3
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
PHYS 200	Applied Physics	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 6 CREDITS**

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas **6 Credits**

<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area <i>(See Note 1)</i>	0
Mathematics Competency <i>(See Note 1)</i>	0

MINIMUM TOTAL **66**

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students who are interested in practical field experience may apply for the Student Civil Technician Co-op Program. Contact the Technology Careers Department at (517) 483-1383.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CIVL 120	CIVL 101	GRET 203	CIVL 132
MATH 114	CIVL 124	MATH 115	CIVL 136
SPCH 120	CIVL 131	PHYS 200	CIVL 241
Lim.Ch.	CIVL 135	SOCL 120	
Lim.Ch.	CIVL 200		

**COMPUTER-AIDED DRAFTING AND DESIGN TECHNICIAN
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10165 (Effective Fall 1999 – Summer 2004)

This program prepares individuals to apply technical knowledge and skills to plan and prepare scale pictorial interpretations of engineering and design concepts. Students receive instruction in the use of precision drawing instruments, computer-assisted design programs, sketching and illustration, and specification interpretation. Proficiency in the use of current computer-aided design packages, up-to-date geometric tolerancing techniques, and descriptive geometry applications is necessary to succeed in the industrial workplace. Employment possibilities include engineering firms, consulting firms, the automotive industry, manufacturers of special machinery, tool and die industry, etc.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 41 CREDITS
CNCP 105	Basic Machining Processes	3	
DTDS 101	Drafting I	4	
DTDS 102	Drafting II	4	
DTDS 103	Geometric Tolerancing	2	
DTDS 104	Descriptive Geometry	4	
DTDS 202	Die Design and Construction	4	
DTDS 204	Jigs and fixture Design	4	
MACH 100	Manufacturing Processes	4	
MACH 135	Metallurgy and Heat Treat	4	
MATH 114	Technical Math I	4	
MATH 115	Technical Math II	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 24 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See Note 1)	3

CHOICE 2: Computer Graphics (See Note 2) 12 Credits

Subchoice 2A	
DTDS 131	AutoCAD Basic 2-D 4
DTDS 132	AutoCAD Advanced 3-D 4
DTDS 233	AutoCAD Mechanical Desktop 4
Subchoice 2B	
DTDS 180	Unigraphics I 4
DTDS 181	Unigraphics II 4
DTDS 182	Unigraphics III 4

MINIMUM TOTAL 65

NOTES

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
- The Computer Graphics series (12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 101	DTDS 102	CNCP 105	DTDS 204
DTDS 103	DTDS 104	DTDS 202	MACH 135
MACH 100	MATH 115	Lim.Ch.1	Lim.Ch.1
MATH 114	Lim.Ch.1	Lim.Ch.1	Lim.Ch.2
	Lim.Ch.2	Lim.Ch.2	

**COMPUTER-AIDED DRAFTING AND DESIGN TECHNICIAN
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10145 (Effective Fall 1999 – Summer 2004)

This curriculum has been identified by local industry as comprising the minimal requirements needed for employment consideration. Students completing this curriculum are eligible to apply for entry-level drafting or computer-aided designer (CAD) positions.

REQUIREMENTS

TOTAL: 22 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 101	Drafting I	4
DTDS 102	Drafting II	4
DTDS 103	Geometric Tolerancing	2
DTDS 104	Descriptive Geometry	4
MACH 100	Manufacturing Processes	4
MATH 114	Technical Math I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Computer Graphics (See Note 1) 12 Credits

Subchoice 1A	
DTDS 131	AutoCAD Basic 2-D 4
DTDS 132	AutoCAD Advanced 3-D 4
DTDS 233	AutoCAD Mechanical Desktop 4
Subchoice 1B	
DTDS 180	Unigraphics I 4
DTDS 181	Unigraphics II 4
DTDS 182	Unigraphics III 4

MINIMUM TOTAL 34

NOTES

- The Computer Graphics series (12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
DTDS 101	DTDS 102	Lim.Ch.
MACH 100	DTDS 103	
MATH 114	DTDS 104	
Lim.Ch.	Lim.Ch.	

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**CAD/CAM TECHNICIAN
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10892 (Effective Fall 1999 – Summer 2004)

This curriculum is intended for students planning to pursue a career in mechanical computer-aided design and manufacturing (CAD/CAM). Graduates often seek employment with companies who expect their CAD operators to also be computer numerically controlled (CNC) machine tool path programmers as well as designers. The increase in the level of sophistication of computer-aided design systems has necessitated that the designer assist in the creation of the tool path or support machinists engaged in this task. Responsibilities include graphically representing engineering math data and generating the necessary instruction for computer-controlled lathes, mills, and automated machine tools, both manually and electronically. CAD/CAM technicians are employed by manufacturing companies, machine shops, and die design and construction shops in many areas of the automotive, aerospace, and special machinery manufacturing market. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
CNCP 110	Foundations of CNC Programming	4
CNCP 130	Machine Controls and Setup	4
CNCP 210	Mastercam	4
DTDS 101	Drafting I	4
DTDS 102	Drafting II	4
DTDS 103	Geometric Tolerancing	2
DTDS 104	Descriptive Geometry	4
MACH 100	Manufacturing Processes	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MATH 141	Calculus with Applications	3

LIMITED CHOICE REQUIREMENTS TOTAL: 28 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Physics 4 Credits

PHYS 200 Applied Physics	4
PHYS 201 Introductory Physics I	4

CHOICE 3: Computer Graphics (See Note 1) 12 Credits

Subchoice 3A

DTDS 131 AutoCAD Basic 2-D	4
DTDS 132 AutoCAD Advanced 3-D	4
DTDS 233 AutoCAD Mechanical Desktop	4

Subchoice 3B

DTDS 180 Unigraphics I	4
DTDS 181 Unigraphics II	4
DTDS 182 Unigraphics III	4

MINIMUM TOTAL 72

NOTES

- The Computer Graphics series (Choice 3, 12 credits) may be replaced by another approved computer graphics software package available through the Drafting and Design Program. See a Drafting and Design advisor for more information.
- Some prerequisites to courses may be waived based on experience. See an advisor for more information.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 101	DTDS 102	CNCP 110	CNCP 130
MACH 100	DTDS 103	DTDS 104	CNCP 210
MACH 105	MACH 110	MACH 111	Lim.Ch.1
MATH 141	Lim.Ch.2	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.3	Lim.Ch.3	Lim.Ch.3

**COMPUTER NETWORKING AND COMMUNICATIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10791 (Effective Fall 1999 – Summer 2004)

Computer networking and communication specialists plan, develop, and administer network and communication systems. They may develop applications to be deployed and oversee the operation of the network. They may provide software and hardware support for the networking infrastructure including database development. They will work with Internet and World Wide Web connections including the development of home pages and E-mail.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 41 CREDITS
CABS 195	Microsoft Windows	2	
CISB 100	Intro Computer Info Systems	3	
CISB 102	Intro Internet in Business	2	
CISB 119	Intro Window Prog Visual BASIC	4	
CISB 130	Data Communications	3	
CISB 133	Operating Systems	3	
CISB 151	Using Lotus Notes	2	
CISB 200	Info Sys Tech/Problem Solving	3	
CISB 202	Adv Internet Business/Educ	2	
CISB 204	Web Site Management	2	
CISB 230	Intro to Local Area Networks	3	
CISB 231	Advanced Local Area Networks	3	
CISB 233	Microsoft Windows NT Server	3	
CISB 253	WWW Interactive Programming	4	
CISB 258	Dev Multimedia Home Pages WWW	2	

LIMITED CHOICE REQUIREMENTS

TOTAL: 19 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas

9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Computer Specialty Area (See Note 2)

10 Credits

CABS 110	Microsoft Office	3
CABS 210	Advanced Microsoft Office	3
CISB 122	Adv Windows Prog Visual BASIC	3
CISB 136	SQL: Structured Query Language	2
CISB 141	Powerbuilder	2
CISB 143	ORACLE Database for Business	2
CISB 152	Developing Lotus Notes Appl	2
CISB 180	C Programming Busn App	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 247	Microcomputer Project	2
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 281	Visual C++ Programming	3
CISB 283	Intro to JAVA Programming	3

MINIMUM TOTAL

60

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. Other CABS or CISB-prefix courses may be approved for Choice 2 by a Computer Information Systems Academic Program advisor.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 195	CISB 130	CISB 200	CISB 231
CISB 100	CISB 133	CISB 204	CISB 233
CISB 102	CISB 151	CISB 230	CISB 253
CISB 119	CISB 202	Lim.Ch.1	CISB 258
Lim.Ch.2	Lim.Ch.1	Lim.Ch.2	Lim.Ch.1
	Lim.Ch.2		Lim.Ch.2

**COMPUTER SECURITY AND CONTROLS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10253 (Effective Fall 1999 – Summer 2004)

Computer auditors plan and conduct audits of data processing systems and applications to safeguard assets, ensure accuracy of data, and promote operational efficiency. They may interview workers and examine records to gather data by following an audit plan and using the computer. They analyze data gathered to evaluate effectiveness of controls and determine accuracy of reports and efficiency and security of operations. They devise, write, and test computer programs necessary to obtain information needed for audit. They devise controls for new or modified computer applications to prevent inaccurate calculations and data loss, and to ensure discovery of errors.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 6 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 50 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
ACCG 220	Intermediate Accounting I	4
ACCG 221	Intermediate Accounting II	4
ACCG 290	Auditing	3
CISB 100	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 136	SQL: Structured Query Language	2
CISB 170	COBOL I	4
CISB 230	Intro to Local Area Networks	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 270	COBOL II	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 12 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

MINIMUM TOTAL 62

NOTES

- For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB and ACCG prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	ACCG 211	ACCG 220	ACCG 221
CISB 100	CISB 130	CISB 133	CISB 250
CISB 114	CISB 170	CISB 230	Lim.Ch.
CISB 136	CISB 260	CISB 270	Lim.Ch.
Lim.Ch.		Lim.Ch.	

V

ACCG 290

ELECTRONICS TECHNOLOGY, COMPUTER TECHNICIAN ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10743 (Effective Fall 1999 – Summer 2004)

A computer service technician is highly knowledgeable in both computer hardware and software. This person must not only understand the operation of the computer system, but must also diagnose and repair the system when it fails, make upgrades, and perform preventive maintenance. A computer service technician also answers customers' questions relating to correct use of computers or components and may install new equipment. A successful computer service technician must understand electronics, computer hardware and software, and how they work together to make the computer operate. Computer service technicians are employed in computer sales and service shops and any place a large number of computers are found. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 57 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 107	DOS Management	1
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 236	Microcomputer Software Support	3
ELCT 100	Schematic Drawing	1
ELCT 120	Programming Preparation	2
ELCT 151	Computer Troubleshooting	3
ELCT 160	Logic Problems Analysis	3
ELCT 161	Soldering/Desoldering	1
ELCT 170	Computer Repair Electronics I	6
ELCT 171	Computer Repair Electronics II	6
ELCT 180	Computer Test Equipment I	3
ELCT 181	Computer Test Equipment II	2
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 9 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	3 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Word Processing	2 Credits
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2

CHOICE 3: Spreadsheet	2 Credits
CABS 123 Lotus 1-2-3 for DOS	2
CABS 126 Excel	2
CABS 127 Quattro Pro	2
CABS 128 Lotus 1-2-3 for Windows	2

CHOICE 4: Database	2 Credits
CABS 132 Paradox Database	2
CABS 133 Microsoft Access Database	2

MINIMUM TOTAL 66

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students interested in specializing in microcomputer software support should review the curriculum guide for Microcomputer Support Specialist, #10713.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 114	CABS 195	CISB 133
ELCT 120	CISB 130	CISB 107	CISB 231
ELCT 160	ELCT 151	CISB 200	CISB 236
ELCT 161	ELCT 171	CISB 230	Lim.Ch.
ELCT 170	ELCT 181	WRIT 124	Lim.Ch.
ELCT 180		Lim.Ch.	
SPCH 110		Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**COMPUTER REPAIR TECHNICIAN
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10168 (Effective Fall 1999 – Summer 2004)

This program provides technical knowledge and skills to repair and service computers, test computers and computer components, and diagnose causes of malfunctions. Individuals are prepared for entry-level positions.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 25 CREDITS
ELCT 100	Schematic Drawing	1	
ELCT 151	Computer Troubleshooting I	3	
ELCT 160	Logic Problems Analysis I	3	
ELCT 161	Soldering/Desoldering	1	
ELCT 170	Computer Repair Electronics I	6	
ELCT 171	Computer Repair Electronics II	6	
ELCT 180	Computer Test Equipment I	3	
ELCT 181	Computer Test Equipment II	2	

LIMITED CHOICE REQUIREMENTS

TOTAL: 6-7 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Software	Credits
CABS 195 Microsoft Windows	2
CISB 107 DOS Management	1
CISB 130 Data Communications	3
CISB 133 Operating Systems	3
CISB 230 Intro to Local Area Networks	3
ELCT 120 Programming Preparation	2
CHOICE 2: Communication	3-4 Credits
SPCH 110 Oral Communic in the Workplace	3
WRIT 117 Writing Preparation II	4
WRIT 124 Technical Writing	3

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ELCT 100	ELCT 151
ELCT 160	ELCT 171
ELCT 161	ELCT 181
ELCT 170	Lim.Ch.
ELCT 180	Lim.Ch.
Lim.Ch.	

**INTERNET FOR BUSINESS
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10794 (Effective Fall 1999 – Summer 2004)

This program provides students with technical knowledge and skills to use the Internet, the global network which links computer users and information on a world-wide scale. Students will learn how to maximize the use of Internet and World Wide Web resources. Emphasis in this program is on business applications.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 24 CREDITS
CABS 195	Microsoft Windows	2	
CISB 100	Intro Computer Info Systems	3	
CISB 102	Intro Internet in Business	2	
CISB 119	Intro Window Prog Visual BASIC	4	
CISB 130	Data Communications	3	
CISB 202	Adv Internet Business/Educ	2	
CISB 204	Web Site Management	2	
CISB 258	Dev Multimedia Home Pages WWW	2	
WRIT 121	Composition I	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 6-7 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Programming	Credits
CISB 253 WWW Interactive Programming	4
CISB 283 Intro to JAVA Programming	3
CHOICE 2: Speech Communication	3 Credits
SPCH 110 Oral Communic in the Workplace	3
SPCH 120 Dynamics of Communication	3

MINIMUM TOTAL 30

NOTES

1. For graduation from this program, a student must have earned a minimum 2.0 grade point average in courses with CABS and CISB prefixes.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
CABS 195	CISB 130	CISB 204
CISB 100	CISB 202	WRIT 121
CISB 102	CISB 258	Lim.Ch.
CISB 119	Lim.Ch.	

**MICROCOMPUTER SUPPORT SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10713 (Effective Fall 1999 – Summer 2004)

Microcomputer support specialists install, modify, and make minor repairs to microcomputer hardware and software systems and provide technical assistance and training to system users. They install or assist service personnel in installation of hardware and peripheral components, such as monitors, keyboards, printers, and disk drives on user's premises, following design or installation specifications. They may also load software packages into the computer; instruct users in use of equipment, software, and manuals; answer clients' inquiries concerning the systems operation; and diagnose system hardware, software, and operator problems.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department Office, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 33 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 133	Microsoft Access Database	2
CABS 195	Microsoft Windows	2
CABS 232	Advanced Microsoft Access	2
CABS 234	Programming Microsoft Access	2
CISB 100	Intro Computer Info Systems	3
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3

LIMITED CHOICE REQUIREMENTS TOTAL: 28-29 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above.)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Word Processing	4-5 Credits
CABS 119 Word for Windows	2
CABS 121 WordPerfect for Windows	2
CABS 180 Desktop Publishing Pagemaker	3
CABS 219 Advanced Microsoft Word	2
CHOICE 3: Spreadsheets	4 Credits
CABS 126 Excel	2
CABS 127 Quattro Pro	2
CABS 128 Lotus 1-2-3 for Windows	2
CABS 129 Excel-Advanced	2

CHOICE 4: Graphics	2 Credits
CABS 140 Bush Graphics Harvard Graphics	2
CABS 182 Microsoft PowerPoint/Windows	2
CHOICE 5: Computer Related <i>(See Note 2)</i>	6 Credits
CABS 110 Microsoft Office	3
CISB 102 Intro Internet in Business	2
CISB 202 Adv Internet Business/Educ	2
CISB 231 Advanced Local Area Networks	3
CISB 247 Microcomputer Project	2
CISB 258 Dev Multimedia Home Pages WWW	2
CISB 260 Systems Analysis and Design	4
CHOICE 6: Accounting	3-4 Credits
ACCG 100 Practical Accounting Non-Major	3
ACCG 210 Principles of Accounting I	4
MINIMUM TOTAL	61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also select from any course with a CABS or CISB prefix not already used to meet degree requirements.
3. For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CABS and CISB prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 195	CABS 133	CABS 232	CISB 230
CISB 100	CISB 119	CABS 234	CISB 235
Lim.Ch.	Lim.Ch.	CISB 130	CISB 236
Lim.Ch.	Lim.Ch.	CISB 133	Lim.Ch.
Lim.Ch.	Lim.Ch.	CISB 200	Lim.Ch.
	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**MICROCOMPUTER SYSTEMS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10111 (Effective Fall 1999 – Summer 2004)

Microcomputer systems programmers develop programs to be run on today's powerful microcomputer systems and networks. Study and experience follows either an object-oriented or procedural programming track. Skills in the areas of computer programming, communication, systems analysis and design, business systems applications, microcomputer support, and systems control are required to succeed in jobs related to computer systems in business.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 31 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Intro Computer Info Systems	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4

LIMITED CHOICE REQUIREMENTS TOTAL: 29-30 CREDITS
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Programming Track (Choose 1 Subchoice) 10 Credits

Subchoice 2A: Object Oriented Programming Track

CISB 119	Intro Window Prog Visual BASIC	4
CISB 122	Adv Windows Prog Visual BASIC	3
CISB 281	Visual C++ Programming	3

Subchoice 2B: Procedural Programming Track

CISB 114	Programming Logic	3
CISB 180	C Programming Busn App	3
CISB 280	C++ Language with OOP	4

CHOICE 3: Computer Specialty Area (See Note 3) 8 Credits

CABS 133	Microsoft Access Database	2
CISB 102	Intro Internet in Business	2
CISB 202	Adv Internet Business/Educ	2
CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 253	WWW Interactive Programming	4
CISB 258	Dev Multimedia Home Pages WWW	2

CHOICE 4: Computer Related	2-3 Credits
CISB 245 Programming Internship	3
CISB 247 Microcomputer Project	2

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.
3. Other CABS or CISB-prefix courses may be approved for Choice 3 by a Computer Information Systems Academic Program advisor.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	CABS 110	CISB 230	CISB 200
CABS 195	CISB 130	CISB 260	CISB 250
CISB 100	CISB 133	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.2	Lim.Ch.2	Lim.Ch.3
Lim.Ch.2	Lim.Ch.3	Lim.Ch.3	Lim.Ch.4

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

MICROCOMPUTER SYSTEMS CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10107 (Effective Fall 1999 - Summer 2004)

Certificate holders may qualify for entry-level/hands-on positions in this or a related area. Additional training will enhance an individual's employment and advancement opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 11 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Intro Computer Info Systems	3
CISB 130	Data Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 19-21 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE	REQUIREMENTS	CREDITS
CHOICE 1:	Programming Introduction	3-4 Credits
CISB 114	Programming Logic	3
CISB 119	Intro Window Prog Visual BASIC	4
CHOICE 2:	Computer Related (See Note 2)	10 Credits
CABS 133	Microsoft Access Database	2
CISB 102	Intro Internet in Business	2
CISB 133	Operating Systems	3
CISB 202	Adv Internet Business/Educ	2
CISB 230	Intro to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3
CISB 253	WWW Interactive Programming	4
CISB 258	Dev Multimedia Home Pages WWW	2
CHOICE 3:	Writing	3-4 Credits
WRIT 121	Composition I	4
WRIT 124	Technical Writing	3
WRIT 127	Business Communications	3
CHOICE 4:	Speech Communication	3 Credits
SPCH 110	Oral Communic in the Workplace	3
SPCH 120	Dynamics of Communication	3
MINIMUM TOTAL		30

NOTES

- For graduation, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.
- Other CABS or CISB-prefix courses may be approved for Choice 2 by a Computer Information Systems Academic Program advisor.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CABS 110
CISB 100	CISB 130
Lim.Ch.1	Lim.Ch.2
Lim.Ch.2	Lim.Ch.2
Lim.Ch.3	Lim.Ch.4

**PROGRAMMER/ANALYST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10113 (Effective Fall 1999 – Summer 2004)

Programmer/Analysts plan, develop, test, and document computer programs at the request of a specific user, applying knowledge of programming techniques and computer systems. They may evaluate user requests to determine feasibility, cost and time required, as well as compatibility with current system and computer capabilities. In addition, they read manuals, periodicals, and technical reports to develop programs that meet user requirements. They formulate a plan outlining steps required to develop programs and convert project specifications into program source instructions which are entered into the computer system and tested. They may write documentation and the user manual.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 36 CREDITS
CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
CISB 100	Intro Computer Info Systems	3
CISB 114	Programming Logic	3
CISB 130	Data Communications	3
CISB 133	Operating Systems	3
CISB 170	COBOL I	4
CISB 200	Info Sys Tech/Problem Solving	3
CISB 250	Database Concepts	3
CISB 260	Systems Analysis and Design	4
CISB 261	Sys Implementation Case Tools	3
CISB 270	COBOL II	3

LIMITED CHOICE REQUIREMENTS TOTAL: 24 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Additional Language (Choose 1 Subchoice) 7 Credits

Subchoice 2A

CISB 175	Beginning RPG on the AS/400	3
CISB 275	Advanced RPG on the AS/400	4

Subchoice 2B

CISB 180	C Programming Busn App	3
CISB 280	C++ Language with OOP	4

CHOICE 3: Computer Related (See Note 2) 8 Credits

CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 102	Intro Internet in Business	2
CISB 119	Intro Window Prog Visual BASIC	4
CISB 122	Adv Windows Prog Visual BASIC	3
CISB 136	SQL: Structured Query Language	2
CISB 230	Intro to Local Area Networks	3
CISB 245	Programming Internship	3
CISB 253	WWW Interactive Programming	4
CISB 283	Intro to JAVA Programming	3

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also select from unchosen courses in Choice 2 or any course with a CISB prefix not already used to meet degree requirements.
3. For graduation from this program, a student must have earned a minimum 2.0 grade point average in courses with a CISB prefix.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 210	CISB 130	CISB 170	CISB 250
CISB 100	CISB 133	CISB 200	CISB 270
CISB 114	CISB 260	CISB 261	Lim.Ch.1
Lim.Ch.1	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
	Lim.Ch.2	Lim.Ch.3	Lim.Ch.3

**ADVANCED MICROCOMPUTER APPLICATIONS SPECIALIST
CERTIFICATE OF COMPLETION**

Curriculum Code: 10765 (Effective Fall 1999 - Summer 2004)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 18 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CABS 119	Word for Windows	2
CABS 126	Excel	2
CABS 129	Excel-Advanced	2
CABS 133	Microsoft Access Database	2
CABS 182	Microsoft PowerPoint/Windows	2
CABS 219	Advanced Microsoft Word	2
CABS 232	Advanced Microsoft Access	2
CABS 234	Programming Microsoft Access	2

MINIMUM TOTAL 18

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CABS 129
CABS 119	CABS 182
CABS 126	CABS 219
CABS 133	CABS 232
	CABS 234

**MICROCOMPUTER USER SUPPORT SPECIALIST
CERTIFICATE OF COMPLETION**

Curriculum Code: 10766 (Effective Fall 1999 - Summer 2004)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 17 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 195	Microsoft Windows	2
CISB 200	Info Sys Tech/Problem Solving	3
CISB 230	Intro to Local Area Networks	3
CISB 231	Advanced Local Area Networks	3
CISB 235	Microcomputer Hardware Support	3
CISB 236	Microcomputer Software Support	3

MINIMUM TOTAL 17

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CABS 195	CISB 200
CISB 230	CISB 231
CISB 235	CISB 236

WINDOWS PROGRAMMING SPECIALIST CERTIFICATE OF COMPLETION

Curriculum Code: 10763 (Effective Fall 1999 – Summer 2004)

This certificate of completion is designed for students who either hold a post-secondary degree (associate or bachelor) in a Computer Information Systems-related area or have three or more years work experience in a Computer Information Systems-related job. To receive this certificate of completion applicants must attach proof of a degree or work experience to the application for the certificate.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 12 CREDITS
CABS 195	Microsoft Windows	2	
CISB 119	Intro Window Prog Visual BASIC	4	
CISB 122	Adv Windows Prog Visual BASIC	3	
CISB 281	Visual C++ Programming	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 3-4 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	Multimedia	Credits
CISB 256	Multimedia in Business	3
CISB 257	Multimedia Presentations	2
CISB 258	Dev Multimedia Home Pages WWW	2
CISB 259	Intro to Dev Multimedia Trng	2
CISB 253	WWW Interactive Programming	4
CISB 283	Intro to JAVA Programming	3

MINIMUM TOTAL

15

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
CABS 195	CISB 122	CISB 281
CISB 119	Lim. Ch.	

**RESIDENTIAL BUILDING
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10167 (Effective Fall 1999 – Summer 2004)

This program prepares an individual to build single family structures and multiple housing buildings such as apartments and condominiums. A residential builder must have basic math skills, understand construction methods and techniques, and know the proper use of construction materials. They must also have significant knowledge of blueprint reading, estimating, code requirements, and small business administration and management. Students will be prepared to obtain a Residential Builder's License or a Maintenance and Alteration Contractor's License. This program also assists students in preparing for the Michigan Builder's License Exam which is administered by the National Assessment Institute and the State of Michigan. This program does not lead to journey status.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
ARCH 271	Structural Theory	4	
ARCH 278	Energy Efficient Design	4	
ARCH 283	Materials of Construction	4	
BLDT 100	Introduction to Construction	3	
BLDT 103	Structural Blueprint Reading	4	
BLDT 121	Residential Framing	4	
BLDT 124	Remodeling, Shingling/Siding	4	
BLDT 126	Interior Carpentry	4	
BLDT 262	Builder's Business License	4	
BLDT 277	Construction Cost Estimating	4	
BLDT 281	BOCA/Uniform Code	3	
MATH 112	Intermediate Algebra	4	

LIMITED CHOICE REQUIREMENTS

TOTAL: 14 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See Note 1)	

CHOICE 2: Building/Business Related 2 Credits

ACCG 100	Practical Accounting Non-Major	3
BLDR 101	Basic Woodworking	2
BLDT 285	Residential Building Intern	2
BLDT 298	Builder's License Review	1
BUSN 118	Introduction to Business	3
CIVL 120	Surveying	4

MINIMUM TOTAL 60

NOTES

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BLDT 100	ARCH 278	ARCH 283	ARCH 271
BLDT 103	BLDT 124	BLDT 126	BLDT 262
BLDT 121	MATH 112	BLDT 277	BLDT 281
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.			

**RESIDENTIAL BUILDING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10135 (Effective Fall 1999 – Summer 2004)

This certificate consists of practical hands-on courses that prepare an individual for the job market with just one year of training. This program does not lead to journey status.

REQUIREMENTS

TOTAL: 30 CREDITS

CODE	TITLE	CREDIT HOURS
ARCH 283	Materials of Construction	4
BLDT 100	Introduction to Construction	3
BLDT 103	Structural Blueprint Reading	4
BLDT 121	Residential Framing	4
BLDT 126	Interior Carpentry	4
BLDT 277	Construction Cost Estimating	4
BLDT 281	BOCA/Uniform Code	3
MATH 050	Math-Principles and Practices	4

MINIMUM TOTAL

30

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BLDT 100	ARCH 283
BLDT 121	BLDT 103
BLDT 126	BLDT 277
MATH 050	BLDT 281

**COURT REPORTING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10273 (Effective Fall 1999 – Summer 2004)

Reporters are communication specialists who use a steno machine to make a verbatim record of legal proceedings and produce an accurate transcript of what was said. They can also be realtime reporters and/or captioners, providing instant translation for deaf or hard-of-hearing persons. Court reporters work in all environments where a verbatim record is needed or voice-to-text translation is required for communication access. Official reporters work in the courtroom. Freelance reporters work in a freelance firm or home office. Realtime reporters work in a classroom or conference setting. Captioners work at a television station. State certification is required and national certification is highly recommended. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. Many of the courses for this program are open only to students officially admitted to the Court and Conference Reporting Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. The program requirements below apply only to those students who have been admitted to the program for the 1999/2000 academic year. For the most recent and complete information, interested students should contact the Admissions Office, Room 232 Gannon Vocational-Technical Center, telephone (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE COURT AND CONFERENCE REPORTING PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 49 CREDITS
CODE	TITLE	CREDIT HOURS
CACR 101	Machine Shorthand Theory I	6
CACR 111	Machine Shorthand Theory II	6
CACR 121	Introduction to Speedbuilding	6
CACR 205	Court Reporting I	11
CACR 206	Court Reporting II	11
CACR 215	Intermediate Speedbuilding	6
CACR 245	Court Procedures	1
CACR 246	Internship (See Note 1)	1
CACR 270	Realtime Reporting	1

LIMITED CHOICE REQUIREMENTS TOTAL: 15-23 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
CHOICE 2: Professional Related Courses	3 Credits
CJUS 103 Criminal Law	3
LEGL 215 Busn Law I, Basic Principles	3
CHOICE 3: Advanced Speedbuilding Courses (See Note 2)	0-8 Credits
CACR 225 Advanced Speedbuilding I	4
CACR 226 Advanced Speedbuilding II	4
MINIMUM TOTAL	64

NOTES:

- CACR 246 requires 100 verified hours of actual writing fieldwork.
- CACR 225 and 226 are required courses for students not achieving the top speed level requirements in CACR 215.
- Students must begin Court and Conference Reporting courses in the fall or spring. A deposit of \$75.00 for a steno machine and \$25.00 for a stand is required for students admitted into the program. Students are responsible for obtaining their own equipment upon completion of the program.
- CACR 260 is a Certified Shorthand Reporter (CSR) exam prep course. It is offered to alumni eight weeks prior to the CSR exam. It is not a required course for the program.
- A final grade of 3.0 or higher is required to advance to the next related CACR course.
- For graduation, students must attain the following minimum speeds with 95-97% accuracy: three timings at 230 wpm Q&A; three timings at 200 wpm Jury Charge; three timings at 180 wpm Literary; and two typing timings at 60 net wpm.
- This curriculum meets all of the National Court Reporters Association Committee on Approved Student Education (CASE) minimum standards for receiving a degree in Court Reporting.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CACR 101 Lim.Ch.1 Lim.Ch.1	CACR 111 Lim.Ch.1 Lim.Ch.1	CACR 121	CACR 205 CACR 270
V	VI		
CACR 206 CACR 245 Lim.Ch.2	CACR 215 CACR 246		

STUENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**CREDIT UNION MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10103 (Effective Fall 1999 – Summer 2004)

A credit union manager is responsible for the smooth and efficient functioning of the organization and is responsible to the members of that credit union. Handling money and confidential information, credit union managers make decisions in accordance with policy set by the institution's board of directors and federal and state laws and regulations. Graduates of this program are prepared to work in various types and sizes of credit unions and other financial institutions.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 210	Principles of Accounting I	4
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
CUAI 102	Credit Union Accounting	3
CUMA 100	Intro Credit Union Operations	3
CUMA 200	Credit and Collections	3
CUMA 201	Credit U. Financial Counseling	2
CUMA 215	Business Law for Credit Unions	3
MGMT 225	Principles of Management	3
MGMT 234	Diversity in the Workplace	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

LIMITED CHOICE REQUIREMENTS TOTAL: 22-23 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

CHOICE 2: Management Related 18 Credits

ACCG 211	Principles of Accounting II	4
BUSN 201	International Business	3
BUSN 250	Personal Finance	2
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
INSU 265	Principles Risk and Insurance	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
MATH 117	Math for Business	4
MGMT 224	Human Resource Management	3
MGMT 228	Organizational Behavior	3
MGMT 237	Managing/Continual Improvement	3
MGMT 239	Time and Stress Management	3
MGMT 304	Organizational Development	3
MGMT 337	Human Resource Mgmt Skills	3
MKTG 119	Mktg/Manage Your Profess Image	3

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MKTG 221	Consumer Behavior	2
REAL 275	Real Estate financing	3

CHOICE 3: Computer Related (See Note 2) 4-5 Credits

MINIMUM TOTAL 61

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses of 100 or above not already used to meet degree requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	CUAI 102	ACCG 210	CISB 200
CUMA 100	CUMA 200	CUMA 201	MGMT 225
SPCH 110	MKTG 200	CUMA 215	MGMT 234
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**CREDIT UNION MANAGEMENT
CERTIFICATE OF COMPLETION**

Curriculum Code: 10151 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS TOTAL: 17 CREDITS

CODE	TITLE	CREDIT HOURS
CUAI 102	Credit Union Accounting	3
CUMA 100	Intro Credit Union Operations	3
CUMA 200	Credit and Collections	3
CUMA 201	Credit U. Financial Counseling	2
CUMA 215	Business Law for Credit Unions	3
MGMT 225	Principles of Management	3

LIMITED CHOICE REQUIREMENTS TOTAL: 3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Communication 3 Credits

MGMT 234	Diversity in the Workplace	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

MINIMUM TOTAL 20

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CUAI 102	CUMA 200
CUMA 100	CUMA 201
CUMA 215	MGMT 225
Lim.Ch.	

**CRIMINAL JUSTICE, CORRECTIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10170 (Effective Fall 1999 – Summer 2004)

This degree program prepares an individual for a career as a probation or parole officer, corrections officer, halfway house administrator, jail corrections officer, juvenile corrections professional, or local corrections position. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Criminal Justice and Law Center, Old Central Building, Room 224, telephone number (517) 483-1570.

REQUIREMENTS

TOTAL: 49 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems	3
CJUS 101	Intro to Criminal Justice	3
CJUS 106	Intro to Juvenile Justice	3
CJUS 133	Juvenile Residential Services	3
CJUS 134	Probation and Parole	3
CJUS 245	Report Writing in CJ	2
LEGL 160	Critical Thinking in Law	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

Vocational Certificate Requirements (See Note 1)

CJUS 131	Introduction to Corrections	3
CJUS 135	Legal Issues in Corrections	3
CJUS 250	Correctional Institutions	3
CJUS 251	Correctional Clients	3
CJUS 255	Human Relations/Criminal Just	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 13 CREDITS

Complete the indicated number of credits from each **CHOICE** listed below.

CHOICE 1: General Education Core Areas 3 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 2)	0
Speech Communication Core Area (See Note 2)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 2)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Related Professional Courses (See Note 3) 10 Credits

CJUS 102	Crime Causes and Conditions	3
CJUS 204	Criminal Investigation	4
CJUS 205	Policing into the 21st Century	3
SOCL 255	Contemporary Social Problems	3
SOCL 260	Minority Groups	3

County and Local Detention Vocational Certificate (See Note 4)

CJUS 130	Local Detention	3
CJUS 242	Unarmed Defense	3
CJUS 246	Jail Safety and I.D. Issues	4
CJUS 256	Interpersonal Comm in Jails	1
WRIT 117	Writing Preparation II (See Note 5)	4

Juvenile Care Worker Certificate (See Note 7)

CJUS 126	Juvenile Offenders/Their Fam	3
CJUS 286	Juvenile Internship I	3
CJUS 287	Juvenile Internship II	3
HUSE 100	Introduction to Human Services	3
MATH 033	Arithmetic Skills (See Note 8)	3

MINIMUM TOTAL

62

NOTES

- Students completing these five courses with a minimum 2.0 grade in each class will receive the Michigan Corrections Officer Vocational Certificate.
- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may select any combination of Choice 2 courses to fulfill this requirement, including courses listed within the County and Local Detention Certificate and the Juvenile Care Worker Certificate.
- Students completing these five courses and CJUS 135, CJUS 245, CJUS 251 and CJUS 255 with a minimum 2.0 grade in each class will receive the County and Local Detention Vocational Certificate.
- This course will be waived if student scores five or above on the Writing Placement Test. This test is administered free of charge in the Learning Center, Room 309, Arts and Sciences Building.
- All Vocational Certificate courses are certified by the Michigan Corrections Officer Training Council.
- Students completing these five courses and CJUS 106, CJUS 133, CISB 100, PSYC 200, SOCL 120, and WRIT 124 with a minimum 2.0 grade in each class will receive the Juvenile Care Worker Certificate, which is endorsed by the Michigan Juvenile Detention Association.
- This course will be waived if student scores three or above on the Math Placement Test. This test is administered free of charge in the Learning Center, Room 309, Arts and Sciences Building.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CJUS 101	CJUS 106	CISB 100	CJUS 255
CJUS 131	CJUS 245	CJUS 133	PSYC 200
LEGL 160	CJUS 250	CJUS 134	Lim.Ch.1
SOCL 120	CJUS 251	CJUS 135	Lim.Ch.2
WRIT 124	SPCH 110	Lim.Ch.2	Lim.Ch.2

v
Lim.Ch.2

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**CRIMINAL JUSTICE, LAW ENFORCEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10257 (Effective Fall 1999 – Summer 2004)

This degree program prepares an individual for a career as a law enforcement officer. It also prepares the individual for possible entry to the Police Academy Program. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Criminal Justice and Law Center, Old Central Building, Room 224, telephone number (517) 483-1570.

REQUIREMENTS

TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 100	Intro Computer Info Systems	3
CJUS 101	Intro to Criminal Justice	3
CJUS 102	Crime Causes and Conditions	3
CJUS 103	Criminal Law	3
CJUS 106	Intro to Juvenile Justice	3
CJUS 201	Criminal Justice Org/Admin	3
CJUS 204	Criminal Investigation	4
CJUS 205	Policing into the 21st Century	3
CJUS 245	Report Writing in CJ	2
CJUS 255	Human Relations/Criminal Just	3
MGMT 234	Diversity in the Workplace	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 23-28 CREDITS

Complete the indicated number of credit from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	3 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Law Enforcement (Choose 1 Subchoice) 20-25 Credits

Subchoice 2A: Mid-Michigan Police Academy Requirements		
CJUS 260	Criminal Invest & Procedures	3
CJUS 261	Michigan Crim Law & Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard First Aid	2
CJUS 264	Rprt Writing in Law Enforce	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Phys Traing	2
CJUS 268	Precision Driving	3
PFFT 114	Advanced Circuit Training	2
Subchoice 2B: Other Law Enforcement		
CJUS 130	Local Detention	3
CJUS 203	Criminal Procedure	3
LEGL 160	Critical Thinking in Law	3
PSYC 200	Introduction to Psychology	4
SOCL 120	Introduction to Sociology	4
SOCL 255	Contemporary Social Problems	3

MINIMUM TOTAL 62

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Subchoice 2A: Mid-Michigan Police Academy

I	II	III	IV
CJUS 101	CJUS 201	CISB 100	Police Academy
CJUS 102	CJUS 204	CJUS 103	
CJUS 106	CJUS 205	CJUS 255	
WRIT 124	CJUS 245	MGMT 234	
	Lim.Ch.1	SPCH 110	

Subchoice 2B: Other Law Enforcement

I	II	III	IV
CJUS 101	CJUS 106	CISB 100	CJUS 130
CJUS 102	CJUS 201	CJUS 103	PSYC 200
LEGL 160	CJUS 205	CJUS 255	SOCL 120
WRIT 124	CJUS 245	MGMT 234	
	Lim.Ch.1	SPCH 110	
v			
CJUS 203			
CJUS 204			
SOCL 255			

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MID-MICHIGAN POLICE ACADEMY CERTIFICATE OF COMPLETION

Curriculum Code: 10737 (Effective Fall 1999 – Summer 2000)

The Mid-Michigan Police Academy at Lansing Community College is a 15-week basic police training program designed to meet or exceed state mandated certification requirements for preparing individuals for a career in law enforcement. Within the 15 weeks, more than 650 hours are utilized to provide training in 70 different topic areas. The curriculum includes topics such as criminal law and procedure, investigations, patrol procedures, human relations, conflict mediation, firearms, precision driving, use of lethal and non-lethal force, defensive tactics, report writing, traffic enforcement, victimization, and crime prevention. The emphasis in this academy is placed upon practical and hands-on training techniques. All courses for this program must be completed in a single semester.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. All of the courses for this program are open only to students officially admitted to the Police Academy Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or program requirements for this program may change each academic year. For the most recent and complete information about admission requirements, contact the Police Academy Coordinator, William Martin, in the Police Academy Office, Old Central Building, Room 129B, telephone number (517) 483-5248, or contact the LCC Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MID-MICHIGAN POLICE ACADEMY PROGRAM

For current information about admission requirements, contact the Police Academy Coordinator, William Martin, in the Police Academy Office, Old Central Building, Room 129B, telephone number (517) 483-5248, or contact the LCC Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

MID-MICHIGAN POLICE ACADEMY PROGRAM REQUIREMENTS

Curriculum Code: 10737

REQUIREMENTS		TOTAL: 25 CREDITS
CODE	TITLE	CREDIT HOURS
CJUS 260	Criminal Invest & Procedures	3
CJUS 261	Michigan Crim Law & Procedure	3
CJUS 262	Patrol Procedures and Tactics	3
CJUS 263	Standard first Aid	2
CJUS 264	Rprt Writing in Law Enforce	1
CJUS 265	Highway Traffic Operations	3
CJUS 266	Basic Police Science	3
CJUS 267	Law Enforcement Phys Traing	2
CJUS 268	Precision Driving	3
PFFT 114	Advanced Circuit Training	2
MINIMUM TOTAL		25

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ELECTRICAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10134 (Effective Fall 1999 – Summer 2004)

Students in this program may select either the construction specialty or the machine control and maintenance specialty. Construction electricians install electrical wiring and systems in homes, offices, stores or industrial plants. Machine control designers are responsible for designing control circuits which operate machinery in plants. Maintenance electricians work in industry maintaining and troubleshooting power and control circuits on machinery. Both specialties require mechanical aptitude, logical thinking and problem-solving skills. Employment opportunities vary with each specialty.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 33 CREDITS
CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 123	Motors and Transformers	4
ELTE 131	Intro to Machine Control	4
ELTE 145	Electrical Prints for Building	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Intro/Programmable Controllers	4
INAU 100	Intro Industrial Automation	4

LIMITED CHOICE REQUIREMENTS TOTAL: 34 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Electrical Specialization (Choose 1 Subchoice) 22 Credits

Subchoice 2A: Construction Specialization

BLDT 103	Structural Blueprint Reading	4
BLDT 277	Construction Cost Estimating	4
ELTE 141	National Electrical Code I	4
ELTE 142	National Electrical Code II	4
ELTE 240	Electrical Estimating	3
HVAC 100	Fundamentals of HVAC	3

Subchoice 2B: Machine Control and Maintenance Specialization

ELTE 122	Industrial Control Electronics	5
ELTE 232	Industrial Control Design	3
ELTE 261	Allen-Bradley PLC-5 Advanced	6
INAU 200	Applied Automation	4
MFGM 101	Industrial Hydraulics	4

MINIMUM TOTAL 67

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

Construction Specialty

I	II	III	IV
ELTE 100	ELTE 112	BLDT 103	BLDT 277
ELTE 110	ELTE 121	ELTE 123	ELTE 145
INAU 100	ELTE 131	ELTE 142	HVAC 100
Lim.Ch.	ELTE 141	ELTE 240	Lim.Ch.
Lim.Ch.	ELTE 150	ELTE 260	Lim.Ch.

Control and Maintenance Specialty

I	II	III	IV
ELTE 100	ELTE 112	ELTE 123	ELTE 232
ELTE 110	ELTE 122	ELTE 131	ELTE 261
ELTE 121	ELTE 145	ELTE 260	INAU 200
INAU 100	ELTE 150	MFGM 101	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**ELECTRICAL TECHNOLOGY, CONSTRUCTION
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10759 (Effective Fall 1999 – Summer 2004)

This certificate is designed to provide students with a background in applied electrical theory and the basic mechanical skills necessary to the practicing construction electrician.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 42 CREDITS
CODE	TITLE	CREDIT HOURS
BLDT 103	Structural Blueprint Reading	4
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 123	Motors and Transformers	4
ELTE 131	Intro to Machine Control	4
ELTE 141	National Electrical Code I	4
ELTE 145	Electrical Prints for Building	4
ELTE 240	Electrical Estimating	3
ELTE 260	Intro/Programmable Controllers	4
INAU 100	Intro Industrial Automation	4
MINIMUM TOTAL		42

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
BLDT 103	ELTE 112	ELTE 123
ELTE 100	ELTE 121	ELTE 141
ELTE 110	ELTE 131	ELTE 240
INAU 100	ELTE 145	ELTE 260

**ELECTRICAL TECHNOLOGY, CONTROL AND MAINTENANCE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10760 (Effective Fall 1999 – Summer 2004)

This certificate is designed to provide students with a background in applied electrical theory and the basic mechanical skills necessary to the practicing electrician in the machine control field.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 40 CREDITS
CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
ELTE 112	Basic Wiring Installation	2
ELTE 121	Analyzing Electric Circuits	5
ELTE 122	Industrial Control Electronics	5
ELTE 123	Motors and Transformers	4
ELTE 131	Intro to Machine Control	4
ELTE 150	Electric Motor Maintenance	2
ELTE 260	Intro/Programmable Controllers	4
ELTE 261	Allen-Bradley PLC-5 Advanced	6
INAU 100	Intro Industrial Automation	4
MINIMUM TOTAL		40

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELTE 100	ELTE 112	ELTE 123	ELTE 122
ELTE 110	ELTE 121	ELTE 260	ELTE 261
INAU 100	ELTE 131		
	ELTE 150		

**ELECTRONICS TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10894 (Effective Fall 1999 – Summer 2004)

Electronics technicians install, operate, maintain, and service electronics equipment. They also diagnose and repair problems caused by mechanical or electrical malfunctions in individual electronic units and in complex systems such as local area networks (LANs) and industrial controllers. They deal with the analysis and component level troubleshooting of analog and digital circuits. Electronics technicians are employed with automotive manufacturers, industrial automation companies, business machine service companies, telephone companies, hospitals, aircraft service companies, radio and TV service companies, instrumentation sales, robotics repair companies, and maintenance companies. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 57 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 200	Info Tech/Problem Solving	3
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 161	Soldering/Desoldering	1
ELCT 211	Linear Circuits I	3
ELCT 212	Linear Circuits II	3
ELCT 231	Advanced Digital Electronics	4
ELCT 232	Digital Commun and Networking	4
ELCT 251	Electronic Troubleshooting	2
ELCT 271	Communications I	4
ELCT 272	Communications II	4
SPCH 110	Oral Communication	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 8 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 3 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Electronics Specialty (Choose 1 Subchoice) 5 Credits

Subchoice 2A: Biomedical

ELCT 261	Consumer Product Systems	3
ELCT 290	Biomedical Internship	2

Subchoice 2B: Communications

ELCT 261	Consumer Product Systems	3
ELCT 291	Communications Internship	2

Subchoice 2C: Digital

ELCT 242	Comp Intrfcng and Peripherals	3
ELCT 292	Digital Electronics Internship	2

MINIMUM TOTAL 65

NOTE

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ELCT 100	CISB 200	ELCT 211	ELCT 212
ELCT 101	ELCT 112	ELCT 231	ELCT 232
ELCT 109	ELCT 120	ELCT 251	ELCT 272
ELCT 110	ELCT 131	ELCT 271	Lim.Ch.2
ELCT 161	WRIT 124	Lim.Ch.1	Lim.Ch.2
SPCH 110			

**ELECTRONICS TROUBLESHOOTER
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10895 (Effective Fall 1999 – Summer 2004)

Electronics troubleshooters are trained in basic electronics circuitry and have basic troubleshooting skills. They typically work in an entry-level position under the guidance of a more experienced technician.

REQUIREMENTS

TOTAL: 31 CREDITS

CODE	TITLE	CREDIT HOURS
ELCT 100	Schematic Drawing	1
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
ELCT 112	Transistors	6
ELCT 120	Programming Preparation	2
ELCT 131	Digital Basics	3
ELCT 161	Soldering/Desoldering	1
ELCT 181	Computer Test Equipment II	2
ELCT 251	Electronic Troubleshooting	2
ELCT 261	Consumer Product Systems	3

MINIMUM TOTAL 31

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
ELCT 100	ELCT 112
ELCT 101	ELCT 120
ELCT 109	ELCT 181
ELCT 110	ELCT 251
ELCT 131	ELCT 261
ELCT 161	

**ENVIRONMENTAL RESOURCE MANAGEMENT TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE**

Curriculum Code: 10793 (Effective Fall 1999 – Summer 2004)

Environmental technicians may work for environmental/engineering consulting firms, local or state regulatory agencies, manufacturers, recycling and waste management companies and local utility and public service (works) departments. They perform tasks such as environmental sample collection and monitoring, instrument calibration, report writing, and data management. Environmental Technicians may help clients comply with governmental environmental standards, assist in field investigations, or work as a team member on a waste or contamination site. They use computer skills to work with environmental data as well as the concepts of chemistry, biology, meteorology, geology, and hydrology to help professionals determine the movement and effects of environmental contaminants. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS

TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
BIOL 210	Natural Resource Conservation	4
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Lab I	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Intro Organic Chemistry Lab	1
CPSC 120	Introduction to Computers	3
ENVR 121	Environmental Rules and Regulations	3
ENVR 122	Environmental Sampling & Instrumentation	4
ENVR 131	Industrial Processes & Pollution Prevention	3
FIRE 220	Hazardous Materials in the fire Service	4
GEOL 230	Environmental Geology	4
MATH 121	College Algebra I	4
SPCH 120	Dynamics of Communication	3
STAT 170	Introduction to Statistics	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 17-21 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 4 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area	4
Mathematics Competency (See Note 1)	

CHOICE 2: Environmentally Related Courses 13-17 Credits

CIVL 135	Soils Technology	3
GRET 203	Beginning MicroStation	3
GRET 220	Hydrological Systems	3
METR 220	Introduction to Meteorology	4
POLS 120	American Political System	4
SCIN 287	Internship in Science Technology	4

MINIMUM TOTAL 65

NOTE

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 210	CHEM 182	ENVR 122	ENVR 131
CHEM 151	CHEM 192	GEOL 230	SPCH 120
CHEM 161	CPSC 120	STAT 170	Lim. Ch. 2
MATH 121	ENVR 121	Lim. Ch. 1	
WRIT 121	FIRE 220	Lim. Ch. 2	
Lim. Ch. 2	Lim. Ch. 2		

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**GEOGRAPHIC RESOURCE AND ENVIRONMENTAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10224 (Effective Fall 1999 - Summer 2004)

GRET combines computer technology, mapping technologies, aerial photography, and satellite imagery with the most current environmental resource management and environmental analysis software. Geographic Information Systems (GIS) technicians work with computer drafting, design, database management, graphic design, and computer analysis. Environmental technology requirements include a working knowledge of natural systems and related regulations and their assessment, planning, restoration, and management. GIS technicians are employed with engineering and design firms, state and federal agencies, environmental firms, parks and recreation departments, and with municipalities and local government units. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 51 CREDITS

CODE	TITLE	CREDIT HOURS
GRET 203	Beginning MicroStation	3
GRET 204	MicroStation Graphic Environ	3
GRET 205	Principles Geographic Info Sys	3
GRET 208	Advanced Techniques in GIS	3
GRET 209	Applications in GIS	3
GRET 210	Global Positioning Systems	3
GRET 220	Hydrological Systems	3
GRET 221	Landforms/Soil Systems in GIS	3
GRET 223	Environmental Resource Mgmt	3
GRET 240	Basic Map Orient/Construction	3
GRET 241	Air Photo/Remote Sensing	3
GRET 243	ORACLE/Geographic Info Sys	3
GRET 255	Beginning ARC/Info	3
LAND 150	Principles of Landscape Arch	3
LAND 180	Landscape Ecology	3
LAND 242	Ecological Land Planning	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 15-16 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	General Education Core Areas	9 Credits
	(See the <i>GENERAL EDUCATION</i> section above)	
	Writing Core Area (See Note 1)	0
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2:	Additional Related Courses	6-7 Credits
GRET 211	GIS Mapping Systems	3
GRET 213	Advanced MicroStation	3
GRET 214	G.R.A.S.S. Beginning	3
GRET 248	GIS/GPS field Systems	3
GRET 253	Basics of ARC/View	1
LAND 181	Landscape Restoration/Manage	3
LAND 282	Computer Draft/Dsgn Land Arch	3
LAND 283	Beginning LANDCADD	3
MINIMUM TOTAL		66

NOTE

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
GRET 203	GRET 204	GRET 208	GRET 209
GRET 205	GRET 210	GRET 221	GRET 223
GRET 220	GRET 241	GRET 243	Lim.Ch.
GRET 240	LAND 242	GRET 255	Lim.Ch.
LAND 180	WRIT 124	LAND 150	Lim.Ch.
	Lim.Ch.	Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**FIRE SCIENCE ACADEMY
CERTIFICATE OF COMPLETION****Curriculum Code: 10709 (Effective Fall 1999 – Summer 2000)**

The Regional Fire Training Center provides the Fire Academy Certificate Program to prepare individuals in basic fire training and fitness. Successful completion leads to certification by the Michigan Fire Fighting Training Council for Fire Fighter I and II, HAZ MAT Awareness, and HAZ MAT Operations.

The Fire Science Academy is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the College. Many of the courses for this program are open only to students officially admitted to the Fire Science Academy Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1999/2000 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE FIRE SCIENCE ACADEMY PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 14 CREDITS
CODE	TITLE	CREDIT HOURS
FIRE 101	MI F.F.T.C. Basic Fire Lev I	9
FIRE 102	MI F.F.T.C. Basic Fire Lev II	4
PFHW 111	Emergency Services fitness III	1
MINIMUM TOTAL		14

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

FIRE 101
FIRE 102
PFHW 111

**FIRE SCIENCE TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10123 (Effective Fall 1999 – Summer 2004)

This degree program prepares an individual for a career in fire fighting. Included in this curriculum is successful completion of a Michigan Fire Fighting Training Council Fire Fighter I and Fire Fighter II course. In addition, students are required to complete course work in fire safety information and inspection, fire suppression, hazardous material spills and investigative techniques, fire prevention and law, building construction, command and administration, and hydraulics and pump operation. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS TOTAL: 58 CREDITS

CODE	TITLE	CREDIT HOURS
FIRE 100	Introduction to Fire Fighting	3
FIRE 101	MI F.F.T.C. Basic Fire Lev I	9
FIRE 102	MI F.F.T.C. Basic Fire Lev II	4
FIRE 110	Fire Prevention and Law	3
FIRE 115	Building Construction/Fire Ser	4
FIRE 120	Chemistry/Hazardous Materials	3
FIRE 125	Fire Protection Sys/Equipment	4
FIRE 130	Fire Hydraulics/Pump Operation	4
FIRE 150	Fire Command and Operations	4
FIRE 210	Fire Investigation	4
FIRE 220	Hazardous Materials/Fire Ser	4
FIRE 250	Fire Administration	4
PFWH 110	Emergency Services Fitness II	1
PFWH 111	Emergency Services Fitness III	1
SPCH 120	Dynamics of Communication	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 6 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core 6 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 2)	0
Speech Communication Core Area (See Note 2)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

MINIMUM TOTAL 64

NOTES

1. This curriculum includes FIRE 101 and FIRE 102 which are the Fire Academy courses. The Fire Academy Certificate Program is a selective admission program with admission requirements beyond those required for admission to the college. Students with Michigan Fire Fighter I or I & II certification may be eligible for FIRE 101 and/or FIRE 102 to be waived. Students should consult with a Fire Science program advisor regarding this segment of the program.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
FIRE 100	FIRE 110	FIRE 115	FIRE 130
FIRE 101	SPCH 120	FIRE 120	FIRE 210
FIRE 102	WRIT 124	FIRE 125	FIRE 220
PFWH 110	Lim.Ch.	FIRE 150	FIRE 250
	Lim.Ch.		PFWH 111

**DENTAL ASSISTANT
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 10193 (Effective Fall 1999 – Summer 2000)**

Dental assistants assist the dentist with the delivery of dental care and treatment procedures at the chairside in dental offices, public health clinics, dental schools, and hospitals. This program prepares individuals to be Registered Dental Assistants responsible for transferring dental instruments; charting the teeth; preparing and delivering dental materials; taking impressions and making models of the teeth; placing and removing rubber dams; placing and removing temporary crowns; and exposing and processing dental X-ray pictures. Upon graduation from this accredited program one is eligible to take the State of Michigan written and clinical licensing exams. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the College. Many of the courses for this program are open only to students officially admitted to the Dental Assistant Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1999/2000 academic year.** For the most recent and complete information, interested students should contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254. For Dental Assistant career advising information, contact the Dental Advisor at the Dental Assistant Program office, Arts and Sciences Building, Room 007F, telephone number (517) 483-1457.

REQUIREMENTS FOR ADMISSION TO THE DENTAL ASSISTANT PROGRAM

For current information about admission requirements, students must contact the Admissions Office, Gannon Vocational-Technical Center, Room 232, telephone number (517) 483-1254.

REQUIREMENTS		TOTAL: 34.5 CREDITS
CODE	TITLE	CREDIT HOURS
DADH 128	Dental Radiography	4
DAST 110	Dental Instruments	1
DAST 111	Preclinical Dental Assisting	3
DAST 112	Dental Anatomy	4
DAST 114	Preventive Dentistry & Proc	3
DAST 116	Dental Materials	3
DAST 118	Dental Assisting Principles	1
DAST 120	Clinical Dental Assisting I	6
DAST 126	RDA Procedures - DA	3
DAST 130	Clinical Dental Assisting II	2
DAST 140	Clinical Dental Assisting III	4
EMSB 102	CPR for Health Care Prof	0.5
MINIMUM TOTAL		34.5

SUGGESTED COURSE SEQUENCE

Students begin this program each fall semester and courses are offered once a year in the following sequence.

I	II	III
DAST 110	DADH 128	DAST 140
DAST 111	DAST 120	
DAST 112	DAST 126	
DAST 114	DAST 130	
DAST 116		
DAST 118		
EMSB 102		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**TRUCK DRIVER TRAINING
CERTIFICATE OF COMPLETION**

Curriculum Code: 10262 (Effective Fall 1999 – Summer 2000)

A truck driver operates a commercial vehicle which weighs over 10,000 pounds and is used in either intrastate or interstate travel. A person must be able to safely operate a large displacement vehicle in all traffic conditions. Truck drivers also need to maintain records which are required by state and federal regulations and employers. Before beginning the program, students must pass a physical and eye exam as well as have a good driving record. Students are subject to drug and alcohol testing as required by the Department of Transportation. There is limited enrollment, so there may be a short waiting period before starting the program. Upon successfully completing the program, a student will receive a certificate of completion from the college and be qualified for a class "A" Commercial Drivers License (CDL).

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. The courses for this program are open only to students officially admitted to the Truck Driver Training Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1999/2000 academic year.** For the most recent and complete information, interested students should contact Lansing Community College, Truck Driver Training Program, 2417 25th Street, Augusta, MI 49012, telephone number (616) 731-4125.

REQUIREMENTS FOR ADMISSION TO THE TRUCK DRIVER TRAINING PROGRAM

Curriculum Code: 10718

In order to be considered as a candidate for this program, an applicant must meet the following admission requirements:

- a. Submit to the Truck Driver Training Program a completed Selective Admissions Application, a completed Truck Driver Training Application, and a \$100 deposit or letter from a sponsoring agency or approved company indicating financial responsibility for applicable tuition and fees. (This deposit is refunded upon cancellation if the College is notified at least 18 days prior to the class starting date.)
- b. Have a valid driver's license. A Commercial License is not necessary while attending school, but will be required prior to being hired for work. Have an acceptable driving record. All driving records are checked through the Secretary of State and reviewed individually. The school will apply for each applicant's Motor Vehicle Record which takes 10-14 days to receive.
- c. **Must be eligible for a "Temporary Instruction Permit" (T.I.P.). The State of Michigan requires all truck drivers to have a Commercial Driver's License. Any person learning to drive a tractor-trailer unit (such as those operated by Lansing Community College) must be in possession of a T.I.P. or "Temporary Instruction Permit". WE WILL PREPARE STUDENTS TO OBTAIN THEIR "T.I.P." DURING THE FIRST WEEK OF CLASS. Written tests will be administered by Secretary of State personnel in the L.C.C. classroom. Persons shall be considered ineligible for a T.I.P. if they:**
 - Fail to pass the written examination.
 - Have been charged in the 24 months immediately preceding application with a total of 12 or more points.
 - Have had their license suspended or revoked in the 36 months immediately preceding application unless that suspension or revocation was due to a revocation by temporary medical condition, failure to appear for re-exam or failure to appear in court for a traffic violation, an unsatisfied judgment, or a no-fault insurance violation.
 - Have been convicted of a six-point violation or an impaired driving charge (four points) in the 24 months immediately preceding application.

Applicants residing outside the State of Michigan must supply a copy of their own driving record from the State in which they are licensed and must possess a T.I.P. from their licensing State.

- d. Be able to read, write, and speak the English language. A high school diploma is not required, but students must be able to compute simple fractions and know general math for correct log book tabulation.
- e. Be able to pass the Department of Transportation (D.O.T.) physical examination. The physical form and card can be obtained from the LCC Truck Driver Training Program. **PLEASE NOTE: THE TDT PROGRAM MUST RECEIVE THE APPLICANT'S COMPLETED D.O.T. PHYSICAL FORM SIGNED BY A PHYSICIAN BEFORE ACCEPTANCE INTO THE PROGRAM.** The fee for the physical exam is the applicant's responsibility.
- f. Be at least 18 years old. Those persons between the ages of 18 and 21 should realize job opportunities are limited for persons in this age bracket, and they will more than likely experience difficulty in obtaining employment. Graduates must be 21 years of age to drive outside the State of Michigan.
- g. Be able to appear for 200 hours of instruction during the five weeks of training. Classes begin at 8:00 A.M. (Monday through Friday) and students are expected to be on time. Any student missing more than two days of class will be dismissed.
- h. Students are subject to drug and alcohol testing as required by D.O.T. regulations.
- i. The Truck Driver Training Program is a short streamlined program. Any previous driving experience along with some mechanical aptitude is beneficial to a student. **APPLICANTS SHOULD KNOW HOW TO SHIFT A STRAIGHT STICK TRANSMISSION AND USE A CLUTCH PRIOR TO ATTENDING.**

TRUCK DRIVER TRAINING PROGRAM REQUIREMENTS

Curriculum Code : 10262

REQUIREMENTS		TOTAL: 9 Credits
CODE	TITLE	CREDIT HOURS
TDTP 110	Truck Driver Training I	3
TDTP 111	Truck Driver Training II	3
TDTP 112	Truck Driver Training III	3
MINIMUM TOTAL		9

NOTE

- 1. The Program provides 140 hours in range and highway driving and 60 hours in classroom instruction situations. Range training includes an over-the-road trip of over 1,000 miles, permitting the students to gain over-the-road experience.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

TRANSFER INFORMATION

Students planning on transferring to a four-year institution should be aware that universities and colleges differ widely in the courses they accept for transfer. In order to achieve maximum transferability of courses, students should consult an academic advisor or counselor at the Counseling and Advising Center, Room 103 of the Arts and Sciences Building, or the Counseling Services Department, Room 208 of the Student Personnel Services Building.

In addition, students intending to transfer should follow the transfer curriculum guide designed specifically for the major and the institution in which they intend to enroll. Students should understand that transfer guides are not LCC degree guides. Students intending to earn an LCC degree prior to transferring should consult an academic advisor or counselor.

Curricular guides are available for many, but not all, possible transfer programs. If there is not a curriculum guide available for a preferred major or institution, students are encouraged to contact the Admissions Office at the transfer institution of interest. It is the student's responsibility when transferring from LCC to be aware of the transfer institution's policies and program requirements.

Curriculum guides and additional transfer information may be obtained by returning the information request card attached to the back cover of this publication or by contacting:

LCC Counseling Services Department
Room 208, Student Personnel Services Building
Telephone: (517) 483-1184
FAX: (517) 483-1970
E-MAIL: mgarriso@lansing.cc.mi.us

When requesting information, please indicate area(s) of study and transfer college/university choice(s).

Areas of study (majors) for which transfer curriculum guides are available are as follows:

Accountancy	Food Marketing
Accounting	General Business
Actuarial Science and Economics	Health Care/Services Administration
Administrative Assistant	Hospitality
Advertising	Human Resources Management
Agriculture and Natural Resources Communication	Industrial Management
Agriscience	Information Systems
Animal Science	Insurance
Apparel Design	Integrated Supply Management
Applied Liberal Studies	International
Applied Mathematics	Logistics
Applied Physics	Management
Architecture	Marketing
Art	Operations Management
Art History	Organizational Behavior
Athletic Training	Product Operation & Management
Atmospheric, Oceanic, and Space Sciences	Public Administration
Audiology and Speech Sciences	Retail
Automotive and Heavy Equipment Management	Statistics
Aviation Flight Science	Chemistry
Aviation Maintenance Technology	Child Development
Behavioral Science	Chiropractic, Pre-Professional
Biochemistry	Clinical Laboratory Science
Biological Science	Communication
Biology	Interpersonal and Public Scientific and Technical Studies
Biotechnology	Technical and Professional Communication Arts
Broadcasting	Computational Mathematics
Building Construction Management	Computer Information Science
Business	Computer and Mathematical Sciences
Accounting	Computer Information/Management
Accounting Information Systems	Computer Information Systems
Administration	Computer Networks and Systems
Banking	Computer Science
Business Studies	Conservation
Computer Management/Systems	Construction Management
Economics	Court and Conference Reporting
Finance	Criminal Justice
Food Industry Management	

Criminology	Service Administration
Crop and Soil Science	Forestry
Dental Hygiene	Geography
Dentistry, Pre-Professional	Geological Sciences
Dietetics	Geology
Earth Science	Health Fitness in Prevent and Rehab Program
Economics	Health Information Management
Education	History
Elementary	Home Economics
Physical	Horticulture
Secondary	Hospitality
Allied Health	Human Resources Administration Training and Development
Biology	Industrial
Business	Environmental Health
Chemistry	Health and Safety Management
Home Economics	Technology
Industrial	Insurance
Mathematics	Interdisciplinary Studies
Music	Humanities
Technology	Social Sciences
Vocation Technology	Interior Architecture
Special	Interior Design
Engineering	International Studies
Administration	James Madison
Arts	Journalism
Aeronautical	Kinesiology
Aerospace	Land Use Planning and Management
Biosystems	Landscape Architecture
Chemical	Law
Civil	Pre-Professional
Computer	Legal Assistant
Construction and Management	Liberal Arts
Electrical	Management
Environmental	Microcomputer and Network
Geological	Health and Fitness
Industrial and Operations	Health Services
Material Science	Hospitality
Mechanical	Organizational Development
Metallurgical	Marketing
Mining	Mathematical Sciences
Naval Architecture and Marine	Mathematics
Nuclear	Mechanics
Paper	Medical Laboratory Sciences
Physics	Medical, Pre-Professional
Surveying	Medical Technology
Engineering Technology	Merchandising Management
Automotive	Mortuary Science, Pre-Professional
Automated Manufacturing	Music
Electrical/Electronics	Natural Resources
Heating, Ventilation, Air Condition and Refrigeration	Nursing
Heavy Equipment Service	Nutritional Sciences
Manufacturing	Occupational Therapy
Product Design	Optometry, Pre-Professional
Welding	Packaging
English	Park, Recreation, and Tourism Resources
Environmental and Applications Studies	Pharmacy, Pre-Professional
Environmental Chemistry	Philosophy
Environmental Geology	Photography
Environmental Science	Physical Therapy
Exercise and Sport Science	Physician Assistant
Facilities Management	Physics
Family Consumer Resources	Podiatry, Pre-Professional
Family Community Services	Political Science
Family Life Education	Polymers and Coatings Technology
Family Studies	Printing Management/Marketing
Fire Science General Emphasis	Psychology
Fisheries and Wildlife Management	Public Administration
Food	
Industry Management	
Science	

Public Relations
 Public Resource Management
 Quality Management
 Radiation Therapy Technology
 Recreation
 Recreational Management
 Retail
 Social Science
 Social Work
 Sociology
 Speech Pathology and Audiology
 Sports Medicine/Science
 Surveying

Systems Analysis and Application
 Development
 Telecommunication
 Television Production
 Textile and Apparel Studies
 Merchandising Production
 Theater
 Tourism Management
 Urban and Regional Planning
 Veterinary Medicine
 Water Purification Tech
 Wood Science

Colleges/universities for which transfer curricular guides are available are as follows (not all majors listed above are available at all transfer institutions):

Alma College
 Andrews University
 Aquinas College
 Baker College
 Bay de Noc Community College
 Brooks Institute
 Calvin College
 Clark Atlanta University
 Center for Creative Studies
 Central Michigan University
 Cleary College
 Concordia College
 Coolay Law School
 Davenport College/Lansing
 Eastern Michigan University
 Ferris State University
 Franklin University
 Grand Valley State University
 Johnson and Wales University
 Kendall College of Art and Design
 Kettering University (formerly GMI Engineering and Mgmt. Institute)
 Lake Superior State University
 Lawrence Technological University
 Life Chiropractic College

Michigan State University
 Michigan Technological University
 Morehouse University
 Morris Brown College
 Northern Michigan University
 Northwood University
 Oakland University
 Olivet College
 Palmer College of Chiropractic
 Rochester Institute of Technology
 Saginaw Valley State University
 School of the Art Institute of Chicago
 Sherman College of Straight Chiropractic
 Siena Heights University
 Spelman University
 Spring Arbor College
 Tri-State University
 University of Detroit Mercy
 University of Michigan/Ann Arbor
 University of Michigan/Dearborn
 University of Michigan/Flint
 Walsh College
 Wayne State University
 Western Michigan University

MACRAO TRANSFER AGREEMENT

In 1973 the Michigan Association of Collegiate Registrars and Admissions Officers proposed the MACRAO Transfer Agreement. The MACRAO Transfer Agreement was created to simplify the transfer of students from one institution to another. The agreement stipulates that 30 semester credit hours of 100-level and above, compatible, general course work will be granted to smooth transferability to participating universities. These credits will be applied toward a student's general education requirements. Completion of requirements for the MACRAO Transfer Agreement does not necessarily mean that a student has completed the requirements for a specific Lansing Community College associate degree.

The basic two-year requirements are:

- English Composition 6 semester hours minimum
- Science and Mathematics 8 semester hours minimum
- Social Science 8 semester hours minimum
- Humanities 8 semester hours minimum

The following establishes the approved list of LCC courses under the four major distribution requirements for the MACRAO Transfer Agreement. A course can be used to satisfy only one category even though it may appear in more than one category. Only courses in which at least a 2.0 is received may be applied to this agreement.

I. English Composition (minimum of six (6) semester credit hours)

Any one from each group:

1. WRIT 121 or WRIT 131
2. WRIT 122 or ENGL 122 or WRIT 132 or ENGL 132

A student with waiver of WRIT 121 indicated on the transcript must elect a second course from the 200-level offerings in WRIT or ENGL. Waiver of WRIT 121 should be printed on the student's transcript.

II. Science and Mathematics (minimum of eight (8) semester credit hours)

- Choose courses in at least two (2) subject areas, with a minimum of one laboratory science course. *Underlined courses indicate a laboratory course.*
Biology: ANAT 145, 151, 152, 201; BIOL 121, 127, 128, 210, 260, 265; ISCI 122; MICR 203 AND 204; PFWH 123; PHGY 202
Chemistry: CHEM 120, 125, 135, 151 and 161
Environmental and Earth Systems Science: GEOL 221, 222, 230; ISCI 121, 131; METR 200
Mathematics and Statistics: MATH 121, 122, 126, 130, 141, 151, 152, 201, 202; STAT 170, 215
Physics: ASTR 201; PHYS 201 and 225, 215 and 225

III. Social Science (minimum of eight (8) semester credit hours)

Courses must be taken in more than one subject area.

- Economics:** ECON 120, 140, 201, 202, 213
- Geography:** GEOG 120, 200, 202
- Political Science:** POLS 120, 121, 260, 270
- Psychology:** CHDV 101; CJUS 255; PSYC 175, 200, 202, 203, 205, 240, 250
- Sociology/Anthropology:** ANTH 270; CJUS 101, 102, 106; GERO 100, SOCL 120, 254, 255, 260; SOWK 101

IV. Humanities (minimum of eight (8) semester credit hours)

This requirement may be fulfilled by taking one of the following combinations:

- HIST 211 and 212 or 214; HUMS 211 and 212; HUMS 213 and 214; ENGL 211 and 212; PHIL 211 and 212; RELG 211 and 212
- OR**
- By taking courses in at least two of the following areas:
Art History: HUMS 120, 211, 212
Foreign Language: CHIN 121, 122; FREN 121, 122, 201, 202; GRMN 121, 122, 201, 202; JAPN 121, 122, 201, 202; SPAN 121, 122, 201, 202
History: ECON 213; HIST 150, 210, 211, 212, 214, 220, 230, 260
Humanities: HUMS 213, 214, 215
Literature: ENGL 201, 202, 203, 211, 212, 255, 256, 260, 266, 267, 270, 290; HUMS 160
Performing Arts: MUSC 199, 240, 241; THEA 210
Philosophy: PHIL 151, 152, 153, 211, 212, 260
Religion: RELG 211, 212, 241, 242, 250

NOTES

1. Students are advised to also review specific transfer curricular guides. Some transfer institutions, for example, may require both a biological and physical science to satisfy the requirements for the degree.
2. Students seeking an LCC associate degree must fulfill specific graduation requirements including the LCC General Education Core requirements. See the *General Information* section of this catalog for additional details.

For further information and advising, contact an LCC academic advisor or counselor located in Room 103 of the Arts and Sciences Building, (517) 483-1904, or Room 208 of the Student Personnel Services Building, (517) 483-1185.

The following four-year institutions are signatory to the MACRAO Transfer Agreement:

- *Adrian College
- *Albion College
- *Alma College
- *Aquinas College
- *Baker College
- *Calvin College
- *Central Michigan University
- *Cleary College
- *Davenport College
- *Detroit College of Business
- *Eastern Michigan University
- *Ferris State University
- *Grand Valley State University
- *Hope College
- *Kalamazoo College
- *Kettering University (formerly GMI)
- *Lake Superior State University
- *Lawrence Technological University
- *Madonna University
- *Michigan State University
- *Michigan Technological University
- *Northern Michigan University
- *Northwood University
- *Oakland University
- *Olivet College
- *Rochester College (formerly Michigan Christian College)
- *Saginaw Valley State University
- *St. Mary's College
- *Siena Heights College
- *Spring Arbor College
- *Western Michigan University

*Some limitations may apply. Check with individual colleges/university.

LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

Course Descriptions

Course Descriptions

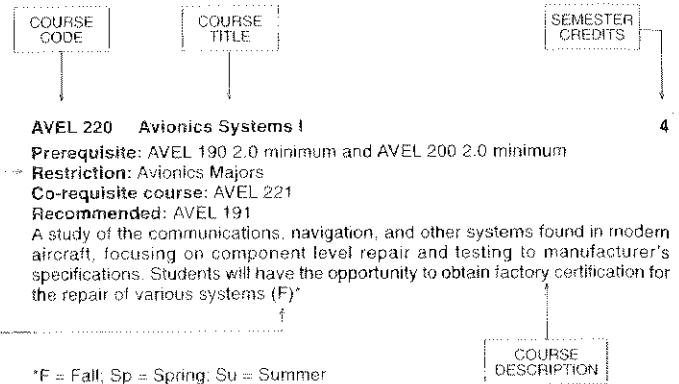


HOW TO READ COURSE DESCRIPTIONS

Each course description has seven (7) categories of information as follows:

1. Course code
2. Course title
3. Number of semester credit hours
4. Prerequisite
5. Course description
6. Semester planned

For example:



Previous courses, skill levels, training and/or experience required for enrollment. **Other prerequisites may be added.** See *Course Schedule* or department each semester for current information.

Indicates when department plans to offer course, but **does not guarantee** that the course will be offered. See *Course Schedule* or department each semester for current information.

COURSE CODES USED IN DESCRIPTIONS

Courses are listed in course code order. The sequence is as follows:

ACCG	Accounting
AERO	Aerospace Studies
AGRI	Agriculture
AHCC	Allied Health Courses
AGRI	Agriculture
AIBL	American Institute of Banking: Lansing
ANAT	Anatomy
ANTH	Anthropology
ARCH	Architecture
ARTS	Art, Design and Multimedia
ARWS	Art Seminars and Workshops
ASTR	Astronomy
AUTO	Automotive
AVAF	Aviation Airframe Maintenance
AVEL	Aviation Electronics
AVFT	Aviation Flight Training
AVGM	Aviation General Maintenance
AVGS	Aviation Ground School
AVIR	Aviation Instrument Repair
AVPP	Aviation Powerplant Maintenance
AVST	Aviation Simulator Training
BDCS	Business Development Seminars
BIOL	Biology
BLDR	Building Related
BLDT	Building Trades
BUSN	Business
CABS	Computer Applications Using Business Software
CACR	Court Reporting
CHCE	Continuing Health Careers*
CHDV	Child Development
CHEM	Chemistry
CHSE	Community Health Services
CISB	Computer Information Systems for Business
CIVL	Civil Technology
CJUS	Criminal Justice
CNCP	Computerized Numerical Control Program
COOP	Cooperative Education
CPSC	Computer Science
CUAI	Credit Union Accounting and Insurance
CUMA	Credit Union Management
DADH	Dental Assistant/Dental Hygiene
DANC	Dance
DAST	Dental Assisting
DHYN	Dental Hygiene
DTDS	Drafting and Design
ECON	Economics
EDUC	Education
ELCT	Electronics Technology
ELTE	Electrical Technology
EMSA	Emergency Medical Services
EMSB	Emergency Medical Services Seminars
EMTA	Emergency Medical Technology
ENGL	English
ENRI	Enrichment
ENVR	Environmental Science
ESLP	English as a Second Language
ESLW	English as a Second Language Workshop
FIRE	Fire Science
FLNG	Foreign Language
FREN	French
GEOG	Geography
GEOL	Geology
GERO	Gerontology
GRET	Geographical Resource and Environmental Technology
GRMN	German
HIST	History
HMFS	Hotel/Motel and Food Service Operations
HONR	Honors
HORT	Horticulture
HUMS	Humanities
HUSE	Human Services
HVAC	Heating, Ventilating, and Air Conditioning
IDMS	Diagnostic Medical Sonography
IMAG	Photography Technology
INAU	Industrial Automation
INSU	Insurance
INTR	Interior Design
IRAD	Radiation Therapy Technology
IRXT	Radiologic Technology
ISCI	Integrated Science
JAPN	Japanese
JRNL	Journalism

LABR	Labor Relations
LAND	Landscape
LEGL	Legal Assistant/Law
LING	Linguistics
MACH	Machine Tool Technology
MASG	Massage Therapy
MATH	Mathematics
MDCR	Management Development: Restricted
MDCS	Management Development Seminars
MEDA	Medical Assistant
METR	Meteorology
MFGM	Manufacturing Maintenance
MGMT	Management
MICR	Microbiology
MILS	Military Science
MKTG	Marketing
MTEC	Media Technology
MUSC	Music
NURS	Nursing
OADM	Office Administration
OCNL	Oceanology
PARA	Paramedic
PFAQ	Physical Fitness: Aquatics
PFCW	Physical Fitness: Combative/Weight Training
PFDA	Physical Fitness: Dance
PFFT	Physical Fitness: Fitness
PFHC	Physical Fitness: Health/Fitness Cardiac
PFHW	Physical Fitness: Health/Fitness Wellness
PFIS	Physical Fitness: Individual Sport/Interest
PFOA	Physical Fitness: Outdoor Activity
PFPR	Physical Fitness: Professional
PFTS	Physical Fitness: Team Sport
PHGY	Physiology
PHIL	Philosophy
PHON	Phonics
PHYS	Physics
POLS	Political Science
PSYC	Psychology
PVAA	Property Valuation and Assessment Administration
QSEM	Quality Assurance Seminars
QUAL	Quality Assurance
RDGR	Reading: Restricted
READ	Reading
REAL	Real Estate
RELG	Religion
RESP	Respiratory Therapy
RSEM	Resource and Operations Management Systems Seminars
SCIN	Science Technology Internship
SCIS	Science Seminars
SDEV	Student Development
SIGN	Sign Language
SOCL	Sociology
SOWK	Social Work
SPAN	Spanish
SPCH	Speech Communication
SPEL	Spelling Development
STAT	Statistics
STEC	Stage Technology
SURG	Surgical Technology
TDTP	Truck Driver Training Program
TEDU	Teacher Education
TECH	Technology General
THEA	Theater
TRVL	Tourism: Airline and Travel Agency Operations
VCBL	Vocabulary Improvement
WELD	Welding Technology
WRIT	Writing
WRTR	Writing: Restricted

DESCRIPTIONS

ACCG ACCOUNTING

- ACCG 100 Practical Accounting Non-Major** 3
Prerequisite: None
 Students will learn the bookkeeping procedures necessary for preparation of financial statements and payroll. Manual and computer systems will be covered. (F, Sp, Su)
- ACCG 101 Accounting Info for Management** 3
Prerequisite: None
 Students will learn to interpret financial statements and use this information for analysis, budgeting, and decision-making. (F, Sp)
- ACCG 140 Income Tax Preparation** 3
Prerequisite: None
 Students will complete individual income tax returns and supporting schedules according to the Internal Revenue Code. The focus is on the completion of forms rather than the theoretical aspects of the tax law. (F, Sp)
- ACCG 160 Payroll Systems and Taxes** 2
Prerequisite: None
Recommended: ACCG 100 or Equivalent Work Experience
 This course covers laws affecting payroll, calculation of payroll and payroll taxes using both manual and computer payroll systems, preparation of tax forms for payroll taxes, sales and use taxes, and personal property taxes. (Su)
- ACCG 210 Principles of Accounting I** 4
Prerequisite: None
Recommended: Algebra Knowledge
 Principles of Accounting I is the first class of a two-semester sequence focusing on financial accounting, including accounting for service organizations and merchandisers. Topics covered include the basic accounting cycle, financial reporting, accounting theory, and accounting for inventories, cash, receivables and payables, plant assets, and stockholders equity. (F, Sp, Su)
- ACCG 211 Principles of Accounting II** 4
Prerequisite: ACCG 210 2.0 minimum
Recommended: Intermediate Algebra or Higher
 Principles of Accounting II is the second course in the two-semester accounting sequence. Topics include statement of cash flows, budgets and other managerial reports, capital budgeting, short-term decision-making, equity investments, time value of money, bonds, manufacturing accounting, job and process costing systems, and accounting for quality and cost management. (F, Sp, Su)
- ACCG 220 Intermediate Accounting I** 4
Prerequisite: ACCG 211 2.0 minimum
Recommended: Electronic Spreadsheet Experience
 The purpose of this course is to review and expand upon the concepts of financial accounting that were covered in the Principles courses, to master time value of money concepts, and to cover the more complex and theoretical aspects of accounting for revenue recognition, cash, receivables, and inventory. (F, Sp)
- ACCG 221 Intermediate Accounting II** 4
Prerequisite: ACCG 220 2.0 minimum
 This course provides an in-depth coverage of long-term assets and liabilities, financial instruments, leases, pensions, accounting for income taxes, stockholders' equity, and earnings per share. (Sp)
- ACCG 230 Cost Accounting** 4
Prerequisite: ACCG 211 2.0 minimum
Recommended: Electronic Spreadsheet Experience
 This course focuses on cost-volume-profit analysis costing methods for service and merchandising businesses. Other topics include activity based costing, job order costing, responsibility accounting, budgeting, standards, variable vs. full costing, joint and by-products, process costing, spoilage, project control, and capital budgets. Computer applications are emphasized. (F)
- ACCG 231 Managerial Accounting** 4
Prerequisite: ACCG 230 2.0 minimum
 This course focuses on the accountant's role in the organization; cost information gathering, processing and reporting for various decision and control purposes; pricing; cost allocation; project control; mix and yield variances; uncertainty; variance investigation; inventory management; cost management; strategic planning; and management control. (Sp)

ACCG 235 Budgeting

2

Prerequisite: ACCG 211 2.0 minimum

This course covers the budget cycle of an organization, both public and private, from a managerial perspective. Topics covered include budgetary terms, concepts and general format, performance budgeting, program budgeting, zero base budgeting, budgeting approval process, budgetary control, and the auditing phase of a budget. (F)

ACCG 240 Federal Income Tax I

4

Prerequisite: ACCG 211 2.0 minimum

This class is the first in a two-semester sequence in federal income tax. This course deals with taxation of individuals from a historical and theoretical perspective, as well as preparation of individual income tax returns under current tax law. (F, Sp)

ACCG 241 Federal Income Tax II

4

Prerequisite: ACCG 240 2.0 minimum

This course is the second in a two-semester sequence in federal income tax. This course deals with the taxation of corporations, partnerships, estates, trusts, and tax-exempt entities from a historical and theoretical perspective, as well as preparation of tax and information returns under current tax law. (Sp)

ACCG 245 Accounting Internship

2

Prerequisite: ACCG 210 2.0 minimum and Department Approval

This internship provides the student with on-the-job experience in the accounting field. It requires 128 hours of work experience. (F, Sp, Su)

ACCG 250 Advanced Accounting

4

Prerequisite: ACCG 221 2.0 minimum

This course covers business consolidations, foreign currency accounting, and partnerships in depth. In addition, the course provides an overview of governmental and nonprofit accounting. (Su)

ACCG 260 Accounting Systems

4

Prerequisite: ACCG 210 2.0 minimum

Recommended: Keyboarding Experience

Accounting Systems prepares students to work with and design information systems and to use the scientific methods in problem solving. Issues and problems related to microcomputers and other technology on accounting systems are emphasized. Students analyze systems, work with manual and computerized accounting systems, database design, and problem solving with spreadsheets. (F, Sp, Su)

ACCG 266 Independent Study Accounting

1-4

Prerequisite: Department Approval

With this course, students will learn advanced accounting topics as a part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum for each credit earned of either 16 classroom hours or 48 independent study hours. (F, Sp, Su)

ACCG 271 Principles of Finance

3

Prerequisite: ACCG 211 2.0 minimum

This course emphasizes the short- and long-term decisions a financial manager may face. Topics include working capital management, risk, cost of capital, capital markets, long-term debt, stocks and dividend policy, mergers and acquisitions, and international financial markets as these topics relate to obtaining financing for a business. (F, Sp)

ACCG 280 Governmental Accounting

4

Prerequisite: ACCG 211 2.0 minimum

Applications of fund accounting principles are applied to governmental (local and state) and not-for-profit entities. Students learn skills necessary to understand the organization, accounting functions, auditing, and financial reporting practices of governmental and nonprofit organizations. Governmental Accounting Standards Board (GASB) and Financial Accounting Standards Board (FASB) requirements are taught. (F)

ACCG 290 Auditing

3

Prerequisite: ACCG 220 2.0 minimum

In this course, students will learn the theory and practice of auditing in accordance with generally accepted auditing standards. (F)

- ACCG 295 CPA Review - Tax, Mgr, Cost, Gov** 1
Prerequisite: None
Recommended: Meet Requirements for CPA Examination
 The course is designed to provide CPA exam candidates with a review of federal taxation, cost, managerial, governmental and nonprofit accounting. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)
- ACCG 296 CPA Review - Business Law** 1
Prerequisite: None
Recommended: Meet Requirements for CPA Examination
 This course is designed to provide CPA exam candidates with a review of business law, especially the provisions of the Uniform Commercial Code. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)
- ACCG 297 CPA Review - Auditing** 1
Prerequisite: None
Recommended: Meet Requirements for CPA Examination
 This course is designed to provide CPA exam candidates with a review of audit concepts, assumptions, and procedures. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)
- ACCG 298 CPA Review - Fin Acct/Report** 1
Prerequisite: None
Recommended: Meet Requirements for CPA Examination
 This course is designed to provide CPA exam candidates with a review of the theory and practice of financial accounting and reporting for business enterprises. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

AERO - AEROSPACE STUDIES

- AERO 111 Air Force Today I** 1
Prerequisite: None
 This course provides an introduction to the U.S. Air Force today. Course topics include mission and organization, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (F)
- AERO 112 Air Force Today II** 1
Prerequisite: None
 This course provides an introduction to the U.S. Air Force today. Course topics include officership and professionalism, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (Sp)
- AERO 211 Development of Air Power I** 1
Prerequisite: None
 This course focuses on Air Force heritage. Course topics include evaluation of air power concepts and doctrine, introduction to ethics and values, introduction to leadership, and the continuing application of communication skills. Includes a leadership laboratory. (F)
- AERO 212 Development of Air Power II** 1
Prerequisite: None
 This course focuses on Air Force leaders. Course topics include the role of technology in the growth of air power, introduction to Quality Air Force, group leadership problems, and the continuing application of communication skills. Includes a leadership laboratory. (Sp)

AGRI - AGRICULTURE

- AGRI 101 Principles/Precision Agritech** 2
Prerequisite: None
 This course introduces the field of precision agricultural technology. The combining of the latest technologies, i.e., Global Positioning Systems and Integrated Pest Management, make traditional agricultural practices as accurate and customized as possible for each specialized crop. (F, Sp)
- AGRI 106 Disease/Insect Agrinomic Crops** 2
Prerequisite: None
 This course is for the professional applicator or farm operator interested in a basic knowledge of insects, diseases, vertebrates, and microorganisms that affect agronomic crops. Environmental problems, soil, fertilizers, planting, integrated pest management, and problem-solving techniques will be stressed. Can be used toward pesticide certification by the Michigan Department of Agriculture. (Sp)

- AGRI 200 Vegetation and Weed Management** 3
Prerequisite: None
 Students will develop skills necessary to monitor, control, and identify by species both vegetation and weed plants. Vegetation will be evaluated from seedling to mature stage for proper control measures by both natural and chemical controls. Various chemicals will be judged for environmental impact and effective control. (F, Sp)

- AGRI 201 Prin/Sustainable Agriculture** 3
Prerequisite: None
 The modern era principles of sustainable agriculture will be covered by way of lecture and demonstration. The practice of proper plant selection, species requirements, land use, fertilization needs, and pesticide practices will be highlighted. Scientific practices utilized in plant genetics and technology applications will also be discussed. (F)

- AGRI 202 Agri Soils and Crop Management** 3
Prerequisite: None
 This course covers all aspects of soils related to agricultural production of food and fiber crops. Soil classification, texture, composition and conditions will be analyzed, evaluated, and managed. Soil conditions relating to environmental fertilization and composition problems will be evaluated. Soil erosion and conservation management practices will also be highlighted. (F, Sp)

- AGRI 211 Agricultural Crop Production** 3
Prerequisite: None
 This course will focus on the basic components of cash crop production in the modern agricultural environment. Crop identification management and harvesting techniques will be highlighted for the major crops utilized in today's marketplace. Crop production techniques will be emphasized with a thorough evaluation of modern technology practices. (F, Sp, Su)

- AGRI 213 Ag Site Specific Research Tech** 3
Prerequisite: None
 This course will evaluate the various new technologies available to farmers and agriculturists. Technologies such as computers, GIS systems, GPS receivers, field monitors, sensors, pad computers, etc., will be evaluated as to their function and incorporation into specific farming production practices. IPM and crop genetic technologies will also be discussed. (F, Sp)

AHCC - ALLIED HEALTH COURSES

- AHCC 104 Patient Care Principles** 2
Prerequisite: Admission to Radiologic Technology Program
 Principles of basic patient care are presented to assist the student in managing patients in the health care setting. Information and simulated practice will include surgical aseptic techniques, infection control procedures, taking vital signs, handling medical emergencies, and other practices emphasizing the physical and emotional aspects of basic patient care. (F, Sp)
- AHCC 106 Introduction to Pathology** 2
Prerequisite: ANAT 145 2.5 minimum
 General principles of pathology are discussed, rather than specific disease entities, to develop a new way of thinking about disease processes. Concepts of disease processes and their effect on normal structure and function of the body are emphasized. (F, Sp)
- AHCC 110 Pharmacology-Allied Health** 2
Prerequisite: ANAT 145 2.5 minimum
 This course is designed to familiarize the student with common medications encountered in the health care occupations. Emphasis is on drug categories and the responsibilities associated with medication administration. (F, Sp, Su)
- AHCC 111 Applied Electrocardiography** 1
Prerequisite: None
 This course is designed to teach the basic skills of electrocardiography necessary to perform, process, and explain the electrocardiogram. An overview of anatomy and physiology of the cardiovascular system, operation of the electrocardiograph, and recording EKGs, cardiac pathology, and basic cardiac rhythm recognition will be presented. (F, Sp)

AHCC 112 Health Law and Ethics 2
Prerequisite: None
Recommended: Health Careers Applicant or Professional
 This course is a presentation and discussion of legal ethical issues arising from the organization and delivery of health care services. Topics will include contract, tort, and business law; medical recordkeeping and retention; agency; physicians' public duties; licensure, certification and regulation of health professionals; consent; and exploration of issues arising from various bioethical topics. (F, Sp)

AIBL - AMERICAN INSTITUTE OF BANKING - LANSING AREA

AIBL 101 Principles of Banking 3
Prerequisite: None
 This course is an introduction to the field of commercial banking, designed not only for newcomers to the field, but for students presently employed in banking who desire to broaden their knowledge and/or increase their opportunities for advancement. (F, Sp)

ANAT - ANATOMY

ANAT 145 Introductory Anat & Physiology 4
Prerequisite: Reading Level 5 and Writing Level 6
 An introductory course in human anatomy and physiology which combines lecture and laboratory experiences to provide a basic understanding of the structure and function of body systems. Designed for vocational programs, including dental assistant and medical transcriptionist, as well as non-science majors. (F, Sp, Su)

ANAT 151 Anatomy and Physiology I 3
Prerequisite: Reading Level 5 and Writing Level 6
 First course of a two-semester sequence in human anatomy and physiology emphasizing the structure and function of cells and tissues; the skeletal, muscular and nervous systems; and special sense organs. (F, Sp, Su)

ANAT 152 Anatomy and Physiology II 3
Prerequisite: ANAT 151 2.0 minimum
 This course is the second of a two-semester sequence emphasizing structure and function of the endocrine, digestive, respiratory, circulatory, urinary, and reproductive systems. Includes fetal development and genetics. (F, Sp, Su)

ANAT 201 Human Anatomy 4
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: Biology and Chemistry
 A study of the anatomy of the human body that includes the structures of the skeletal, muscular, nervous, sensory, circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems. (F, Sp, Su)

ANTH - ANTHROPOLOGY

ANTH 270 Cultural Anthropology 3
Prerequisite: Reading Level 5 and Writing Level 6
 This course compares ways of life for societies worldwide using anthropological theory and methodology. Basic institutions of human society, such as kinship, religion, law, politics, and economics are examined to provide a better understanding of the diversity of contemporary societies. (F)

ANTH 271 Medical Anthropology 3
Prerequisite: Reading Level 5 and Writing Level 6
 An overview of concepts used in anthropology of health and illness, and delivery of health care in diverse settings. Biocultural and cultural approaches to illness are examined from a comparative cross-cultural perspective against a background of evolutionary ecology, illustrating how therapeutic systems form an integrated aspect of society and culture. (F, Sp)

ANTH 275 Physical Anthr and Archaeology 3
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: SOCL 120
 Introduces human biological and cultural evolution, mechanisms of evolution, biological and cultural evidence from the fossil record, culture as an adaptive mechanism, and modern human variation. (Sp)

ANTH 276 World Archaeology 3
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: ANTH 270 and/or SOCL 120
 A general survey of archaeology. Includes an overview of the history of the field and the basic theories and methods employed in the study of prehistoric and historic cultures. Archaeological sites are used as examples. (F)

ARCH - ARCHITECTURE

ARCH 100 Introduction to Architecture 3
Prerequisite: Math Level 3
 This course is for students with no previous experience in basic architectural drafting. Students will be introduced to the proper techniques of architectural line work, lettering, orthographic projection, and axonometric drawings. Techniques of architectural dimensioning, the use of symbols, and the production of a basic floor plan will be accomplished. (F, Sp, Su)

ARCH 101 Architectural Drafting I 4
Prerequisite: Math Level 3
Recommended: ARCH 100 or Equivalent
 This course is the first of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques to draw a series of residential details. The development of professional quality drafting, lettering, research, and communication techniques will be emphasized. (F, Sp, Su)

ARCH 102 Architectural Drafting II 4
Prerequisite: ARCH 101 1.0 minimum
Recommended: ARCH 121 or Concurrently
 This course is the second in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques and knowledge of residential detailing to design and draft basic architectural design problems, residential floor plans, elevations, and building sections. (F, Sp, Su)

ARCH 121 Visual Communication I 3
Prerequisite: None
Recommended: ARCH 100 or Equivalent
 Students with very little or no previous experience in the production of architectural graphics will be introduced to the basic techniques of sketching, axonometric, and perspective drawings. The theory and production of the most commonly used professional techniques of black and white architectural rendering and basic modeling will be studied. (F, Sp, Su)

ARCH 122 Visual Communication II 3
Prerequisite: None
Recommended: ARCH 121
 This course is a continuation of Visual Communication I. Students will gain knowledge of basic color rendering techniques using a variety of media. (Sp)

ARCH 123 Visual Communication III 3
Prerequisite: None
Recommended: ARCH 122
 The goal of this course is to use the students' previously obtained graphic production knowledge to realistically depict three-dimensional architectural spaces and related entourage. An emphasis on developing the use of light and shadow and the true depiction of textures and materials will be taught. (F)

ARCH 126 Architectural Model Building 2
Prerequisite: None
 Students in this course will enhance their design and communication skills by developing various techniques for building three-dimensional architectural models. Examples constructed will range from the most basic of study models, using readily available materials, to more sophisticated presentation models. (F, Sp)

ARCH 128 Residential Planning 2
Prerequisite: None
 This course is designed for beginning through advanced students of architecture who want to study the theories behind the design of the American single-family residence. Architectural styles, planning concepts, the writing of design criteria programs, and the production of basic diagrams through finished concept drawings will be accomplished. (F, Sp)

<p>ARCH 131 City Planning 3</p> <p>Prerequisite: None</p> <p>This is an introduction to the field of urban and regional planning. The development of planning theory; process and practices, such as urban design, environmental, and land-use planning; transportation; economic development; housing; and community facilities will be studied. The history of various cities and their development will also be studied. (F, Sp)</p> <p>ARCH 138 Architecture Portfolio 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 102 or Equivalent</p> <p>This course will allow students to prepare a portfolio of previous classroom and professional work to be used for employment interviews and/or transfer to four-year institutions. Portfolios will be prepared using a variety of graphic techniques and will introduce the students to computer-generated portfolio presentations. (Sp)</p> <p>ARCH 141 Architectural History I 3</p> <p>Prerequisite: None</p> <p>Beginning with ancient times, this course studies the major civilizations which have contributed to the development of the architecture of world civilizations. A wide variety of visual media will be used to present the major theories, works, personalities in architecture, and the decorative arts through the Renaissance. (F, Sp)</p> <p>ARCH 142 Architectural History II 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 141</p> <p>This course, the second in a series, examines the greatest works and principal figures in world architectural history from the 1600s forward. Using a variety of visual media, this course will look at the principal works, theories, and individuals who have had the greatest impact on architecture and decorative arts to the present day. (F, Sp)</p> <p>ARCH 146 Preser/Adaptive Reuse Architec 3</p> <p>Prerequisite: None</p> <p>This course is designed as an overview of the principles and practices of preservation, restoration, and adaptive reuse architecture. Students will have the opportunity to work on a project of their choosing while being introduced to research methods, publications, and examples of preservation and new uses for existing structures. (F, Sp)</p> <p>ARCH 181 Barrier-Free Design 3</p> <p>Prerequisite: None</p> <p>This course covers the design, construction, and inspection aspects of commercial buildings required to be accessible to the handicapped. Michigan and federal laws, barrier-free residential design, and design practice problems are included. (F, Sp, Su)</p> <p>ARCH 182 Universal Design 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 and ARCH 181</p> <p>This course is designed for students with some architectural drafting experience. Students will apply ADA laws as well as Michigan's Barrier Free or Universal Design to residential design. Both study cases and original design projects will be used. (F, Sp)</p> <p>ARCH 201 Architectural Drafting III 4</p> <p>Prerequisite: ARCH 102 1.0 minimum and Math Level 4</p> <p>Recommended: ARCH 141</p> <p>This course is the third of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to design, delineate, present, and draft a light commercial project from basic schematics to working drawings. (F, Sp, Su)</p> <p>ARCH 202 Architectural Drafting IV 4</p> <p>Prerequisite: ARCH 201 1.0 minimum</p> <p>Recommended: ARCH 271 or Concurrently</p> <p>This course is the conclusion in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to complete the working drawing floor plans, elevations, sections, and details for the light commercial projects started in the preceding course. (Sp)</p>	<p>ARCH 211 Design Studio I 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 101 or Concurrently</p> <p>This course is an introduction to the basic theories and methods of architectural design, problem-solving techniques, and design methodologies using contemporary architects as examples. Students will be given a series of problem-solving exercises and will be instructed in developing presentation and verbal techniques to present their solutions. (F, Sp)</p> <p>ARCH 212 Design Studio II 3</p> <p>Prerequisite: ARCH 211 2.0 minimum</p> <p>This course will use the skills developed in ARCH 211 to expand the student's understanding and processes for designing three-dimensional architectural space. Using models and various graphical mediums, students will explore the effects of scale, circulation, light, color, and texture on the spaces and forms created. (Sp)</p> <p>ARCH 213 Facilities Design 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 101 or Equivalent</p> <p>In this course, students will explore, tour, and study the design theory behind a full range of structures used for office and manufacturing purposes. Systems of manufacturing and how they relate to the structures which house them will be studied. (F, Sp)</p> <p>ARCH 221 Architectural DataCAD I 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 or Equivalent and Windows Experience</p> <p>An introductory course to architectural computer-aided drafting, using DataCAD on a PC computer system. Students will create a series of two-dimensional drawings, including floor plans, elevations, and building sections. An introduction to DataCAD's 3-D Modeler will also allow students to develop basic presentation drawings and perspectives. (F, Sp, Su)</p> <p>ARCH 222 Architectural DataCAD II 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 221</p> <p>This course is a continuation of ARCH 221 and will develop students' skills by introducing advanced two-dimensional operations, the creation and use of template symbols, and a complete overview of DataCAD's macro programs. Complete three-dimensional modeling will be taught including complex 3-D entities for developing professional presentations. (F, Sp)</p> <p>ARCH 225 Arch DataCAD Independent Study 1-4</p> <p>Prerequisite: ARCH 222 2.0 minimum and Department Approval</p> <p>This is an advanced-level, computer-aided drafting and design, independent study course, using DataCAD software. After completing all available structured DataCAD courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)</p> <p>ARCH 231 Architectural AutoCAD I 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 or Equivalent and Windows Experience</p> <p>This entry-level course introduces AutoCAD, a PC-based computer graphic system, for architectural applications. Students will concentrate on two-dimensional drawing and editing functions for creating floor plans, elevations, and building sections. An introduction to three-dimensional modeling techniques will also be covered. (F, Sp, Su)</p> <p>ARCH 232 Architectural AutoCAD II 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 231</p> <p>This course is a continuation of ARCH 231, utilizing advanced two-dimensional techniques and a strong emphasis in the three-dimensional environment. Additional topics include digitizing drawings, paper space, slide shows and rendering, basic 3-D solids, program customization, and an introduction to AutoLISP. (F, Sp)</p> <p>ARCH 235 Arch AutoCAD Independent Study 1-4</p> <p>Prerequisite: ARCH 231 2.0 minimum and Department Approval</p> <p>This is an advanced-level, computer-aided drafting and design, independent study course, using AutoCAD software. After completing all available structured AutoCAD courses, students will outline, research, design, and construct a project of their own selection, with the approval and guidance of the instructor. (F, Sp, Su)</p>
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ARCH 237 Arch Computer Rendering 3
Prerequisite: None
Recommended: (ARCH 222 or ARCH 232) and Windows Experience
 This course is designed as an entry-level, computer-aided drafting and design independent study course using the AES software. Students will learn to build command strings in the modeling program to construct 3-D geometry, edit, create layers, plot, apply text and dimensions, and to open and close graphic windows. (F, Sp)

ARCH 241 Arch AES Computer Graphics I 4
Prerequisite: None
Recommended: ARCH 100 or Equivalent
 This course is designed as an entry-level, computer-aided drafting and design independent study course using the AES software. Students will learn to build command strings in the modeling program to construct 3-D geometry, edit, create layers, plot, apply text and dimensions, and to open and close graphic windows. (F, Sp)

ARCH 242 Arch AES Computer Graphics II 4
Prerequisite: None
Recommended: ARCH 241
 This course will build on the knowledge gained in ARCH 241 and will add additional applications in modeling, file management, plotting, and rendering. (Sp)

ARCH 245 Arch AES Independent Study 1-4
Prerequisite: ARCH 242 2.0 minimum and Department Approval
 This is an advanced-level, computer-aided drafting and design independent study course using AES software. After completing all available structured AES courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)

ARCH 251 Architectural MicroStation I 4
Prerequisite: None
Recommended: ARCH 100 or Equivalent and Windows Experience
 This class is an introductory computer graphics course using the MicroStation computer graphics software. Students will learn to develop basic 2-D geometry, editing commands, file manipulation, and utilization of levels, views, text, dimensioning, and plotting. (F, Sp)

ARCH 252 Architectural MicroStation II 4
Prerequisite: None
Recommended: ARCH 251 or Equivalent
 This is an intermediate-level computer graphics course. Using the MicroStation software, students will learn to create and manipulate 3-D drawing surfaces and solids, 3-D cells, rendering, lighting, material tables, pattern mapping, and object motion. Upon completion of this class, students will be able to create, manipulate, and render 3-D models. (Sp)

ARCH 255 MicroStation Independent Study 1-4
Prerequisite: ARCH 252 2.0 minimum and Department Approval
 This is an advanced-level, computer-aided drafting and design independent study course using MicroStation software. After completing all available structured MicroStation courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)

ARCH 271 Structural Theory 4
Prerequisite: Math Level 4
Recommended: ARCH 101 or Concurrently
 This course introduces the principles of statics and relates the application of physical forces to structural materials and elements. The structural and design properties of steel, wood, and concrete will be studied. The ability to read structural tables and accurately make calculations will be emphasized. (F, Sp)

ARCH 273 Environmental Systems 4
Prerequisite: None
Recommended: ARCH 101 or Concurrently
 This course is designed for architecture and interior architecture students. All elements affecting the interior environment of a commercial or residential structure, such as lighting, HVAC systems, and acoustics, will be studied. Calculations and the sizing of systems will be part of all sections. (F)

ARCH 274 Arch Professional Practice 3
Prerequisite: None
 Students will have the opportunity to study the configuration, responsibilities, and ethics of professional architectural offices. This course will examine and visit various offices of the architectural, engineering, and construction industry and explore job responsibilities, personnel, and the procedures used in the production of construction documents. (F, Sp)

ARCH 276 Alternative Structures 3
Prerequisite: None
 Architectural and construction specialties will include earth sheltered homes, steel and in-steel 3-D, log building, pole construction, timberframe, stress skin panel, straw bale, tire building, and alternative foundation systems. Field examples will demonstrate many different technologies. Concepts will relate these structures to emerging appropriate architecture issues: integrated technologies, material sustainability, and recycling in construction. (F, Sp)

ARCH 278 Energy Efficient Design 4
Prerequisite: None
 Building science is used to examine how buildings work. The concept of systems integration is studied from the perspective of the building and its occupants in their environmental context. Computer-assisted calculation of heat loss, passive solar design and economic analysis will be covered. Communication and analytic skills will be developed through classroom activities and research. (F, Sp)

ARCH 283 Materials of Construction 4
Prerequisite: None
Recommended: ARCH 101 or Equivalent
 This course consists of the evaluation of the various characteristics of all materials commonly used in residential and light commercial structures. Students will develop a sensitivity to the use of building products based on a knowledge of their properties, limitations, and availability. (F, Sp)

ARCH 295 Arch Independent Study 1-4
Prerequisite: Department Approval
 This course provides the second-year architecture student with the opportunity to pursue a project of personal interest under the supervision of an instructor. With the approval and under the guidance of the instructor, the student will outline, research, design, and construct a project of his or her own selection. (F, Sp, Su)

ARTS - ART DESIGN AND MULTIMEDIA

ARTS 102 2-Dimensional Design 3
Prerequisite: Reading Level 3 and Writing Level 2
Recommended: Macintosh Experience
 Universal elements and principles of two-dimensional design, design theory and process, with emphasis on composition and its application to black-and-white and color media. (F, Sp, Su)

ARTS 103 3-Dimensional Design 3
Prerequisite: ARTS 102 2.0 minimum or IMAG 112 2.0 minimum
 Line, shape, form, value, color, and texture are explored using a variety of three-dimensional materials and applying principles and elements of design. (F, Sp)

ARTS 131 Drawing I 3
Prerequisite: (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently
 An introductory studio course using a variety of drawing media and methods that introduces both realism and abstraction. Fundamental elements of drawing, concepts of perception, and exploring properties of various media are stressed. Basic principles of one- and two-point perspective are covered. (F, Sp, Su)

ARTS 132 Life Drawing 3
Prerequisite: ARTS 131 2.0 minimum
 Basic concepts, approaches, and techniques involving drawing the human figure, using materials such as pencil, ink, charcoal, and conte crayon. (F, Sp, Su)

ARTS 133 Surface Anatomy for Artists 2
Prerequisite: ARTS 131 2.0 minimum
 This course is designed specifically for the visual artist. Emphasis will be on identifying and visually representing the effects that the skeletal and muscular systems, and body type have on human surface anatomy. Live models will be used. This course cannot be taken as a Science Department anatomy requirement. (F, Sp, Su)

ARTS 137 Perspective Drawing 2
Prerequisite: ARTS 131 2.0 minimum
 Further development of the drawing process. This course includes expanded perspective principles and quality of light with an emphasis on visualization. (F, Sp, Su)

ARTS 140 Printmaking I 3
Prerequisite: ARTS 102 2.0 minimum or Concurrently
 An introduction to the various printmaking techniques, tools, and vocabulary of the printmaker. Includes etching, collagraph, monoprinting, and linoleum cut. (F, Sp)

ARTS 141 Printmaking II 3
Prerequisite: ARTS 140 2.0 minimum
 Students expand on processes and concepts introduced in Printmaking (ARTS 140). Emphasizes refining technical skills and conceptual development. (F, Sp)

ARTS 145 Screen Printing I 3
Prerequisite: ARTS 102 2.0 minimum or Concurrently
 An introduction to basic silkscreen stencil processes with an emphasis on registration techniques. Includes constructing a frame and making a phototransparency. (F, Sp)

ARTS 146 Screen Printing II 3
Prerequisite: ARTS 145 2.0 minimum
 Students expand on processes and concepts introduced in Screen Printing I (ARTS 145). Includes an in-depth study of photographic processes in combination with paper, cut film, and block-out stencils. (F, Sp)

ARTS 151 Computer Graphics/Illustration 3
Prerequisite: ARTS 131 2.0 minimum
Recommended: Windows 95/98/NT Experience
 A beginning course for students interested in creating artistic images using a computer as a tool. Design and drawing skills are required for enrollment. (F, Sp, Su)

ARTS 162 Typography 3
Prerequisite: (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently
 Use of type in visual communication with an emphasis on creativity. Students will be introduced to the tools, materials, and techniques necessary to professionally used type. (F, Sp, Su)

ARTS 171 Computer Graphics/Photography 3
Prerequisite: ARTS 102 2.0 minimum or IMAG 114 2.0 minimum
Recommended: Macintosh Experience
 An introduction to computer manipulation of photographic images. Design and color skills are required for enrollment. (F, Sp, Su)

ARTS 175 Electronic Design 3
Prerequisite: ARTS 102 2.0 minimum and (ARTS 162 2.0 minimum or Concurrently)
Recommended: Knowledge of Mac OS and Basic Keyboarding Skills
 An introduction to page layout and object oriented illustration software programs utilizing the Macintosh computer. Emphasis is on design using electronic publishing applications. (F, Sp, Su)

ARTS 190 Matting and Framing Techniques 1
Prerequisite: None
 An overview of the various materials and techniques for displaying and exhibiting artwork. Students will apply demonstrated techniques to matting and framing their work. (F, Sp)

ARTS 195 Employ/Bu\$n Issues for Artists 2
Prerequisite: None
 An introduction to business, legal, and marketing issues relevant to visual artists. Students will be introduced to copyright, contract and negotiation concerns, and basic record keeping. Job search/marketing skills content, including creative résumés, letter writing, and self-promotion will focus on matching individual presentations to specific employment or freelance goals. (F, Sp)

ARTS 200 Painting I 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 131 2.0 minimum
 An introduction to oil and acrylic painting concepts in the Western tradition, ranging from Renaissance to Contemporary. Examines basic materials, tools, techniques, and modes of expression. (F, Sp, Su)

ARTS 201 Painting II 3
Prerequisite: ARTS 200 2.0 minimum
 A continuation of Painting I (ARTS 200) emphasizing more advanced techniques and increasingly complex problems in painting. A variety of media, techniques, and approaches are encouraged. (F, Sp, Su)

ARTS 203 Figure Painting 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 132 2.0 minimum
 A studio course in the human figure using various media such as oil paint, watercolor, acrylic paint, and pastel. (F, Sp, Su)

ARTS 204 Watercolor I 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 131 2.0 minimum
 An introduction to the art of transparent watercolor. Examines paper characteristics, degrees of wetness, brushes and tools, and various techniques in producing watercolor art works. (F, Sp)

ARTS 205 Watercolor II 3
Prerequisite: ARTS 204 2.0 minimum
 A continuation of Watercolor I (ARTS 204) emphasizing more advanced techniques and increasingly complex problems using watercolor. (F, Sp)

ARTS 206 Advanced Watercolor 3
Prerequisite: ARTS 205 2.0 minimum
 An opportunity for the advanced student to continue with his or her personal exploration and development of watercolor skills under the guidance of an instructor. (F, Sp)

ARTS 213 Illustration Fundamentals 3
Prerequisite: ARTS 132 2.0 minimum and ARTS 137 2.5 minimum
 Illustrative techniques are utilized to prepare working sketches and convert them to finished illustrations. This course includes a variety of contemporary, realistic techniques. Emphasis is placed on sound draftsmanship and solving simple graphic problems through illustration. (F, Sp)

ARTS 216 Humorous Illustration I 3
Prerequisite: ARTS 131 2.0 minimum or Concurrently
 Basic humorous illustration/cartooning foundations are demonstrated. Exercises are given on cartooning heads, animals, objects, and drawing techniques. Graded projects include a caricature utilizing a drawing technique. Originality and imagination are emphasized. (F, Sp, Su)

ARTS 217 Humorous Illustration II 3
Prerequisite: ARTS 216 2.5 minimum and (ARTS 132 2.0 minimum or Concurrently)
 A continuation of Humorous Illustration I designed to expand the student's humorous illustration skills through a variety of black-and-white and color projects. Projects will concentrate on the various commercial applications of humorous illustration. (Sp)

ARTS 221 Airbrush Techniques I 3
Prerequisite: None
 Introduction to the operation and techniques of the airbrush in shading and creating textures in both black-and-white and color. Assignments include using various masking methods and freehand techniques. (F, Sp, Su)

ARTS 222 Airbrush Techniques II 3
Prerequisite: ARTS 131 2.0 minimum or Concurrently and ARTS 221 2.0 minimum
 A continuation of Airbrush Techniques I (ARTS 221) with an emphasis on more complex airbrushing problems including portrait rendering and painting of non-metallic surfaces. A variety of surfaces will be used including fabric, leather, fingernails, and pastries. (F, Sp, Su)

ARTS 224 Automotive Airbrush Techniques 3
Prerequisite: ARTS 221 2.0 minimum
 This course introduces techniques for painting on contoured automotive surfaces. Projects incorporate various masking techniques, handbrush techniques, and specialized paint systems. (F, Sp, Su)

ARTS 227 Humorous Illustration III 3
Prerequisite: ARTS 217 2.5 minimum
 A continuation of Humorous Illustration II with an emphasis on development of a personal style. Projects include commercial illustration and self-promotion. (F, Sp, Su)

- ARTS 228 Advanced Digital Imaging** 3
Prerequisite: ARTS 171 2.5 minimum
 An advanced level study in the manipulation and processing of digital photographic images. Emphasis is on professional scanning, manipulation, and output of digital images using a variety of available software products. Instruction includes preparation of images for prepress (hardcopy) and soft display (multimedia, CD-ROM, and World Wide Web). (F, Sp, Su)
- ARTS 231 Comp Graphics/Advanced Illustr** 3
Prerequisite: (ARTS 151 2.5 minimum or ARTS 175 2.5 minimum) and ARTS 171 2.5 minimum
 Full-color illustration techniques are taught using the computer as a tool. Assignments include stylized drawing techniques and design-oriented composition, with an emphasis on problem solving. (F, Sp, Su)
- ARTS 232 Comp Graphics/2-D Animation** 4
Prerequisite: (ARTS 216 2.5 minimum or IMAG 111 2.5 minimum) and ARTS 151 2.5 minimum and ARTS 171 2.5 minimum
 Create 2-D animations using the computer. Emphasis is on the history, theory, and principles of animation. (F, Sp, Su)
- ARTS 233 Comp Graphics/2-D Interactive** 4
Prerequisite: ARTS 232 2.5 minimum
 A course which uses 2-D animation skills to create interactive presentations and animated Web pages. Emphasis is on basic programming concepts and design. (F, Sp)
- ARTS 234 Comp Graphics/3-D Animation I** 4
Prerequisite: ARTS 151 2.5 minimum and ARTS 171 2.5 minimum
 An introduction of 3-D solid modeling, rendering techniques, and animation on a desktop graphics system. Introduction of the principles of designing for video. (F, Sp, Su)
- ARTS 235 Comp Graphics/3-D Animation II** 3
Prerequisite: ARTS 234 2.5 minimum
 A continuation of 3-D Animation I (ARTS 234). Emphasis on creation of more complex models and animations. Introduction of sound and editing. (F, Sp)
- ARTS 236 Computer Graphics/Production** 3
Prerequisite: (ARTS 233 2.5 minimum or ARTS 235 2.5 minimum) and (ARTS 228 2.5 minimum or IMAG 205 2.5 minimum)
 This course covers analysis, design, and development of a completed electronic project such as a CD, videotape, or WWW publishing. Techniques include recording and editing of two- and three-dimensional graphics, animation, video, audio, and imaging. Students implement theory and practice for designing, producing, and disseminating multimedia at planning pre-production, managing production, and post-production levels. (F, Sp)
- ARTS 240 Art for Elementary Teachers** 3
Prerequisite: None
 Especially for elementary school teachers responsible for the student art experience. Emphasis on developing a greater art appreciation, awareness of art forms, and competency working with a variety of art media. Covers the creative and mental growth of children and their needs in an art situation. (F, Sp, Su)
- ARTS 251 Graphic Design I** 4
Prerequisite: ARTS 102 2.0 minimum and ARTS 162 2.0 minimum and (ARTS 175 2.0 minimum or Concurrently)
 An overview of the designer's role in developing design products for print. Color, paper, and type selection for the individual client will be emphasized. (F, Sp, Su)
- ARTS 252 Graphic Design II** 4
Prerequisite: ARTS 251 2.5 minimum (previously ARTS 180)
 An overview of publication design and the designer's role in the creative organization of typography, photography, and illustration. Emphasis on editorial concept, format, and design considerations. (F, Sp)
- ARTS 253 Graphic Design III** 4
Prerequisite: ARTS 252 2.5 minimum (previously ARTS 181) and MKTG 140 2.5 minimum
 An advanced collaborative learning course involving corporate image and the design of promotional graphics, both two- and three-dimensional. Utilizes innovative design and media considerations. (F, Sp)

- ARTS 257 Computer Prepress Prod Tech** 4
Prerequisite: ARTS 171 2.5 minimum and (ARTS 252 2.5 minimum (previously ARTS 181) or Concurrently)
 An overview of digital prepress techniques for computer-generated media, including color separations, trapping, output, and digital file preparation. Instruction includes computer system components and peripheral devices, printing terminology and processes. The course emphasis is on professional knowledge and accuracy. (F, Sp, Su)
- ARTS 269 The Portfolio** 1
Prerequisite: Department Approval
 The student will assemble his or her best work under instructor supervision into a cohesive, relevant presentation for the purpose of securing employment in a chosen career area. This course is intended to be a final course in the Art Program. (F, Sp)
- ARTS 270 Comp Graphics Independ Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 272 Printmaking Independent Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her projects to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 276 Art Independent Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 281 Art Internship** 3
Prerequisite: Department Approval
 An off-campus field study. Students will gain pre-career experience by working in a studio environment under the supervision of a professional artist/designer. Regularly scheduled progress reports will be given and discussed with supervising faculty member. A minimum of 15 hours per week. (F, Sp, Su)

ARWS - ART SEMINARS AND WORKSHOPS

- ARWS 120 Basic Drawing** 1
Prerequisite: None
 An introductory course using a variety of materials including pencil, charcoal, and ink. For non-majors. (F, Sp, Su)
- ARWS 131 Intro to Computer Illustration** 1
Prerequisite: None
 A condensed hands-on workshop introducing computer graphics utilizing sophisticated, user-friendly, artistic software. Programming skills are not necessary. (F, Sp, Su)
- ARWS 132 Introduction to Quark Xpress** 1
Prerequisite: None
 A condensed, hands-on workshop designed to provide the student with a working knowledge of Quark Xpress software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)
- ARWS 133 Introduction to PageMaker** 1
Prerequisite: None
 A condensed hands-on workshop designed to provide the student with a working knowledge of Adobe PageMaker software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp, Su)
- ARWS 134 Introduction to Freehand** 1
Prerequisite: None
 A condensed hands-on workshop designed to provide the student with a working knowledge of Macromedia Freehand software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)

ARWS 135 Desktop Design Fundamentals .75

Prerequisite: None

A seminar focusing on basic graphic design concepts to help the student improve the appearance and effectiveness of desktop publishing projects. This is not a hands-on computer course. (F, Sp)

ARWS 136 Intro to Adobe Illustrator 1

Prerequisite: None

A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Illustrator software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Sp)

ARWS 137 Intro to Adobe Photoshop 1

Prerequisite: None

A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Photoshop software. Emphasis is on desktop publishing applications. (F)

ARWS 138 Intro to Macromind Director 1

Prerequisite: None

A condensed, hands-on workshop designed to provide the student with a working knowledge of MacroMind Director software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Su)

ARWS 139 Multimedia Web Graphics 1

Prerequisite: None

A hands-on course designed to provide the student with a working knowledge of multimedia and Web page design. Emphasis is on Web design issues for artistic, creative and/or visual learners using Macintosh computers and a variety of multimedia/Web software. (F, Sp, Su)

ARWS 141 Watercolor Workshop 1

Prerequisite: None

A condensed learning experience introducing the student to the art of transparent watercolor. Emphasis is on the use of different papers, degrees of wetness, tools, and techniques. Students will progress to more complex problems as ability develops. (F, Sp, Su)

ARWS 142 Watercolor Workshop II 1

Prerequisite: None

A condensed learning experience designed to advance the student in the variety of effects of transparent watercolor, stressing the fundamentals of design color and value in the composition. (Sp)

ARWS 145 Landscape Painting & Drawing 1

Prerequisite: None

Emphasis is on the use of color, perspective, and compositional strategies of the landscape. Most sessions spent in the field. All types of media are acceptable. (Su)

ARWS 221 Calligraphy I 1

Prerequisite: None

Introduces the student to the art of fine writing using italic pens. Emphasis on hand lettering, surveying different styles and scripts used in early manuscripts, and adaptation to modern use. (F, Sp)

ARWS 224 Cartooning Workshop 1

Prerequisite: None

Emphasizes simple but imaginative characterizations and dramatic exaggerated action in a variety of media including pencil, fibertipped pen, and brush and ink. Previous drawing experience helpful. (F, Sp)

ASTR - ASTRONOMY

ASTR 201 Introductory Astronomy 4

Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4

A non-mathematical survey of astronomy. Topics include ancient astronomy, the night sky, telescopes, space exploration, the solar system, stellar evolution, neutron stars and black holes, galaxies and quasars, cosmology, and the expanding universe. The LCC planetarium and observatory augment laboratory activities which illustrate important concepts in astronomy. (F, Sp, Su)

AUTO - AUTOMOTIVE

AUTO 100 Auto Service I 3

Prerequisite: Reading Level 3 and Writing Level 2 and Math Level 3

This course is intended to provide the student with an extensive orientation to an automotive repair facility, while developing tool and equipment usage skills needed to advance in the automotive repair field. (F, Sp, Su)

AUTO 102 Basic Car Care for the Novice 1

Prerequisite: None

This course is designed for the typical automobile owner who wants to gain a better understanding of the automobile and be able to make some basic repairs. It will encompass an overview of servicing needs and factors related to vehicle safety. Students will be able to inspect their vehicles, make informed decisions on purchasing vehicle products and services, and identify service items the owner might do themselves. (F, Sp)

AUTO 105 Automotive Safety 1

Prerequisite: Department Approval

This course will provide the student with an overview of safety policies and procedures used in the automotive repair field. (Su)

AUTO 110 Auto Electrical Theory 5

Prerequisite: AUTO 100 1.5 minimum or Concurrently

This course in basic electricity covers the fundamentals of automobile electricity. Materials covered will include electron theory, circuits and wiring diagrams. The students will learn how circuits work and how to diagnose malfunctioning circuits. Maximum emphasis will be directed to vehicle diagnosis. (F, Sp)

AUTO 120 Auto Drive Train 2.5

Prerequisite: AUTO 100 1.5 minimum or Concurrently

This course is designed to prepare the technician to enter the auto repair and service industry. The student will study the operation and repair procedures for manual transmissions and transaxles, manual and hydraulic clutches, drive shafts and half-shafts, rear-axles, front and rear-wheel drive differentials and four-wheel drive components. (F, Sp)

AUTO 121 Automatic Transmissions I 5

Prerequisite: AUTO 110 1.5 minimum or Concurrently

This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: GM 125C, 700R4, and the Chrysler A404. (F, Sp)

AUTO 122 Automatic Transmissions II 2.5

Prerequisite: AUTO 121 1.5 minimum

This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: Ford AXOD, General Motors 4T60E, and Chrysler 604. (F, Sp)

AUTO 130 Automotive Engines 2.5

Prerequisite: AUTO 110 1.5 minimum or Concurrently

This advanced course in engine rebuilding is designed to prepare technicians to enter the auto repair and service industry. The student will disassemble, inspect (using precision measuring tools and specialized equipment) and reassemble an engine. Theory of operation, basic computer technology and machining procedures are also covered. (F, Sp)

AUTO 133 Small Engine Repair 2.5

Prerequisite: None

This is a basic course covering servicing and repair of two-cycle and four-cycle small gas engines. Each student is required to supply a small engine for laboratory work. (F, Sp, Su)

AUTO 140 Automotive Brakes 2.5

Prerequisite: AUTO 110 1.5 minimum or Concurrently

This course prepares technicians to enter the auto repair and service industry. Theory and operation of modern automotive brake systems, hydraulic system diagnostic procedures, and service procedures for disc and drum brake systems will be studied. A brief overview of anti-lock brake systems will also be covered. (F, Sp)

AUTO 141 Non-Structural Repair 3
Prerequisite: Department Approval
Recommended: Evidence of Mechanical Ability
 This course introduces the student to elementary repairs that are completed in the collision repair industry. This allows the student to become familiar with the collision repair field environment. (F, Sp, Su)

AUTO 142 Advanced Non-Structural Repair 5
Prerequisite: AUTO 141 2.0 minimum
 This course is for students who are familiar with the auto body repair environment and are ready to begin development of specific marketable repair skills. (F, Sp, Su)

AUTO 143 Auto Body Welding and Cutting 5
Prerequisite: Department Approval
Recommended: Evidence of Mechanical Ability
 This course will present welding processes that will be the basis of many of the repair techniques in any advanced auto body course. MIG, TIG, Oxy-acetylene resistance spot welding and oxy-acetylene plasma arc cutting are included. (F, Sp, Su)

AUTO 144 Auto Body Structural Repair 5
Prerequisite: AUTO 141 2.0 minimum and AUTO 143 2.0 minimum
 This course addresses the repair of the unibody and vehicle frames which often are damaged by major collision forces. The student will learn damage diagnosis and repair techniques including stress relief, heating, welding, and corrosion protection. (F, Sp, Su)

AUTO 145 Introduction to Refinishing 5
Prerequisite: Department Approval
 The material in this course will form the basis for all automotive refinishing work. Surface preparation, material selection, and the use of hand and power tools (including automotive spray guns) will be covered. (F, Sp, Su)

AUTO 146 Advanced Refinishing 5
Prerequisite: AUTO 145 2.0 minimum
 This course builds on skills developed in AUTO 145. Overall refinishing, spot repairs, and color matching with a variety of contemporary color-coat materials will be stressed. (F, Sp, Su)

AUTO 147 Collision Repair Estimating 3
Prerequisite: AUTO 142 2.0 minimum and AUTO 144 2.0 minimum and AUTO 146 2.0 minimum
 This course prepares the student for analyzing collision damage, determining what parts are needed for repair, calculating labor allowances and figuring the total cost of repair. Collision repair manuals and computer programs will be used as sources of information. (F, Sp, Su)

AUTO 148 Automotive Plastic Repair 3
Prerequisite: AUTO 145 2.0 minimum
 This course covers repair techniques and materials for repairing the wide variety of plastic materials used in the manufacturing of current vehicles. Refinishing repaired parts is also included. (F, Sp, Su)

AUTO 150 Auto Steering & Suspension 2.5
Prerequisite: AUTO 100 1.5 minimum or Concurrently
 This course is designed to prepare technicians to enter the auto repair and service industry. The student will study theory, problem diagnosis, and repair of suspension and steering components found on both front- and rear-wheel drive vehicles, and adjustment of alignment angles on front- and rear-wheel drive vehicles. (F, Sp)

AUTO 160 Auto Heat & Air Conditioning 2.5
Prerequisite: AUTO 110 1.5 minimum
 This course in automotive air conditioning service is designed to prepare technicians to enter the auto repair and service industry. The student will study the theory, application, diagnosis, and repair of automobile air conditioning systems. Both mechanical and electronic controlled systems will be studied. (F, Sp)

AUTO 165 General Auto Mechanics 2.5
Prerequisite: None
 Automobile owners will gain a better understanding of the automobile and be able to make some repairs. Areas covered include preventive maintenance, tune-ups, brakes, engines, electrical systems, drive lines, front end, and steering. (F, Sp, Su)

AUTO 188 Auto Body Repair and Painting 4
Prerequisite: Department Approval
 This is a combined course of auto body repair and painting. It provides an opportunity to practice the techniques learned in AUTO 141, 142, 143 and 145. (F, Sp, Su)

AUTO 215 Engine Performance/Tune-Up 5
Prerequisite: AUTO 130 1.5 minimum
 This course prepares technicians to enter the auto repair and service industry. Theory and fundamentals of basic engine tune-up procedures will be studied. General engine diagnosis, introduction to computerized engine controls, ignition system diagnosis and repair, carburetion and fuel injection, and examination of emission control systems will also be covered. (F, Sp)

AUTO 225 Automotive Computers 5
Prerequisite: AUTO 215 1.5 minimum
 This advanced course in automotive computer systems is designed to train the student in theory and diagnosis of varying automotive engine computer control systems. The systems covered will include ignition, air induction, emission control, exhaust gas recirculation, exhaust gas treatment, intake air temperature control, and early fuel evaporation. (F, Sp)

AUTO 230 Anti-Lock Braking Systems 3
Prerequisite: AUTO 140 1.5 minimum and AUTO 225 1.5 minimum
 This course in anti-lock brakes is designed to prepare the student to enter the auto repair and service industry. The theory, application, and diagnosis of Bosch, Teves, and Kelsey-Hayes anti-lock systems will be studied in detail. The students will also study the basic principles of other various anti-lock systems. (F, Sp)

AUTO 251 Advanced Computer Diagnosis 2
Prerequisite: AUTO 225 1.5 minimum
 This advanced course in automotive computer systems diagnosis is designed to prepare the student to enter the auto repair and service industry. The student will study computer diagnosis procedures for General Motors, Chrysler, and Ford vehicles. "Strategy Based Diagnosis" procedures will be emphasized. (F, Sp)

AUTO 260 Intro to Alternative Fuels 2
Prerequisite: AUTO 130 1.5 minimum and AUTO 225 1.5 minimum
 This course is designed to help prepare the student to enter the auto repair and service industry. The student will study the use of propane, methanol, compressed natural gas (CNG), ethanol, liquefied natural gas, hydrogen, and electricity as alternative fuels in cars and light trucks. Safety regulations will be covered. (F, Sp, Su)

AUTO 261 Alternative Fuels - CNG 3
Prerequisite: AUTO 260 1.5 minimum
 This course is designed to help prepare the student to enter the auto repair and service industry. It is an intensive study covering the use of compressed natural gas (CNG) on automobiles and light trucks. Theory, application, installation, diagnosis, and safety regulations pertaining to the use of CNG will be covered. (F, Sp)

AUTO 262 Alt Fuels-Propane (LPG) 3
Prerequisite: AUTO 225 1.5 minimum
 This course is an intensive study covering the use of propane as fuel for automobiles and light trucks. Theory, application, installation, diagnosis, and safety regulations applicable to LPG vehicles will be covered. (F, Sp)

AUTO 280 Automotive Service Laboratory 6
Prerequisite: Department Approval
 This laboratory course is designed to provide work experience and develop trade-entry skills in general and light-line repair. (F, Sp)

AUTO 285 Automotive Internship 6
Prerequisite: Department Approval
 Students are able to earn credits while employed as a technician in auto mechanics or auto body. The program coordinator must approve the training station and working conditions. (F, Sp)

AUTO 286 Indepen Study/Automotive 1-3
Prerequisite: Department Approval
 Special research projects and/or individual readings are used to apply personal and professional experience to the academic area of interest. A minimum of 48 hours of work is required per credit, and the completion of a written project report. This course cannot be audited. (Su)

AVAF - AVIATION AIRFRAME MAINTENANCE

- AVAF 125 Aircraft Systems I** 2
Prerequisite: Department Approval
 The study of fuel management, transfer, defueling, and fuel pump systems. The course covers the procedures used to inspect, check, service, troubleshoot, and repair aircraft fuel systems and fuel system components. Course material emphasizes fluid quantity indicating, fluid pressure, and warning systems. (Sp)
- AVAF 126 Aircraft Systems II** 6
Prerequisite: Department Approval
 The study, analysis, and repair of aircraft landing gear and brake systems and their related warning systems. Includes the study, inspection, servicing, and repair of aircraft hydraulic and pneumatic systems and their related components. (Sp)
- AVAF 127 Aircraft Systems III** 3
Prerequisite: Department Approval
 Course covers the inspection, checking, troubleshooting, servicing, and repair of aircraft heating, cooling, air-conditioning, pressurization, oxygen, ice and rain control, and fire protection systems. (Su)
- AVAF 130 Avionics Airframe Applications** 3
Prerequisite: Department Approval
 This course covers airframe related subjects necessary for an avionics technician. Topics include aircraft structure principles, installation procedures, material and fastener identification, and antenna installation procedures. Students will work with sheet metal and composite structures. (F)
- AVAF 134 Aircraft Instruments** 2
Prerequisite: Department Approval
 Course covers inspection, checking, servicing, troubleshooting, repair of electronic flight instrument systems (both mechanical and electrical speed), altitude, temperature, pressure, and flow instrument systems. Also, special removal and installation techniques applicable to aircraft instruments is included. (Su)
- AVAF 208 Aircraft Structures I** 4
Prerequisite: Department Approval
 This course introduces the procedures for identification, inspection, testing, and repairing of wood, fabric-covered, and sheet metal aircraft. The installation and removal of conventional rivets, the forming of aircraft sheet metal, the installation of special rivets and fasteners, and an introduction to applying finishing materials will also be covered. (Sp)
- AVAF 209 Aircraft Structures II** 4
Prerequisite: Department Approval
 Covers assembly and rigging of fixed wing and rotary wing aircraft control structures. Provides practical application in removal, installation, and adjustment of flight controls by balancing, cable tension, and motion studies. Aircraft inspection procedures to insure conformity with flight safety standards will be included. (F)
- AVAF 210 Aircraft Structures III** 3
Prerequisite: Department Approval
 An advanced course covering the inspection, repair, lay out, bending, and assembly of aircraft sheet metal. Inspection, testing, and repair of fiberglass, plastics, honeycomb, composite, and laminated structures are practiced. Installation and removal of special fasteners for bonded and composite structures and servicing of aircraft windows, doors, and interior furnishings is included. (F, Sp)
- AVAF 211 Aircraft Electrical I** 4
Prerequisite: Department Approval
 The intermediate aviation electrical course concentrating on the theory, calculation, and measurement of A.C. electrical systems. Includes reading and interpreting aircraft electrical circuit diagrams, including those with solid-state devices and logic functions. The installation, checking, and servicing of airframe and engine wiring, controls, switches, indicators, and protective devices is also covered. (Sp, Su)
- AVAF 212 Aircraft Electrical II** 4
Prerequisite: Department Approval
 Repair of airframe and engine electrical system components with an emphasis on the inspection, checking, servicing, and repair of alternating and direct current systems. General troubleshooting techniques are practiced with special emphasis on A.C. and D.C. electrical systems. (Su)

- AVAF 246 National Airframe Cert Proced** 1
Prerequisite: Department Approval
 Study of the Federal Aviation Regulations pertaining to national certification as a licensed airframe mechanic. Includes testing in all required areas of study as a prerequisite to receiving authorization to take the general and airframe national certification test administered by representatives of the Federal Aviation Administration. (F)

AVEL - AVIATION ELECTRONICS

- AVEL 130 Avionics Installations** 3
Prerequisite: None
 This course includes familiarization with the various types of wires and connectors used in the construction of aircraft wiring harnesses. The student will develop skills in soldering, aircraft wiring diagram reading, standard procedures, and weight and balance calculation. (F)
- AVEL 150 Avionics Installat/Generat** 2
Prerequisite: ELCT 110 2.0 minimum
Co-requisite Course: AVEL 151
 Covers the operational characteristics and operation of basic and specialized test equipment found in the avionics industry. Students will develop reading skills in aircraft wiring diagram and weight and balance calculation. Equipment covered includes multimeters, oscilloscopes, power supplies, multifunction test generators, wattmeters, time domain reflectometers and spectrum analyzers. (Sp)
- AVEL 151 Avionics Installat/Generat Lab** 1
Prerequisite: ELCT 110 2.0 minimum
Co-requisite Course: AVEL 150
 Subjects covered in AVEL 150 will be put to practical use in this laboratory. The student builds and calibrates his or her own volt ohm meter. The student will construct aircraft wiring harnesses and complete soldering exercises. Common electronic and specialized avionics test equipment is used in the lab. (Sp)
- AVEL 190 Receiver Troubleshooting** 2
Prerequisite: AVEL 151 2.0 minimum and ELCT 112 2.0 minimum
Co-requisite Course: AVEL 191
 Familiarization with basic superhetrodyne receiver principles and operation using block diagrams and component level theory. Various logical troubleshooting techniques are discussed. (Su)
- AVEL 191 Receiver Troubleshooting Lab** 1
Prerequisite: AVEL 151 2.0 minimum and ELCT 112 2.0 minimum
Co-requisite Course: AVEL 190
 Familiarization with basic superhetrodyne receiver principles and operation. Various logical troubleshooting techniques will be put to practical use in the laboratory. Students construct, align, and troubleshoot an AM superhetrodyne receiver. (Su)
- AVEL 200 Flight Line Testing** 2
Prerequisite: AVEL 151 2.0 minimum and AVGM 113 2.0 minimum
Co-requisite Course: AVEL 201
 A study of the avionics systems found aboard modern aircraft focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 201 Flight Line Testing Lab** 1
Prerequisite: AVEL 151 2.0 minimum
Co-requisite Course: AVEL 200
 A practical study of the electronics systems found aboard modern aircraft, focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 220 Avionics Systems I** 3
Prerequisite: AVEL 190 2.0 minimum and AVEL 200 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 221
 A study of the communications, navigation, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturer's specifications. Students will have the opportunity to obtain factory certifications for the repair of various systems. (F)

AVEL 221 Avionics Systems I Lab 2
Prerequisite: AVEL 201 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 220
 A hands-on study of the communications, navigation, and other systems found in modern aircraft, focusing on component-level repair and testing to manufacturer's specifications. (F)

AVEL 225 Avionics Licensing/Regulations 1
Prerequisite: ELCT 112 2.0 minimum
 Federal Communication Commission rules and regulations are discussed as they pertain to the avionics technician. Elements 1 and 3 of the FCC General Radiotelephone Operator's License examination are presented to prepare the student for successful completion of the actual examination. (F)

AVEL 226 FAA Rules/Regs Avionics Techs 1
Prerequisite: AVAF 130 2.0 minimum
 This course covers various Federal Aviation Administration rules and regulations as they pertain to avionics shop operations and the avionics technician. (F)

AVEL 230 Avionics Systems II 3
Prerequisite: AVEL 190 2.0 minimum and AVEL 200 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 231
 A study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. Students will have the opportunity to obtain factory certification of the repair of various systems. (Sp)

AVEL 231 Avionics Systems II Lab 2
Prerequisite: AVEL 201 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 230
 A hands-on study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. (Sp)

AVEL 297 Avionics Internship 2
Prerequisite: AVEL 151 2.0 minimum
Restriction: Avionics and Avionics Installation Majors
 Minimum 128 hours per semester as an aviation electronics intern. Part-time occupational internship in avionics technology. The internships will be at certified repair stations as established by the intern coordinator. (Su)

AVEL 299 Advanced Avionics Laboratory 2
Prerequisite: AVEL 151 2.0 minimum
Restriction: Avionics and Avionics Installation Majors
 Students will further develop troubleshooting and installation skills acquired in other courses. Students will work in an environment close to actual working conditions in most avionics repair stations. (Su)

AVFT - AVIATION FLIGHT TRAINING

AVFT 201 Flight Training I 7.5
Prerequisite: Department Approval
 Provides in-flight and ground training in a single-engine, non-complex aircraft culminating in aeronautical knowledge, experience, and skill in accordance with the Federal Aviation Administration Private Pilot Practical Test standards. (F, Sp)

AVFT 202 Flight Training II 5
Prerequisite: Department Approval
 Provides in-flight and ground training in a single-engine, non-complex airplane; developing the student's instrument, night, and cross-country flying skills. (F, Sp, Su)

AVFT 203 Flight Training III 5.5
Prerequisite: Department Approval
 Provides instruction in a complex, single-engine airplane; developing the student's skill at IFR navigation and ATC procedures in en route and terminal environments. (F, Sp, Su)

AVFT 204 Flight Training IV 5
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a complex airplane; developing the student's skill in IFR navigation and ATC procedures in en route and terminal environments. Student will develop skills at performing commercial proficiency flight maneuvers. At the completion of this course, the student will take the practical test for commercial/instrument pilot airplane. (F, Sp, Su)

AVFT 205 CFI Flight Training 3.5
Prerequisite: Department Approval
 Provides in-flight and ground training in common primary training and complex airplanes. The student will develop instructional skills necessary to train pilots for certification in accordance with Federal Aviation Regulations. The student will take his or her practical test for Certified Flight Instructor Airplane upon completion. (F, Sp, Su)

AVFT 206 Flight Inst Instrument Flight 2.5
Prerequisite: Department Approval
 Provides in-flight and ground training in a non-complex aircraft. The student will develop instructional skills necessary to train pilots for the instrument rating. The student will take the practical test for the instrument flight instructor rating airplane upon completion of this course. (F, Sp, Su)

AVFT 207 Multi-Engine Flight Training 1.5
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a multi-engine airplane. The student will take the multi-engine practical test upon completion of this course. (F, Sp, Su)

AVFT 208 Multi-Engine Instructor Flight .75
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a multi-engine airplane. The student will develop instructional skills necessary to train students for the multi-engine practical test. The student will take the multi-engine instructor practical test upon completion of this course. (F, Sp, Su)

AVGM - AVIATION GENERAL MAINTENANCE

AVGM 111 Aviation General I 4
Prerequisite: Department Approval
 This course is designed to develop the skills and knowledge required to weigh an aircraft and record the appropriate data. It involves mathematical and basic physics principles related to aviation, including aerodynamics, theory of flight, aircraft structural design, and simple machines. (F, Sp)

AVGM 112 Aviation General II 6
Prerequisite: Department Approval
 Introduces the Federal Aviation Regulations involving the mechanic's privileges, limitations, and related aviation operations. Includes the selection and use of aviation publications, maintenance forms, records, reports, aircraft drawings, graphs and charts, symbols, blueprints, and system schematics. Also focuses on aircraft ground operations and servicing of related aircraft systems. (F, Sp)

AVGM 113 Aviation General III 4
Prerequisite: Department Approval
 This initial aviation electrical course offers instruction in basic electrical theory and its aviation application. It includes the calculation and measurement of voltage, current resistance, continuity, and power; and the theory, inspection, and servicing of aircraft lead-acid and ni-cad batteries; and the construction of a volt-ohm meter. (F, Sp)

AVGM 114 Material and Processes 5
Prerequisite: Department Approval
 This course covers identification and selection of the appropriate aviation hardware, hand tools, cleaning materials, fluid lines, and nondestructive testing methods. Performance of nondestructive testing, precision measurements, aircraft cleaning and corrosion control, fabrication, installation, and testing of fluid lines is included. (F, Sp)

AVGS - AVIATION GROUND SCHOOL**AVGS 101 Private Pilot Ground School 4****Prerequisite:** None**Recommended:** SDEV 124

This course prepares the student for successful completion of the Federal Aviation Administration private pilot written examination. The student will learn basic aerodynamic theory, principles of aircraft/powerplant operation and performance, Federal Aviation Regulations, air traffic control procedures, meteorology, navigation, and flight physiology. (F, Sp, Su)

AVGS 121 Aviation Meteorology 4**Prerequisite:** None**Recommended:** SDEV 124

This course focuses on the application of meteorological theory to the practical aspects of flight planning. The student will understand basic concepts of weather theory, obtain weather briefings by using a personal computer, interpret domestic and international weather charts, forecasts and reports, (ICAO), and make appropriate "go/no go" decisions. (Sp)

AVGS 211 Instrument Pilot Ground School 4**Prerequisite:** None**Recommended:** AVGS 121 and SDEV 124

This course prepares the student for the successful completion of the FAA instrument rating written examination. The student will learn operation and interpretation of the flight instruments; the use of en route, approach, SID and STAR charts for navigation; air traffic control procedures and meteorology as it applies to the instrument pilot. (F, Sp, Su)

AVGS 221 Commercial Pilot Ground School 4**Prerequisite:** None**Recommended:** AVGS 121 and SDEV 124

This course prepares the student for the successful completion of the FAA commercial pilot written examination. The student will develop knowledge of aerodynamics, high performance aircraft systems, aircraft performance, Federal Aviation Regulations, navigation and flight planning, and meteorology as it applies to commercial pilots. (F)

AVGS 222 Flight Instruct Ground School 4**Prerequisite:** None**Recommended:** AVGS 121

This course will prepare the student for the successful completion of the FAA Fundamentals of Instructing and the Flight Instructor-Airplane and Advanced Ground Instructor written exams. The student will develop a flight training syllabus with lesson plans for use in training pilots. (Sp)

AVIR - AVIATION INSTRUMENT REPAIR**AVIR 140 Avionics Instruments I 1****Prerequisite:** None

Familiarization with common aircraft instruments to include principles of operation, interpretation of indications, testing, proper handling, repair, and calibration. Students will learn the proper use of test equipment and instrument repair procedures. (F)

AVPP - AVIATION POWERPLANT MAINTENANCE**AVPP 185 Preventive Maintenance 2****Prerequisite:** Department Approval

This course will cover the items described in the Federal Aviation Regulation Part 43, Appendix A, titled Preventive Maintenance. These items include the removal and installation of tires, servicing of wheel bearings, and cleaning fuel and oil strainers or filter elements. The safety, responsibility, and operations of various aircraft systems will be discussed. (F, Sp, Su)

AVPP 241 Reciprocating Engine 8**Prerequisite:** Department Approval

Presents the theory and practices used in the removal, inspection, overhaul, service, repair, and installation of reciprocating engines. This course also studies the inspection, service, repair, and troubleshooting of reciprocating engine lubrication systems. (F)

AVPP 251 Reciprocating Engine Systems 2**Prerequisite:** Department Approval

This course covers the inspection, servicing, troubleshooting, and repair of reciprocating engine cooling and exhaust systems. In addition, the inspection requirements necessary to meet established conformity and standards of airworthiness are studied; and reciprocating engine operations and adjustments are conducted using FAA and maintenance publication procedures. (F, Sp)

AVPP 253 Reciprocating Ignition Systems 5**Prerequisite:** Department Approval

This course covers the operation, analysis, inspection, service and repair of reciprocating engine ignition systems and components. This includes magnetos, ignition harnesses, spark plugs and starter systems. (F, Sp)

AVPP 255 Reciprocating Induction System 4**Prerequisite:** Department Approval

Study and analysis of reciprocating engine fuel systems and components. Includes inspection, checking, servicing, troubleshooting, and repair of carburetors, water injection systems, heat exchangers, superchargers, intake and induction manifolds, and other engine fuel system components. Also includes carburetor overhaul procedures. (F, Sp)

AVPP 257 Aircraft Propeller Systems 4**Prerequisite:** Department Approval

Covers the study, analysis, service, and repair of aircraft propellers, systems, and controls. Includes propeller synchronizing, ice control, lubrication, balancing, pitch control, repair procedures and removal, and installation of both fixed-pitch and variable-pitch propellers. (F, Sp)

AVPP 259 Turbine Engine I 4**Prerequisite:** Department Approval

Covers the theory of operation and design of the varied turbine engine and turbine-driven auxiliary power unit types, including the induction and cooling systems of each. (F, Sp)

AVPP 261 Turbine Engine II 4**Prerequisite:** Department Approval

Covers inspection, checking, servicing, repair, removal, installation and troubleshooting of turbine engines and systems. Detailed study of the lubrication system and inspection procedures to insure conformity with FAA specifications and standards are included. (Sp, Su)

AVPP 263 Turbine Engine Systems 2**Prerequisite:** Department Approval

This course is a detailed study of turbine engine ignition, pneumatic and electric starters, exhaust and thrust reverser, fire detection and protection, fuel metering and electronic fuel control systems and components. Study also includes inspection, checking servicing, repair, and troubleshooting procedures. (Su)

AVPP 265 Powerplant Instruments 2**Prerequisite:** Department Approval

This course covers the inspection and repair of turbine and reciprocating engine instruments. Troubleshooting of mechanical/electrical fluid rate-of-flow, temperature, pressure, RPM, and airflow indicators will be included. (Sp, Su)

AVPP 267 National Powerplant Cert Proc 1**Prerequisite:** Department Approval

Study of the Federal Aviation Regulations pertaining to national certification as a licensed powerplant mechanic. Includes testing in all required areas of study as a prerequisite to receiving authorization to take the powerplant national certification tests administered by representatives of the Federal Aviation Administration. (Sp, Su)

AVST - AVIATION SIMULATOR TRAINING**AVST 211 Flight Simulator I 1****Prerequisite:** None

Provides flight simulator and ground training to develop student's basic altitude instrument flying skills. Course is intended to be taken concurrently with AVFT 201. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 212 Flight Simulator II 1

Prerequisite: None
Provides flight simulator and ground training to develop student's skills in IFR navigation and ATC procedures in terminal environment. This course is intended to be taken concurrently with AVFT 202. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 213 Flight Simulator III 1

Prerequisite: None
Provides flight simulator and ground training to further develop the student's skills at IFR navigation and ATC procedures in en route and terminal environments. This course is intended to be taken concurrently with AVFT 203. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 214 Flight Simulator IV 1

Prerequisite: None
Provides flight simulator and ground training to develop the student's skill to the level of instrument rating practical test standards. Student will perform simulated flights in en route and terminal environments, including compliance with emergency procedures. This course is intended to be taken concurrently with AVFT 204. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 215 Multi-Engine Flight Simulator 1

Prerequisite: None
Provides flight simulator training culminating in aeronautical knowledge and maneuvering skills in support of advanced visual and instrument flight training in multi-engine aircraft. Intended for the Flightmatic multi-engine simulator. (F, Sp, Su)

BDCS - BUSINESS DEVELOPMENT SEMINARS

BDCS 201 Starting a Business .5

Prerequisite: None
Entrepreneurs are usually required to wear many "hats" and may have no idea what skills and processes are involved in starting and operating a business. If you decide that owning a business is feasible, this class can help you find assistance to begin and maintain a business. (F, Sp, Su)

BDCS 202 Pitfalls to Avoid:Open/Operate Bus .5

Prerequisite: None
This seminar, presented by a successful business person, can save you both problems and money. What to avoid! What to look out for! Where to seek help! Where to cut costs! How to help ensure your chances of a successful business venture! Come and learn from those who can help. (F, Sp, Su)

BDCS 205 Systems for Record Keeping .5

Prerequisite: None
This seminar increases the participants' working knowledge of the accounting process and the maintenance of accounting records, ledgers, and income statements, and the preparation for income tax time. (F, Sp, Su)

BDCS 209 Finan Mgmt for Sm Business .5

Prerequisite: None
This seminar offers practical presentation, application, and practice of basic financial management techniques, such as analyzing and applying information from balance sheets, income statement, and cash flow statements. (F, Sp, Su)

BDCS 210 Customer Relations .5

Prerequisite: None
Anyone who sells, greets, or provides services to customers can discover new ways for creating good customer relations. By communicating effectively, understanding customer personalities and how to deal with them, and assessing their own motivation and esteem needs, participants can serve their customers in a positive manner. (F, Sp, Su)

BDCS 211 Advertising for Small Business .5

Prerequisite: None
This seminar will teach how to plan, create, select, and evaluate advertising. Entrepreneurs can learn to develop an advertising plan that is unique to the special needs of their organizations. (F, Sp, Su)

BDCS 215 Developing a Marketing Plan .5

Prerequisite: None
This seminar familiarizes participants with marketing and provides an opportunity to write a marketing plan. Participants will learn to use a six-step process that involves obtaining data, developing the plan, and analyzing the results. (F, Sp, Su)

BDCS 225 Writing a Business Plan .5

Prerequisite: None
Participants can expect to become familiar with business planning and how to develop and maintain a business plan. Most creditors require a business plan before reviewing a loan application. Be prepared. Write your business plan with the information provided at this seminar. (F, Sp, Su)

BDCS 230 Small Business Taxes .75

Prerequisite: None
Federal, state, and local governments assess a variety of taxes on business. This seminar will identify the various taxes which pertain to small businesses in Michigan and provide information on the tax returns used and filing responsibilities of the business. (F, Sp, Su)

BIOL - BIOLOGY

BIOL 120 Environmental Science 4

Prerequisite: Reading Level 5 and Writing Level 6
Students will develop an ecological knowledge base to allow them to understand how human actions impact the environment. They will develop applied analytical skills through laboratories, fieldwork, simulations, and a discussion of contemporary issues. They will investigate and evaluate basic ecological and environmental issues. (F, Sp, Su)

BIOL 121 Biol Foundation for Physiology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: Chemistry
Topics include organic molecules, biological molecules, enzymes, metabolism, cell structure and function, passage of materials across membranes, harvesting energy, mitosis, meiosis, introductory genetics, and the relationship between DNA, RNA, and protein synthesis. (F, Sp, Su)

BIOL 127 Cell Biology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: CHEM 120 or CHEM 125 or High School Chemistry
One of two biology courses for science majors. Lecture topics include chemistry of carbohydrates, lipids, and proteins; structure and function of prokaryotic and eukaryotic cells; biochemistry of respiration and photosynthesis; and genetics and the regulation of gene expression. Laboratory stresses techniques of cell and molecular biology as well as genetics. (F, Sp)

BIOL 128 Organismal Biology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
This course examines adaptations of organisms to changing environments. Major emphasis is on physiological adaptations, natural selection, ethology, and ecology. Aquatic systems are examined in the laboratory; sampling techniques and statistical methods are used to analyze a local river. (Sp, Su)

BIOL 210 Natural Resource Conservation 4

Prerequisite: Reading Level 5 and Writing Level 6
This course examines the renewable natural resources and the policies which govern their use in the United States. Laboratory investigations include measurement techniques, land use evaluations, and environmental problem solving. These exercises will be oriented toward the completion of an environmental impact assessment covering a current local environmental situation. (F)

BIOL 260 Botany 4

Prerequisite: Reading Level 5 and Writing Level 6
Recommended: One Semester of Biology
An introduction to the study of plants that includes structure and function, development, and ecology. Emphasis will be placed on the diversity, adaptations, and life cycles of major plant groups. Laboratory will complement the basic concepts with emphasis on physiology, systematics, and species of value to medicine and agriculture. (Sp)

BIOL 265 Zoology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: Biology
Begins with an introduction to heredity, population genetics, the theory of evolution, and ecology. Deals principally with the taxonomy and comparative anatomy of members found within the major animal phyla. A phylogenetic approach is used to study the various animal phyla from Protozoa through Chordata. (Sp)

BIOL 270 Human Genetics 3**Prerequisite:** Reading Level 5 and Writing Level 6 and Math Level 5**Recommended:** BIOL 121 or Equivalent

Presents general principles of genetics with specific human application. Topics include Mendelian genetics, mitosis and meiosis, chromosome structure and aberrations, sex determination and x-linkage, molecular basis of inheritance, gene mutations, genetics of immune system, cancer genes, recombinant DNA technology, and genetic screening and counseling. (Sp)

BIOL 275 Molecular Biology I 4**Prerequisite:** BIOL 127 2.0 minimum, CHEM 151 2.0 minimum, CHEM 161 2.0 minimum, Reading Level 5 and Writing Level 6, and Math Level 4

Introduces basic principles of molecular biology, DNA/RNA structure, function and replication, Polymerase Chain Reaction, and recombinant DNA technology. Laboratory emphasizes reagent preparation, culturing bacteria, isolating and purifying both bacterial and plasmid DNA, restriction enzyme digests of DNA, and agarose gel electrophoresis analysis of DNA. Field trip to research laboratories. (F)

BIOL 276 Molecular Biology II 4**Prerequisite:** BIOL 275 2.0 minimum and Reading Level 5 and Writing Level 6 and Math Level 4

Continuation of BIOL 275. Advanced lecture topics in bacteriophage biology, gene analysis, gene sequencing, and applications of molecular biotechnology. Gene cloning experiments with lambda bacteriophage and plasmid vectors, Southern hybridizations, and construction of a genomic library of lambda phage DNA. (Sp)

BLDR - BUILDING RELATED**BLDR 101 Basic Woodworking** 2**Prerequisite:** None

The students learn about wood characteristics, hand and portable power tools, woodworking machinery, joint construction, fastening methods, woodworking techniques and procedures, and technical information to be applied to student-made projects. (F, Sp, Su)

BLDR 106 Furniture Making 2**Prerequisite:** BLDR 101 1.0 minimum

Design and construction of simple furniture, with emphasis on selection of materials, options in joint and fastening methods, construction techniques, assembly procedures, and problem solving. (F, Sp)

BLDR 109 Build Your Own Cabinets 2**Prerequisite:** BLDR 101 1.0 minimum

This course offers a hands-on experience in building vanities, base cabinets, and wall cabinets. It also covers use of tools and machines, cabinet construction, drawer construction, door style options, and formica work. Students supply their own lumber. (F, Sp, Su)

BLDR 110 Wood Projects 1.5**Prerequisite:** None

This class is designed to offer students a shop in which to work on individual woodworking projects. All of the tools and equipment in the shop are available for student use. The instruction demonstrates uses of tools/equipment and consults with students on their individual projects. (F, Sp)

BLDR 132 General Home Maintenance 2**Prerequisite:** None

This is an introductory course in general home maintenance. Areas to be covered will be basic tools, electrical, plumbing, framing, roofing, interior trim, drywall and painting, appliance maintenance and repair, and concrete flatwork and blocklaying. (F, Sp, Su)

BLDR 144 Build Your Own Home 2**Prerequisite:** None

This course is designed for students who wish to build their own homes. Included are design considerations, land acquisition, selection of materials, choosing contractors, scheduling of work, financing, and landscaping. Guest speakers, who are experts in their various fields, provide the instruction. (F, Sp, Su)

BLDT - BUILDING TRADES**BLDT 100 Introduction to Construction** 3**Prerequisite:** None

This course covers basic concepts of construction; including city and regional planning, managing, contracting, designing, engineering, estimating, bidding and inspecting; as well as the production work normally associated with construction. (F)

BLDT 103 Structural Blueprint Reading 4**Prerequisite:** None

This course covers symbols, conventions, and abbreviations used in structural blueprints. The student will be able to recognize conventions and verbally describe their interpretation in trade or lay terms according to standard architectural practices. Residential and commercial prints are used to show the relationship between working drawings and specifications. (F, Sp, Su)

BLDT 121 Residential Framing 4**Prerequisite:** None

Students will learn to frame residential buildings using accepted framing techniques such as framing member spacing, framing floor systems, interior and exterior walls, ceilings, roofs, and stairs. Various types of foundations and the advantages and disadvantages of each are covered. Hands-on methods are used. (F, Sp)

BLDT 124 Remodeling, Shingling/Siding 4**Prerequisite:** BLDT 121 1.0 minimum or Concurrently

Students will learn to remodel, shingle, and side a residential building. This course covers the analysis, designing, estimating, problem solving, building practices, materials, and installation methods for remodeling, roofing, and exterior wall covering projects. (Sp)

BLDT 126 Interior Carpentry 4**Prerequisite:** BLDT 121 1.0 minimum or Concurrently

Students will learn to finish the interior of a residential building. This course covers the materials, installation practices, and material takeoff to do the finish carpentry for a house to include windows, doors, base, chair rail, wood floors, stairs, simple built-ins, and cabinets. (F)

BLDT 262 Builder's Business License 4**Prerequisite:** None

This course covers the principles of residential builder organizations and business practices, along with other useful information to help students pass the State of Michigan Builder's License Exam. Preparation for a residential project from planning to actual construction and sale of the project is covered. (Sp)

BLDT 277 Construction Cost Estimating 4**Prerequisite:** (BLDT 103 1.0 minimum or ARCH 101 1.0 minimum) or Concurrently

Students will learn to do a structural material takeoff and a complete estimate for residential and light commercial buildings. The course uses standard estimating practices to estimate the cost of buildings based on detailed blueprints. (F, Sp)

BLDT 281 BOCA/Uniform Code 3**Prerequisite:** None

Students will be introduced to the two most commonly used building codes in the United States. The use, interpretation, and application of the Uniform and BOCA Building Codes will be emphasized. Requirement for materials, barrier-free design, and fire standards for residential and commercial construction will be emphasized. (F, Sp)

BLDT 285 Residential Building Intern 2**Prerequisite:** BLDT 121 1.0 minimum and Department Approval**Restriction:** Residential Building Majors

This course offers students the opportunity to work for a residential builder in an actual job situation. The students can gain experience working with tools used in the industry and applying what they learned in the classroom and laboratory. (F, Sp)

BLDT 296 Ceramic Tile Seminar .5**Prerequisite:** None

This seminar will teach the basic principles for installation of ceramic tile. This includes the selection of types of tile, how to lay out the tile, preparation of the surface, care of tools used, and estimation of labor and materials. (F, Sp)

BLDT 298 Builder's License Review 1**Prerequisite:** None

This is a two-day workshop designed to prepare individuals for the State of Michigan Residential Builder's Examination. This workshop will include concentrated instruction in blueprint reading, state regulations, building terms, basic math, and construction codes. (F, Sp, Su)

BUSN – BUSINESS**BUSN 118 Introduction to Business** 3**Prerequisite:** Reading Level 5

Introduces students to principles, problems, and practices related to the world of business. Topics covered include business management and organization, marketing, finance, economics, production, and international business. (F, Sp, Su)

BUSN 191 Independent Study/Management 1-3**Prerequisite:** Department Approval

Students are allowed to undertake special research projects and/or individual readings to apply personal and professional experience to academic area of interest. Minimum of 16 hours work per credit required, plus completion of written project report. (F, Sp, Su)

BUSN 201 International Business 3**Prerequisite:** None**Recommended:** BUSN 118

Overview of international business: organizational, social, cultural, and economic variables that create change in the international marketplace. Includes exchange rates, resource allocation, import quotas and export controls, balance of payments, and free trade versus protectionism. (F, Sp, Su)

BUSN 229 Public Relations 2**Prerequisite:** None

Provides an introduction to principles involved in creating and maintaining good public relations. Techniques for developing improved employer-employee relations, customer relations, and the total public relations effort will be discussed and applied. (F, Sp)

BUSN 250 Personal Finance 2**Prerequisite:** None

Provides a broad survey of topics including budgeting, smart shopping, buying a car, renting, buying or selling a home, credit requirements, investing, insurance, and estate and retirement planning. Not intended to be a financial planning course, but students will develop a fundamental knowledge of financial concerns. (F, Sp)

BUSN 251 Stock Market Essentials 3**Prerequisite:** None

Study of securities market to give framework with which to set investment goals and achieve desired results. Introduction to some of the more prevalent theories, concepts, and skills to aid in developing strategies and making sound investment decisions related to the stock market. (F, Sp)

BUSN 254 Introduction to Investments 2**Prerequisite:** None

This course covers the fundamental principles of investing and its role in our economy. Emphasis will be on developing terminology, types of investments, and personal financial planning such as mutual funds, real estate, CDs, money market funds, limited partnerships, insurance, IRAs, stock, and tax shelters. This is an overview course. (F, Sp)

BUSN 255 Advanced Investments 2**Prerequisite:** None**Recommended:** BUSN 254

Students will use their knowledge of investment options to develop and implement a personal investment strategy. Investment objectives and influencing factors will be examined. (Sp)

BUSN 295 Small Business Management 3**Prerequisite:** None

Small business operations, including business and managerial functions, principles of management, environment of small business, financial, marketing, production management, and legal and governmental relationships. Development of a small business plan is required. (F, Sp)

CABS – COMPUTER APPLICATIONS USING BUSINESS SOFTWARE**CABS 100 Seminar: Special Subjects** 25-1**Prerequisite:** None

This series of seminars provides the successful participant with operational proficiency in using specific microcomputer software. The seminars also provide the students with some experience using commands, functions, and features of the software beyond the basic level. Extensive hands-on activity is the primary method used in learning. (F, Sp, Su)

CABS 101 Begin Keyboarding on Computer 2**Prerequisite:** None

This course is designed for students having no previous typing experience. Basic keyboarding skills using the touch method for the microcomputer operator are developed. Emphasis is on speed and accuracy using the alphabetic keyboard, the figure keys, symbol keys, and the number pad. Basic speed level of 20-35 wpm is developed. (F, Sp, Su)

CABS 102 Microcomputers for Non-Majors 2**Prerequisite:** None

Surveys concepts and uses of software applications: word processors, spreadsheets, and database managers. Terminology, problem solving, and acquisition factors associated with personal computers are discussed. Hands-on computer use. (F, Sp, Su)

CABS 104 Skillbuilding for Computers 2**Prerequisite:** None**Recommended:** Previous Keyboarding

This course is designed to develop speed and accuracy at the keyboard and to individualize this development for each student. (F, Sp, Su)

CABS 110 Microsoft Office 3**Prerequisite:** None**Recommended:** Windows 95 and Keyboard Experience

This course provides an introduction to MS Office. It is designed to develop basic operational proficiency while using MS Office (MS Word, MS Excel, MS Access, and MS PowerPoint). Students learn how to use word processing, spreadsheet, database, and presentation software. Topics include creating letters, memos, simple spreadsheets, database structures, and desktop presentations. (F, Sp, Su)

CABS 113 Microsoft Word Office/Int Key 4**Prerequisite:** None**Recommended:** Typing Minimum 35 wpm

In addition to building speed and accuracy on the computer, this course is designed to develop a basic word processing skill on the microcomputer using Microsoft Word software for the rapid production, revision, and retrieval of routine business documents such as letters, envelopes, memorandums, tables, reports, short manuscripts, and repetitive correspondence. (F, Sp, Su)

CABS 117 Microcomputer Forms Design 2**Prerequisite:** None

This course covers the development and composition of business forms using forms design software on a microcomputer. Additional topics include forms layout, margins, type sizes, grades of paper, construction, reproduction, specifications, and forms management. (F, Sp)

CABS 118 Adv Microsoft Word for Office 4**Prerequisite:** None**Recommended:** CABS 113 2.0 minimum or Equivalent

In addition to building speed and accuracy on the computer, this course is designed to develop advanced word processing skill using Microsoft Word software for the rapid production, revision, and retrieval of medical and legal documents, manuscripts and reports, and business publications. (F, Sp)

CABS 119 Word for Windows 2**Prerequisite:** None**Recommended:** Windows 95 and Keyboard Experience

This course is designed to provide the person new to the Word for Windows program with the ability to perform the most common word processing functions. The course also covers less frequently used features, such as performing mail merge and creating tables. (F, Sp)

CABS 121 WordPerfect for Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Provides instruction in the use of WordPerfect for Windows. Topics include creating, editing, formatting, and storing word processing documents. Also learned are the use of the block technique, spell-checker, thesaurus, merge feature for form letters, and other related skills. (F, Sp, Su)

CABS 122 Lotus 1-2-3 Self-Taught 2
Prerequisite: None
 An introduction to using the Lotus 1-2-3 spreadsheet, graphics, and database management program. The course uses a variety of teaching techniques such as videotape and computer-assisted instruction. Provides hands-on experience in creating spreadsheets, producing graphs and reports, and searching and sorting databases. (F, Sp, Su)

CABS 123 Lotus 1-2-3 for DOS 2
Prerequisite: None
 Provides the student with a working knowledge of the Lotus 1-2-3 spreadsheet program and enables the student to apply Lotus to routine business problems. Topics include spreadsheet navigation, basic functions, spreadsheet formatting, formulas, special functions, move, copy, and an introduction to graphs, macros, and database. (F, Sp, Su)

CABS 126 Excel 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Beginner-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. Also included is instruction in file handling, disk management, and macro creation and use. (F, Sp, Su)

CABS 127 Quattro Pro 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Beginner-level training for the Quattro Pro spreadsheet program that provides the student with skills needed to apply Quattro Pro to routine business problems. Topics include basic operating concepts, functions, macros, and graphing. (F, Sp)

CABS 128 Lotus 1-2-3 for Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Provides an introduction to the spreadsheet program Lotus 1-2-3 for Windows. Students develop a working knowledge of the program and the ability to apply Lotus to routine business problems through hands-on activities. Topics include creating, modifying, and enhancing a worksheet; graphing information; using databases; creating macros; and using multiple worksheets. (F, Sp)

CABS 129 Excel-Advanced 2
Prerequisite: None
Recommended: CABS 126
 Advanced-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. (F, Sp, Su)

CABS 132 Paradox Database 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course is designed for the person who uses an existing Paradox database or who needs to develop a simple database application with Paradox. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. Students learn how to use the Paradox Personal Programmer. (Sp)

CABS 133 Microsoft Access Database 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course is designed for the person who uses an existing Microsoft Access database or who needs to develop a simple database application with Access. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. (F)

CABS 140 Busn Graphics Harvard Graphics 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course uses the microcomputer as a tool to create and present information in a graphic form. Students learn to determine the most appropriate type of chart or graph to communicate specific kinds of information. They use Harvard Graphics software to produce and present information. (F, Sp)

CABS 180 Desktop Publishing PageMaker 3
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course provides experience in producing documents with text and graphics using the desktop publishing program PageMaker. Good design of documents is emphasized in addition to the mechanics of producing the document. The basics of publishing are also discussed. Documents produced include reports, flyers, and newsletters. (F, Sp, Su)

CABS 182 Microsoft PowerPoint/Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 MS PowerPoint for Windows is designed to give your computer the capabilities for desktop presentations. The user will learn to plan, compose, and create complete presentations. MS PowerPoint makes it easy for the individual to present professional, high quality presentations. (F, Sp, Su)

CABS 195 Microsoft Windows 2
Prerequisite: None
 This course is for a novice in the use of the Microsoft Windows environment. Topics include the use of Windows features (icons, dialogue boxes, etc.), functions (program manager, file manager, print manager, control panel), and applications included with Windows (Write, Paintbrush, Accessories, Recorder, Terminal). (F, Sp, Su)

CABS 210 Advanced Microsoft Office 3
Prerequisite: None
Recommended: CABS 110
 A sequel to CABS 110, this course provides advanced instruction in Microsoft Office Professional. Designed to develop advanced skills using MS Word, MS Excel, MS Access, and MS Powerpoint. This class uses extensive hands-on activity. (F, Sp, Su)

CABS 219 Advanced Microsoft Word 2
Prerequisite: None
Recommended: CABS 119
 Advanced-level training in word processing using the Microsoft Word program. The instruction includes footnotes, tables, using and defining styles, using graphics, creating forms, and advanced font and text formatting. (F, Sp, Su)

CABS 232 Advanced Microsoft Access 2
Prerequisite: CABS 133 2.0 minimum
 Advanced-level training in the creation of database management using the Microsoft Access Program. The instruction includes the manipulation and generation of reports and tables. (F, Sp)

CABS 234 Programming Microsoft Access 2
Prerequisite: None
Recommended: CABS 133 and CABS 232 and CABS 119
 Advanced-level database management for the Access user who already has a knowledge of databases and the basic objects of an Access database such as tables, queries, forms and reports, but now wants to learn how to program with Visual Basic for Applications to endow application with a professional and intelligent interface. (F, Sp, S)

CABS 282 Advanced Microsoft PowerPoint 2
Prerequisite: CABS 182 2.0 minimum
 A sequel to CABS 182, this course provides advanced-level training using Microsoft PowerPoint. Students will design and present professional high quality presentations. Emphasis will be placed on planning and making color changes, importing, applying group/ungroup, and integrating sound and movie clips into Microsoft PowerPoint. (F, Sp, Su)

CACR - COURT REPORTING**CACR 101 Machine Shorthand Theory I 6**

Prerequisite: Admission to Court and Conference Reporting Program and Reading Level 5 and Writing Level 4

This course is specifically designed for conflict-free theory, taught on a steno machine to develop note writing accuracy from 95 to 100 percent and speeds up to and including 70 wpm for five minutes. (F, Sp)

CACR 111 Machine Shorthand Theory II 6

Prerequisite: None

Recommended: CACR 101 3.0 minimum

This course is specifically designed for conflict-free theory taught on a steno machine to develop note writing accuracy from 96 to 100 percent and speeds up to and including 100 wpm for five minutes. (Sp, Su)

CACR 121 Introduction to Speedbuilding 6

Prerequisite: None

Recommended: CACR 111 3.0 minimum

This course is specifically designed for machine shorthand speedbuilding in the areas of Q & A and Literary dictation. It will assist students in developing the required levels of 110 and 120 for five minutes at 97 percent accuracy. (F, Su)

CACR 205 Court Reporting I 11

Prerequisite: None

Recommended: CACR 121 3.0 minimum

This course includes Literary dictation from 100–140 wpm, Q & A dictation from 130–170 wpm, and Jury Charge dictation from 120–140 wpm. Also included in the course is instruction in CAT (Computer-aided Transcription), vocabulary improvement, English skills, current events, multi-voice dictation, and medical terminology. (F, Sp)

CACR 206 Court Reporting II 11

Prerequisite: None

Recommended: CACR 205 3.0 minimum

This course includes Literary dictation from 150–180 wpm, Q & A dictation from 160–230 wpm, and Jury Charge from 160–200 wpm. This course also includes instruction in legal vocabulary, English skills assignments, medical vocabulary assignments, current events assignments, and multi-voice dictation. (F, Sp)

CACR 215 Intermediate Speedbuilding 6

Prerequisite: None

Recommended: CACR 206 3.0 minimum

This course is designed for machine shorthand speedbuilding in the areas of Q & A, Literary, and Jury Charge dictation. It will assist the students in developing the required speed levels. (F, Sp, Su)

CACR 225 Advanced Speedbuilding I 4

Prerequisite: None

Recommended: CACR 215 3.0 minimum

This course is taught concurrently with Court Reporting I (CACR 205) for students who need an additional semester to reach required speeds. It includes the Literary and Q & A speedbuilding and timing portions of CACR 205. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (F, Sp, Su)

CACR 226 Advanced Speedbuilding II 4

Prerequisite: None

Recommended: CACR 225 3.0 minimum

This course is taught concurrently with Court Reporting II (CACR 206) for students who need an additional semester to reach required speeds. It includes the Q & A, Literary, and Jury Charge speedbuilding and timing portions of CACR 206. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (F, Sp, Su)

CACR 245 Court Procedures 1

Prerequisite: Department Approval

Students will attend lecture class and field trips to learn reporting techniques and procedures in courtroom, conference, hearings, deposition, realtime, and captioning settings. (Sp)

CACR 246 Internship 1

Prerequisite: Department Approval

Students placed in internship will spend 100 hours with official reporters, deposition reporters, hearings reporters, and/or captioners. They will write and transcribe notes in proper form and/or develop a personal dictionary in order to learn courtroom, conference hearings, deposition, realtime (or captioning) reporting techniques and procedures. (F, Sp, Su)

CACR 260 CSR Preparation .5

Prerequisite: None

This training and practice class is designed to prepare the Court and Conference Reporting student for the Certified Shorthand Reporter Examination using speedbuilding material, five-minute timings (Literary at 180 words per minute and 1.4 syllabic intensity, Jury Charge at 200 words per minute, Q & A at 225 words per minute), written knowledge test handouts, and mock CSR exams. (F, Sp)

CACR 270 Realtime Reporting 1

Prerequisite: None

This course consists of instruction in realtime reporting as related to people with disabilities through lectures, videotapes, and hands-on applications. (Sp)

CHCE - CONTINUING HEALTH CAREERS**CHCE 106 Cardiac Dysrhythmia Interpreta 2.75**

Prerequisite: None

This course introduces the student to identification of common dysrhythmias seen on a monitor or telemetry unit. Content will include criteria, causes, hemodynamic effects, and treatment of dysrhythmias according to ACLS guidelines. Use of monitoring equipment is integrated within the course content. (F, Sp, Su)

CHCE 114 Phys Asses Skill fr Nrs Prctc 2.5

Prerequisite: None

This course is designed for nurses in any area of practice. Emphasis is on techniques of physical examination: inspection, palpation, percussion, and auscultation. History-taking and interpretation of physical findings are stressed. All major body systems are studied. Live models are used in supervised practice sessions. All equipment supplied. (F, Sp, Su)

CHCE 185 Lab Tests for Nurses .5

Prerequisite: None

A seminar for nurses and other health care personnel. Seminar content focuses on the systematic disease processes of specific lab tests, interpretation of test values, and application to practice. Mock lab reports and case study situations are used. (F, Sp)

CHCE 205 Intravenous Therapy .5

Prerequisite: None

This workshop will provide the most recent information on a variety of topics relating to intravenous therapy. Content can range from basic principles to advanced high-tech therapy. This seminar is designed for professional members of the health care team who routinely deal with IV therapy. (F, Sp)

CHCE 206 Hlth Care Pro Indpdnt Study .25-4

Prerequisite: None

This course is for health care professionals who need to acquire credits in continuing professional education. The individual student will provide specific course content and description. This information is often provided by the specific profession. An instructor will be identified to assist with the learning experience. (F, Sp, Su)

CHCE 210 PALS Training 1

Prerequisite: None

This seminar is designed for members of the health care team who work with pediatric patients. A combination of lecture and practice in skills stations will prepare the student for success in achieving American Heart Association certification as a Pediatric Advanced Life Support (PALS) Provider. Prior assigned reading mandatory. (F, Sp)

CHCE 211 PALS Refresher .5

Prerequisite: None

This seminar is designed to recertify, according to the American Heart Association (AHA) standards, those professionals currently possessing valid Pediatric Advanced Life Support (PALS) certification cards. Upon successful recertification, the AHA will issue each student a new PALS certification card. Prior assigned readings are mandatory. (F, Sp)

CHCE 227 New Dimensions in Nursing .25-3
Prerequisite: None
 Seminar content is dependent upon course requirement. (F, Sp, Su)

CHCE 230 ACLS Training Seminar 1
Prerequisite: None
 This seminar is designed for members of the health care team to develop knowledge and skills in Advanced Cardiac Life Support (ACLS). A combination of lecture and skills performance will prepare the student to achieve success in American Heart Association certification as an ACLS provider. Pre-preparation mandatory. (F, Sp, Su)

CHCE 235 ACLS Refresher .5
Prerequisite: None
 This seminar is designed to recertify, according to the American Heart Association standards, those individuals currently possessing valid Advanced Cardiac Life Support (ACLS) cards. The American Heart Association will issue a certificate to each student upon successful completion of the program. Prior assigned readings are mandatory. (F, Sp, Su)

CHCE 273 Reg Nurse Crit Cr Core Curr 3
Prerequisite: None
 A course for registered nurses practicing in critical care, preparing to work in critical care and/or considering taking the certification exam. Emphasis placed on the CCRN core course content which includes anatomy and physiology, pathophysiology of selected common conditions, related nursing interventions, and medical management. (F, Sp)

CHCE 287 Health Care Risk Management 4.5
Prerequisite: None
 This course covers the health care system and management functions necessary to control risk and promote quality, the skills necessary to develop and maintain an effective loss prevention and risk financing program in a health care setting, health care law, the medical malpractice arena, and claims management principles. (Sp)

CHCE 288 Rsk & Qual Mgmt/Hlth Care Set .25-.25
Prerequisite: None
 This course covers the integration of risk and quality management in an evolving health care delivery system; the role of accreditation ((JCAHO) and third-party payor (MPRO) bodies in the review of physician practice and patient care, quality and peer review processes, medical staff governance, credentialing, privileging, quality/risk issues in high risk clinical areas, future of risk and quality management, adapting to new technology, delivery models, and customer expectations. (F)

CHCE 295 Hlth Cr Rsk Mt & Qlty Rv/Sp Is .5
Prerequisite: None
 This seminar will highlight a specially selected issue and examine how that issue impacts health care risk management and quality review. (Su)

CHCE 296 Hlth Cr Rsk Mgt & Qlty Rv Updt .25-1
Prerequisite: None
 This seminar will be held yearly for graduates of the Health Care Risk Management and Quality Review program to update their risk management skills and review new issues in loss prevention and quality review. (F)

CHCE 299 ACLS Instructor Seminar 2
Prerequisite: None
 This course will train those health care professionals who are currently certified in Advanced Cardiac Life Support (ACLS), according to American Heart Association standards, as ACLS instructors. All participants are expected to recertify their ACLS skills at the time of the course. Prior assigned readings are mandatory. (F, Sp, Su)

CHDV - CHILD DEVELOPMENT

CHDV 101 Child Growth/Devel: 0-5 Years 4
Prerequisite: Reading Level 3 and Writing Level 4
 This course examines the growth and development patterns of children (prenatal to five years) in physical, social, emotional, cognitive, and language development. Additional topics include nutrition, health, play, families, and the preschool experience. Students acquire skills in observing, recording, and interpreting child behavior. CDA: developmental context; functional area: healthy. (F, Sp, Su)

CHDV 111 Child Guidance/Communication 4
Prerequisite: Reading Level 3 and Writing Level 4
 This course, which includes field work, examines interaction skills and environmental structures which foster social and emotional growth in children. Topics include positive guidance and discipline, effective communication with children, problem solving, social skill development, group management, and aggression prevention. CDA functional areas: learning environment, self, social, guidance, communication, professionalism. (F, Sp)

CHDV 112 Family Relationship/Child Care 2
Prerequisite: CHDV 111 2.5 minimum
 This course examines ways to establish and maintain positive and supportive relationships with families in child care programs. The focus includes understanding the parent's perspective, supporting the child's relationship with his or her family, encouraging parental involvement, and communicating with parents. CDA functional area: families. (Sp)

CHDV 113 Health/Safety Issue: Child Care 2
Prerequisite: None
 This course examines health and safety issues in child care homes and centers. Topics include understanding and preventing communicable illnesses, bloodborne pathogens, safe equipment and play areas, preventing accidents, nutrition, and health and safety education. It addresses the CDA competencies of safe and healthy. (F, Sp)

CHDV 120 Curriculum: Physical Dev 1
Prerequisite: None
 This course examines curriculum and activities which enhance the development of physical and motor skills of children in early childhood programs. It includes specific information on developmentally appropriate activities for fine motor, gross motor, and sensory development for a variety of ages. CDA functional area: physical. Uses seminar format. (Su)

CHDV 121 Curriculum: Cognitive/Lang 1
Prerequisite: None
 This course examines curriculum and activities which enhance cognitive and language development of children in early childhood programs. It focuses on designing developmentally appropriate activities which foster curiosity and exploration. Topics include math, science, language arts, and emergent literacy. CDA functional areas: cognitive and communication. Uses seminar format. (F)

CHDV 122 Curriculum: Creative Dev 1
Prerequisite: None
 This course examines curriculum and activities which enhance the creative development of children in early childhood programs. Specific information on developmentally appropriate and open-ended activities in the areas of art, music, creative, and dramatic play with a variety of materials are shared. CDA functional area: creative. Uses seminar format. (Sp)

CHDV 130 Introduction to Child Care 1
Prerequisite: None
 This course introduces factors in providing quality child care. Topics include program planning; curriculum development; child growth and development; positive guidance and discipline skills; safety, health and nutrition; parent communication and involvement, and professionalism. CDA functional area: learning environment, program management, and professionalism. (F)

CHDV 131 Family Child Care Management 2
Prerequisite: None
 This course presents a systematic approach to managing a family child care home and creating a positive learning environment for young children in a home setting. Topics include business aspects, program development, professionalism, managing personnel, and organizing the environment. CDA functional areas: learning environment, program management, professionalism. (F)

CHDV 181 Problem Solving with Adults 1
Prerequisite: None
Recommended: Experience in Child Care
 This course examines the child care provider's use of decision-making and problem-solving skills in challenging situations. Communication skills, values, priorities, and conflict resolution will be introduced and practiced. (Sp)

MILLWRIGHT CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10154 (Effective Fall 1999 – Summer 2004)

A millwright installs, maintains, and cares for mechanical equipment in a plant, factory, or mill. This program prepares an individual for an entry-level position.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 33 CREDITS
CODE	TITLE	CREDIT HOURS
BLDT 103	Structural Blueprint Reading	4
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 125	Rigging	2

LIMITED CHOICE REQUIREMENTS **TOTAL: 3-4 CREDITS**
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	Building Related	3-4 Credits
BLDT 100	Introduction to Construction	3
BLDT 121	Residential Framing	4
CIVL 120	Surveying	4
MINIMUM TOTAL		36

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
EMTA 100	BLDT 103	MFGM 111
MACH 105	MACH 135	Lim.Ch.
MATH 114	MFGM 110	
MFGM 101	MFGM 125	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MACHINIST TOOLMAKER
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10199 (Effective Fall 1999 – Summer 2004)

A machinist toolmaker is involved with the manufacture of machined components relating to various kinds of industry. There are no limits to the variety of projects a machinist toolmaker may be involved with: making prototypes, tools for production, engineering changes on parts, etc. This work involves critical thinking, decision-making, math skills, and working cooperatively with others. Machinist toolmakers are capable of operating all the various machine tools in a machine shop. They also must be able to interpret mechanical drawings, calculate mathematical data, and work with others to solve the various problems related to projects going on in the shop at any given time. A machinist toolmaker may be employed in any manufacturing facility.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 52 CREDITS
CNCP 101	PC Applications for Technology	3	
CNCP 110	Foundations of CNC Programming	4	
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 110	Machine Tool Technology I	4	
MACH 111	Machine Tool Technology II	4	
MACH 112	Machine Tool Technology III	4	
MACH 120	Effect Use Machinery Handbook	4	
MACH 130	Die Construction	4	
MACH 135	Metallurgy and Heat Treat	4	
MACH 140	Tooling Theory and Practices	4	
MACH 210	Prin Electric Discharge Mach	4	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 17 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Mathematics	8 Credits
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4
MATH 116 Technical Math III	4
MINIMUM TOTAL	69

NOTE

1. Students completing **REQUIREMENTS** have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
EMTA 100	DTDS 110	CNCP 101	CNCP 110
MACH 105	MACH 110	MACH 111	MACH 112
MACH 120	MACH 135	MACH 140	MACH 130
Lim.Ch.	WRIT 124	Lim.Ch.	MACH 210
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**TOOL AND DIE MAKER
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10141 (Effective Fall 1999 – Summer 2004)

This program provides technical knowledge and skills to operate machine tools used in the forming of metal components, as well as the fabrication of special tools, dies, jigs, and fixtures used in cutting, working, and finishing metal components. It prepares an individual for an entry-level position.

REQUIREMENTS

TOTAL: 38 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 112	Machine Tool Technology III	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MATH 114	Technical Math I	4

MINIMUM TOTAL

38

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
DTDS 110	EMTA 100	MACH 112
MACH 105	MACH 110	MACH 140
MACH 120	MACH 111	
MATH 114	MACH 135	

**WELDING TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10186 (Effective Fall 1999 – Summer 2004)

Welding is many processes of fusion, adhesion, and cutting to fabricate or repair products used in manufacturing, research, and application. A welding technician could also qualify for welding inspection where welding codes are applied. A welder is a skilled craftsperson with a basic knowledge of metals, applied mathematics, blueprint reading, good eyesight, self-discipline, and a respect for safety. A welder also needs to work well with his/her hands and have good manual coordination. Many hours of practice and proper training in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting are necessary. Welders can be found in tool and die industries, auto makers, construction, oil refineries, pipelines and pressure vessels, aircraft industries, and many more metal-related industries.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 135	Metallurgy and Heat Treat	4	
MFGM 125	Rigging	2	
WELD 100	Combination Welding	4	
WELD 101	Advanced ARC Welding	4	
WELD 110	Gas Metal ARC Welding	4	
WELD 111	Gas Tungsten ARC Welding	4	
WELD 120	Struct Fabrication/Inspection	4	
WELD 125	Struct Blueprint Reading Weld	2	
WELD 201	Tool and Die Welding	4	
WELD 205	Pipe Welding	4	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 15-16 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Technical Related 6-7 Credits

COOP 210	Cooperative Education (Tech)	3
ELTE 110	Practical Electricity	3
MACH 100	Manufacturing Processes	4
MFGM 102	Industrial Pneumatics	3

MINIMUM TOTAL 61

NOTE

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MACH 105	MACH 135	WELD 111	EMTA 100
MFGM 125	WELD 101	WELD 120	WELD 201
WELD 100	WELD 110	WELD 125	WELD 205
Lim.Ch.	WRIT 124	Lim.Ch.	Lim.Ch.
		Lim.Ch.	Lim.Ch.

**WELDING TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10156 (Effective Fall 1999 – Summer 2004)

Students receive hands-on instruction in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting to prepare them for entry-level positions.

REQUIREMENTS

TOTAL: 32 CREDITS

CODE	TITLE	CREDIT HOURS	TOTAL: 32 CREDITS
EMTA 100	Medical First Responder	4	
MACH 135	Metallurgy and Heat Treat	4	
MFGM 125	Rigging	2	
WELD 100	Combination Welding	4	
WELD 101	Advanced ARC Welding	4	
WELD 110	Gas Metal ARC Welding	4	
WELD 111	Gas Tungsten ARC Welding	4	
WELD 120	Struct Fabrication/Inspection	4	
WELD 125	Struct Blueprint Reading Weld	2	

MINIMUM TOTAL 32

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
EMTA 100	MACH 135	WELD 111
MFGM 125	WELD 101	WELD 120
WELD 100	WELD 110	WELD 125

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**INTERIOR DESIGN TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10267 (Effective Fall 1999 – Summer 2004)

Interior design assistants work with professional interior designers to plan and create the overall design for interior spaces. They may be employed as estimators, retail sales persons, space planners, computer-aided drafting and design technicians, lighting and color consultants, or kitchen/bath designers. Depending on their specialty, interior design assistants work in retail or wholesale showrooms, design firms, building construction management offices, hospitality chains, interior furnishings manufacturers, or facilities departments. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 41 CREDITS
CODE	TITLE	CREDIT HOURS
INTR 110	Applied Design	3
INTR 132	Interior Presentation Standard	3
INTR 140	Interior Drafting/Detailing	3
INTR 170	Planned Interiors	3
INTR 175	Interior Space Planning	3
INTR 190	Interior/Materials/Equipment	3
INTR 201	Cultural Diversity in-Housing	3
INTR 232	Twentieth Century Interiors	3
INTR 240	Interior Environmental Systems	3
INTR 246	Residential Interiors	3
INTR 248	Non-Residential Interiors	3
INTR 252	Interior Specifications	2
INTR 256	Interiors Project Management	3
INTR 263	Interior Design Internship	3

LIMITED CHOICE REQUIREMENTS TOTAL: 31-35 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Technology	9 Credits
INTR 151 Computer-Aided Kitchen Design	3
INTR 222 CADD for Interiors	3
INTR 225 CADD for Space Planning	3
INTR 260 3-D CADD for Interiors	3
CHOICE 3: Three-Dimensional Spatial Development	2-3 Credits
ARCH 122 Visual Communication II	3
ARCH 126 Architectural Model Building	2
INTR 244 3-D Visual Display	3
INTR 270 Interior Design Portfolio	2

CHOICE 4: History	3 Credits
ARCH 141 Architectural History I	3
ARCH 142 Architectural History II	3
INTR 230 World Decorative Arts	3
INTR 231 Period Interiors	3

CHOICE 5: Business Related	3-4 Credits
ACCG 210 Principles of Accounting I	4
BUSN 118 Introduction to Business	3
ECON 201 Principles of Economics-Micro	3
MGMT 200 Creative Thinking for Business	3
MKTG 119 Mktg/Manage Your Profess Image	3
MKTG 120 Sales	3
QUAL 100 Intro Quality Assurance	3

CHOICE 6: Related Professional Courses	2-4 Credits
ARCH 128 Residential Planning	2
ARCH 146 Preser/Adaptive Reuse Architec	3
ARCH 181 Barrier-Free Design	3
ARCH 213 Facilities Design	3
ARCH 273 Environmental Systems	4
ARCH 278 Energy Efficient Design	4
ARCH 283 Materials of Construction	4
BLDT 262 Builders Business License	4
BLDT 277 Construction Cost Estimating	4
BLDT 281 BOCA/Uniform Code	3

MINIMUM TOTAL 72

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
INTR 110	INTR 132	INTR 175	INTR 232
INTR 140	INTR 190	INTR 201	INTR 240
INTR 170	Lim.Ch.1	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.2	Lim.Ch.2	Lim.Ch.2
V	VI		
INTR 248	INTR 246		
INTR 256	INTR 252		
Lim.Ch.4	INTR 263		
Lim.Ch.5	Lim.Ch.3		
	Lim.Ch.6		

**HORTICULTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10189 (Effective Fall 1999 – Summer 2004)

A professional horticulturist deals with plant materials, their growth, development, propagation, marketing, and use. The horticulturist works with environmental conditions and pest problems of ornamental plants and their management. The two major specialty areas are landscape horticulture and floriculture. A background in plant maintenance, knowledge of growing environments and structures, as well as retail and marketing skills, is vital. Horticulturists are employed by florists, greenhouses and garden centers, nurseries, retail sales outlets, landscape contractors, design and construction firms, and lawn care companies. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 34 CREDITS

CODE	TITLE	CREDIT HOURS
HORT 102	Intro Ornamental Horticulture	2
HORT 105	Pest/Problem Ornamental Plants	2
HORT 230	Plant Propagation/Nursery Op	4
HORT 235	Greenhouse Structures/Environ	3
LAND 100	Intro to Landscape Drafting	2
LAND 130	Interior Landscaping	3
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 142	Perennial/Annual Flower Plants	3
LAND 163	Designing Ornamental Gardens	3
LAND 282	Computer Draft/Dsgn Land Arch	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 28-30 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Specialization (Choose 1 Subchoice) 19-21 Credits

Subchoice 2A: Floriculture

HORT 107	Beginning Floral Design	2
HORT 109	Contemporary Floral Design	2
HORT 110	Wedding Floral Design	2
HORT 143	Cut Flower, Foliage, Pot Plant	4
HORT 236	Greenhouse Ornamentals	3
HORT 237	Bedding Plant Production	3
HORT 238	Garden Center/Nursery Sales	3

Subchoice 2B: Landscape Horticulture

LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 160	Planting Design I	3
LAND 180	Landscape Ecology	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Res. Land Design	3
LAND 233	Grounds Management	3

MINIMUM TOTAL

62

NOTE

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
Floriculture Option			
HORT 102	HORT 105	HORT 110	HORT 230
HORT 107	HORT 109	HORT 237	HORT 238
HORT 143	HORT 236	LAND 130	LAND 163
HORT 235	LAND 141	LAND 142	LAND 282
LAND 100	WRIT 124	Lim.Ch.	Lim.Ch.
LAND 140	Lim.Ch.		

Landscape Horticulture Option

HORT 102	HORT 230	HORT 105	LAND 130
HORT 235	LAND 141	LAND 142	LAND 163
LAND 100	LAND 150	LAND 152	LAND 180
LAND 140	LAND 282	LAND 160	LAND 225
WRIT 124	Lim.Ch.	LAND 232	LAND 233
		Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**LANDSCAPE ARCHITECTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10203 (Effective Fall 1999 – Summer 2004)

Landscape architects, designers, and planners deal with the ecological design and management of the land. Landscape architects and designers coordinate the analysis, planning, layout, design, and management of the exterior and interior landscape. Landscape architects and designers are employed by design and engineering firms, parks and recreation offices, landscape contractors, design and build firms, nurseries and garden centers, arboreta and botanic gardens, and grounds management firms. A supporting background in computer design graphics and G.I.S. is helpful. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 61 CREDITS

CODE	TITLE	CREDIT HOURS
LAND 100	Intro to Landscape Drafting (See Note 1)	2
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 153	Landscape Graphics Comm-Adv	3
LAND 160	Planting Design I	3
LAND 161	Planting Design II	3
LAND 164	Site Design	3
LAND 170	Site Grading I	3
LAND 171	Site Grading II	3
LAND 172	Site Layout	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Res. Land Design	3
LAND 233	Grounds Management	3
LAND 250	Landscape Construction Methods	3
LAND 252	Landscape Construction Details	3
LAND 276	Landscape Documents and Spec	2
LAND 282	Computer Draft/Dsgn Land Arch	3
LAND 283	Beginning LANDCADD	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>		
	Writing Core Area (See Note 2)	0
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
MINIMUM TOTAL		70

NOTES

1. If students have prior experience in drafting, they should see an academic advisor in the Technology Careers Department to see if LAND 100 can be waived.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
LAND 100	LAND 141	LAND 161	LAND 171
LAND 140	LAND 153	LAND 170	LAND 172
LAND 150	LAND 160	LAND 232	LAND 225
LAND 152	LAND 164	LAND 250	LAND 233
WRIT 124	LAND 282	LAND 283	LAND 252
Lim.Ch.	Lim.Ch.	Lim.Ch.	LAND 276

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**LEGAL ASSISTANT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10101 (Effective Fall 1999 – Summer 2004)

Legal assistants, also known as paralegals, assist lawyers by performing many of the same tasks, except for those considered to be the practice of law. To help lawyers prepare cases for trial, they may investigate the facts; perform legal research to identify relevant laws, legal articles, judicial decisions, and other documents/materials related to the case; and prepare written reports after organizing and analyzing all the information. Other duties may include drafting briefs and pleadings, obtaining affidavits, assisting the lawyer during trial, and organizing and maintaining document and correspondence files. Some legal assistants may help with completing forms, tax returns, and drafting contracts.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 39 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 113	Microsoft Word Office/Int Key	4
LEGL 115	Legal Assistant Career/Ethics	3
LEGL 120	Legal Research I	3
LEGL 121	Legal Writing I	3
LEGL 160	Critical Thinking in Law	3
LEGL 210	Litigation Procedures	4
LEGL 211	Tort Law	2
LEGL 215	Busn Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3
LEGL 228	Computer Tech for Legal Assist	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 21 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
CHOICE 2: Business Law	3 Credits
LEGL 216 Busn Law II, Commercial Law	3
LEGL 217 Busn Law III, Busn Organiza	3
LEGL 220 Internat Legal Issues/Organiza	3

CHOICE 3: General Law	9 Credits
CJUS 103 Criminal Law	3
LEGL 218 Litigation Specialties	3
LEGL 221 Real Estate Transaction	3
LEGL 222 Probate Law and Procedure	3
LEGL 223 Domestic Relations	3
LEGL 224 Administrative Law	3
LEGL 226 Legal Interview/Investigation	3
LEGL 227 Bankruptcy and Collections	3
LEGL 280 Legal Assistant Internship	3

MINIMUM TOTAL 60

NOTE

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 113	LEGL 120	LEGL 121	LEGL 225
LEGL 115	LEGL 211	LEGL 210	LEGL 228
LEGL 160	WRIT 122	Lim.Ch.1	Lim.Ch.3
LEGL 215	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
WRIT 121	Lim.Ch.1	Lim.Ch.3	

**LEGAL ASSISTANT POST-BACCALAUREATE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10744 (Effective Fall 1999 – Summer 2004)

The legal assistant career is an excellent choice for students possessing a bachelor's degree, especially students with strong analytical and writing skills. These students may select the following certificate curriculum which requires only legal assistant courses.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
LEGL 115	Legal Assistant Career/Ethics	3
LEGL 120	Legal Research I(See Note 1)	3
LEGL 121	Legal Writing I(See Note 1)	3
LEGL 210	Litigation Procedures(See Note 1)	4
LEGL 211	Tort Law(See Note 1)	2
LEGL 215	Busn Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3

LIMITED CHOICE REQUIREMENTS **TOTAL: 12 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Business Law	3 Credits
LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	3
LEGL 220	Internat Legal Issues/Organiza	3

CHOICE 2:	General Law	9 Credits
CJUS 103	Criminal Law	3
LEGL 218	Litigation Specialties	3
LEGL 221	Real Estate Transaction	3
LEGL 222	Probate Law and Procedure	3
LEGL 223	Domestic Relations	3
LEGL 224	Administrative Law	3
LEGL 226	Legal Interview/Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 228	Computer Tech for Legal Assist	3
LEGL 280	Legal Assistant Internship	3

MINIMUM TOTAL **33**

NOTES

- Students in this curriculum will be granted a prerequisite override to take these courses concurrently with LEGL 115. Contact the Business Careers Department, telephone number (517) 483-1522 prior to registration.
- Students following this curriculum must have proof of a bachelor's degree entered on their official Lansing Community College transcript before a certificate of achievement may be granted. Students who do not possess a bachelor's degree should follow the Legal Assistant, Associate in Business Degree curriculum #10101.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
LEGL 115	LEGL 211
LEGL 120	LEGL 225
LEGL 121	Lim.Ch.
LEGL 210	Lim.Ch.
LEGL 215	Lim.Ch.
	Lim.Ch.

**HUMAN RESOURCE MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10712 (Effective Fall 1999 – Summer 2004)

Human resource managers serve as a link between management and employees. They help management make effective use of employees' skills, and help employees find satisfaction in their jobs and working conditions. Graduates of this program are involved with recording and evaluating information, such as job experience, education, skills, qualifications, and job performance; providing information about policies, job duties, working conditions, wages, opportunities for promotion, and employee benefits; maintaining job files on employees; administering various employee benefits; collecting and analyzing labor market data; and employee selection and training. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 227	Training/Development for Busn	2
MGMT 228	Organizational Behavior	3
MGMT 229	Compensation Management	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3
MGMT 237	Managing/Continual Improvement	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 16-20 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Specialty Related (See Note 2) 9-11 Credits

BUSN 229	Public Relations	2
LABR 200	Intro to Labor Relations	3
LABR 201	Collective Bargaining	3
LABR 203	Labor Law	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MGMT 304	Organizational Development	3
MGMT 329	Adv Mgmt Communication Skills	3
MGMT 337	Human Resource Mgmt Skills	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess Image	3

CHOICE 3: Computer Related (See Note 3) 4-5 Credits

CHOICE 4: Quantitative Related 3-4 Credits

ACCG 100	Practical Accounting Non-Major	3
ACCG 101	Accounting Info for Management	3
ACCG 210	Principles of Accounting I	4
MATH 117	Math for Business	4
MGMT 335	Managerial Statistics	3
MGMT 346	Managerial finance	3

MINIMUM TOTAL 60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may also choose BUSN 191 - Independent Study/Management, and/or a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279).
- Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses above 100.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 224	LABR 204	MGMT 227
CISB 200	MGMT 228	MGMT 200	MGMT 229
MGMT 223	SPCH 110	MGMT 225	MGMT 237
MGMT 234	WRIT 127	MGMT 231	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

LABOR RELATIONS CERTIFICATE OF COMPLETION

Curriculum Code: 10256 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances the individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 9 CREDITS

CODE	TITLE	CREDIT HOURS
LABR 200	Intro to Labor Relations	3
LABR 203	Labor Law	3
LABR 204	Employment Law for Managers	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:

3 Credits

LABR 201	Collective Bargaining	3
LABR 202	Grievances and Arbitration	3

MINIMUM TOTAL

12

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
LABR 200	LABR 203
LABR 204	Lim.Ch. 1

**MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10245 (Effective Fall 1999 – Summer 2004)

A manager plans, organizes, delegates, and controls entire projects from start to finish. The role cuts across all areas of business and organizational life and has as its central purpose the increase of resources: personnel, money, machines, and materials. Managers supply the encouragement, coordination, and leadership to achieve company goals. Graduates of this program may qualify for entry-level positions. Addition of a technical or business specialty increases one's employability. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3
MGMT 237	Managing/Continual Improvement	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 12-15 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the GENERAL EDUCATION section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Accounting 3-4 Credits

- ACCG 101 Accounting Info for Management 3
- ACCG 210 Principles of Accounting I 4

CHOICE 3:	Management Related (See Note 2)	9-11 Credits
ACCG 211	Principles of Accounting II	4
BUSN 191	Independent Study/Management	1-3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
LEGL 215	Busn Law I. Basic Principles	3
MGMT 227	Training/Development for Busn	2
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 202	Managerial Marketing	3

MINIMUM TOTAL 60

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. Students may also choose a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279) and/or a maximum of two credits of CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	MGMT 225	LABR 204
CISB 200	MGMT 223	MGMT 228	MGMT 200
LABR 200	MGMT 224	MKTG 200	MGMT 237
MGMT 234	MGMT 231	SPCH 110	Lim.Ch.
Lim.Ch.	WRIT 127	Lim.Ch.	Lim.Ch.

**MANAGEMENT
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 10249 (Effective Fall 1999 – Summer 2004)**

Certificate holders may improve their opportunities for advancement in this or a related area. The Certificate of Achievement is often useful in conjunction with another degree in professions such as health careers or computers. Additional education enhances an individual's employment opportunities. Courses in this certificate may also be applied directly toward an Associate Degree in Management.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS**TOTAL: 24 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3

LIMITED CHOICE REQUIREMENTS**TOTAL: 6-7 CREDITS**

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Accounting	3-4 Credits
ACCG 101 Accounting Info for Management	3
ACCG 210 Principles of Accounting I	4
CHOICE 2: Communication Skills	3 Credits
SPCH 110 Oral Communic in the Workplace	3
WRIT 127 Business Communciations	3

MINIMUM TOTAL**30****SUGGESTED COURSE SEQUENCE**

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	LABR 204
CISB 200	MGMT 228
MGMT 224	MGMT 231
MGMT 225	MGMT 234
Lim.Ch.	Lim.Ch.

**MANAGEMENT, ADVANCED
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10280 (Effective Fall 1999 – Summer 2004)

This is an advanced certificate program that may be taken after obtaining an associate or bachelor's degree in order to enhance an individual's employment and advancement opportunities. Courses in this certificate may be used as the third year in the Northwood University Bachelor of Business Administration degree. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522 or the Advanced Management Coordinator at (517) 483-1544.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
MGMT 304	Organizational Development	3
MGMT 329	Adv Mgmt Communication Skills	3
MGMT 332	Managerial Ethics	3
MGMT 335	Managerial Statistics	3
MGMT 337	Human Resource Mgmt Skills	3
MGMT 338	Current Topics in Management	3
MGMT 348	Strategic Management/Policy	3

LIMITED CHOICE REQUIREMENTS TOTAL: 9-10 CREDITS
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: Management	3 Credits
MGMT 223 Supervision	3
MGMT 225 Principles of Management	3
MGMT 300 Managerial Leadership	3
CHOICE 2: Finance	3 Credits
ACCG 271 Principles of Finance	3
MGMT 346 Managerial Finance	3
CHOICE 3: Business Related (See Note 2)	3-4 Credits
ACCG 210 Principles of Accounting I	4
ACCG 211 Principles of Accounting II	4
BUSN 118 Introduction to Business	3
BUSN 201 International Business	3
CISB 100 Intro Computer Info Systems	3
ECON 204 Principles of Economics-Micro	3
ECON 202 Principles of Economics-Macro	3
LEGL 215 Busn Law I, Basic Principles	3
MKTG 200 Principles of Marketing	3
MKTG 235 Marketing Internship	3
WRIT 127 Business Communications	3
MINIMUM TOTAL	30

NOTES

- It is recommended that MGMT 348 be taken near the end of this certificate program.
- Students may also choose a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240-MGMT 279) and/or a maximum of two credits from CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
MGMT 304	MGMT 332
MGMT 329	MGMT 337
MGMT 335	MGMT 348
MGMT 338	Lim.Ch.
Lim.Ch.	Lim.Ch.

**SMALL BUSINESS MANAGEMENT
CERTIFICATE OF COMPLETION**

Curriculum Code: 10903 (Effective Fall 1999 – Summer 2004)

This program consists of practical hands-on courses that provide students with the basic business knowledge and skills necessary to start a small business.

REQUIREMENTS		TOTAL: 7 CREDITS
CODE	TITLE	CREDIT HOURS
BUSN 191	Independent Study/Management (See Note 1)	1
BUSN 295	Small Business Management	3
MKTG 200	Principles of Marketing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 8-10 CREDITS
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: Accounting	3 Credits
ACCG 100 Practical Accounting Non-Major	3
ACCG 101 Accounting Info for Management	3
CHOICE 2: Management Related (See Note 2)	3-4 Credits
MGMT 223 Supervision	3
MGMT 244 Supervisory Management	2
MGMT 254 How to Write a Business Plan	2
CHOICE 3: Computer Related	2-3 Credits
CABS 110 Microsoft Office	3
CABS 126 Excel	2
CISB 102 Intro Internet in Business	2
MKTG 210 Marketing on the Internet	2
MINIMUM TOTAL	15

NOTES

- It is recommended that BUSN 191 be taken during the last semester of this certificate program. This capstone experience will result in a completed business plan.
- Students may also choose up to 4 credits from the T.I.M.E. Series (MGMT 240 through MGMT 279) to fulfill this requirement.

SUGGESTED COURSE SEQUENCE

Students should contact the Small Business Management Program Advisor as soon as possible to plan this program. Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact the advisor for help with adjustments.

I	II
BUSN 295	BUSN 191
Lim.Ch.1	MKTG 200
Lim.Ch.2	Lim.Ch.2
	Lim.Ch.3

**COMPUTER SALES SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10179 (Effective Fall 1999 – Summer 2004)

Computer sales representatives sell computers and network hardware and software systems. They analyze a customer's needs and recommend the computer system that best meets the customer's requirements. They emphasize salable features, such as flexibility, cost, capacity, and economy of operation. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 49 CREDITS
BUSN 118	Introduction to Business	3	
CABS 110	Microsoft Office	3	
CABS 195	Microsoft Windows	2	
CISB 100	Intro Computer Info Systems	3	
CISB 104	Introduction to DOS	1	
CISB 107	DOS Management	1	
CISB 119	Intro Window Prog Visual BASIC	4	
CISB 130	Data Communications	3	
CISB 200	Info Sys Tech/Problem Solving	3	
CISB 235	Microcomputer Hardware Support	3	
MGMT 234	Diversity in the Workplace	3	
MKTG 119	Mktg/Manage Your Profess Image	3	
MKTG 120	Sales	3	
MKTG 123	Comput Field Sales Internship	3	
MKTG 200	Principles of Marketing	3	
MKTG 221	Consumer Behavior	2	
SPCH 110	Oral Communic in the Workplace	3	
WRIT 127	Business Communciations	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 11-12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Computer Related (See Note 2) 3-4 Credits

CHOICE 3:	Business Related	8 Credits
ACCG 210	Principles of Accounting I	4
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics-Micro	3
MGMT 225	Principles of Management	3
MGMT 239	Time and Stress Management	3
MKTG 130	Retailing	3
MKTG 140	Introduction to Advertising	3
MKTG 202	Managerial Marketing	3
MKTG 204	Marketing Research	3
MKTG 210	Marketing on the Internet	2

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Choose from CABS-prefix courses of 113 or above and/or CISB-prefix courses not already used to meet degree requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	CISB 107	CABS 110	CISB 235
CABS 195	CISB 119	CISB 130	MGMT 234
CISB 100	MKTG 119	CISB 200	MKTG 123
CISB 104	MKTG 200	MKTG 120	Lim.Ch.
WRIT 127	SPCH 110	MKTG 221	Lim.Ch.
Lim.Ch.		Lim.Ch.	

**FIELD SALES AND MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10190 (Effective Fall 1999 – Summer 2004)

Sales/marketing specialists, or sales representatives, sell products to wholesalers, retailers, or consumers, usually on a commission basis. They call on customers, demonstrate products, point out salable features, answer questions, and forward orders. Some sales representatives sell services, rather than products. Graduates of this program are prepared to work in a variety of manufacturing, wholesaling, and retailing environments, as well as in the service sector of our economy. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 41 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 200	Creative Thinking for Business	3
MGMT 234	Diversity in the Workplace	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 122	Field Sales Internship	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 19 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

CHOICE 2: Sales/Marketing Related (See Note 2) 19 Credits

ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
BUSN 201	International Business	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
CABS 110	Microsoft Office	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 131	Merchandising	2
MKTG 140	Introduction to Advertising	3
MKTG 204	Marketing Research	3
MKTG 210	Marketing on the Internet	2
MKTG 235	Marketing Internship	3
MINIMUM TOTAL		60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose up to four credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 200	CISB 200	MKTG 122
MKTG 100	MGMT 234	LEGL 215	MKTG 202
SPCH 110	MKTG 119	MKTG 120	Lim.Ch.
WRIT 127	MKTG 200	MKTG 221	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**FIELD SALES AND MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10242 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS

TOTAL: 24 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CABS 110	Microsoft Office	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 122	Field Sales Internship	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related (See Note 1) 6 Credits

MINIMUM TOTAL 30

NOTE

1. Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	CABS 110
MKTG 119	MKTG 122
MKTG 120	MKTG 200
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10204 (Effective Fall 1999 – Summer 2004)

Marketing is the set of activities that aims to satisfy the customer while making a profit. It is concerned with determining need and meeting demand by making goods and services known, available, and affordable. Entry-level personnel may require time in sales before internal promotion into marketing management positions. Graduates of this program are prepared to work in nearly every type of business and organization today. Traditional product marketing management is giving way to areas like nonprofit organization marketing, leading to a diverse job opportunity picture. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
BUSN 118	Introduction to Business	3	
BUSN 229	Public Relations	2	
CABS 110	Microsoft Office	3	
CISB 200	Info Sys Tech/Problem Solving	3	
MGMT 234	Diversity in the Workplace	3	
MKTG 100	Current Issues in Business	3	
MKTG 119	Mktg/Manage Your Profess Image	3	
MKTG 120	Sales	3	
MKTG 130	Retailing	3	
MKTG 140	Introduction to Advertising	3	
MKTG 200	Principles of Marketing	3	
MKTG 202	Managerial Marketing	3	
MKTG 204	Marketing Research	3	
MKTG 221	Consumer Behavior	2	
SPCH 110	Oral Communic in the Workplace	3	
WRIT 127	Business Communciations	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 14 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Field Experience 3 Credits

- MKTG 122 Field Sales internship 3
- MKTG 235 Marketing Internship 3

CHOICE 3: Marketing Related (See Note 2) 11 Credits

- ACCG 210 Principles of Accounting I 4
- BUSN 201 International Business 3
- BUSN 254 Introduction to Investments 2
- BUSN 295 Small Business Management 3
- ECON 201 Principles of Economics-Micro 3
- ECON 202 Principles of Economics-Macro 3
- LEGL 215 Busn Law I, Basic Principles 3
- MGMT 200 Creative Thinking for Business 3

MGMT 223	Supervision	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MKTG 131	Merchandising	2
MKTG 210	Marketing on the Internet	2
MKTG 231	Independent Study in Marketing	1-3

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose up to four credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 234	BUSN 229	CISB 200
CABS 110	MKTG 119	MKTG 120	MKTG 130
MKTG 100	MKTG 200	MKTG 140	MKTG 202
WRIT 127	SPCH 110	MKTG 204	Lim.Ch.
Lim.Ch.	Lim.Ch.	MKTG 221	Lim.Ch.
		Lim.Ch.	

**MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10225 (Effective Fall 1999 - Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS

TOTAL: 24 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related (See Note 1) 6 Credits

MINIMUM TOTAL

30

NOTE

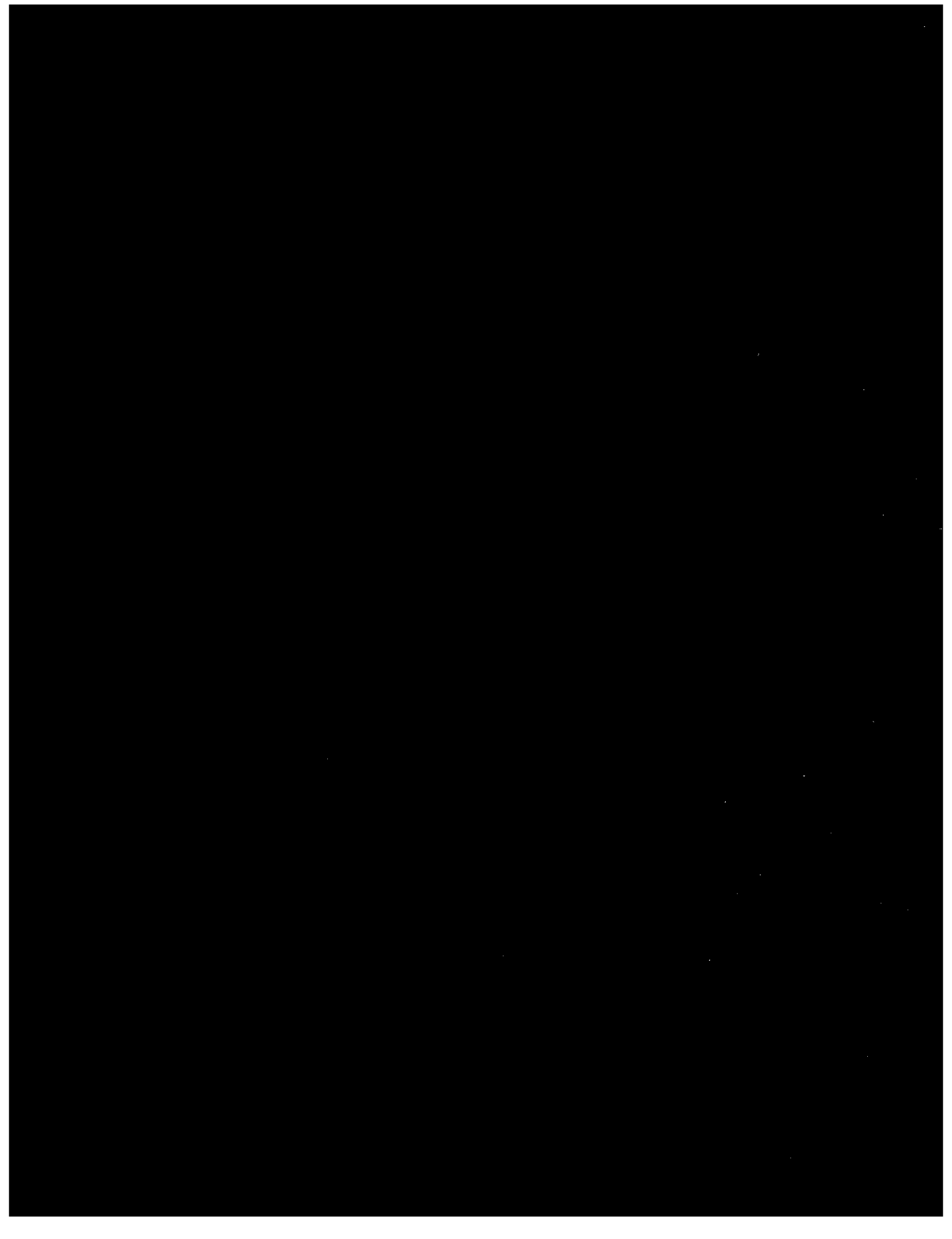
1. Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	MKTG 120
MKTG 119	MKTG 130
MKTG 200	MKTG 202
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.



**INDUSTRIAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10110 (Effective Fall 1999 – Summer 2004)

Industrial technology is the study of a variety of technologies used in today's industry. Physical and mental skills are required including mechanical skills, problem-solving abilities, and dexterity. Employment opportunities are with industries that have a variety of work processes and/or trades.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 6 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 51 CREDITS
CODE	TITLE	CREDIT HOURS
CNCP 110	Foundations of CNC Programming	4
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
HVAC 110	Applied Electricity I	2
MACH 100	Manufacturing Processes	4
MACH 105	Machine Tool Survey	3
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
MFGM 101	Industrial Hydraulics	4
PHYS 200	Applied Physics	4
WELD 100	Combination Welding	4
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See Note 1)	

CHOICE 2: Technical Related	3-4 Credits	
CNCP 101	PC Applications for Technology	3
MACH 140	Tooling Theory and Practices	4
MACH 210	Prin Electric Discharge Mach	4
QUAL 121	Intro Statistical Process Cont	3
MINIMUM TOTAL	63	

NOTE

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
HVAC 110	DTDS 110	MACH 135	CNCP 110
MACH 100	MACH 105	MFGM 101	EMTA 100
MATH 114	MACH 120	PHYS 200	Lim.Ch.
WELD 100	MATH 115	Lim.Ch.	Lim.Ch.
	WRIT 124	Lim.Ch.	

**INDUSTRIAL TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10150 (Effective Fall 1999 – Summer 2004)

This certificate provides students with a basic understanding of a variety of technologies to enhance the theory skills they already possess.

REQUIREMENTS		TOTAL: 23 CREDITS
CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 100	Manufacturing Processes	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Related Technology	12 Credits	
CNCP 101	P.C. Applications for Technology	3
MACH 105	Machine Tool Survey	3
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
PHYS 200	Applied Physics	4
QUAL 107	Problem-Solving Techniques	3
WRIT 124	Technical Writing	3

MINIMUM TOTAL 35

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
DTDS 110	EMTA 100
MACH 100	MACH 120
MATH 114	MACH 135
Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MACHINE MAINTENANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10173 (Effective Fall 1999 – Summer 2004)

Machine maintenance technicians are involved with the repair, maintenance, and installation of industrial equipment. They repair the machinery of industry, solving mechanical problems. The skills necessary for this type of work are many and varied: critical thinking, problem solving, mechanics, math and physics are but a few. Maintenance technicians also need to know how to diagnose hydraulic problems, perform preventive maintenance procedures, and be able to work well with others. Every industrial plant will have one or more machine maintenance technicians. They may have different titles, but the work is the same.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 47 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 120	Industrial Presses	4
MFGM 125	Rigging	2
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 22-24 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas

9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Electrical Technology

2-3 Credits

ELTE 110	Practical Electricity	3
HVAC 110	Applied Electricity I	2

CHOICE 3: Technical Related

3-4 Credits

MACH 100	Manufacturing Processes	4
MACH 140	Tooling Theory and Practices	4
MFGM 102	Industrial Pneumatics	3
WELD 100	Combination Welding	4

CHOICE 4: Mathematics & Physics

8 Credits

MATH 114	Technical Math I	4
MATH 115	Technical Math II	4
PHYS 200	Applied Physics	4

MINIMUM TOTAL

69

NOTE

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MACH 105	MACH 110	DTDS 110	MFGM 111
MFGM 101	MACH 120	EMTA 100	MFGM 120
WRIT 124	MFGM 110	MACH 111	MFGM 125
Lim.Ch.	Lim.Ch.	MACH 135	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**MACHINE REPAIR
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10147 (Effective Fall 1999 – Summer 2004)

This program provides technical knowledge and skills in the adjustment, maintenance, part replacement, and repair of tools, equipment, and machines. It prepares an individual for an entry-level position.

REQUIREMENTS

TOTAL: 32 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 125	Rigging	2
WELD 100	Combination Welding	4

MINIMUM TOTAL

32

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
DTDS 110	EMTA 100
MACH 105	MFGM 101
MATH 114	MFGM 111
MFGM 110	WELD 100
MFGM 125	

MILLWRIGHT CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10154 (Effective Fall 1999 – Summer 2004)

A millwright installs, maintains, and cares for mechanical equipment in a plant, factory, or mill. This program prepares an individual for an entry-level position.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 33 CREDITS
CODE	TITLE	CREDIT HOURS
BLDT 103	Structural Blueprint Reading	4
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MATH 114	Technical Math I	4
MFGM 101	Industrial Hydraulics	4
MFGM 110	Machine Maintenance I	4
MFGM 111	Machine Maintenance II	4
MFGM 125	Rigging	2

LIMITED CHOICE REQUIREMENTS TOTAL: 3-4 CREDITS
Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1:	Building Related	3-4 Credits
BLDT 100	Introduction to Construction	3
BLDT 121	Residential Framing	4
CIVL 120	Surveying	4
MINIMUM TOTAL		36

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
EMTA 100	BLDT 103	MFGM 111
MACH 105	MACH 135	Lim.Ch.
MATH 114	MFGM 110	
MFGM 101	MFGM 125	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MACHINIST TOOLMAKER
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10199 (Effective Fall 1999 – Summer 2004)

A machinist toolmaker is involved with the manufacture of machined components relating to various kinds of industry. There are no limits to the variety of projects a machinist toolmaker may be involved with: making prototypes, tools for production, engineering changes on parts, etc. This work involves critical thinking, decision-making, math skills, and working cooperatively with others. Machinist toolmakers are capable of operating all the various machine tools in a machine shop. They also must be able to interpret mechanical drawings, calculate mathematical data, and work with others to solve the various problems related to projects going on in the shop at any given time. A machinist toolmaker may be employed in any manufacturing facility.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 52 CREDITS
CNCP 101	PC Applications for Technology	3	
CNCP 110	Foundations of CNC Programming	4	
DTDS 110	Industrial Blueprint Reading	3	
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 110	Machine Tool Technology I	4	
MACH 111	Machine Tool Technology II	4	
MACH 112	Machine Tool Technology III	4	
MACH 120	Effect Use Machinery Handbook	4	
MACH 130	Die Construction	4	
MACH 135	Metallurgy and Heat Treat	4	
MACH 140	Tooling Theory and Practices	4	
MACH 210	Prin Electric Discharge Mach	4	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS

TOTAL: 17 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Mathematics	8 Credits
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4
MATH 116 Technical Math III	4
MINIMUM TOTAL	69

NOTE

1. Students completing **REQUIREMENTS** have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
EMTA 100	DTDS 110	CNCP 101	CNCP 110
MACH 105	MACH 110	MACH 111	MACH 112
MACH 120	MACH 135	MACH 140	MACH 130
Lim.Ch.	WRIT 124	Lim.Ch.	MACH 210
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**TOOL AND DIE MAKER
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10141 (Effective Fall 1999 – Summer 2004)

This program provides technical knowledge and skills to operate machine tools used in the forming of metal components, as well as the fabrication of special tools, dies, jigs, and fixtures used in cutting, working, and finishing metal components. It prepares an individual for an entry-level position.

REQUIREMENTS

TOTAL: 38 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 105	Machine Tool Survey	3
MACH 110	Machine Tool Technology I	4
MACH 111	Machine Tool Technology II	4
MACH 112	Machine Tool Technology III	4
MACH 120	Effect Use Machinery Handbook	4
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MATH 114	Technical Math I	4

MINIMUM TOTAL

38

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
DTDS 110	EMTA 100	MACH 112
MACH 105	MACH 110	MACH 140
MACH 120	MACH 111	
MATH 114	MACH 135	

**WELDING TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10186 (Effective Fall 1999 – Summer 2004)

Welding is many processes of fusion, adhesion, and cutting to fabricate or repair products used in manufacturing, research, and application. A welding technician could also qualify for welding inspection where welding codes are applied. A welder is a skilled craftsperson with a basic knowledge of metals, applied mathematics, blueprint reading, good eyesight, self-discipline, and a respect for safety. A welder also needs to work well with his/her hands and have good manual coordination. Many hours of practice and proper training in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting are necessary. Welders can be found in tool and die industries, auto makers, construction, oil refineries, pipelines and pressure vessels, aircraft industries, and many more metal-related industries.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 46 CREDITS
EMTA 100	Medical First Responder	4	
MACH 105	Machine Tool Survey	3	
MACH 135	Metallurgy and Heat Treat	4	
MFGM 125	Rigging	2	
WELD 100	Combination Welding	4	
WELD 101	Advanced ARC Welding	4	
WELD 110	Gas Metal ARC Welding	4	
WELD 111	Gas Tungsten ARC Welding	4	
WELD 120	Struct Fabrication/Inspec	4	
WELD 125	Struct Blueprint Reading Weld	2	
WELD 201	Tool and Die Welding	4	
WELD 205	Pipe Welding	4	
WRIT 124	Technical Writing	3	

LIMITED CHOICE REQUIREMENTS TOTAL: 15-16 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Technical Related 6-7 Credits

COOP 210	Cooperative Education (Tech)	3
ELTE 110	Practical Electricity	3
MACH 100	Manufacturing Processes	4
MFGM 102	Industrial Pneumatics	3

MINIMUM TOTAL 61

NOTE

- Students completing REQUIREMENTS have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MACH 105	MACH 135	WELD 111	EMTA 100
MFGM 125	WELD 101	WELD 120	WELD 201
WELD 100	WELD 110	WELD 125	WELD 205
Lim.Ch.	WRIT 124	Lim.Ch.	Lim.Ch.
		Lim.Ch.	Lim.Ch.

**WELDING TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10156 (Effective Fall 1999 – Summer 2004)

Students receive hands-on instruction in the basics of MIG, TIG, shielded metal arc, brazing and oxy-fuel cutting, and plasma cutting to prepare them for entry-level positions.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 32 CREDITS
EMTA 100	Medical First Responder	4	
MACH 135	Metallurgy and Heat Treat	4	
MFGM 125	Rigging	2	
WELD 100	Combination Welding	4	
WELD 101	Advanced ARC Welding	4	
WELD 110	Gas Metal ARC Welding	4	
WELD 111	Gas Tungsten ARC Welding	4	
WELD 120	Struct Fabrication/Inspec	4	
WELD 125	Struct Blueprint Reading Weld	2	

MINIMUM TOTAL 32

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
EMTA 100	MACH 135	WELD 111
MFGM 125	WELD 101	WELD 120
WELD 100	WELD 110	WELD 125

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**INTERIOR DESIGN TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10267 (Effective Fall 1999 – Summer 2004)

Interior design assistants work with professional interior designers to plan and create the overall design for interior spaces. They may be employed as estimators, retail sales persons, space planners, computer-aided drafting and design technicians, lighting and color consultants, or kitchen/bath designers. Depending on their specialty, interior design assistants work in retail or wholesale showrooms, design firms, building construction management offices, hospitality chains, interior furnishings manufacturers, or facilities departments. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS		TOTAL: 41 CREDITS
CODE	TITLE	CREDIT HOURS
INTR 110	Applied Design	3
INTR 132	Interior Presentation Standard	3
INTR 140	Interior Drafting/Detailing	3
INTR 170	Planned Interiors	3
INTR 175	Interior Space Planning	3
INTR 190	Interior/Materials/Equipment	3
INTR 201	Cultural Diversity in-Housing	3
INTR 232	Twentieth Century Interiors	3
INTR 240	Interior Environmental Systems	3
INTR 246	Residential Interiors	3
INTR 248	Non-Residential Interiors	3
INTR 252	Interior Specifications	2
INTR 256	Interiors Project Management	3
INTR 263	Interior Design Internship	3

LIMITED CHOICE REQUIREMENTS TOTAL: 31-35 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	12 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Technology	9 Credits
INTR 151 Computer-Aided Kitchen Design	3
INTR 222 CADD for Interiors	3
INTR 225 CADD for Space Planning	3
INTR 260 3-D CADD for Interiors	3
CHOICE 3: Three-Dimensional Spatial Development	2-3 Credits
ARCH 122 Visual Communication II	3
ARCH 126 Architectural Model Building	2
INTR 244 3-D Visual Display	3
INTR 270 Interior Design Portfolio	2

CHOICE 4: History	3 Credits
ARCH 141 Architectural History I	3
ARCH 142 Architectural History II	3
INTR 230 World Decorative Arts	3
INTR 231 Period Interiors	3

CHOICE 5: Business Related	3-4 Credits
ACCG 210 Principles of Accounting I	4
BUSN 118 Introduction to Business	3
ECON 201 Principles of Economics-Micro	3
MGMT 200 Creative Thinking for Business	3
MKTG 119 Mktg/Manage Your Profess Image	3
MKTG 120 Sales	3
QUAL 100 Intro Quality Assurance	3

CHOICE 6: Related Professional Courses	2-4 Credits
ARCH 128 Residential Planning	2
ARCH 146 Preser/Adaptive Reuse Architec	3
ARCH 181 Barrier-Free Design	3
ARCH 213 Facilities Design	3
ARCH 273 Environmental Systems	4
ARCH 278 Energy Efficient Design	4
ARCH 283 Materials of Construction	4
BLDT 262 Builders Business License	4
BLDT 277 Construction Cost Estimating	4
BLDT 281 BOCA/Uniform Code	3

MINIMUM TOTAL 72

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
INTR 110	INTR 132	INTR 175	INTR 232
INTR 140	INTR 190	INTR 201	INTR 240
INTR 170	Lim.Ch.1	Lim.Ch.1	Lim.Ch.1
Lim.Ch.1	Lim.Ch.2	Lim.Ch.2	Lim.Ch.2
V	VI		
INTR 248	INTR 246		
INTR 256	INTR 252		
Lim.Ch.4	INTR 263		
Lim.Ch.5	Lim.Ch.3		
	Lim.Ch.6		

**HORTICULTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10189 (Effective Fall 1999 – Summer 2004)

A professional horticulturist deals with plant materials, their growth, development, propagation, marketing, and use. The horticulturist works with environmental conditions and pest problems of ornamental plants and their management. The two major specialty areas are landscape horticulture and floriculture. A background in plant maintenance, knowledge of growing environments and structures, as well as retail and marketing skills, is vital. Horticulturists are employed by florists, greenhouses and garden centers, nurseries, retail sales outlets, landscape contractors, design and construction firms, and lawn care companies. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 34 CREDITS

CODE	TITLE	CREDIT HOURS
HORT 102	Intro Ornamental Horticulture	2
HORT 105	Pest/Problem Ornamental Plants	2
HORT 230	Plant Propagation/Nursery Op	4
HORT 235	Greenhouse Structures/Environ	3
LAND 100	Intro to Landscape Drafting	2
LAND 130	Interior Landscaping	3
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 142	Perennial/Annual Flower Plants	3
LAND 163	Designing Ornamental Gardens	3
LAND 282	Computer Draft/Dsgn Land Arch	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 28-30 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Specialization (Choose 1 Subchoice) 19-21 Credits

Subchoice 2A: Floriculture

HORT 107	Beginning Floral Design	2
HORT 109	Contemporary Floral Design	2
HORT 110	Wedding Floral Design	2
HORT 143	Cut Flower, Foliage, Pot Plant	4
HORT 236	Greenhouse Ornamentals	3
HORT 237	Bedding Plant Production	3
HORT 238	Garden Center/Nursery Sales	3

Subchoice 2B: Landscape Horticulture

LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 160	Planting Design I	3
LAND 180	Landscape Ecology	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Res. Land Design	3
LAND 233	Grounds Management	3

MINIMUM TOTAL

62

NOTE

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
Floriculture Option			
HORT 102	HORT 105	HORT 110	HORT 230
HORT 107	HORT 109	HORT 237	HORT 238
HORT 143	HORT 236	LAND 130	LAND 163
HORT 235	LAND 141	LAND 142	LAND 282
LAND 100	WRIT 124	Lim.Ch.	Lim.Ch.
LAND 140	Lim.Ch.		
Landscape Horticulture Option			
HORT 102	HORT 230	HORT 105	LAND 130
HORT 235	LAND 141	LAND 142	LAND 163
LAND 100	LAND 150	LAND 152	LAND 180
LAND 140	LAND 282	LAND 160	LAND 225
WRIT 124	Lim.Ch.	LAND 232	LAND 233
		Lim.Ch.	Lim.Ch.

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**LANDSCAPE ARCHITECTURE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10203 (Effective Fall 1999 – Summer 2004)

Landscape architects, designers, and planners deal with the ecological design and management of the land. Landscape architects and designers coordinate the analysis, planning, layout, design, and management of the exterior and interior landscape. Landscape architects and designers are employed by design and engineering firms, parks and recreation offices, landscape contractors, design and build firms, nurseries and garden centers, arboreta and botanic gardens, and grounds management firms. A supporting background in computer design graphics and G.I.S. is helpful. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 61 CREDITS

CODE	TITLE	CREDIT HOURS
LAND 100	Intro to Landscape Drafting (See Note 1)	2
LAND 140	Evergreen and Deciduous Trees	3
LAND 141	Flowering Trees, Shrubs, Vines	3
LAND 150	Principles of Landscape Arch	3
LAND 152	Landscape Graphics Comm-Begin	3
LAND 153	Landscape Graphics Comm-Adv	3
LAND 160	Planting Design I	3
LAND 161	Planting Design II	3
LAND 164	Site Design	3
LAND 170	Site Grading I	3
LAND 171	Site Grading II	3
LAND 172	Site Layout	3
LAND 225	Landscape Cost Estimation	3
LAND 232	Professional Res. Land Design	3
LAND 233	Grounds Management	3
LAND 250	Landscape Construction Methods	3
LAND 252	Landscape Construction Details	3
LAND 276	Landscape Documents and Spec	2
LAND 282	Computer Draft/Dsgn Land Arch	3
LAND 283	Beginning LANDCADD	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	General Education Core Areas	9 Credits
(See the GENERAL EDUCATION section above)		
	Writing Core Area (See Note 2)	0
	Speech Communication Core Area	3
	Science/Technology Core Area	3
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
MINIMUM TOTAL		70

NOTES

1. If students have prior experience in drafting, they should see an academic advisor in the Technology Careers Department to see if LAND 100 can be waived.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
LAND 100	LAND 141	LAND 161	LAND 171
LAND 140	LAND 153	LAND 170	LAND 172
LAND 150	LAND 160	LAND 232	LAND 225
LAND 152	LAND 164	LAND 250	LAND 233
WRIT 124	LAND 282	LAND 283	LAND 252
Lim.Ch.	Lim.Ch.	Lim.Ch.	LAND 276

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**LEGAL ASSISTANT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10101 (Effective Fall 1999 – Summer 2004)

Legal assistants, also known as paralegals, assist lawyers by performing many of the same tasks, except for those considered to be the practice of law. To help lawyers prepare cases for trial, they may investigate the facts; perform legal research to identify relevant laws, legal articles, judicial decisions, and other documents/materials related to the case; and prepare written reports after organizing and analyzing all the information. Other duties may include drafting briefs and pleadings, obtaining affidavits, assisting the lawyer during trial, and organizing and maintaining document and correspondence files. Some legal assistants may help with completing forms, tax returns, and drafting contracts.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 39 CREDITS
CODE	TITLE	CREDIT HOURS
CABS 113	Microsoft Word Office/Int Key	4
LEGL 115	Legal Assistant Career/Ethics	3
LEGL 120	Legal Research I	3
LEGL 121	Legal Writing I	3
LEGL 160	Critical Thinking in Law	3
LEGL 210	Litigation Procedures	4
LEGL 211	Tort Law	2
LEGL 215	Busn Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3
LEGL 228	Computer Tech for Legal Assist	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 21 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	9 Credits
(See the <i>GENERAL EDUCATION</i> section above)	
Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
CHOICE 2: Business Law	3 Credits
LEGL 216 Busn Law II, Commercial Law	3
LEGL 217 Busn Law III, Busn Organiza	3
LEGL 220 Internat Legal Issues/Organiza	3

CHOICE 3: General Law	9 Credits
CJUS 103 Criminal Law	3
LEGL 218 Litigation Specialties	3
LEGL 221 Real Estate Transaction	3
LEGL 222 Probate Law and Procedure	3
LEGL 223 Domestic Relations	3
LEGL 224 Administrative Law	3
LEGL 226 Legal Interview/Investigation	3
LEGL 227 Bankruptcy and Collections	3
LEGL 280 Legal Assistant Internship	3

MINIMUM TOTAL 60

NOTE

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 113	LEGL 120	LEGL 121	LEGL 225
LEGL 115	LEGL 211	LEGL 210	LEGL 228
LEGL 160	WRIT 122	Lim.Ch.1	Lim.Ch.3
LEGL 215	Lim.Ch.1	Lim.Ch.2	Lim.Ch.3
WRIT 121	Lim.Ch.1	Lim.Ch.3	

**LEGAL ASSISTANT POST-BACCALAUREATE
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10744 (Effective Fall 1999 – Summer 2004)

The legal assistant career is an excellent choice for students possessing a bachelor's degree, especially students with strong analytical and writing skills. These students may select the following certificate curriculum which requires only legal assistant courses.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
LEGL 115	Legal Assistant Career/Ethics	3
LEGL 120	Legal Research I(See Note 1)	3
LEGL 121	Legal Writing I(See Note 1)	3
LEGL 210	Litigation Procedures(See Note 1)	4
LEGL 211	Tort Law(See Note 1)	2
LEGL 215	Busn Law I, Basic Principles	3
LEGL 225	Legal Research and Writing II	3

LIMITED CHOICE REQUIREMENTS TOTAL: 12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Business Law	3 Credits
LEGL 216	Busn Law II, Commercial Law	3
LEGL 217	Busn Law III, Busn Organiza	3
LEGL 220	Internat Legal Issues/Organiza	3

CHOICE 2:	General Law	9 Credits
CJUS 103	Criminal Law	3
LEGL 218	Litigation Specialties	3
LEGL 221	Real Estate Transaction	3
LEGL 222	Probate Law and Procedure	3
LEGL 223	Domestic Relations	3
LEGL 224	Administrative Law	3
LEGL 226	Legal Interview/Investigation	3
LEGL 227	Bankruptcy and Collections	3
LEGL 228	Computer Tech for Legal Assist	3
LEGL 280	Legal Assistant Internship	3

MINIMUM TOTAL 33

NOTES

- Students in this curriculum will be granted a prerequisite override to take these courses concurrently with LEGL 115. Contact the Business Careers Department, telephone number (517) 483-1522 prior to registration.
- Students following this curriculum must have proof of a bachelor's degree entered on their official Lansing Community College transcript before a certificate of achievement may be granted. Students who do not possess a bachelor's degree should follow the Legal Assistant, Associate in Business Degree curriculum #10101.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
LEGL 115	LEGL 211
LEGL 120	LEGL 225
LEGL 121	Lim.Ch.
LEGL 210	Lim.Ch.
LEGL 215	Lim.Ch.
	Lim.Ch.

**HUMAN RESOURCE MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10712 (Effective Fall 1999 – Summer 2004)

Human resource managers serve as a link between management and employees. They help management make effective use of employees' skills, and help employees find satisfaction in their jobs and working conditions. Graduates of this program are involved with recording and evaluating information, such as job experience, education, skills, qualifications, and job performance; providing information about policies, job duties, working conditions, wages, opportunities for promotion, and employee benefits; maintaining job files on employees; administering various employee benefits; collecting and analyzing labor market data; and employee selection and training. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 227	Training/Development for Busn	2
MGMT 228	Organizational Behavior	3
MGMT 229	Compensation Management	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3
MGMT 237	Managing/Continual Improvement	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 16-20 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Specialty Related (See Note 2) 9-11 Credits

BUSN 229	Public Relations	2
LABR 200	Intro to Labor Relations	3
LABR 201	Collective Bargaining	3
LABR 203	Labor Law	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MGMT 304	Organizational Development	3
MGMT 329	Adv Mgmt Communication Skills	3
MGMT 337	Human Resource Mgmt Skills	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess Image	3

CHOICE 3: Computer Related (See Note 3) 4-5 Credits

CHOICE 4: Quantitative Related 3-4 Credits

ACCG 100	Practical Accounting Non-Major	3
ACCG 101	Accounting Info for Management	3
ACCG 210	Principles of Accounting I	4
MATH 117	Math for Business	4
MGMT 335	Managerial Statistics	3
MGMT 346	Managerial finance	3

MINIMUM TOTAL 60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Students may also choose BUSN 191 - Independent Study/Management, and/or a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279).
- Choose CABS-prefix courses of 110 or above and/or CISB-prefix courses above 100.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 224	LABR 204	MGMT 227
CISB 200	MGMT 228	MGMT 200	MGMT 229
MGMT 223	SPCH 110	MGMT 225	MGMT 237
MGMT 234	WRIT 127	MGMT 231	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
	Lim.Ch.		

LABOR RELATIONS CERTIFICATE OF COMPLETION

Curriculum Code: 10256 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances the individual's employment opportunities.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 9 CREDITS

CODE	TITLE	CREDIT HOURS
LABR 200	Intro to Labor Relations	3
LABR 203	Labor Law	3
LABR 204	Employment Law for Managers	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 3 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:

3 Credits

LABR 201	Collective Bargaining	3
LABR 202	Grievances and Arbitration	3

MINIMUM TOTAL

12

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
LABR 200	LABR 203
LABR 204	Lim.Ch. 1

**MANAGEMENT
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10245 (Effective Fall 1999 – Summer 2004)

A manager plans, organizes, delegates, and controls entire projects from start to finish. The role cuts across all areas of business and organizational life and has as its central purpose the increase of resources: personnel, money, machines, and materials. Managers supply the encouragement, coordination, and leadership to achieve company goals. Graduates of this program may qualify for entry-level positions. Addition of a technical or business specialty increases one's employability. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 48 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 200	Intro to Labor Relations	3
LABR 204	Employment Law for Managers	3
MGMT 200	Creative Thinking for Business	3
MGMT 223	Supervision	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3
MGMT 237	Managing/Continual Improvement	3
MKTG 200	Principles of Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 12-15 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the GENERAL EDUCATION section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Accounting 3-4 Credits

- ACCG 101 Accounting Info for Management 3
- ACCG 210 Principles of Accounting I 4

CHOICE 3:	Management Related (See Note 2)	9-11 Credits
ACCG 211	Principles of Accounting II	4
BUSN 191	Independent Study/Management	1-3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
LEGL 215	Busn Law I. Basic Principles	3
MGMT 227	Training/Development for Busn	2
MGMT 239	Time and Stress Management	3
MGMT 280	Management Internship	3
MGMT 300	Managerial Leadership	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 202	Managerial Marketing	3

MINIMUM TOTAL 60

NOTES

1. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
2. Students may also choose a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240 through MGMT 279) and/or a maximum of two credits of CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	BUSN 201	MGMT 225	LABR 204
CISB 200	MGMT 223	MGMT 228	MGMT 200
LABR 200	MGMT 224	MKTG 200	MGMT 237
MGMT 234	MGMT 231	SPCH 110	Lim.Ch.
Lim.Ch.	WRIT 127	Lim.Ch.	Lim.Ch.

**MANAGEMENT
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 10249 (Effective Fall 1999 – Summer 2004)**

Certificate holders may improve their opportunities for advancement in this or a related area. The Certificate of Achievement is often useful in conjunction with another degree in professions such as health careers or computers. Additional education enhances an individual's employment opportunities. Courses in this certificate may also be applied directly toward an Associate Degree in Management.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS**TOTAL: 24 CREDITS**

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
CISB 200	Info Sys Tech/Problem Solving	3
LABR 204	Employment Law for Managers	3
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 231	Team Development	3
MGMT 234	Diversity in the Workplace	3

LIMITED CHOICE REQUIREMENTS**TOTAL: 6-7 CREDITS**

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Accounting	3-4 Credits
ACCG 101	Accounting Info for Management	3
ACCG 210	Principles of Accounting I	4
CHOICE 2:	Communication Skills	3 Credits
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

MINIMUM TOTAL**30****SUGGESTED COURSE SEQUENCE**

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	LABR 204
CISB 200	MGMT 228
MGMT 224	MGMT 231
MGMT 225	MGMT 234
Lim.Ch.	Lim.Ch.

**MANAGEMENT, ADVANCED
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10280 (Effective Fall 1999 – Summer 2004)

This is an advanced certificate program that may be taken after obtaining an associate or bachelor's degree in order to enhance an individual's employment and advancement opportunities. Courses in this certificate may be used as the third year in the Northwood University Bachelor of Business Administration degree. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522 or the Advanced Management Coordinator at (517) 483-1544.

REQUIREMENTS		TOTAL: 21 CREDITS
CODE	TITLE	CREDIT HOURS
MGMT 304	Organizational Development	3
MGMT 329	Adv Mgmt Communication Skills	3
MGMT 332	Managerial Ethics	3
MGMT 335	Managerial Statistics	3
MGMT 337	Human Resource Mgmt Skills	3
MGMT 338	Current Topics in Management	3
MGMT 348	Strategic Management/Policy	3

LIMITED CHOICE REQUIREMENTS TOTAL: 9-10 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Management	3 Credits
MGMT 223 Supervision	3
MGMT 225 Principles of Management	3
MGMT 300 Managerial Leadership	3
CHOICE 2: Finance	3 Credits
ACCG 271 Principles of Finance	3
MGMT 346 Managerial Finance	3
CHOICE 3: Business Related (See Note 2)	3-4 Credits
ACCG 210 Principles of Accounting I	4
ACCG 211 Principles of Accounting II	4
BUSN 118 Introduction to Business	3
BUSN 201 International Business	3
CISB 100 Intro Computer Info Systems	3
ECON 204 Principles of Economics-Micro	3
ECON 202 Principles of Economics-Macro	3
LEGL 215 Busn Law I, Basic Principles	3
MKTG 200 Principles of Marketing	3
MKTG 235 Marketing Internship	3
WRIT 127 Business Communications	3
MINIMUM TOTAL	30

NOTES

- It is recommended that MGMT 348 be taken near the end of this certificate program.
- Students may also choose a maximum of two credits total from the T.I.M.E. Series (course codes MGMT 240-MGMT 279) and/or a maximum of two credits from CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
MGMT 304	MGMT 332
MGMT 329	MGMT 337
MGMT 335	MGMT 348
MGMT 338	Lim.Ch.
Lim.Ch.	Lim.Ch.

**SMALL BUSINESS MANAGEMENT
CERTIFICATE OF COMPLETION**

Curriculum Code: 10903 (Effective Fall 1999 – Summer 2004)

This program consists of practical hands-on courses that provide students with the basic business knowledge and skills necessary to start a small business.

REQUIREMENTS		TOTAL: 7 CREDITS
CODE	TITLE	CREDIT HOURS
BUSN 191	Independent Study/Management (See Note 1)	1
BUSN 295	Small Business Management	3
MKTG 200	Principles of Marketing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 8-10 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Accounting	3 Credits
ACCG 100 Practical Accounting Non-Major	3
ACCG 101 Accounting Info for Management	3
CHOICE 2: Management Related (See Note 2)	3-4 Credits
MGMT 223 Supervision	3
MGMT 244 Supervisory Management	2
MGMT 254 How to Write a Business Plan	2
CHOICE 3: Computer Related	2-3 Credits
CABS 110 Microsoft Office	3
CABS 126 Excel	2
CISB 102 Intro Internet in Business	2
MKTG 210 Marketing on the Internet	2
MINIMUM TOTAL	15

NOTES

- It is recommended that BUSN 191 be taken during the last semester of this certificate program. This capstone experience will result in a completed business plan.
- Students may also choose up to 4 credits from the T.I.M.E. Series (MGMT 240 through MGMT 279) to fulfill this requirement.

SUGGESTED COURSE SEQUENCE

Students should contact the Small Business Management Program Advisor as soon as possible to plan this program. Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact the advisor for help with adjustments.

I	II
BUSN 295	BUSN 191
Lim.Ch.1	MKTG 200
Lim.Ch.2	Lim.Ch.2
	Lim.Ch.3

**COMPUTER SALES SPECIALIST
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10179 (Effective Fall 1999 – Summer 2004)

Computer sales representatives sell computers and network hardware and software systems. They analyze a customer's needs and recommend the computer system that best meets the customer's requirements. They emphasize salable features, such as flexibility, cost, capacity, and economy of operation. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	TOTAL: 49 CREDITS CREDIT HOURS
BUSN 118	Introduction to Business	3
CABS 110	Microsoft Office	3
CABS 195	Microsoft Windows	2
CISB 100	Intro Computer Info Systems	3
CISB 104	Introduction to DOS	1
CISB 107	DOS Management	1
CISB 119	Intro Window Prog Visual BASIC	4
CISB 130	Data Communications	3
CISB 200	Info Sys Tech/Problem Solving	3
CISB 235	Microcomputer Hardware Support	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 123	Comput Field Sales Internship	3
MKTG 200	Principles of Marketing	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communciations	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 11-12 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Computer Related (See Note 2) 3-4 Credits

CHOICE 3:	Business Related	8 Credits
ACCG 210	Principles of Accounting I	4
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics-Micro	3
MGMT 225	Principles of Management	3
MGMT 239	Time and Stress Management	3
MKTG 130	Retailing	3
MKTG 140	Introduction to Advertising	3
MKTG 202	Managerial Marketing	3
MKTG 204	Marketing Research	3
MKTG 210	Marketing on the Internet	2

MINIMUM TOTAL 60

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- Choose from CABS-prefix courses of 113 or above and/or CISB-prefix courses not already used to meet degree requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	CISB 107	CABS 110	CISB 235
CABS 195	CISB 119	CISB 130	MGMT 234
CISB 100	MKTG 119	CISB 200	MKTG 123
CISB 104	MKTG 200	MKTG 120	Lim.Ch.
WRIT 127	SPCH 110	MKTG 221	Lim.Ch.
Lim.Ch.		Lim.Ch.	

**FIELD SALES AND MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10190 (Effective Fall 1999 – Summer 2004)

Sales/marketing specialists, or sales representatives, sell products to wholesalers, retailers, or consumers, usually on a commission basis. They call on customers, demonstrate products, point out salable features, answer questions, and forward orders. Some sales representatives sell services, rather than products. Graduates of this program are prepared to work in a variety of manufacturing, wholesaling, and retailing environments, as well as in the service sector of our economy. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 41 CREDITS
BUSN 118	Introduction to Business	3	
CISB 200	Info Sys Tech/Problem Solving	3	
LEGL 215	Busn Law I, Basic Principles	3	
MGMT 200	Creative Thinking for Business	3	
MGMT 234	Diversity in the Workplace	3	
MKTG 100	Current Issues in Business	3	
MKTG 119	Mktg/Manage Your Profess Image	3	
MKTG 120	Sales	3	
MKTG 122	Field Sales Internship	3	
MKTG 200	Principles of Marketing	3	
MKTG 202	Managerial Marketing	3	
MKTG 221	Consumer Behavior	2	
SPCH 110	Oral Communic in the Workplace	3	
WRIT 127	Business Communications	3	

LIMITED CHOICE REQUIREMENTS **TOTAL: 19 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas	0 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area <i>(See Note 1)</i>	0
Science/Technology Core Area <i>(See Note 1)</i>	0
Global Perspectives and Diversity Core Area <i>(See Note 1)</i>	0
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	0

CHOICE 2: Sales/Marketing Related <i>(See Note 2)</i>	19 Credits	
ACCG 210	Principles of Accounting I	4
ACCG 211	Principles of Accounting II	4
BUSN 201	International Business	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
CABS 110	Microsoft Office	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 131	Merchandising	2
MKTG 140	Introduction to Advertising	3
MKTG 204	Marketing Research	3
MKTG 210	Marketing on the Internet	2
MKTG 235	Marketing Internship	3
MINIMUM TOTAL		60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose up to four credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 200	CISB 200	MKTG 122
MKTG 100	MGMT 234	LEGL 215	MKTG 202
SPCH 110	MKTG 119	MKTG 120	Lim.Ch.
WRIT 127	MKTG 200	MKTG 221	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**FIELD SALES AND MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10242 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 24 CREDITS
BUSN 118	Introduction to Business	3	
CABS 110	Microsoft Office	3	
MKTG 119	Mktg/Manage Your Profess Image	3	
MKTG 120	Sales	3	
MKTG 122	Field Sales Internship	3	
MKTG 200	Principles of Marketing	3	
SPCH 110	Oral Communic in the Workplace	3	
WRIT 127	Business Communications	3	

LIMITED CHOICE REQUIREMENTS **TOTAL: 6 CREDITS**
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related <i>(See Note 1)</i>	6 Credits
MINIMUM TOTAL	30

NOTE

1. Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	CABS 110
MKTG 119	MKTG 122
MKTG 120	MKTG 200
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MARKETING
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10204 (Effective Fall 1999 – Summer 2004)

Marketing is the set of activities that aims to satisfy the customer while making a profit. It is concerned with determining need and meeting demand by making goods and services known, available, and affordable. Entry-level personnel may require time in sales before internal promotion into marketing management positions. Graduates of this program are prepared to work in nearly every type of business and organization today. Traditional product marketing management is giving way to areas like nonprofit organization marketing, leading to a diverse job opportunity picture. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 46 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
CABS 110	Microsoft Office	3
CISB 200	Info Sys Tech/Problem Solving	3
MGMT 234	Diversity in the Workplace	3
MKTG 100	Current Issues in Business	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 140	Introduction to Advertising	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
MKTG 204	Marketing Research	3
MKTG 221	Consumer Behavior	2
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 14 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

CHOICE 2: Field Experience 3 Credits

MKTG 122	Field Sales internship	3
MKTG 235	Marketing Internship	3

CHOICE 3: Marketing Related (See Note 2) 11 Credits

ACCG 210	Principles of Accounting I	4
BUSN 201	International Business	3
BUSN 254	Introduction to Investments	2
BUSN 295	Small Business Management	3
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
LEGL 215	Busn Law I, Basic Principles	3
MGMT 200	Creative Thinking for Business	3

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

MGMT 223	Supervision	3
MGMT 225	Principles of Management	3
MGMT 231	Team Development	3
MKTG 131	Merchandising	2
MKTG 210	Marketing on the Internet	2
MKTG 231	Independent Study in Marketing	1-3

MINIMUM TOTAL

60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students may also choose up to four credits of T.I.M.E. Series courses (MGMT 240 through MGMT 279).

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BUSN 118	MGMT 234	BUSN 229	CISB 200
CABS 110	MKTG 119	MKTG 120	MKTG 130
MKTG 100	MKTG 200	MKTG 140	MKTG 202
WRIT 127	SPCH 110	MKTG 204	Lim.Ch.
Lim.Ch.	Lim.Ch.	MKTG 221	Lim.Ch.
		Lim.Ch.	

**MARKETING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10225 (Effective Fall 1999 - Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS

TOTAL: 24 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 130	Retailing	3
MKTG 200	Principles of Marketing	3
MKTG 202	Managerial Marketing	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communications	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 6 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Marketing Related (See Note 1) 6 Credits

MINIMUM TOTAL 30

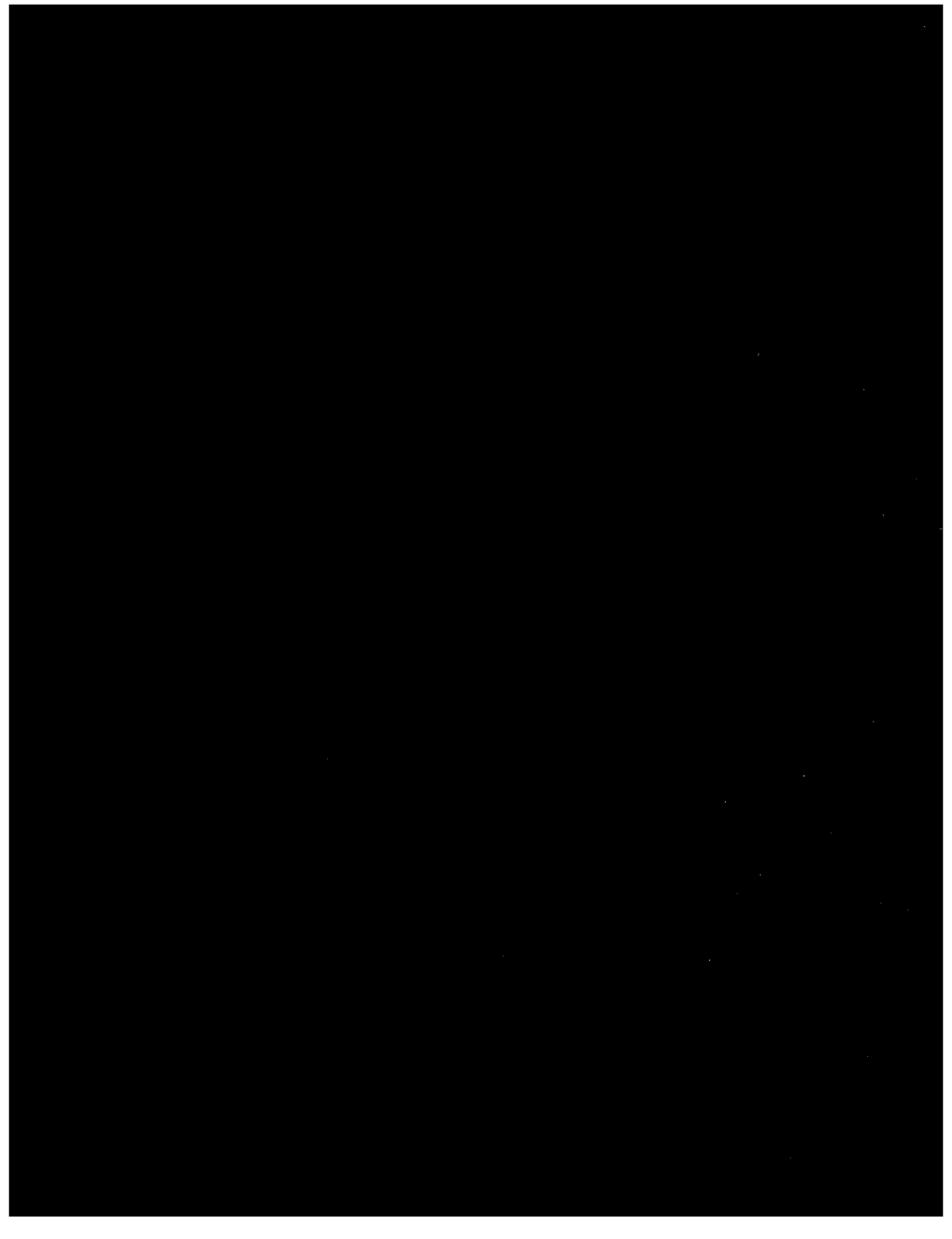
NOTE

1. Choose any course with a MKTG prefix not already used to meet certificate requirements.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
BUSN 118	MKTG 120
MKTG 119	MKTG 130
MKTG 200	MKTG 202
WRIT 127	SPCH 110
Lim.Ch.	Lim.Ch.



**MUSIC TRANSFER
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10270 (Effective Fall 1999 – Summer 2004)

The Music Transfer Program enables students to transfer to a four-year institution after completing studies in music theory, piano, and applied lessons. In addition to academic music classes, the curriculum includes training in a private instrument, performances with fine ensembles, and introduction to computers and music. Emphasis is placed on integrating skills acquisition with performing opportunities. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

The admission requirements for this program may change each academic year. For the most recent application information, contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018 or the LCC Admissions Office, Room 232, Gannon Vocational-Technical Center, telephone number (517) 483-1254.

REQUIREMENTS FOR ADMISSION TO THE MUSIC TRANSFER PROGRAM

Curriculum Code: 10721

In order to be considered as a candidate for this program, students must complete the following requirements:

- Submit high school transcript or GED and all college transcripts.
- Interview with Performing Arts advisor to discuss curriculum requirements. Repertoire requirements for the audition pertaining to their specific instrument will be described in detail.
- Audition. The actual audition day will consist of a live performance on instrument or voice in front of a faculty panel. A theory test covering written and aural theory will also be administered on the audition day. Names of students passing this phase of the Selective Admissions will be forwarded to the Admissions Office for processing.

MUSIC TRANSFER PROGRAM REQUIREMENTS

Curriculum Code: 10270

REQUIREMENTS TOTAL: 47 CREDITS

CODE	TITLE	CREDIT HOURS
ENGL 122	Writing: Literature and Ideas	4
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4
MUSC 138	Class Piano Major I	2
MUSC 139	Class Piano Major II	2
MUSC 163	Aural Skills I	1
MUSC 164	Aural Skills II	1
MUSC 193	Basic Musicianship I	3
MUSC 194	Basic Musicianship II	3
MUSC 263	Aural Skills III	1
MUSC 264	Aural Skills IV	1
MUSC 293	Advanced Musicianship I	3
MUSC 294	Advanced Musicianship II	3

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

POLS 120	American Political System	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 15-17 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 3 Credits
(See the GENERAL EDUCATION section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Private Lessons (See Note 2) 8 Credits

MUSC 157	Applied Lesson I	2
MUSC 158	Applied Lesson II	2
MUSC 257	Applied Lesson III	2
MUSC 258	Applied Lesson IV	2

CHOICE 3: Ensembles and Voice (Choose 1 Subchoice) 4-6 Credits

Subchoice 3A: Voice Requirements

MUSC 108	Concert Choir (See Note 2)	1
MUSC 179	Class Voice Major I	1
MUSC 180	Class Voice Major II	1

Subchoice 3B: Instrumental Requirements (See Note 2)

MUSC 119	Lansing Concert Band	1
MUSC 121	Percussion Ensemble	1
MUSC 123	Jazz Ensemble	1

MINIMUM TOTAL 62

NOTES

- Students completing REQUIREMENTS have fulfilled the requirements for these Core areas.
- Course may be repeated and must be taken each semester student is enrolled as a major.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MUSC 138	ENGL 122	HUMS 213	HUMS 214
MUSC 163	MUSC 139	MUSC 263	MUSC 264
MUSC 193	MUSC 164	MUSC 293	MUSC 294
WRIT 121	MUSC 194	POLS 120	SOCL 120
Lim. Ch. 1	Lim. Ch. 2	Lim. Ch. 2	SPCH 120
Lim. Ch. 2	Lim. Ch. 3	Lim. Ch. 3	Lim. Ch. 2
Lim. Ch. 3			Lim. Ch. 3

**THEATRE - ACTING TRANSFER
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10278 (Effective Fall 1999 - Summer 2004)

Theatre at LCC is designed to provide students as many opportunities to perform as possible and to focus students toward transfer to a four-year institution. A theatre major is part of a learning community: students take classes concurrently and work with the same group of students for two years. The theatre program concentrates on improvisation; Stanislavski method of script analysis and motivation, analysis of Shakespearean text, and individual and collaborative creativity. Graduation is dependent on successful participation in a minimum of four productions. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS (See Note 1)

TOTAL: 53.5 CREDITS

CODE	TITLE	CREDIT HOURS
DANC 103	Beginning Jazz I	2
ENGL 122	Writing: Literature and Ideas	4
MUSC 182	Class Voice	1
POLS 120	American Political System	4
SPCH 120	Dynamics of Communication	3
THEA 110	Introduction to Theatre	3
THEA 111	Stagecraft I	2
THEA 116	Scene Design I	3
THEA 120	Introduction to Acting	2
THEA 131	Studio Theatre Performance I	1
THEA 132	Studio Theatre Performance II	1
THEA 141	Acting I - Contemporary	2.5
THEA 142	Acting II - Classics	2.5
THEA 171	Dramatic Form and Function I	3
THEA 172	Dramatic Form and Function II	3
THEA 181	Improvisation	2.5
THEA 210	Theatre History	4
THEA 233	Studio Theatre Performance III	1
THEA 251	Stage Voice for the Actor	3
THEA 261	Movement for the Actor	2
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS (See Note 2) TOTAL: 17-18.5 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	6 Credits
(See the GENERAL EDUCATION section above)	
Writing Core Area (See Note 3)	0
Speech Communication Core Area (See Note 3)	0
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Theatre (Choose 1 Subchoice) 7-8.5 Credits

Subchoice 2A

THEA 235	Studio Theatre Performance V	2
THEA 241	Acting III: Creating Theatre	2.5
THEA 271	Dramatic Form and Function III	3
THEA 281	Advanced Improvisation II	1

Subchoice 2B (See Note 4)

Repertory/Performance Class (See Note 5)	1	
MUSC 182	Class Voice I	1
THEA 237	Theatre Special Projects	1-2
THEA 295	Acting Styles I	2
THEA 296	Acting Styles Performance	2

CHOICE 3: Humanities 4 Credits

HUMS 211	History of Art I	4
HUMS 212	History of Art II	4
HUMS 213	World Civilizations I	4
HUMS 214	World Civilizations II	4

MINIMUM TOTAL 70.5

NOTES

1. Students must consult a Theatre Program advisor prior to declaring a theatre major. Most required theatre courses are offered in a sequenced studio format, and students must obtain program approval to enroll.
2. Those students who plan on attending a four-year school in Michigan should include an additional four-credit course in: (1) Science or Mathematics and (2) Social Science or Humanities to complete all general education requirements.
3. Students completing REQUIREMENTS have fulfilled the requirements for this Core area.
4. Subchoice 2B can only be selected through an audition process for a musical production.
5. Choose from DANC courses numbered 161 through 164.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MUSC 182	DANC 103	THEA 181	SPCH 120
THEA 110	ENGL 122	THEA 210	Lim. Ch. 2
THEA 120	POLS 120	THEA 233	Lim. Ch. 2
THEA 131	THEA 111	THEA 251	Lim. Ch. 2
THEA 141	THEA 116	THEA 261	Lim. Ch. 2
THEA 171	THEA 132	Lim. Ch. 1	Lim. Ch. 3
WRIT 121	THEA 142	Lim. Ch. 1	
	THEA 172		

**PHOTOGRAPHIC IMAGING
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10277 (Effective Fall 1999 – Summer 2004)

The field of photography is vast and diverse with a wide range of employment opportunities. Professionals include everyone from the traditional person with a camera, to a lab or service bureau employee, to someone working at a high-end computer station. Skill requirements fall into two categories, visual and technical. Visual skills include idea development, composition, lighting, and communication. Technical skills include practical and theoretical knowledge of cameras and other photographic-related equipment, light sensitive materials, processes, and digital-based imaging equipment and software. A "photographer" may be self-employed, be a member of a small team, or be employed by a large company.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Photographic Imaging Technology Program, Photography Center, Room 117, telephone number (517) 483-1673.

REQUIREMENTS

TOTAL: 42 CREDITS

CODE	TITLE	CREDIT HOURS
ARTS 171	Computer Graphics/Photography	3
IMAG 111	Intro to Photographic Tech I	4
IMAG 112	Design for Imaging Tech	3
IMAG 113	Lighting Concepts/Applications	3
IMAG 114	Intro Photographic Color Tech	3
IMAG 117	Intro to Photographic Tech II	4
IMAG 119	Intermediate Lighting	4
IMAG 210	Intermediate Color Ap and Tech	3
IMAG 211	Advanced Color Appl and Tech	4
IMAG 220	Intermed Still Imaging Tech	4
IMAG 221	Advanced Still Imaging Tech	4
IMAG 234	Portfolio Assembly/Degree Comp (See Note 1)	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 18 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 9 Credits

(See the GENERAL EDUCATION section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area (See Note 2)	0
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Business 3 Credits

BUSN 118	Introduction to Business	3
IMAG 233	The Business of Photography	3

CHOICE 3:	Special Interest	6 Credits
ARTS 228	Advanced Digital Imaging	3
IMAG 118	Film Production I	4
IMAG 201	Topics Commercial Photography	3
IMAG 202	Topics in Photo Communication	3
IMAG 293	Topics in Film/Multimedia	3
IMAG 204	Topics in Imaging Self-Express	3
IMAG 205	Topics in Hybrid Imaging	3
IMAG 206	End Technologies	3
IMAG 207	Imaging Issues	3
IMAG 208	Input Processes	3
IMAG 226	Film Production II	4
IMAG 227	Film Production III	4
IMAG 228	Independent Study	3
IMAG 229	Advanced Imaging Applications	1
IMAG 238	Project Lab Independent Study	3
IMAG 240	Internship	4

MINIMUM TOTAL

60

NOTES

1. The Portfolio is considered to be the final course in this curriculum. All imaging and non-photo courses must be completed or be taken concurrently with IMAG 234.
2. For students completing all requirements for this program (including IMAG 114), the Science/Technology Core Area requirement is waived.
3. Students completing this curriculum have the option of doing so through a two-year, full-time sequence of courses or through part-time enrollment over a longer period. The full-time sequence begins most efficiently in the Fall Semester. Part-time students may begin their studies any semester.
4. For graduation, a student must have earned a minimum actual grade of 2.0 in all courses taken to satisfy the course credits required in this curriculum.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
IMAG 111	IMAG 114	ARTS 171	IMAG 211
IMAG 112	IMAG 117	IMAG 210	IMAG 221
IMAG 113	IMAG 119	IMAG 220	IMAG 234
Lim.Ch.1	Lim.Ch.1	Lim.Ch.3	Lim.Ch.2
Lim.Ch.1		Lim.Ch.3	

**QUALITY ASSURANCE
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10206 (Effective Fall 1999 – Summer 2004)

Quality assurance is an established field utilizing the application of management principles, problem solving, planning, and statistical techniques to produce high quality products or services. The quality assurance program offers students the opportunity to develop skills required for a career in quality with an emphasis in technical quality areas. Students will study areas such as probability and statistics, control charts, problem solving, metrology, quality improvement teams, quality planning and systems management, cost of quality, sampling, reliability, applied statistics, and experimental design. This program provides excellent preparation for students to pursue certification through the American Society for Quality Control (ASQC) as a Certified Quality Technician, Certified Quality Engineer, Certified Quality Manager, Certified Quality Auditor, or Certified Reliability Engineer.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 42 CREDITS
QUAL 100	Intro Quality Assurance	3	
QUAL 103	Probability/Stats Qual Assur	4	
QUAL 104	Process Control Charting	3	
QUAL 107	Problem-Solving Techniques	3	
QUAL 115	Metrology	4	
QUAL 200	Quality Improvement Teams	4	
QUAL 203	Quality Planning/Systems Mgmt	4	
QUAL 205	Cost of Quality	3	
QUAL 209	Reliability	3	
QUAL 212	Applied Stats/Qual Assur	4	
QUAL 215	Experimental Design in QA	4	
QUAL 242	Quality Auditing	3	

LIMITED CHOICE REQUIREMENTS TOTAL: 21-24 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 12 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Additional Quality Assurance/Technology Courses 9-12 Credits

CNCP 101	PC Applications for Technology	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
MACH 100	Manufacturing Processes	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 135	Measure/Gage Tolerances	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Project Management	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2
MINIMUM TOTAL		63

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
QUAL 100	QUAL 104	QUAL 115	QUAL 209
QUAL 103	QUAL 203	QUAL 200	QUAL 215
QUAL 107	Lim.Ch.	QUAL 205	QUAL 242
Lim.Ch.	Lim.Ch.	QUAL 212	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	

**QUALITY TECHNICIAN
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10899 (Effective Fall 1999 – Summer 2004)

The quality technician is a paraprofessional who supports quality engineers and the manufacturing production function. Tasks of the quality technician include measuring, testing, and other evaluations of production; preparing quality plans and instructions; analyzing measurement systems; maintaining a program of certification and calibration for measurement devices; collecting and analyzing quality data; solving problems; and training inspectors and process operators. This program provides students with training and skills for an entry-level position in quality assurance with emphasis on technical areas of quality.

REQUIREMENTS

CODE	TITLE	CREDIT HOURS	TOTAL: 30 CREDITS
DTDS 100	CAD/Drafting Concepts	4	
DTDS 110	Industrial Blueprint Reading	3	
QUAL 100	Intro Quality Assurance	3	
QUAL 103	Probability/Stats Qual Assur	4	
QUAL 104	Process Control Charting	3	
QUAL 107	Problem-Solving Techniques	3	
QUAL 115	Metrology	4	
QUAL 135	Measure/Gage Geom Tolerances	3	
QUAL 242	Quality Auditing	3	

LIMITED CHOICE REQUIREMENTS TOTAL: 5-12 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: Related Technical Courses 5-8 Credits

CNCP 101	PC Applications for Technology	3
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
QUAL 205	Cost of Quality	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

CHOICE 2: Mathematics (See Note 1) 0-4 Credits

MATH 112	Intermediate Algebra	4
MATH 115	Technical Math II	4
MINIMUM TOTAL		35

NOTES

- Students may waive the mathematics requirement by passing the MATH 112 Proficiency Examination with the equivalent of a 2.0 grade or higher. This exam is administered free of charge in the Learning Center, Room 309, Arts and Sciences Building.
- Students should confer with a program advisor to assure that selection of Limited Choice courses will best fit their career plans.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
DTDS 100	DTDS 110	QUAL 135	
QUAL 100	QUAL 104	QUAL 242	
QUAL 103	QUAL 107	Lim.Ch.	
Lim.Ch.	QUAL 115		
	Lim.Ch.		

**QUALITY MANAGEMENT
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10246 (Effective Fall 1999 – Summer 2004)

Quality management is an area of study which focuses on the managerial principles and statistical techniques that are necessary to continuously improve organizational effectiveness and ensure the delivery of high quality products and services. The quality management program offers students the opportunity to develop skills required for a career in quality with an emphasis in management areas. Students will study areas such as accounting, general business, international business, organizational development, probability and statistics, control charts, problem solving, quality improvement teams, quality planning and systems management, cost of quality, applied statistics, and experimental design. This program provides excellent preparation for students to pursue certification through the American Society for Quality Control (ASQC) as a Certified Quality Technician or Manager.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 101	Accounting Info for Management	3
BUSN 118	Introduction to Business	3
BUSN 201	International Business	3
QUAL 100	Intro Quality Assurance	3
QUAL 103	Probability/Stats Qual Assur	4
QUAL 104	Process Control Charting	3
QUAL 107	Problem-Solving Techniques	3
QUAL 200	Quality Improvement Teams	4
QUAL 203	Quality Planning/Systems Mgmt	4
QUAL 205	Cost of Quality	3
QUAL 212	Applied Stats/Qual Assur	4
QUAL 215	Experimental Design in QA	4
QUAL 242	Quality Auditing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 22 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2:	Additional Related Courses	10 Credits
MGMT 224	Human Resource Management	3
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
QUAL 115	Metrology	4
QUAL 121	Intro Statistical Process Cont	3
QUAL 124	Quality Service/Customer Satis	3
QUAL 209	Reliability	3
QUAL 224	Supervisory Skills for Quality	3
QUAL 239	Project Management	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

MINIMUM TOTAL

66

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ACCG 101	BUSN 201	QUAL 200	QUAL 205
BUSN 118	QUAL 104	QUAL 212	QUAL 215
QUAL 100	QUAL 107	QUAL 242	Lim.Ch.
QUAL 103	QUAL 203	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**SUPERVISION, MANUFACTURING
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10697 (Effective Fall 1999 – Summer 2004)

A supervisor in the manufacturing industry is responsible to manage and works to direct and facilitate production workers. Required skills include a technical expertise of manufacturing processes and materials, planning and organizational skills, interpersonal skills, an understanding of how organizations function, special requirements of the organization such as ISO and QS-9000, and a knowledge of systems to achieve a quality output. Many supervisors in manufacturing start their career in an entry-level manufacturing position in which they have acquired specific technical skills, then are promoted to a supervisory position and have a need for supervisory skills development. This curriculum provides a foundation of basic course work in supervision along with choices that allow the student to customize their program of study to fit the industry in which they work. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 36 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
EMTA 100	Medical First Responder	4
LABR 200	Intro to Labor Relations	3
MACH 100	Manufacturing Processes	4
MGMT 228	Organizational Behavior	3
MGMT 234	Diversity in the Workplace	3
QUAL 100	Intro Quality Assurance	3
QUAL 121	Intro Statistical Process Cont	3
QUAL 200	Quality Improvement Teams	4
QUAL 224	Supervisory Skills for Quality	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 28-30 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas

6 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Related Technical Courses (See Note 2)

11-12 Credits

CNCP 101	PC Applications for Technology	3
CNCP 130	Machine Controls and Setup	4
COOP 210	Cooperative Education (Tech)	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4

CHOICE 3: Business & Manufacturing Systems (See Note 2)

11-12 Credits

ACCG 101	Accounting Info for Management	3
MGMT 225	Principles of Management	3
MGMT 227	Training/Development for Busn	2
QUAL 103	Probability Stats Quality Assur	4
QUAL 203	Quality Planning/Systems Mgmt	4
QUAL 239	Project Management	3
QUAL 242	Quality Auditing	3
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

MINIMUM TOTAL

64

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Students should confer with a program advisor to assure that selection of Limited Choice courses will best fit their career plans.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
EMTA 100	BUSN 118	LABR 200	MGMT 228
MACH 100	MGMT 234	QUAL 200	Lim.Ch.
QUAL 100	QUAL 121	Lim.Ch.	Lim.Ch.
WRIT 124	QUAL 224	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.		

**SUPERVISION, MANUFACTURING
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10898 (Effective Fall 1999 – Summer 2004)

This program is designed for individuals seeking training for entry-level supervisory positions within the manufacturing industry. The courses required in this certificate program will also satisfy a portion of the Supervision, Manufacturing associate degree program, allowing students to continue their education and training.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 33 CREDITS

CODE	TITLE	CREDIT HOURS
BUSN 118	Introduction to Business	3
EMTA 100	Medical First Responder	4
LABR 200	Intro to Labor Relations	3
MACH 100	Manufacturing Processes	4
MGMT 228	Organizational Behavior	3
QUAL 100	Intro Quality Assurance	3
QUAL 121	Intro Statistical Process Cont	3
QUAL 200	Quality Improvement Teams	4
QUAL 224	Supervisory Skills for Quality	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 9-10 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Business and Technical Courses	9-10 Credits
ACCG 101	Accounting Info for Management	3
CNCP 130	Machine Controls and Setup	4
CQOP 210	Cooperative Education (Tech)	3
DTDS 100	CAD/Drafting Concepts	4
DTDS 110	Industrial Blueprint Reading	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 105	Machine Tool Survey	3
MACH 135	Metallurgy and Heat Treat	4
MACH 140	Tooling Theory and Practices	4
MGMT 227	Training/Development for Busn	2
QUAL 251	Current Qual Assur Topics	1
QUAL 252	Current QA Topics II	2

MINIMUM TOTAL

42

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I.	II.	III.
MACH 100	BUSN 118	LABR 200
QUAL 100	EMTA 100	QUAL 200
QUAL 224	MGMT 228	Lim.Ch.
WRIT 124	QUAL 121	Lim.Ch.
	Lim.Ch.	

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**REAL ESTATE
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10130 (Effective Fall 1999 – Summer 2004)

Real estate agents rent, buy, and sell property for clients on a commission basis. Agents may study property listings to learn about what is for sale; keep informed of property values, market conditions, and mortgage options; find prospects and develop leads and referrals; interview prospective clients to solicit listings; show property sites; draw up listings and contracts; negotiate loans on property; prepare marketing plans using advertising strategies such as open houses; and assist clients with available mortgage options.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS TOTAL: 39 CREDITS

CODE	TITLE	CREDIT HOURS
CISB 200	Info Sys Tech/Problem Solving	3
MGMT 234	Diversity in the Workplace	3
MKTG 119	Mktg/Manage Your Profess Image	3
MKTG 120	Sales	3
MKTG 200	Principles of Marketing	3
REAL 273	Real Estate Investment	3
REAL 274	Real Estate License Exam	3
REAL 275	Real Estate Financing	3
REAL 277	Property Management	3
REAL 279	Residential Appraisal	3
REAL 280	Real Estate Law	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 127	Business Communucations	3

LIMITED CHOICE REQUIREMENTS TOTAL: 21–23 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	0

CHOICE 2: Accounting 3–4 Credits

ACCG 100	Practical Accounting Non-Major	3
ACCG 101	Accounting Info for Management	3
ACCG 210	Principles of Accounting I	4

CHOICE 3: Real Estate Related 14 Credits

ARCH 100	Introduction to Architecture	3
BLDT 100	Introduction to Construction	3
BUSN 118	Introduction to Business	3
BUSN 229	Public Relations	2
BUSN 295	Small Business Management	3
CIVL 120	Surveying	4
ECON 201	Principles of Economics-Micro	3
ECON 202	Principles of Economics-Macro	3
LEGL 217	Busn Law III, Busn Organiza	3
LEGL 221	Real Estate Transaction	3

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

MATH 117	Math for Business	4
MGMT 225	Principles of Management	3
MGMT 228	Organizational Behavior	3
MGMT 239	Time and Stress Management	3
MKTG 140	Introduction to Advertising	3
MKTG 210	Marketing on the Internet	2
REAL 271	Introduction to Real Estate	2

CHOICE 4: Computer Related (See Note 2) 4–5 Credits

MINIMUM TOTAL 60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Choose CABS-prefix courses of 110 or above.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
MKTG 119	MKTG 120	MKTG 200	CISB 200
REAL 274	REAL 275	REAL 273	MGMT 234
SPCH 110	REAL 280	REAL 279	REAL 277
WRIT 127	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

**REAL ESTATE
CERTIFICATE OF COMPLETION**

Curriculum Code: 10148 (Effective Fall 1999 – Summer 2004)

Certificate holders may improve their opportunities for advancement in this or a related area. Additional education enhances an individual's employment opportunities.

REQUIREMENTS TOTAL: 15 CREDITS

CODE	TITLE	CREDIT HOURS
MKTG 120	Sales	3
REAL 273	Real Estate Investment	3
REAL 275	Real Estate Financing	3
REAL 279	Residential Appraisal	3
REAL 280	Real Estate Law	3

LIMITED CHOICE REQUIREMENTS TOTAL: 5–6 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: Real Estate Basics 5–6 Credits

MKTG 119	Mktg/Manage Your Profess Image	3
REAL 271	Introduction to Real Estate	2
REAL 274	Real Estate License Exam	3
REAL 277	Property Management	3

MINIMUM TOTAL 20

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
MKTG 120	REAL 275
REAL 273	REAL 280
REAL 279	Lim.Ch.
Lim.Ch.	

**CHEMICAL PROCESS TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10859 (Effective Fall 1999 – Summer 2004)

Chemical Process Technologists are trained for employment as process operators in the chemical and related industries. Process operators are required to maintain safety, health, and environmental standards in the plant; handle, store, and transport chemicals; operate, monitor, and control continuous and batch processes; and participate in routine and preventative maintenance of equipment and instrumentation.

Not all courses in this program transfer to all colleges. Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS TOTAL: 35 CREDITS

CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Lab I	1
CHEM 162	General Chemistry Lab II	1
CHEM 182	Introductory Organic Chemistry	3
CHEM 192	Intro Organic Chemistry Lab	1
FIRE 220	Hazardous Materials in the Fire Service	4
MFGM 101	Industrial Hydraulics	4
PHYS 200	Applied Physics	4
SOCL 120	Introduction to Sociology	4
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS TOTAL: 10-11 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the GENERAL EDUCATION section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Mathematics (Choose 1 Subchoice) 7-8 Credits

- Subchoice 2A:**
- MATH 112 Intermediate Algebra 4
- QUAL 103 Probability and Statistics for Quality Assurance 4
- Subchoice 2B:**
- MATH 121 College Algebra I 4
- STAT 170 Introduction to Statistics 3

CHOICE 3: Computer Science 3 Credits

- CNCP 101 PC Applications for Technology 3
- CPSC 120 Introduction to Computers 3

ELECTIVES

TOTAL: 16 CREDITS

Students must take at least 16 credits of electives. The following are recommended:

ENVR 121	Environmental Rules and Regulations	3
ENVR 131	Industrial Process and Pollution Prevention	3
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MACH 135	Metallurgy and Heat Treat	4
MFGM 102	Industrial Pneumatics	3
SCIN 287	Internship in Science Technology	4

MINIMUM TOTAL 61

NOTE

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152	MFGM 101	CHEM 182
CHEM 161	CHEM 162	Lim. Ch. 2	CHEM 192
WRIT 124	FIRE 220	Elective	PHYS 200
Lim. Ch. 2	SOCL 120	Elective	Elective
Lim. Ch. 3	SPCH 110	Elective	Elective

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**CHEMICAL PROCESS TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT****Curriculum Code: 10860 (Effective Fall 1999 – Summer 2004)**

This program will qualify students for immediate employment in the chemical or chemical-related industries as chemical process technicians. In this capacity, employees are involved in the direct manufacture of products - monitoring, calibrating, and maintaining equipment used in the production process. Additionally, they would practice quality assurance standards, environmental regulations, and safety procedures. Students may also elect to apply their certificate credits toward a two-year associates degree in this area.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS		TOTAL: 22 CREDITS
CODE	TITLE	CREDIT HOURS
CHEM 125	Basic Chemistry (See Note 1)	4
CHEM 161	General Chemistry Lab I	1
CHEM 182	Introductory Organic Chemistry (See Note 1)	3
CHEM 192	Intro Organic Chemistry Lab	1
PHYS 200	Applied Physics (See Note 1)	4
QUAL 100	Intro Quality Assurance	3
SPCH 110	Oral Communic in the Workplace	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS 10-11 CREDITS
Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1:	Computer Science	3 Credits
CNCP 101	PC Applications for Technology	3
CPSC 120	Introductions to Computers	3

CHOICE 2:	Mathematics (Choose 1 Subchoice)	7-8 Credits
Subchoice 2A:		
MATH 112	Intermediate Algebra (See Note 1)	4
QUAL 103	Probability and Statistics for Quality Assurance	4
Subchoice 2B:		
MATH 121	College Algebra	4
STAT 170	Introduction to Statistics	3

MINIMUM TOTAL 32

NOTE

1. A minimum grade of 2.0 is required in MATH 112, PHYS 200, and in either CHEM 125 or CHEM 182.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CHEM 125	CHEM 182
CHEM 161	CHEM 192
QUAL 100	PHYS 200
Lim. Ch. 1	SPCH 110
Lim. Ch. 2	WRIT 124
	Lim. Ch. 2

CHEMICAL TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10163 (Effective Fall 1999 – Summer 2004)

Graduates with associate degrees in Chemical Technology are much in demand by the chemical industry. This program prepares students to work with chemists and chemical engineers in many settings. Research, development, and production of pharmaceuticals, agricultural chemicals, and plastics as well as related functions such as sales and technical writing are some of the opportunities that are available to persons with this type of training. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS		TOTAL: 55 CREDITS
CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Lab I	1
CHEM 162	General Chemistry Lab II	1
CHEM 251	Organic Chemistry Lecture I	4
CHEM 252	Organic Chemistry Lecture II	4
CHEM 262	Quantitative Analysis	2
CHEM 272	Organic Chemistry Laboratory	2
CPSC 120	Introduction to Computers	3
FIRE 220	Hazardous Materials in the Fire Service	4
MATH 126	College Algebra and Trig	5
PHYS 201	Introductory Physics I	4
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
STAT 170	Introduction to Statistics	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 10-12 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas (See Note 1) 0 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	0
Speech Communication Core Area	0
Science/Technology Core Area	0
Global Perspectives and Diversity Core Area	0
Mathematics Competency	0

CHOICE 2: Science Electives 10-12 Credits

BIOL 127	Cell Biology	4
ENVR 121	Environmental Rules and Regulations	3
ENVR 122	Environmental Sampling and Instrumentation	3
ENVR 131	Industrial Process and Pollution Prevention	3
MICR 203	Microbiology	3
PHYS 202	Introductory Physics II	4
PHYS 225	Physics I Laboratory	1
PHYS 226	Physics II Laboratory	1
SCIN 287	Internship in Science Technology	4

MINIMUM TOTAL 65

NOTE

- Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CHEM 151	CHEM 152	CHEM 251	CHEM 252
CHEM 161	CHEM 162	CHEM 262	CHEM 272
MATH 126	CPSC 120	PHYS 201	FIRE 220
SPCH 120	STAT 170	SOCL 120	Lim. Ch. 2
WRIT 121	WRIT 122	Lim. Ch. 2	Lim. Ch. 2

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**MOLECULAR BIOTECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10212 (Effective Fall 1999 - Summer 2004)

The Biotechnology program is a laboratory-intensive curriculum which emphasizes the wide-ranging applications of recombinant DNA technology (genetic engineering). Graduates of this program will be able to work in many exciting areas of biotechnology, such as human genetic disease research, improvement of disease-resistance in plants, enhanced crop production, pharmaceutical research, and biological cleanup of environmental pollution. Near the end of the program the Science Department will make every effort to arrange for internships in university or industrial research laboratories for students who wish to gain further experience. If you plan to transfer to a four-year school, please see an academic advisor or counselor before enrolling. Visit the biotechnology Web site for further program details: <http://www.lansing.cc.mi.us/science/molecbio>

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics. For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092.

REQUIREMENTS		TOTAL: 50 CREDITS
CODE	TITLE	CREDIT HOURS
BIOL 127	Cell Biology	4
BIOL 275	Molecular Biology I (See Note 3)	4
BIOL 276	Molecular Biology II	4
CHEM 151	General Chemistry Lecture I	4
CHEM 152	General Chemistry Lecture II	3
CHEM 161	General Chemistry Lab I	1
CHEM 162	General Chemistry Lab II	1
CHEM 251	Organic Chemistry Lecture I	4
CHEM 252	Organic Chemistry Lecture II	4
CHEM 272	Organic Chemistry Laboratory	2
MICR 203	Microbiology	3
MICR 204	Microbiology Laboratory	1
SOCL 120	Introduction to Sociology	4
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4
WRIT 122	Composition II	4

LIMITED CHOICE REQUIREMENTS TOTAL: 20-21 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas	0 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area (See Note 1)	0
Speech Communication Core Area (See Note 1)	0
Science/Technology Core Area (See Note 1)	0
Global Perspectives and Diversity Core Area (See Note 1)	0
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	
CHOICE 2: Humanities (See Note 2)	8 Credits
CHOICE 3: Social Science (See Note 2)	4 Credits
CHOICE 4: Mathematics	4-5 Credits
MATH 121 College Algebra I	4
MATH 126 College Algebra and Trig	5

CHOICE 5: Science Elective	4 Credits
BIOL 128 Organismal Biology	4
SCIN 287 Internship in Science Technology	4

MINIMUM TOTAL 70

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate Humanities and Social Science courses.
3. Students are strongly urged to complete BIOL 127 and CHEM 161 before enrolling in BIOL 275.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
BIOL 127	CHEM 152	BIOL 275	BIOL 276
CHEM 151	CHEM 162	CHEM 251	CHEM 252
CHEM 161	WRIT 121	MICR 203	CHEM 272
SPCH 120	Lim. Ch. 2	MICR 204	SOCL 120
Lim. Ch. 4	Lim. Ch. 3	WRIT 122	Lim. Ch. 5
		Lim. Ch. 2	

VETERINARY TECHNOLOGY ASSOCIATE IN APPLIED SCIENCE DEGREE

Curriculum Code: 10287 (Effective Fall 1999 – Summer 2004)

Veterinary technicians are professionals dedicated to animal health care. They are vital members of the veterinary medical team and are trusted with diverse medical responsibilities, including animal nursing care, life support, laboratory specimen analysis, physical therapy, surgical assistance, anesthesia, dental hygiene, X-ray imaging, nutritional management, and client education. The variety in veterinary technology makes it a challenging medical career for those who enjoy working with animals and people. Career opportunities exist with veterinary hospitals, biomedical research institutions, zoological parks, and other animal care facilities. This curriculum is intended for students who have been admitted to the joint LCC/MSU Veterinary Technology Program. Admission is by application only.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Science Department, Arts and Sciences Building, Room 408, telephone number (517) 483-1092 or the MSU Department of Veterinary Technology at (517) 353-7267.

REQUIREMENTS		TOTAL: 16 CREDITS
CODE	TITLE	CREDIT HOURS
CHEM 151	General Chemistry Lecture I	4
CHEM 161	General Chemistry Lab I	1
MICR 203	Microbiology	3
MICR 204	Microbiology Laboratory	1
SPCH 120	Dynamics of Communication	3
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS TOTAL: 46-48 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	General Education Core Areas	3-4 Credits
	<i>(See the GENERAL EDUCATION section above)</i>	
	Writing Core Area <i>(See Note 1)</i>	0
	Speech Communication Core Area <i>(See Note 1)</i>	0
	Science/Technology Core Area <i>(See Note 1)</i>	0
	Global Perspectives and Diversity Core Area	3
	Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2:	Math Requirement	4-5 Credits
	MATH 121 College Algebra I	4
	MATH 126 College Algebra and Trig	5
CHOICE 3:	MSU Veterinary Medicine Courses	39 Credits
	Required Veterinary Medicine courses taken at Michigan State University <i>(See Note 2)</i>	
	MINIMUM TOTAL	62

NOTES

- Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
- The specific Veterinary Medicine courses necessary to fulfill this requirement are: VM 200, VM 201, VM 300, VM 301, VM 302, VM 303, VM 304. These courses must be taken at Michigan State University.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II
CHEM 151	MICR 203
CHEM 161	MICR 204
SPCH 120	
WRIT 121	
Lim. Ch. 2	

**SIGN LANGUAGE INTERPRETER
ASSOCIATE IN APPLIED ARTS**

Curriculum Code: 10282 (Effective Fall 1999 – Summer 2004)

A Sign Language Interpreter is a person specially trained to facilitate communication between the deaf, hard of hearing, and hearing communities. Employment opportunities may be in educational settings, freelance, or contracted with agencies to provide interpreter services for deaf persons. State certification for interpreters is required by taking the Quality Assurance Examination as issued through the Division on Deafness in the Department of Labor for the State of Michigan. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS

TOTAL: 54 CREDITS

CODE	TITLE	CREDIT HOURS
PSYC 200	Introduction to Psychology	4
PSYC 205	Human Growth and Development	3
SIGN 160	Orientation to Deafness	2
SIGN 161	American Sign Language I	3
SIGN 162	American Sign Language II	3
SIGN 163	American Sign Language III	3
SIGN 164	American Sign Language IV	3
SIGN 166	Fingerspelling	2
SIGN 167	Beginning Sign to Voice	3
SIGN 168	Expressive Manual Commun	2
SIGN 170	Creative Arts Signing	2
SIGN 176	Advanced Fingerspelling	2
SIGN 250	Deaf Culture and History	3
SIGN 261	Principles of Interpreting (See Note 1)	3
SIGN 262	Mock Quality Assurance (QA)	3
SIGN 263	Intermediate Sign to Voice	3
SIGN 264	Advanced Sign to Voice	3
SIGN 267	Sign Internship I	3
SIGN 268	Sign Internship II	3
SIGN 295	Indepen Study/Sign Language	1

LIMITED CHOICE REQUIREMENTS

TOTAL: 15 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: General Education Core Areas (See Note 2) 12 Credits
(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Related Professional Courses 3 Credits

SIGN 260	Linguistic Principles of ASL	3
SIGN 265	Adv Interpreting/Translitterat	3

MINIMUM TOTAL 69

NOTES

1. An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167 and prior to registering for SIGN 261.
2. Students completing *REQUIREMENTS* have fulfilled the requirements for these Core areas.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
SIGN 160	SIGN 162	SIGN 163	PSYC 200
SIGN 161	SIGN 166	SIGN 167	SIGN 164
Lim.Ch.1	Lim.Ch.1	SIGN 168	SIGN 261
Lim.Ch.1	Lim.Ch.1	SIGN 170	
		SIGN 176	
V	VI	VII	
PSYC 205	SIGN 262	Lim.Ch.2	
SIGN 250	SIGN 264		
SIGN 263	SIGN 268		
SIGN 267	SIGN 295		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

SIGN LANGUAGE INTERPRETER CERTIFICATE OF ACHIEVEMENT

Curriculum Code: 10167 (Effective Fall 1999 – Summer 2004)

A Sign Language Interpreter is a person specially trained to facilitate communication between the deaf and hearing communities. State certification for interpreters is required by taking the Quality Assurance Examination as issued through the Division on Deafness for the State of Michigan.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Human, Health and Public Service Careers Department, Gannon Vocational-Technical Center, Room 175, telephone number (517) 483-1410.

REQUIREMENTS		TOTAL: 34 CREDITS
CODE	TITLE	CREDIT HOURS
SIGN 160	Orientation to Deafness	2
SIGN 161	American Sign Language I	3
SIGN 162	American Sign Language II	3
SIGN 163	American Sign Language III	3
SIGN 164	American Sign Language IV	3
SIGN 166	Fingerspelling	2
SIGN 167	Beginning Sign to Voice	3
SIGN 261	Principles of Interpreting (<i>See Note 1</i>)	3
SIGN 262	Mock Quality Assurance (QA)	3
SIGN 263	Intermediate Sign to Voice	3
SIGN 267	Sign Internship I	3
SIGN 268	Sign Internship II	3

LIMITED CHOICE REQUIREMENTS TOTAL: 2-3 CREDITS
Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1:	Related Professional Courses	2-3 Credits
SIGN 168	Expressive Manual Commun	2
SIGN 170	Creative Arts Signing	2
SIGN 176	Advanced Fingerspelling	2
SIGN 250	Deaf Culture and History	3
SIGN 260	Linguistic Principles of ASL	3
SIGN 264	Advanced Sign to Voice	3
SIGN 265	Adv Interpreting/Transliteration	3
SPEL 110	Spelling Development II	3

MINIMUM TOTAL 36

NOTE

1. An interpreter screening is required after the successful completion of SIGN 163 and SIGN 167 and prior to registering for SIGN 261.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
SIGN 160	SIGN 162	SIGN 163	SIGN 164
SIGN 161	SIGN 166 Lim.Ch.	SIGN 167	SIGN 261
V	VI		
SIGN 263	SIGN 262		
SIGN 267	SIGN 268		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**STAGE TECHNOLOGY
ASSOCIATE IN APPLIED ARTS DEGREE**

Curriculum Code: 10853 (Effective Fall 1999 – Summer 2004)

The Stage Technology Program provides training in technical skills associated with the stage technology industry, as well as general education classes that are part of most liberal studies degrees. Students who eventually plan to study scenic design or lighting design; media technology or communications, including television and film studies; electrical or mechanical engineering; or other related fields may find the unique blend of theory and practice in the Stage Technology Program particularly helpful. Upon completion of this degree, students may choose to enter the stage technology field; or with appropriate course planning, a student may transfer to a four-year institution. **Not all courses in this program transfer to all colleges.** Students planning to transfer should see an academic advisor or counselor before enrolling in any course.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS

TOTAL: 44 CREDITS

CODE	TITLE	CREDIT HOURS
ISCI 131	Integrated Science - Physical	4
MFGM 125	Rigging	2
MTEC 120	Audio Production I	4
SOCL 120	Introduction to Sociology	4
SPCH 110	Oral Communic in the Workplace	3
STEC 100	Intro to Stage Tech Industry	2
STEC 120	Stage Lighting and Electricity	3
STEC 130	Audio/Visual Technology	3
STEC 140	Theatrical Make-up and Wardrobe	3
THEA 110	Introduction to Theatre	3
THEA 111	Stagecraft I	2
THEA 116	Scene Design I	3
THEA 210	Theatre History	4
WRIT 121	Composition I	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 28 CREDITS

Complete the indicated number of credits from each CHOICE listed below.

CHOICE 1: General Education Core Areas 0 Credits

- (See the *GENERAL EDUCATION* section above)
- Writing Core Area (See Note 1) 0
- Speech Communication Core Area (See Note 1) 0
- Science/Technology Core Area (See Note 1) 0
- Global Perspectives and Diversity Core Area (See Note 1) 0
- Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)

CHOICE 2: Humanities 8 Credits

- HUMS 211 History of Art I 4
- HUMS 212 History of Art II 4
- HUMS 213 World Civilizations I 4
- HUMS 214 World Civilizations II 4

- CHOICE 3: English Composition (See Note 2) 4 Credits**
 - CHOICE 4: Science/Mathematics (See Note 2) 4 Credits**
 - CHOICE 5: Social Science (See Note 2) 4 Credits**
 - CHOICE 6: Stage Technology (See Note 3) 8 Credits**
- MINIMUM TOTAL 72**

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. See the MACRAO Transfer Agreement in the *Transfer Information* section of this catalog for appropriate English composition, science/mathematics, and social science courses.
3. Students must take a minimum of eight credits from one of the following areas: stage technology, electrical, media technology, welding, or theatre. Students must consult with the Stage Technology Program Advisor regarding course selection.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
ISCI 131	MTEC 120	STEC 130	MFGM 125
STEC 100	STEC 120	THEA 210	SOCL 120
THEA 110	THEA 116	Lim.Ch.	SPCH 110
THEA 111	Lim.Ch.	Lim.Ch.	STEC 140
WRIT 121	Lim.Ch.	Lim.Ch.	Lim.Ch.

**STAGE TECHNOLOGY
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10849 (Effective Fall 1999 – Summer 2004)

This program consists of practical, hands-on courses that provide students with the necessary technical knowledge and skills needed for an entry-level position in the stage technology industry. Upon completion of this program, students may opt to enter the workforce, apply for the Michigan Stage Technician Apprenticeship Program, continue course work toward the Associate in Applied Arts Degree in Stage Technology, or use their skills in community service at schools, theatres, and churches.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Humanities and Performing Arts Department, Arts and Sciences Building, Room 255, telephone number (517) 483-1018.

REQUIREMENTS

TOTAL: 27 CREDITS

CODE	TITLE	CREDIT HOURS
ELTE 100	Electrical Safety Practices	1
ELTE 110	Practical Electricity	3
MFGM 125	Rigging	2
MTEC 120	Audio Production I	4
STEC 100	Intro to Stage Tech Industry	2
STEC 120	Stage Lighting and Electricity	3
STEC 130	Audio/Visual Technology	3
STEC 140	Theatrical Make-up/Wardrobe	3
THEA 111	Stagecraft I	2
WELD 100	Combination Welding	4

LIMITED CHOICE REQUIREMENTS

TOTAL: 10 CREDITS

Complete the indicated number of credits from *each CHOICE* listed below.

CHOICE 1: Stage Technology (See Note 1) 10 Credits

MINIMUM TOTAL 37

NOTE

- Students must take a minimum of 10 credits from one of the following areas: stage technology, electrical, media technology, welding, or theatre. Students must consult with the Stage Technology Program advisor regarding course selection.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
ELTE 100	MTEC 120	MFGM 125
ELTE 110	STEC 130	STEC 140
STEC 100	THEA 111	WELD 100
STEC 120	Lim.Ch.	Lim.Ch.
		Lim.Ch.

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**CUSTOMER ENERGY SPECIALIST
CERTIFICATE OF ACHIEVEMENT**

Curriculum Code: 10893 (Effective Fall 1999 – Summer 2004)

This curriculum is designed to give students the technical knowledge and customer relations skills to determine customer energy needs in the negotiation, design, installation, and application of utility facilities. Customer energy specialists are employed by utility companies, governmental agencies, heating and cooling contractors, the construction industry, and engineering and architectural firms.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 42 CREDITS

CODE	TITLE	CREDIT HOURS
ACCG 101	Accounting Info for Management	3
BUSN 118	Introduction to Business	3
CNCP 101	PC Applications for Technology	3
DTDS 101	Drafting I	4
DTDS 131	AutoCAD Basic 2-D	4
ELCT 101	Analog Problems	5
ELCT 109	DC Circuits	3
ELCT 110	AC Circuits	3
MATH 114	Technical Math I	4
MKTG 200	Principles of Marketing	3
PHYS 200	Applied Physics	4
SPCH 110	Oral Communic in the Workplace	3
MINIMUM TOTAL		42

NOTE

- Students who are employed or interning at Consumers Energy Company will also need to complete LEGL 215 and WRIT 124 for a total of six credits in addition to completing this certificate of achievement curriculum.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III
BUSN 118	ACCG 101	ELCT 110
CNCP 101	DTDS 131	MKTG 200
DTDS 101	ELCT 109	PHYS 200
ELCT 101	MATH 114	SPCH 110

**GENERAL TECHNOLOGY
ASSOCIATE IN APPLIED SCIENCE DEGREE**

Curriculum Code: 10213 (Effective Fall 1999 – Summer 2004)

This curriculum is designed to provide an individual with a multi-discipline technical background. The technical courses and supporting courses that comprise this degree provide the flexibility to match the student's interest with the skills necessary for job entry. For example, this curriculum is often pursued by apprentices who complete most of the requirements for this degree through their related training requirements and who also wish to earn an associate degree. Students interested in pursuing careers in a specific technical area should see a faculty advisor in their career choice.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Technology Careers Department, Gannon Vocational-Technical Center, Room 136, telephone number (517) 483-1336.

REQUIREMENTS

TOTAL: 21 CREDITS

CODE	TITLE	CREDIT HOURS
DTDS 110	Industrial Blueprint Reading	3
EMTA 100	Medical First Responder	4
MACH 100	Manufacturing Processes	4
MACH 135	Metallurgy and Heat Treat	4
QUAL 100	Intro Quality Assurance	3
WRIT 124	Technical Writing	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 39 CREDITS

Complete the indicated number of credits from *each* CHOICE listed below.

CHOICE 1: General Education Core Areas	9 Credits
<i>(See the GENERAL EDUCATION section above)</i>	
Writing Core Area <i>(See Note 1)</i>	0
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency <i>(See page 22 for information on how to fulfill this requirement. Course work may be needed.)</i>	
CHOICE 2: Mathematics	8 Credits
MATH 112 Intermediate Algebra	4
MATH 114 Technical Math I	4
MATH 115 Technical Math II	4
CHOICE 3: Applied Technology Related <i>(See Note 2)</i>	22 Credits
MINIMUM TOTAL	60

NOTES

1. Students completing *REQUIREMENTS* have fulfilled the requirements for this Core area.
2. Contact an advisor in GVT 136 or call (517) 483-1336 for a listing of additional courses that may be applied toward this degree.

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
EMTA 100	MACH 135	DTDS 110	Lim.Ch.
MACH 100	Lim.Ch.	WRIT 124	Lim.Ch.
MACH 100	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.

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**TOURISM: AIRLINE AND TRAVEL AGENCY OPERATIONS
ASSOCIATE IN BUSINESS DEGREE**

Curriculum Code: 10229 (Effective Fall 1999 – Summer 2004)

Travel agents, tour escorts, cruise line and airline personnel plan trips and arrange lodging, modes of travel, and travel services for customers. They may specialize in foreign or domestic service, individual or group travel, or a specific geographical area. Travel customer service representatives are employed by airlines, cruise lines, tour companies, railroads, and tourism bureaus to provide travel information and arrange accommodations for tourists. They answer questions, offer suggestions, verify arrival/departure times, and provide literature on trips, excursions, sports events, concerts, and plays. Travel, tour, cruise and airline personnel may confer with customers by phone or in person, or plan trips for them in response to mail requests.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

GENERAL EDUCATION

General education is an important part of this program and includes a mathematics competency requirement. **To fulfill the mathematics competency requirement, students may need to complete specific course work in mathematics.** For information on how to fulfill all general education requirements, see page 22.

INFORMATION

Contact the Business Careers Department, Old Central Building, Room 210, telephone number (517) 483-1522.

REQUIREMENTS

TOTAL: 43 CREDITS

CODE	TITLE	CREDIT HOURS
CABS 110	Microsoft Office	3
TRVL 100	Intro to Travel Agency Ops	3
TRVL 110	Travel Agen Ticket Dom/Intn'l	3
TRVL 120	North American Travel I	3
TRVL 125	Foreign Country Travel II	3
TRVL 130	Foreign Country Travel III	3
TRVL 131	Foreign Country Travel IV	3
TRVL 140	Computer Reservation Training	3
TRVL 150	Tourism/Travel Operations	3
TRVL 200	Profit Trvl Sale/Mktg/Counsel	3
TRVL 210	Group Travel/Escorting Ops	4
TRVL 230	Travel/Tourism Law, Cur Events	3
TRVL 250	Advanced Computer Ticketing	3
TRVL 255	Advanced Sabre Training	3

LIMITED CHOICE REQUIREMENTS

TOTAL: 23-24 CREDITS

Complete the indicated number of credits from each **CHOICE** listed below.

CHOICE 1: General Education Core Areas 12 Credits

(See the *GENERAL EDUCATION* section above)

Writing Core Area	3
Speech Communication Core Area	3
Science/Technology Core Area	3
Global Perspectives and Diversity Core Area	3
Mathematics Competency (See page 22 for information on how to fulfill this requirement. Course work may be needed.)	

CHOICE 2: Specific Travel Occupations 11-12 Credits
(Choose 1 Subchoice)

Subchoice 2A: Tour Guide

MKTG 119	Mktg/Manage Your Profess Image	3
TRVL 145	Intro Cruise Sales/Ground Tran	3
TRVL 190	Internship and Seminar	3
TRVL 220	International Relations	3

Subchoice 2B: Airline/Cruise Operations

TRVL 135	Airline/Airport Operations	3
TRVL 145	Intro Cruise Sales/Ground Tran	3
TRVL 146	Seminar at Sea	2
TRVL 180	Your Career/Flight Attendant	3

Subchoice 2C: Travel Agent

TRVL 170	Open/Oper/Fran A Travel Agency	3
TRVL 190	Internship and Seminar	3
TRVL 220	International Relations	3
TRVL 260	Travel Agency Accounting	2

MINIMUM TOTAL

66

SUGGESTED COURSE SEQUENCE

Students should see course descriptions to find out when departments plan to offer courses. Students who for any reason are unable to follow the course sequence suggested below (for example, those who are part-time, have transferred in courses from another school, or have prerequisites to fulfill) should contact an academic advisor or counselor for help with adjustments.

I	II	III	IV
CABS 110	TRVL 110	TRVL 200	TRVL 131
TRVL 100	TRVL 130	TRVL 230	TRVL 210
TRVL 120	TRVL 140	TRVL 250	TRVL 255
TRVL 125	TRVL 150	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.	Lim.Ch.	Lim.Ch.
Lim.Ch.	Lim.Ch.		

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

**TRUCK DRIVER TRAINING
CERTIFICATE OF COMPLETION**

Curriculum Code: 10262 (Effective Fall 1999 – Summer 2000)

A truck driver operates a commercial vehicle which weighs over 10,000 pounds and is used in either intrastate or interstate travel. A person must be able to safely operate a large displacement vehicle in all traffic conditions. Truck drivers also need to maintain records which are required by state and federal regulations and employers. Before beginning the program, students must pass a physical and eye exam as well as have a good driving record. Students are subject to drug and alcohol testing as required by the Department of Transportation. There is limited enrollment, so there may be a short waiting period before starting the program. Upon successfully completing the program, a student will receive a certificate of completion from the college and be qualified for a class "A" Commercial Drivers License (CDL).

This is a selective admission program. In order to be considered as a candidate for this program, students must meet basic admission requirements beyond those required for admission to the college. The courses for this program are open only to students officially admitted to the Truck Driver Training Program.

PREREQUISITES

Students should see the *Course Descriptions* section of this catalog or the *Course Schedule* for course prerequisite information. Basic skills assessment and advising information may be found on page 8 of this catalog.

INFORMATION

The admission and/or graduation requirements for this program may change each academic year. **The program requirements below apply only to those students who have been admitted to the program for the 1999/2000 academic year.** For the most recent and complete information, interested students should contact Lansing Community College, Truck Driver Training Program, 2417 25th Street, Augusta, MI 49012, telephone number (616) 731-4125.

REQUIREMENTS FOR ADMISSION TO THE TRUCK DRIVER TRAINING PROGRAM

Curriculum Code: 10718

In order to be considered as a candidate for this program, an applicant must meet the following admission requirements:

- a. Submit to the Truck Driver Training Program a completed Selective Admissions Application, a completed Truck Driver Training Application, and a \$100 deposit or letter from a sponsoring agency or approved company indicating financial responsibility for applicable tuition and fees. (This deposit is refunded upon cancellation if the College is notified at least 18 days prior to the class starting date.)
- b. Have a valid driver's license. A Commercial License is not necessary while attending school, but will be required prior to being hired for work. Have an acceptable driving record. All driving records are checked through the Secretary of State and reviewed individually. The school will apply for each applicant's Motor Vehicle Record which takes 10-14 days to receive.
- c. **Must be eligible for a "Temporary Instruction Permit" (T.I.P.). The State of Michigan requires all truck drivers to have a Commercial Driver's License. Any person learning to drive a tractor-trailer unit (such as those operated by Lansing Community College) must be in possession of a T.I.P. or "Temporary Instruction Permit". WE WILL PREPARE STUDENTS TO OBTAIN THEIR "T.I.P." DURING THE FIRST WEEK OF CLASS. Written tests will be administered by Secretary of State personnel in the L.C.C. classroom. Persons shall be considered ineligible for a T.I.P. if they:**
 - Fail to pass the written examination.
 - Have been charged in the 24 months immediately preceding application with a total of 12 or more points.
 - Have had their license suspended or revoked in the 36 months immediately preceding application unless that suspension or revocation was due to a revocation by temporary medical condition, failure to appear for re-exam or failure to appear in court for a traffic violation, an unsatisfied judgment, or a no-fault insurance violation.
 - Have been convicted of a six-point violation or an impaired driving charge (four points) in the 24 months immediately preceding application.

Applicants residing outside the State of Michigan must supply a copy of their own driving record from the State in which they are licensed and must possess a T.I.P. from their licensing State.

- d. Be able to read, write, and speak the English language. A high school diploma is not required, but students must be able to compute simple fractions and know general math for correct log book tabulation.
- e. Be able to pass the Department of Transportation (D.O.T.) physical examination. The physical form and card can be obtained from the LCC Truck Driver Training Program. **PLEASE NOTE: THE TDT PROGRAM MUST RECEIVE THE APPLICANT'S COMPLETED D.O.T. PHYSICAL FORM SIGNED BY A PHYSICIAN BEFORE ACCEPTANCE INTO THE PROGRAM.** The fee for the physical exam is the applicant's responsibility.
- f. Be at least 18 years old. Those persons between the ages of 18 and 21 should realize job opportunities are limited for persons in this age bracket, and they will more than likely experience difficulty in obtaining employment. Graduates must be 21 years of age to drive outside the State of Michigan.
- g. Be able to appear for 200 hours of instruction during the five weeks of training. Classes begin at 8:00 A.M. (Monday through Friday) and students are expected to be on time. Any student missing more than two days of class will be dismissed.
- h. Students are subject to drug and alcohol testing as required by D.O.T. regulations.
- i. The Truck Driver Training Program is a short streamlined program. Any previous driving experience along with some mechanical aptitude is beneficial to a student. **APPLICANTS SHOULD KNOW HOW TO SHIFT A STRAIGHT STICK TRANSMISSION AND USE A CLUTCH PRIOR TO ATTENDING.**

TRUCK DRIVER TRAINING PROGRAM REQUIREMENTS

Curriculum Code : 10262

REQUIREMENTS		TOTAL: 9 Credits
CODE	TITLE	CREDIT HOURS
TDTP 110	Truck Driver Training I	3
TDTP 111	Truck Driver Training II	3
TDTP 112	Truck Driver Training III	3
MINIMUM TOTAL		9

NOTE

- 1. The Program provides 140 hours in range and highway driving and 60 hours in classroom instruction situations. Range training includes an over-the-road trip of over 1,000 miles, permitting the students to gain over-the-road experience.

STUDENTS ARE RESPONSIBLE FOR COMPLETING ALL REQUIREMENTS AS STATED. THE ONLY OFFICIAL DOCUMENTATION OF PROGRAM COMPLETION STATUS IS AN AUDIT CONDUCTED BY THE REGISTRAR'S OFFICE THAT IS INITIATED WHEN STUDENTS APPLY FOR A DEGREE OR CERTIFICATE. STUDENTS ARE EXPECTED TO APPLY ONE SEMESTER PRIOR TO THE SEMESTER THEY INTEND TO GRADUATE.

TRANSFER INFORMATION

Students planning on transferring to a four-year institution should be aware that universities and colleges differ widely in the courses they accept for transfer. In order to achieve maximum transferability of courses, students should consult an academic advisor or counselor at the Counseling and Advising Center, Room 103 of the Arts and Sciences Building, or the Counseling Services Department, Room 208 of the Student Personnel Services Building.

In addition, students intending to transfer should follow the transfer curriculum guide designed specifically for the major and the institution in which they intend to enroll. Students should understand that transfer guides are not LCC degree guides. Students intending to earn an LCC degree prior to transferring should consult an academic advisor or counselor.

Curricular guides are available for many, but not all, possible transfer programs. If there is not a curriculum guide available for a preferred major or institution, students are encouraged to contact the Admissions Office at the transfer institution of interest. It is the student's responsibility when transferring from LCC to be aware of the transfer institution's policies and program requirements.

Curriculum guides and additional transfer information may be obtained by returning the information request card attached to the back cover of this publication or by contacting:

LCC Counseling Services Department
Room 208, Student Personnel Services Building
Telephone: (517) 483-1184
FAX: (517) 483-1970
E-MAIL: mgarriso@lansing.cc.mi.us

When requesting information, please indicate area(s) of study and transfer college/university choice(s).

Areas of study (majors) for which transfer curriculum guides are available are as follows:

Accountancy	Food Marketing
Accounting	General Business
Actuarial Science and Economics	Health Care/Services Administration
Administrative Assistant	Hospitality
Advertising	Human Resources Management
Agriculture and Natural Resources Communication	Industrial Management
Agriscience	Information Systems
Animal Science	Insurance
Apparel Design	Integrated Supply Management
Applied Liberal Studies	International
Applied Mathematics	Logistics
Applied Physics	Management
Architecture	Marketing
Art	Operations Management
Art History	Organizational Behavior
Athletic Training	Product Operation & Management
Atmospheric, Oceanic, and Space Sciences	Public Administration
Audiology and Speech Sciences	Retail
Automotive and Heavy Equipment Management	Statistics
Aviation Flight Science	Chemistry
Aviation Maintenance Technology	Child Development
Behavioral Science	Chiropractic, Pre-Professional
Biochemistry	Clinical Laboratory Science
Biological Science	Communication
Biology	Interpersonal and Public Scientific and Technical Studies
Biotechnology	Technical and Professional Communication Arts
Broadcasting	Computational Mathematics
Building Construction Management	Computer Information Science
Business	Computer and Mathematical Sciences
Accounting	Computer Information/Management
Accounting Information Systems	Computer Information Systems
Administration	Computer Networks and Systems
Banking	Computer Science
Business Studies	Conservation
Computer Management/Systems	Construction Management
Economics	Court and Conference Reporting
Finance	Criminal Justice
Food Industry Management	

Criminology	Service Administration
Crop and Soil Science	Forestry
Dental Hygiene	Geography
Dentistry, Pre-Professional	Geological Sciences
Dietetics	Geology
Earth Science	Health Fitness in Prevent and Rehab Program
Economics	Health Information Management
Education	History
Elementary	Home Economics
Physical	Horticulture
Secondary	Hospitality
Allied Health	Human Resources Administration Training and Development
Biology	Industrial
Business	Environmental Health
Chemistry	Health and Safety Management
Home Economics	Technology
Industrial	Insurance
Mathematics	Interdisciplinary Studies
Music	Humanities
Technology	Social Sciences
Vocation Technology	Interior Architecture
Special	Interior Design
Engineering	International Studies
Administration	James Madison
Arts	Journalism
Aeronautical	Kinesiology
Aerospace	Land Use Planning and Management
Biosystems	Landscape Architecture
Chemical	Law
Civil	Pre-Professional
Computer	Legal Assistant
Construction and Management	Liberal Arts
Electrical	Management
Environmental	Microcomputer and Network
Geological	Health and Fitness
Industrial and Operations	Health Services
Material Science	Hospitality
Mechanical	Organizational Development
Metallurgical	Marketing
Mining	Mathematical Sciences
Naval Architecture and Marine	Mathematics
Nuclear	Mechanics
Paper	Medical Laboratory Sciences
Physics	Medical, Pre-Professional
Surveying	Medical Technology
Engineering Technology	Merchandising Management
Automotive	Mortuary Science, Pre-Professional
Automated Manufacturing	Music
Electrical/Electronics	Natural Resources
Heating, Ventilation, Air Condition and Refrigeration	Nursing
Heavy Equipment Service	Nutritional Sciences
Manufacturing	Occupational Therapy
Product Design	Optometry, Pre-Professional
Welding	Packaging
English	Park, Recreation, and Tourism Resources
Environmental and Applications Studies	Pharmacy, Pre-Professional
Environmental Chemistry	Philosophy
Environmental Geology	Photography
Environmental Science	Physical Therapy
Exercise and Sport Science	Physician Assistant
Facilities Management	Physics
Family Consumer Resources	Podiatry, Pre-Professional
Family Community Services	Political Science
Family Life Education	Polymers and Coatings Technology
Family Studies	Printing Management/Marketing
Fire Science General Emphasis	Psychology
Fisheries and Wildlife Management	Public Administration
Food	
Industry Management	
Science	

Public Relations
 Public Resource Management
 Quality Management
 Radiation Therapy Technology
 Recreation
 Recreational Management
 Retail
 Social Science
 Social Work
 Sociology
 Speech Pathology and Audiology
 Sports Medicine/Science
 Surveying

Systems Analysis and Application
 Development
 Telecommunication
 Television Production
 Textile and Apparel Studies
 Merchandising Production
 Theater
 Tourism Management
 Urban and Regional Planning
 Veterinary Medicine
 Water Purification Tech
 Wood Science

Colleges/universities for which transfer curricular guides are available are as follows (not all majors listed above are available at all transfer institutions):

Alma College
 Andrews University
 Aquinas College
 Baker College
 Bay de Noc Community College
 Brooks Institute
 Calvin College
 Clark Atlanta University
 Center for Creative Studies
 Central Michigan University
 Cleary College
 Concordia College
 Coolay Law School
 Davenport College/Lansing
 Eastern Michigan University
 Ferris State University
 Franklin University
 Grand Valley State University
 Johnson and Wales University
 Kendall College of Art and Design
 Kettering University (formerly GMI Engineering and Mgmt. Institute)
 Lake Superior State University
 Lawrence Technological University
 Life Chiropractic College

Michigan State University
 Michigan Technological University
 Morehouse University
 Morris Brown College
 Northern Michigan University
 Northwood University
 Oakland University
 Olivet College
 Palmer College of Chiropractic
 Rochester Institute of Technology
 Saginaw Valley State University
 School of the Art Institute of Chicago
 Sherman College of Straight Chiropractic
 Siena Heights University
 Spelman University
 Spring Arbor College
 Tri-State University
 University of Detroit Mercy
 University of Michigan/Ann Arbor
 University of Michigan/Dearborn
 University of Michigan/Flint
 Walsh College
 Wayne State University
 Western Michigan University

MACRAO TRANSFER AGREEMENT

In 1973 the Michigan Association of Collegiate Registrars and Admissions Officers proposed the MACRAO Transfer Agreement. The MACRAO Transfer Agreement was created to simplify the transfer of students from one institution to another. The agreement stipulates that 30 semester credit hours of 100-level and above, compatible, general course work will be granted to smooth transferability to participating universities. These credits will be applied toward a student's general education requirements. Completion of requirements for the MACRAO Transfer Agreement does not necessarily mean that a student has completed the requirements for a specific Lansing Community College associate degree.

The basic two-year requirements are:

- English Composition 6 semester hours minimum
- Science and Mathematics 8 semester hours minimum
- Social Science 8 semester hours minimum
- Humanities 8 semester hours minimum

The following establishes the approved list of LCC courses under the four major distribution requirements for the MACRAO Transfer Agreement. A course can be used to satisfy only one category even though it may appear in more than one category. Only courses in which at least a 2.0 is received may be applied to this agreement.

I. English Composition (minimum of six (6) semester credit hours)

Any one from each group:

1. WRIT 121 or WRIT 131
2. WRIT 122 or ENGL 122 or WRIT 132 or ENGL 132

A student with waiver of WRIT 121 indicated on the transcript must elect a second course from the 200-level offerings in WRIT or ENGL. Waiver of WRIT 121 should be printed on the student's transcript.

II. Science and Mathematics (minimum of eight (8) semester credit hours)

- Choose courses in at least two (2) subject areas, with a minimum of one laboratory science course. *Underlined courses indicate a laboratory course.*
Biology: ANAT 145, 151, 152, 201; BIOL 121, 127, 128, 210, 260, 265; ISCI 122; MICR 203 AND 204; PFW 123; PHGY 202
Chemistry: CHEM 120, 125, 135, 151 and 161
Environmental and Earth Systems Science: GEOL 221, 222, 230; ISCI 121, 131; METR 202
Mathematics and Statistics: MATH 121, 122, 126, 130, 141, 151, 152, 201, 202; STAT 170, 215
Physics: ASTR 201; PHYS 201 and 225, 215 and 225

III. Social Science (minimum of eight (8) semester credit hours)

Courses must be taken in more than one subject area.

- Economics:** ECON 120, 140, 201, 202, 213
- Geography:** GEOG 120, 200, 202
- Political Science:** POLS 120, 121, 260, 270
- Psychology:** CHDV 101; CJUS 255; PSYC 175, 200, 202, 203, 205, 240, 250
- Sociology/Anthropology:** ANTH 270; CJUS 101, 102, 106; GERO 100, SOCL 120, 254, 255, 260; SOWK 101

IV. Humanities (minimum of eight (8) semester credit hours)

This requirement may be fulfilled by taking one of the following combinations:

- HIST 211 and 212 or 214; HUMS 211 and 212; HUMS 213 and 214; ENGL 211 and 212; PHIL 211 and 212; RELG 211 and 212
- OR**
- By taking courses in at least two of the following areas:
Art History: HUMS 120, 211, 212
Foreign Language: CHIN 121, 122; FREN 121, 122, 201, 202; GRMN 121, 122, 201, 202; JAPN 121, 122, 201, 202; SPAN 121, 122, 201, 202
History: ECON 213; HIST 150, 210, 211, 212, 214, 220, 230, 260
Humanities: HUMS 213, 214, 215
Literature: ENGL 201, 202, 203, 211, 212, 255, 256, 260, 266, 267, 270, 290; HUMS 160
Performing Arts: MUSC 199, 240, 241; THEA 210
Philosophy: PHIL 151, 152, 153, 211, 212, 260
Religion: RELG 211, 212, 241, 242, 250

NOTES

1. Students are advised to also review specific transfer curricular guides. Some transfer institutions, for example, may require both a biological and physical science to satisfy the requirements for the degree.
2. Students seeking an LCC associate degree must fulfill specific graduation requirements including the LCC General Education Core requirements. See the *General Information* section of this catalog for additional details.

For further information and advising, contact an LCC academic advisor or counselor located in Room 103 of the Arts and Sciences Building, (517) 483-1904, or Room 208 of the Student Personnel Services Building, (517) 483-1185.

The following four-year institutions are signatory to the MACRAO Transfer Agreement:

- *Adrian College
- *Albion College
- *Alma College
- *Aquinas College
- *Baker College
- *Calvin College
- *Central Michigan University
- *Cleary College
- *Davenport College
- *Detroit College of Business
- *Eastern Michigan University
- *Ferris State University
- *Grand Valley State University
- *Hope College
- *Kalamazoo College
- *Kettering University (formerly GMI)
- *Lake Superior State University
- *Lawrence Technological University
- *Madonna University
- *Michigan State University
- *Michigan Technological University
- *Northern Michigan University
- *Northwood University
- *Oakland University
- *Olivet College
- *Rochester College (formerly Michigan Christian College)
- *Saginaw Valley State University
- *St. Mary's College
- *Siena Heights College
- *Spring Arbor College
- *Western Michigan University

*Some limitations may apply. Check with individual colleges/university.

LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

Course Descriptions

Course Descriptions

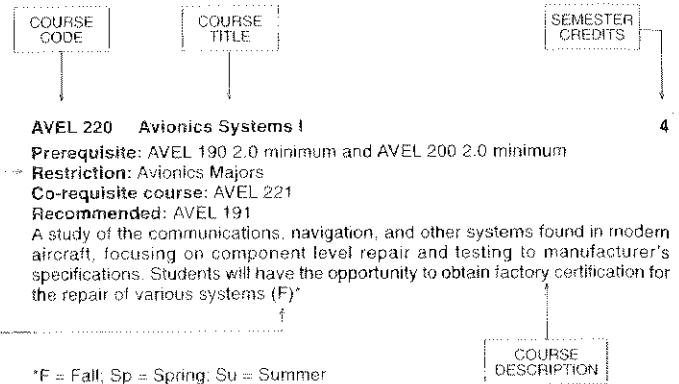


HOW TO READ COURSE DESCRIPTIONS

Each course description has seven (7) categories of information as follows:

1. Course code
2. Course title
3. Number of semester credit hours
4. Prerequisite
5. Course description
6. Semester planned

For example:



Previous courses, skill levels, training and/or experience required for enrollment. **Other prerequisites may be added.** See *Course Schedule* or department each semester for current information.

Indicates when department plans to offer course, but **does not guarantee** that the course will be offered. See *Course Schedule* or department each semester for current information.

COURSE CODES USED IN DESCRIPTIONS

Courses are listed in course code order. The sequence is as follows:

ACCG	Accounting
AERO	Aerospace Studies
AGRI	Agriculture
AHCC	Allied Health Courses
AGRI	Agriculture
AIBL	American Institute of Banking: Lansing
ANAT	Anatomy
ANTH	Anthropology
ARCH	Architecture
ARTS	Art, Design and Multimedia
ARWS	Art Seminars and Workshops
ASTR	Astronomy
AUTO	Automotive
AVAF	Aviation Airframe Maintenance
AVEL	Aviation Electronics
AVFT	Aviation Flight Training
AVGM	Aviation General Maintenance
AVGS	Aviation Ground School
AVIR	Aviation Instrument Repair
AVPP	Aviation Powerplant Maintenance
AVST	Aviation Simulator Training
BDCS	Business Development Seminars
BIOL	Biology
BLDR	Building Related
BLDT	Building Trades
BUSN	Business
CABS	Computer Applications Using Business Software
CACR	Court Reporting
CHCE	Continuing Health Careers*
CHDV	Child Development
CHEM	Chemistry
CHSE	Community Health Services
CISB	Computer Information Systems for Business
CIVL	Civil Technology
CJUS	Criminal Justice
CNCP	Computerized Numerical Control Program
COOP	Cooperative Education
CPSC	Computer Science
CUAI	Credit Union Accounting and Insurance
CUMA	Credit Union Management
DADH	Dental Assistant/Dental Hygiene
DANC	Dance
DAST	Dental Assisting
DHYN	Dental Hygiene
DTDS	Drafting and Design
ECON	Economics
EDUC	Education
ELCT	Electronics Technology
ELTE	Electrical Technology
EMSA	Emergency Medical Services
EMSB	Emergency Medical Services Seminars
EMTA	Emergency Medical Technology
ENGL	English
ENRI	Enrichment
ENVR	Environmental Science
ESLP	English as a Second Language
ESLW	English as a Second Language Workshop
FIRE	Fire Science
FLNG	Foreign Language
FREN	French
GEOG	Geography
GEOL	Geology
GERO	Gerontology
GRET	Geographical Resource and Environmental Technology
GRMN	German
HIST	History
HMFS	Hotel/Motel and Food Service Operations
HONR	Honors
HORT	Horticulture
HUMS	Humanities
HUSE	Human Services
HVAC	Heating, Ventilating, and Air Conditioning
IDMS	Diagnostic Medical Sonography
IMAG	Photography Technology
INAU	Industrial Automation
INSU	Insurance
INTR	Interior Design
IRAD	Radiation Therapy Technology
IRXT	Radiologic Technology
ISCI	Integrated Science
JAPN	Japanese
JRNL	Journalism

LABR	Labor Relations
LAND	Landscape
LEGL	Legal Assistant/Law
LING	Linguistics
MACH	Machine Tool Technology
MASG	Massage Therapy
MATH	Mathematics
MDCR	Management Development: Restricted
MDCS	Management Development Seminars
MEDA	Medical Assistant
METR	Meteorology
MFGM	Manufacturing Maintenance
MGMT	Management
MICR	Microbiology
MILS	Military Science
MKTG	Marketing
MTEC	Media Technology
MUSC	Music
NURS	Nursing
OADM	Office Administration
OCNL	Oceanology
PARA	Paramedic
PFAQ	Physical Fitness: Aquatics
PFCW	Physical Fitness: Combative/Weight Training
PFDA	Physical Fitness: Dance
PFFT	Physical Fitness: Fitness
PFHC	Physical Fitness: Health/Fitness Cardiac
PFHW	Physical Fitness: Health/Fitness Wellness
PFIS	Physical Fitness: Individual Sport/Interest
PFOA	Physical Fitness: Outdoor Activity
PFPR	Physical Fitness: Professional
PFTS	Physical Fitness: Team Sport
PHGY	Physiology
PHIL	Philosophy
PHON	Phonics
PHYS	Physics
POLS	Political Science
PSYC	Psychology
PVAA	Property Valuation and Assessment Administration
QSEM	Quality Assurance Seminars
QUAL	Quality Assurance
RDGR	Reading: Restricted
READ	Reading
REAL	Real Estate
RELG	Religion
RESP	Respiratory Therapy
RSEM	Resource and Operations Management Systems Seminars
SCIN	Science Technology Internship
SCIS	Science Seminars
SDEV	Student Development
SIGN	Sign Language
SOCL	Sociology
SOWK	Social Work
SPAN	Spanish
SPCH	Speech Communication
SPEL	Spelling Development
STAT	Statistics
STEC	Stage Technology
SURG	Surgical Technology
TDTP	Truck Driver Training Program
TEDU	Teacher Education
TECH	Technology General
THEA	Theater
TRVL	Tourism: Airline and Travel Agency Operations
VCBL	Vocabulary Improvement
WELD	Welding Technology
WRIT	Writing
WRTR	Writing: Restricted

DESCRIPTIONS

ACCG ACCOUNTING

- ACCG 100 Practical Accounting Non-Major** 3
Prerequisite: None
 Students will learn the bookkeeping procedures necessary for preparation of financial statements and payroll. Manual and computer systems will be covered. (F, Sp, Su)
- ACCG 101 Accounting Info for Management** 3
Prerequisite: None
 Students will learn to interpret financial statements and use this information for analysis, budgeting, and decision-making. (F, Sp)
- ACCG 140 Income Tax Preparation** 3
Prerequisite: None
 Students will complete individual income tax returns and supporting schedules according to the Internal Revenue Code. The focus is on the completion of forms rather than the theoretical aspects of the tax law. (F, Sp)
- ACCG 160 Payroll Systems and Taxes** 2
Prerequisite: None
Recommended: ACCG 100 or Equivalent Work Experience
 This course covers laws affecting payroll, calculation of payroll and payroll taxes using both manual and computer payroll systems, preparation of tax forms for payroll taxes, sales and use taxes, and personal property taxes. (Su)
- ACCG 210 Principles of Accounting I** 4
Prerequisite: None
Recommended: Algebra Knowledge
 Principles of Accounting I is the first class of a two-semester sequence focusing on financial accounting, including accounting for service organizations and merchandisers. Topics covered include the basic accounting cycle, financial reporting, accounting theory, and accounting for inventories, cash, receivables and payables, plant assets, and stockholders equity. (F, Sp, Su)
- ACCG 211 Principles of Accounting II** 4
Prerequisite: ACCG 210 2.0 minimum
Recommended: Intermediate Algebra or Higher
 Principles of Accounting II is the second course in the two-semester accounting sequence. Topics include statement of cash flows, budgets and other managerial reports, capital budgeting, short-term decision-making, equity investments, time value of money, bonds, manufacturing accounting, job and process costing systems, and accounting for quality and cost management. (F, Sp, Su)
- ACCG 220 Intermediate Accounting I** 4
Prerequisite: ACCG 211 2.0 minimum
Recommended: Electronic Spreadsheet Experience
 The purpose of this course is to review and expand upon the concepts of financial accounting that were covered in the Principles courses, to master time value of money concepts, and to cover the more complex and theoretical aspects of accounting for revenue recognition, cash, receivables, and inventory. (F, Sp)
- ACCG 221 Intermediate Accounting II** 4
Prerequisite: ACCG 220 2.0 minimum
 This course provides an in-depth coverage of long-term assets and liabilities, financial instruments, leases, pensions, accounting for income taxes, stockholders' equity, and earnings per share. (Sp)
- ACCG 230 Cost Accounting** 4
Prerequisite: ACCG 211 2.0 minimum
Recommended: Electronic Spreadsheet Experience
 This course focuses on cost-volume-profit analysis costing methods for service and merchandising businesses. Other topics include activity based costing, job order costing, responsibility accounting, budgeting, standards, variable vs. full costing, joint and by-products, process costing, spoilage, project control, and capital budgets. Computer applications are emphasized. (F)
- ACCG 231 Managerial Accounting** 4
Prerequisite: ACCG 230 2.0 minimum
 This course focuses on the accountant's role in the organization; cost information gathering, processing and reporting for various decision and control purposes; pricing; cost allocation; project control; mix and yield variances; uncertainty; variance investigation; inventory management; cost management; strategic planning; and management control. (Sp)

- ACCG 235 Budgeting** 2
Prerequisite: ACCG 211 2.0 minimum
 This course covers the budget cycle of an organization, both public and private, from a managerial perspective. Topics covered include budgetary terms, concepts and general format, performance budgeting, program budgeting, zero base budgeting, budgeting approval process, budgetary control, and the auditing phase of a budget. (F)
- ACCG 240 Federal Income Tax I** 4
Prerequisite: ACCG 211 2.0 minimum
 This class is the first in a two-semester sequence in federal income tax. This course deals with taxation of individuals from a historical and theoretical perspective, as well as preparation of individual income tax returns under current tax law. (F, Sp)
- ACCG 241 Federal Income Tax II** 4
Prerequisite: ACCG 240 2.0 minimum
 This course is the second in a two-semester sequence in federal income tax. This course deals with the taxation of corporations, partnerships, estates, trusts, and tax-exempt entities from a historical and theoretical perspective, as well as preparation of tax and information returns under current tax law. (Sp)
- ACCG 245 Accounting Internship** 2
Prerequisite: ACCG 210 2.0 minimum and Department Approval
 This internship provides the student with on-the-job experience in the accounting field. It requires 128 hours of work experience. (F, Sp, Su)
- ACCG 250 Advanced Accounting** 4
Prerequisite: ACCG 221 2.0 minimum
 This course covers business consolidations, foreign currency accounting, and partnerships in depth. In addition, the course provides an overview of governmental and nonprofit accounting. (Su)
- ACCG 260 Accounting Systems** 4
Prerequisite: ACCG 210 2.0 minimum
Recommended: Keyboarding Experience
 Accounting Systems prepares students to work with and design information systems and to use the scientific methods in problem solving. Issues and problems related to microcomputers and other technology on accounting systems are emphasized. Students analyze systems, work with manual and computerized accounting systems, database design, and problem solving with spreadsheets. (F, Sp, Su)
- ACCG 266 Independent Study Accounting** 1-4
Prerequisite: Department Approval
 With this course, students will learn advanced accounting topics as a part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum for each credit earned of either 16 classroom hours or 48 independent study hours. (F, Sp, Su)
- ACCG 271 Principles of Finance** 3
Prerequisite: ACCG 211 2.0 minimum
 This course emphasizes the short- and long-term decisions a financial manager may face. Topics include working capital management, risk, cost of capital, capital markets, long-term debt, stocks and dividend policy, mergers and acquisitions, and international financial markets as these topics relate to obtaining financing for a business. (F, Sp)
- ACCG 280 Governmental Accounting** 4
Prerequisite: ACCG 211 2.0 minimum
 Applications of fund accounting principles are applied to governmental (local and state) and not-for-profit entities. Students learn skills necessary to understand the organization, accounting functions, auditing, and financial reporting practices of governmental and nonprofit organizations. Governmental Accounting Standards Board (GASB) and Financial Accounting Standards Board (FASB) requirements are taught. (F)
- ACCG 290 Auditing** 3
Prerequisite: ACCG 220 2.0 minimum
 In this course, students will learn the theory and practice of auditing in accordance with generally accepted auditing standards. (F)

ACCG 295 CPA Review - Tax, Mgr, Cost, Gov 1**Prerequisite:** None**Recommended:** Meet Requirements for CPA Examination

This course is designed to provide CPA exam candidates with a review of federal taxation, cost, managerial, governmental and nonprofit accounting. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 296 CPA Review - Business Law 1**Prerequisite:** None**Recommended:** Meet Requirements for CPA Examination

This course is designed to provide CPA exam candidates with a review of business law, especially the provisions of the Uniform Commercial Code. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 297 CPA Review - Auditing 1**Prerequisite:** None**Recommended:** Meet Requirements for CPA Examination

This course is designed to provide CPA exam candidates with a review of audit concepts, assumptions, and procedures. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

ACCG 298 CPA Review - Fin Acct/Report 1**Prerequisite:** None**Recommended:** Meet Requirements for CPA Examination

This course is designed to provide CPA exam candidates with a review of the theory and practice of financial accounting and reporting for business enterprises. Emphasis is given to typical exam questions and strategies to answer them correctly. (F, Sp)

AERO - AEROSPACE STUDIES**AERO 111 Air Force Today I** 1**Prerequisite:** None

This course provides an introduction to the U.S. Air Force today. Course topics include mission and organization, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (F)

AERO 112 Air Force Today II 1**Prerequisite:** None

This course provides an introduction to the U.S. Air Force today. Course topics include officership and professionalism, group leadership problems, and introduction to communication skills. Includes a leadership laboratory. (Sp)

AERO 211 Development of Air Power I 1**Prerequisite:** None

This course focuses on Air Force heritage. Course topics include evaluation of air power concepts and doctrine, introduction to ethics and values, introduction to leadership, and the continuing application of communication skills. Includes a leadership laboratory. (F)

AERO 212 Development of Air Power II 1**Prerequisite:** None

This course focuses on Air Force leaders. Course topics include the role of technology in the growth of air power, introduction to Quality Air Force, group leadership problems, and the continuing application of communication skills. Includes a leadership laboratory. (Sp)

AGRI - AGRICULTURE**AGRI 101 Principles/Precision Agritech** 2**Prerequisite:** None

This course introduces the field of precision agricultural technology. The combining of the latest technologies, i.e., Global Positioning Systems and Integrated Pest Management, make traditional agricultural practices as accurate and customized as possible for each specialized crop. (F, Sp)

AGRI 106 Disease/Insect Agrinomic Crops 2**Prerequisite:** None

This course is for the professional applicator or farm operator interested in a basic knowledge of insects, diseases, vertebrates, and microorganisms that affect agronomic crops. Environmental problems, soil, fertilizers, planting, integrated pest management, and problem-solving techniques will be stressed. Can be used toward pesticide certification by the Michigan Department of Agriculture. (Sp)

AGRI 200 Vegetation and Weed Management 3**Prerequisite:** None

Students will develop skills necessary to monitor, control, and identify by species both vegetation and weed plants. Vegetation will be evaluated from seedling to mature stage for proper control measures by both natural and chemical controls. Various chemicals will be judged for environmental impact and effective control. (F, Sp)

AGRI 201 Prin/Sustainable Agriculture 3**Prerequisite:** None

The modern era principles of sustainable agriculture will be covered by way of lecture and demonstration. The practice of proper plant selection, species requirements, land use, fertilization needs, and pesticide practices will be highlighted. Scientific practices utilized in plant genetics and technology applications will also be discussed. (F)

AGRI 202 Agri Soils and Crop Management 3**Prerequisite:** None

This course covers all aspects of soils related to agricultural production of food and fiber crops. Soil classification, texture, composition and conditions will be analyzed, evaluated, and managed. Soil conditions relating to environmental fertilization and composition problems will be evaluated. Soil erosion and conservation management practices will also be highlighted. (F, Sp)

AGRI 211 Agricultural Crop Production 3**Prerequisite:** None

This course will focus on the basic components of cash crop production in the modern agricultural environment. Crop identification management and harvesting techniques will be highlighted for the major crops utilized in today's marketplace. Crop production techniques will be emphasized with a thorough evaluation of modern technology practices. (F, Sp, Su)

AGRI 213 Ag Site Specific Research Tech 3**Prerequisite:** None

This course will evaluate the various new technologies available to farmers and agriculturists. Technologies such as computers, GIS systems, GPS receivers, field monitors, sensors, pad computers, etc., will be evaluated as to their function and incorporation into specific farming production practices. IPM and crop genetic technologies will also be discussed. (F, Sp)

AHCC - ALLIED HEALTH COURSES**AHCC 104 Patient Care Principles** 2**Prerequisite:** Admission to Radiologic Technology Program

Principles of basic patient care are presented to assist the student in managing patients in the health care setting. Information and simulated practice will include surgical aseptic techniques, infection control procedures, taking vital signs, handling medical emergencies, and other practices emphasizing the physical and emotional aspects of basic patient care. (F, Sp)

AHCC 106 Introduction to Pathology 2**Prerequisite:** ANAT 145 2.5 minimum

General principles of pathology are discussed, rather than specific disease entities, to develop a new way of thinking about disease processes. Concepts of disease processes and their effect on normal structure and function of the body are emphasized. (F, Sp)

AHCC 110 Pharmacology-Allied Health 2**Prerequisite:** ANAT 145 2.5 minimum

This course is designed to familiarize the student with common medications encountered in the health care occupations. Emphasis is on drug categories and the responsibilities associated with medication administration. (F, Sp, Su)

AHCC 111 Applied Electrocardiography 1**Prerequisite:** None

This course is designed to teach the basic skills of electrocardiography necessary to perform, process, and explain the electrocardiogram. An overview of anatomy and physiology of the cardiovascular system, operation of the electrocardiograph, and recording EKGs, cardiac pathology, and basic cardiac rhythm recognition will be presented. (F, Sp)

AHCC 112 Health Law and Ethics 2
Prerequisite: None
Recommended: Health Careers Applicant or Professional
 This course is a presentation and discussion of legal ethical issues arising from the organization and delivery of health care services. Topics will include contract, tort, and business law; medical recordkeeping and retention; agency; physicians' public duties; licensure, certification and regulation of health professionals; consent; and exploration of issues arising from various bioethical topics. (F, Sp)

AIBL - AMERICAN INSTITUTE OF BANKING - LANSING AREA

AIBL 101 Principles of Banking 3
Prerequisite: None
 This course is an introduction to the field of commercial banking, designed not only for newcomers to the field, but for students presently employed in banking who desire to broaden their knowledge and/or increase their opportunities for advancement. (F, Sp)

ANAT - ANATOMY

ANAT 145 Introductory Anat & Physiology 4
Prerequisite: Reading Level 5 and Writing Level 6
 An introductory course in human anatomy and physiology which combines lecture and laboratory experiences to provide a basic understanding of the structure and function of body systems. Designed for vocational programs, including dental assistant and medical transcriptionist, as well as non-science majors. (F, Sp, Su)

ANAT 151 Anatomy and Physiology I 3
Prerequisite: Reading Level 5 and Writing Level 6
 First course of a two-semester sequence in human anatomy and physiology emphasizing the structure and function of cells and tissues; the skeletal, muscular and nervous systems; and special sense organs. (F, Sp, Su)

ANAT 152 Anatomy and Physiology II 3
Prerequisite: ANAT 151 2.0 minimum
 This course is the second of a two-semester sequence emphasizing structure and function of the endocrine, digestive, respiratory, circulatory, urinary, and reproductive systems. Includes fetal development and genetics. (F, Sp, Su)

ANAT 201 Human Anatomy 4
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: Biology and Chemistry
 A study of the anatomy of the human body that includes the structures of the skeletal, muscular, nervous, sensory, circulatory, respiratory, digestive, excretory, endocrine, and reproductive systems. (F, Sp, Su)

ANTH - ANTHROPOLOGY

ANTH 270 Cultural Anthropology 3
Prerequisite: Reading Level 5 and Writing Level 6
 This course compares ways of life for societies worldwide using anthropological theory and methodology. Basic institutions of human society, such as kinship, religion, law, politics, and economics are examined to provide a better understanding of the diversity of contemporary societies. (F)

ANTH 271 Medical Anthropology 3
Prerequisite: Reading Level 5 and Writing Level 6
 An overview of concepts used in anthropology of health and illness, and delivery of health care in diverse settings. Biocultural and cultural approaches to illness are examined from a comparative cross-cultural perspective against a background of evolutionary ecology, illustrating how therapeutic systems form an integrated aspect of society and culture. (F, Sp)

ANTH 275 Physical Anthr and Archaeology 3
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: SOCL 120
 Introduces human biological and cultural evolution, mechanisms of evolution, biological and cultural evidence from the fossil record, culture as an adaptive mechanism, and modern human variation. (Sp)

ANTH 276 World Archaeology 3
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: ANTH 270 and/or SOCL 120
 A general survey of archaeology. Includes an overview of the history of the field and the basic theories and methods employed in the study of prehistoric and historic cultures. Archaeological sites are used as examples. (F)

ARCH - ARCHITECTURE

ARCH 100 Introduction to Architecture 3
Prerequisite: Math Level 3
 This course is for students with no previous experience in basic architectural drafting. Students will be introduced to the proper techniques of architectural line work, lettering, orthographic projection, and axonometric drawings. Techniques of architectural dimensioning, the use of symbols, and the production of a basic floor plan will be accomplished. (F, Sp, Su)

ARCH 101 Architectural Drafting I 4
Prerequisite: Math Level 3
Recommended: ARCH 100 or Equivalent
 This course is the first of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques to draw a series of residential details. The development of professional quality drafting, lettering, research, and communication techniques will be emphasized. (F, Sp, Su)

ARCH 102 Architectural Drafting II 4
Prerequisite: ARCH 101 1.0 minimum
Recommended: ARCH 121 or Concurrently
 This course is the second in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained basic drafting techniques and knowledge of residential detailing to design and draft basic architectural design problems, residential floor plans, elevations, and building sections. (F, Sp, Su)

ARCH 121 Visual Communication I 3
Prerequisite: None
Recommended: ARCH 100 or Equivalent
 Students with very little or no previous experience in the production of architectural graphics will be introduced to the basic techniques of sketching, axonometric, and perspective drawings. The theory and production of the most commonly used professional techniques of black and white architectural rendering and basic modeling will be studied. (F, Sp, Su)

ARCH 122 Visual Communication II 3
Prerequisite: None
Recommended: ARCH 121
 This course is a continuation of Visual Communication I. Students will gain knowledge of basic color rendering techniques using a variety of media. (Sp)

ARCH 123 Visual Communication III 3
Prerequisite: None
Recommended: ARCH 122
 The goal of this course is to use the students' previously obtained graphic production knowledge to realistically depict three-dimensional architectural spaces and related entourage. An emphasis on developing the use of light and shadow and the true depiction of textures and materials will be taught. (F)

ARCH 126 Architectural Model Building 2
Prerequisite: None
 Students in this course will enhance their design and communication skills by developing various techniques for building three-dimensional architectural models. Examples constructed will range from the most basic of study models, using readily available materials, to more sophisticated presentation models. (F, Sp)

ARCH 128 Residential Planning 2
Prerequisite: None
 This course is designed for beginning through advanced students of architecture who want to study the theories behind the design of the American single-family residence. Architectural styles, planning concepts, the writing of design criteria programs, and the production of basic diagrams through finished concept drawings will be accomplished. (F, Sp)

<p>ARCH 131 City Planning 3</p> <p>Prerequisite: None</p> <p>This is an introduction to the field of urban and regional planning. The development of planning theory; process and practices, such as urban design, environmental, and land-use planning; transportation; economic development; housing; and community facilities will be studied. The history of various cities and their development will also be studied. (F, Sp)</p> <p>ARCH 138 Architecture Portfolio 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 102 or Equivalent</p> <p>This course will allow students to prepare a portfolio of previous classroom and professional work to be used for employment interviews and/or transfer to four-year institutions. Portfolios will be prepared using a variety of graphic techniques and will introduce the students to computer-generated portfolio presentations. (Sp)</p> <p>ARCH 141 Architectural History I 3</p> <p>Prerequisite: None</p> <p>Beginning with ancient times, this course studies the major civilizations which have contributed to the development of the architecture of world civilizations. A wide variety of visual media will be used to present the major theories, works, personalities in architecture, and the decorative arts through the Renaissance. (F, Sp)</p> <p>ARCH 142 Architectural History II 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 141</p> <p>This course, the second in a series, examines the greatest works and principal figures in world architectural history from the 1600s forward. Using a variety of visual media, this course will look at the principal works, theories, and individuals who have had the greatest impact on architecture and decorative arts to the present day. (F, Sp)</p> <p>ARCH 146 Preser/Adaptive Reuse Architec 3</p> <p>Prerequisite: None</p> <p>This course is designed as an overview of the principles and practices of preservation, restoration, and adaptive reuse architecture. Students will have the opportunity to work on a project of their choosing while being introduced to research methods, publications, and examples of preservation and new uses for existing structures. (F, Sp)</p> <p>ARCH 181 Barrier-Free Design 3</p> <p>Prerequisite: None</p> <p>This course covers the design, construction, and inspection aspects of commercial buildings required to be accessible to the handicapped. Michigan and federal laws, barrier-free residential design, and design practice problems are included. (F, Sp, Su)</p> <p>ARCH 182 Universal Design 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 and ARCH 181</p> <p>This course is designed for students with some architectural drafting experience. Students will apply ADA laws as well as Michigan's Barrier Free or Universal Design to residential design. Both study cases and original design projects will be used. (F, Sp)</p> <p>ARCH 201 Architectural Drafting III 4</p> <p>Prerequisite: ARCH 102 1.0 minimum and Math Level 4</p> <p>Recommended: ARCH 141</p> <p>This course is the third of a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to design, delineate, present, and draft a light commercial project from basic schematics to working drawings. (F, Sp, Su)</p> <p>ARCH 202 Architectural Drafting IV 4</p> <p>Prerequisite: ARCH 201 1.0 minimum</p> <p>Recommended: ARCH 271 or Concurrently</p> <p>This course is the conclusion in a four-part series of residential and light commercial architectural drafting courses. Students will use previously obtained drafting, research, and presentation skills to complete the working drawing floor plans, elevations, sections, and details for the light commercial projects started in the preceding course. (Sp)</p>	<p>ARCH 211 Design Studio I 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 101 or Concurrently</p> <p>This course is an introduction to the basic theories and methods of architectural design, problem-solving techniques, and design methodologies using contemporary architects as examples. Students will be given a series of problem-solving exercises and will be instructed in developing presentation and verbal techniques to present their solutions. (F, Sp)</p> <p>ARCH 212 Design Studio II 3</p> <p>Prerequisite: ARCH 211 2.0 minimum</p> <p>This course will use the skills developed in ARCH 211 to expand the student's understanding and processes for designing three-dimensional architectural space. Using models and various graphical mediums, students will explore the effects of scale, circulation, light, color, and texture on the spaces and forms created. (Sp)</p> <p>ARCH 213 Facilities Design 3</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 101 or Equivalent</p> <p>In this course, students will explore, tour, and study the design theory behind a full range of structures used for office and manufacturing purposes. Systems of manufacturing and how they relate to the structures which house them will be studied. (F, Sp)</p> <p>ARCH 221 Architectural DataCAD I 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 or Equivalent and Windows Experience</p> <p>An introductory course to architectural computer-aided drafting, using DataCAD on a PC computer system. Students will create a series of two-dimensional drawings, including floor plans, elevations, and building sections. An introduction to DataCAD's 3-D Modeler will also allow students to develop basic presentation drawings and perspectives. (F, Sp, Su)</p> <p>ARCH 222 Architectural DataCAD II 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 221</p> <p>This course is a continuation of ARCH 221 and will develop students' skills by introducing advanced two-dimensional operations, the creation and use of template symbols, and a complete overview of DataCAD's macro programs. Complete three-dimensional modeling will be taught including complex 3-D entities for developing professional presentations. (F, Sp)</p> <p>ARCH 225 Arch DataCAD Independent Study 1-4</p> <p>Prerequisite: ARCH 222 2.0 minimum and Department Approval</p> <p>This is an advanced-level, computer-aided drafting and design, independent study course, using DataCAD software. After completing all available structured DataCAD courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)</p> <p>ARCH 231 Architectural AutoCAD I 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 100 or Equivalent and Windows Experience</p> <p>This entry-level course introduces AutoCAD, a PC-based computer graphic system, for architectural applications. Students will concentrate on two-dimensional drawing and editing functions for creating floor plans, elevations, and building sections. An introduction to three-dimensional modeling techniques will also be covered. (F, Sp, Su)</p> <p>ARCH 232 Architectural AutoCAD II 4</p> <p>Prerequisite: None</p> <p>Recommended: ARCH 231</p> <p>This course is a continuation of ARCH 231, utilizing advanced two-dimensional techniques and a strong emphasis in the three-dimensional environment. Additional topics include digitizing drawings, paper space, slide shows and rendering, basic 3-D solids, program customization, and an introduction to AutoLISP. (F, Sp)</p> <p>ARCH 235 Arch AutoCAD Independent Study 1-4</p> <p>Prerequisite: ARCH 231 2.0 minimum and Department Approval</p> <p>This is an advanced-level, computer-aided drafting and design, independent study course, using AutoCAD software. After completing all available structured AutoCAD courses, students will outline, research, design, and construct a project of their own selection, with the approval and guidance of the instructor. (F, Sp, Su)</p>
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ARCH 237 Arch Computer Rendering 3
Prerequisite: None
Recommended: (ARCH 222 or ARCH 232) and Windows Experience
 This course is designed as an entry-level, computer-aided drafting and design independent study course using the AES software. Students will learn to build command strings in the modeling program to construct 3-D geometry, edit, create layers, plot, apply text and dimensions, and to open and close graphic windows. (F, Sp)

ARCH 241 Arch AES Computer Graphics I 4
Prerequisite: None
Recommended: ARCH 100 or Equivalent
 This course is designed as an entry-level, computer-aided drafting and design independent study course using the AES software. Students will learn to build command strings in the modeling program to construct 3-D geometry, edit, create layers, plot, apply text and dimensions, and to open and close graphic windows. (F, Sp)

ARCH 242 Arch AES Computer Graphics II 4
Prerequisite: None
Recommended: ARCH 241
 This course will build on the knowledge gained in ARCH 241 and will add additional applications in modeling, file management, plotting, and rendering. (Sp)

ARCH 245 Arch AES Independent Study 1-4
Prerequisite: ARCH 242 2.0 minimum and Department Approval
 This is an advanced-level, computer-aided drafting and design independent study course using AES software. After completing all available structured AES courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)

ARCH 251 Architectural MicroStation I 4
Prerequisite: None
Recommended: ARCH 100 or Equivalent and Windows Experience
 This class is an introductory computer graphics course using the MicroStation computer graphics software. Students will learn to develop basic 2-D geometry, editing commands, file manipulation, and utilization of levels, views, text, dimensioning, and plotting. (F, Sp)

ARCH 252 Architectural MicroStation II 4
Prerequisite: None
Recommended: ARCH 251 or Equivalent
 This is an intermediate-level computer graphics course. Using the MicroStation software, students will learn to create and manipulate 3-D drawing surfaces and solids, 3-D cells, rendering, lighting, material tables, pattern mapping, and object motion. Upon completion of this class, students will be able to create, manipulate, and render 3-D models. (Sp)

ARCH 255 MicroStation Independent Study 1-4
Prerequisite: ARCH 252 2.0 minimum and Department Approval
 This is an advanced-level, computer-aided drafting and design independent study course using MicroStation software. After completing all available structured MicroStation courses, students will outline, research, design, and construct a project of their own selection with the approval and guidance of the instructor. (F, Sp, Su)

ARCH 271 Structural Theory 4
Prerequisite: Math Level 4
Recommended: ARCH 101 or Concurrently
 This course introduces the principles of statics and relates the application of physical forces to structural materials and elements. The structural and design properties of steel, wood, and concrete will be studied. The ability to read structural tables and accurately make calculations will be emphasized. (F, Sp)

ARCH 273 Environmental Systems 4
Prerequisite: None
Recommended: ARCH 101 or Concurrently
 This course is designed for architecture and interior architecture students. All elements affecting the interior environment of a commercial or residential structure, such as lighting, HVAC systems, and acoustics, will be studied. Calculations and the sizing of systems will be part of all sections. (F)

ARCH 274 Arch Professional Practice 3
Prerequisite: None
 Students will have the opportunity to study the configuration, responsibilities, and ethics of professional architectural offices. This course will examine and visit various offices of the architectural, engineering, and construction industry and explore job responsibilities, personnel, and the procedures used in the production of construction documents. (F, Sp)

ARCH 276 Alternative Structures 3
Prerequisite: None
 Architectural and construction specialties will include earth sheltered homes, steel and in-steel 3-D, log building, pole construction, timberframe, stress skin panel, straw bale, tire building, and alternative foundation systems. Field examples will demonstrate many different technologies. Concepts will relate these structures to emerging appropriate architecture issues: integrated technologies, material sustainability, and recycling in construction. (F, Sp)

ARCH 278 Energy Efficient Design 4
Prerequisite: None
 Building science is used to examine how buildings work. The concept of systems integration is studied from the perspective of the building and its occupants in their environmental context. Computer-assisted calculation of heat loss, passive solar design and economic analysis will be covered. Communication and analytic skills will be developed through classroom activities and research. (F, Sp)

ARCH 283 Materials of Construction 4
Prerequisite: None
Recommended: ARCH 101 or Equivalent
 This course consists of the evaluation of the various characteristics of all materials commonly used in residential and light commercial structures. Students will develop a sensitivity to the use of building products based on a knowledge of their properties, limitations, and availability. (F, Sp)

ARCH 295 Arch Independent Study 1-4
Prerequisite: Department Approval
 This course provides the second-year architecture student with the opportunity to pursue a project of personal interest under the supervision of an instructor. With the approval and under the guidance of the instructor, the student will outline, research, design, and construct a project of his or her own selection. (F, Sp, Su)

ARTS - ART DESIGN AND MULTIMEDIA

ARTS 102 2-Dimensional Design 3
Prerequisite: Reading Level 3 and Writing Level 2
Recommended: Macintosh Experience
 Universal elements and principles of two-dimensional design, design theory and process, with emphasis on composition and its application to black-and-white and color media. (F, Sp, Su)

ARTS 103 3-Dimensional Design 3
Prerequisite: ARTS 102 2.0 minimum or IMAG 112 2.0 minimum
 Line, shape, form, value, color, and texture are explored using a variety of three-dimensional materials and applying principles and elements of design. (F, Sp)

ARTS 131 Drawing I 3
Prerequisite: (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently
 An introductory studio course using a variety of drawing media and methods that introduces both realism and abstraction. Fundamental elements of drawing, concepts of perception, and exploring properties of various media are stressed. Basic principles of one- and two-point perspective are covered. (F, Sp, Su)

ARTS 132 Life Drawing 3
Prerequisite: ARTS 131 2.0 minimum
 Basic concepts, approaches, and techniques involving drawing the human figure, using materials such as pencil, ink, charcoal, and conte crayon. (F, Sp, Su)

ARTS 133 Surface Anatomy for Artists 2
Prerequisite: ARTS 131 2.0 minimum
 This course is designed specifically for the visual artist. Emphasis will be on identifying and visually representing the effects that the skeletal and muscular systems, and body type have on human surface anatomy. Live models will be used. This course cannot be taken as a Science Department anatomy requirement. (F, Sp, Su)

ARTS 137 Perspective Drawing 2
Prerequisite: ARTS 131 2.0 minimum
 Further development of the drawing process. This course includes expanded perspective principles and quality of light with an emphasis on visualization. (F, Sp, Su)

ARTS 140 Printmaking I 3
Prerequisite: ARTS 102 2.0 minimum or Concurrently
 An introduction to the various printmaking techniques, tools, and vocabulary of the printmaker. Includes etching, collagraph, monoprinting, and linoleum cut. (F, Sp)

ARTS 141 Printmaking II 3
Prerequisite: ARTS 140 2.0 minimum
 Students expand on processes and concepts introduced in Printmaking (ARTS 140). Emphasizes refining technical skills and conceptual development. (F, Sp)

ARTS 145 Screen Printing I 3
Prerequisite: ARTS 102 2.0 minimum or Concurrently
 An introduction to basic silkscreen stencil processes with an emphasis on registration techniques. Includes constructing a frame and making a phototransparency. (F, Sp)

ARTS 146 Screen Printing II 3
Prerequisite: ARTS 145 2.0 minimum
 Students expand on processes and concepts introduced in Screen Printing I (ARTS 145). Includes an in-depth study of photographic processes in combination with paper, cut film, and block-out stencils. (F, Sp)

ARTS 151 Computer Graphics/Illustration 3
Prerequisite: ARTS 131 2.0 minimum
Recommended: Windows 95/98/NT Experience
 A beginning course for students interested in creating artistic images using a computer as a tool. Design and drawing skills are required for enrollment. (F, Sp, Su)

ARTS 162 Typography 3
Prerequisite: (ARTS 102 2.0 minimum or IMAG 112 2.0 minimum) or Concurrently
 Use of type in visual communication with an emphasis on creativity. Students will be introduced to the tools, materials, and techniques necessary to professionally used type. (F, Sp, Su)

ARTS 171 Computer Graphics/Photography 3
Prerequisite: ARTS 102 2.0 minimum or IMAG 114 2.0 minimum
Recommended: Macintosh Experience
 An introduction to computer manipulation of photographic images. Design and color skills are required for enrollment. (F, Sp, Su)

ARTS 175 Electronic Design 3
Prerequisite: ARTS 102 2.0 minimum and (ARTS 162 2.0 minimum or Concurrently)
Recommended: Knowledge of Mac OS and Basic Keyboarding Skills
 An introduction to page layout and object oriented illustration software programs utilizing the Macintosh computer. Emphasis is on design using electronic publishing applications. (F, Sp, Su)

ARTS 190 Matting and Framing Techniques 1
Prerequisite: None
 An overview of the various materials and techniques for displaying and exhibiting artwork. Students will apply demonstrated techniques to matting and framing their work. (F, Sp)

ARTS 195 Employ/Bu\$n Issues for Artists 2
Prerequisite: None
 An introduction to business, legal, and marketing issues relevant to visual artists. Students will be introduced to copyright, contract and negotiation concerns, and basic record keeping. Job search/marketing skills content, including creative résumés, letter writing, and self-promotion will focus on matching individual presentations to specific employment or freelance goals. (F, Sp)

ARTS 200 Painting I 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 131 2.0 minimum
 An introduction to oil and acrylic painting concepts in the Western tradition, ranging from Renaissance to Contemporary. Examines basic materials, tools, techniques, and modes of expression. (F, Sp, Su)

ARTS 201 Painting II 3
Prerequisite: ARTS 200 2.0 minimum
 A continuation of Painting I (ARTS 200) emphasizing more advanced techniques and increasingly complex problems in painting. A variety of media, techniques, and approaches are encouraged. (F, Sp, Su)

ARTS 203 Figure Painting 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 132 2.0 minimum
 A studio course in the human figure using various media such as oil paint, watercolor, acrylic paint, and pastel. (F, Sp, Su)

ARTS 204 Watercolor I 3
Prerequisite: ARTS 102 2.0 minimum and ARTS 131 2.0 minimum
 An introduction to the art of transparent watercolor. Examines paper characteristics, degrees of wetness, brushes and tools, and various techniques in producing watercolor art works. (F, Sp)

ARTS 205 Watercolor II 3
Prerequisite: ARTS 204 2.0 minimum
 A continuation of Watercolor I (ARTS 204) emphasizing more advanced techniques and increasingly complex problems using watercolor. (F, Sp)

ARTS 206 Advanced Watercolor 3
Prerequisite: ARTS 205 2.0 minimum
 An opportunity for the advanced student to continue with his or her personal exploration and development of watercolor skills under the guidance of an instructor. (F, Sp)

ARTS 213 Illustration Fundamentals 3
Prerequisite: ARTS 132 2.0 minimum and ARTS 137 2.5 minimum
 Illustrative techniques are utilized to prepare working sketches and convert them to finished illustrations. This course includes a variety of contemporary, realistic techniques. Emphasis is placed on sound draftsmanship and solving simple graphic problems through illustration. (F, Sp)

ARTS 216 Humorous Illustration I 3
Prerequisite: ARTS 131 2.0 minimum or Concurrently
 Basic humorous illustration/cartooning foundations are demonstrated. Exercises are given on cartooning heads, animals, objects, and drawing techniques. Graded projects include a caricature utilizing a drawing technique. Originality and imagination are emphasized. (F, Sp, Su)

ARTS 217 Humorous Illustration II 3
Prerequisite: ARTS 216 2.5 minimum and (ARTS 132 2.0 minimum or Concurrently)
 A continuation of Humorous Illustration I designed to expand the student's humorous illustration skills through a variety of black-and-white and color projects. Projects will concentrate on the various commercial applications of humorous illustration. (Sp)

ARTS 221 Airbrush Techniques I 3
Prerequisite: None
 Introduction to the operation and techniques of the airbrush in shading and creating textures in both black-and-white and color. Assignments include using various masking methods and freehand techniques. (F, Sp, Su)

ARTS 222 Airbrush Techniques II 3
Prerequisite: ARTS 131 2.0 minimum or Concurrently and ARTS 221 2.0 minimum
 A continuation of Airbrush Techniques I (ARTS 221) with an emphasis on more complex airbrushing problems including portrait rendering and painting of non-metallic surfaces. A variety of surfaces will be used including fabric, leather, fingernails, and pastries. (F, Sp, Su)

ARTS 224 Automotive Airbrush Techniques 3
Prerequisite: ARTS 221 2.0 minimum
 This course introduces techniques for painting on contoured automotive surfaces. Projects incorporate various masking techniques, handbrush techniques, and specialized paint systems. (F, Sp, Su)

ARTS 227 Humorous Illustration III 3
Prerequisite: ARTS 217 2.5 minimum
 A continuation of Humorous Illustration II with an emphasis on development of a personal style. Projects include commercial illustration and self-promotion. (F, Sp, Su)

- ARTS 228 Advanced Digital Imaging** 3
Prerequisite: ARTS 171 2.5 minimum
 An advanced level study in the manipulation and processing of digital photographic images. Emphasis is on professional scanning, manipulation, and output of digital images using a variety of available software products. Instruction includes preparation of images for prepress (hardcopy) and soft display (multimedia, CD-ROM, and World Wide Web). (F, Sp, Su)
- ARTS 231 Comp Graphics/Advanced Illustr** 3
Prerequisite: (ARTS 151 2.5 minimum or ARTS 175 2.5 minimum) and ARTS 171 2.5 minimum
 Full-color illustration techniques are taught using the computer as a tool. Assignments include stylized drawing techniques and design-oriented composition, with an emphasis on problem solving. (F, Sp, Su)
- ARTS 232 Comp Graphics/2-D Animation** 4
Prerequisite: (ARTS 216 2.5 minimum or IMAG 111 2.5 minimum) and ARTS 151 2.5 minimum and ARTS 171 2.5 minimum
 Create 2-D animations using the computer. Emphasis is on the history, theory, and principles of animation. (F, Sp, Su)
- ARTS 233 Comp Graphics/2-D Interactive** 4
Prerequisite: ARTS 232 2.5 minimum
 A course which uses 2-D animation skills to create interactive presentations and animated Web pages. Emphasis is on basic programming concepts and design. (F, Sp)
- ARTS 234 Comp Graphics/3-D Animation I** 4
Prerequisite: ARTS 151 2.5 minimum and ARTS 171 2.5 minimum
 An introduction of 3-D solid modeling, rendering techniques, and animation on a desktop graphics system. Introduction of the principles of designing for video. (F, Sp, Su)
- ARTS 235 Comp Graphics/3-D Animation II** 3
Prerequisite: ARTS 234 2.5 minimum
 A continuation of 3-D Animation I (ARTS 234). Emphasis on creation of more complex models and animations. Introduction of sound and editing. (F, Sp)
- ARTS 236 Computer Graphics/Production** 3
Prerequisite: (ARTS 233 2.5 minimum or ARTS 235 2.5 minimum) and (ARTS 228 2.5 minimum or IMAG 205 2.5 minimum)
 This course covers analysis, design, and development of a completed electronic project such as a CD, videotape, or WWW publishing. Techniques include recording and editing of two- and three-dimensional graphics, animation, video, audio, and imaging. Students implement theory and practice for designing, producing, and disseminating multimedia at planning pre-production, managing production, and post-production levels. (F, Sp)
- ARTS 240 Art for Elementary Teachers** 3
Prerequisite: None
 Especially for elementary school teachers responsible for the student art experience. Emphasis on developing a greater art appreciation, awareness of art forms, and competency working with a variety of art media. Covers the creative and mental growth of children and their needs in an art situation. (F, Sp, Su)
- ARTS 251 Graphic Design I** 4
Prerequisite: ARTS 102 2.0 minimum and ARTS 162 2.0 minimum and (ARTS 175 2.0 minimum or Concurrently)
 An overview of the designer's role in developing design products for print. Color, paper, and type selection for the individual client will be emphasized. (F, Sp, Su)
- ARTS 252 Graphic Design II** 4
Prerequisite: ARTS 251 2.5 minimum (previously ARTS 180)
 An overview of publication design and the designer's role in the creative organization of typography, photography, and illustration. Emphasis on editorial concept, format, and design considerations. (F, Sp)
- ARTS 253 Graphic Design III** 4
Prerequisite: ARTS 252 2.5 minimum (previously ARTS 181) and MKTG 140 2.5 minimum
 An advanced collaborative learning course involving corporate image and the design of promotional graphics, both two- and three-dimensional. Utilizes innovative design and media considerations. (F, Sp)

- ARTS 257 Computer Prepress Prod Tech** 4
Prerequisite: ARTS 171 2.5 minimum and (ARTS 252 2.5 minimum (previously ARTS 181) or Concurrently)
 An overview of digital prepress techniques for computer-generated media, including color separations, trapping, output, and digital file preparation. Instruction includes computer system components and peripheral devices, printing terminology and processes. The course emphasis is on professional knowledge and accuracy. (F, Sp, Su)
- ARTS 269 The Portfolio** 1
Prerequisite: Department Approval
 The student will assemble his or her best work under instructor supervision into a cohesive, relevant presentation for the purpose of securing employment in a chosen career area. This course is intended to be a final course in the Art Program. (F, Sp)
- ARTS 270 Comp Graphics Independ Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 272 Printmaking Independent Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her projects to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 276 Art Independent Study** 3
Prerequisite: Department Approval
 Individual pursuit of special projects not incorporated in regular class offerings. The student must submit a written application detailing his or her project to receive department approval. Cannot be audited. (F, Sp, Su)
- ARTS 281 Art Internship** 3
Prerequisite: Department Approval
 An off-campus field study. Students will gain pre-career experience by working in a studio environment under the supervision of a professional artist/designer. Regularly scheduled progress reports will be given and discussed with supervising faculty member. A minimum of 15 hours per week. (F, Sp, Su)

ARWS - ART SEMINARS AND WORKSHOPS

- ARWS 120 Basic Drawing** 1
Prerequisite: None
 An introductory course using a variety of materials including pencil, charcoal, and ink. For non-majors. (F, Sp, Su)
- ARWS 131 Intro to Computer Illustration** 1
Prerequisite: None
 A condensed hands-on workshop introducing computer graphics utilizing sophisticated, user-friendly, artistic software. Programming skills are not necessary. (F, Sp, Su)
- ARWS 132 Introduction to Quark Xpress** 1
Prerequisite: None
 A condensed, hands-on workshop designed to provide the student with a working knowledge of Quark Xpress software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)
- ARWS 133 Introduction to PageMaker** 1
Prerequisite: None
 A condensed hands-on workshop designed to provide the student with a working knowledge of Adobe PageMaker software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp, Su)
- ARWS 134 Introduction to Freehand** 1
Prerequisite: None
 A condensed hands-on workshop designed to provide the student with a working knowledge of Macromedia Freehand software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (F, Sp)

ARWS 135 Desktop Design Fundamentals .75**Prerequisite:** None

A seminar focusing on basic graphic design concepts to help the student improve the appearance and effectiveness of desktop publishing projects. This is not a hands-on computer course. (F, Sp)

ARWS 136 Intro to Adobe Illustrator 1**Prerequisite:** None

A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Illustrator software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Sp)

ARWS 137 Intro to Adobe Photoshop 1**Prerequisite:** None

A condensed, hands-on workshop designed to provide the student with a working knowledge of Adobe Photoshop software. Emphasis is on desktop publishing applications. (F)

ARWS 138 Intro to Macromind Director 1**Prerequisite:** None

A condensed, hands-on workshop designed to provide the student with a working knowledge of MacroMind Director software utilizing a Macintosh computer. Emphasis is on desktop publishing applications. (Su)

ARWS 139 Multimedia Web Graphics 1**Prerequisite:** None

A hands-on course designed to provide the student with a working knowledge of multimedia and Web page design. Emphasis is on Web design issues for artistic, creative and/or visual learners using Macintosh computers and a variety of multimedia/Web software. (F, Sp, Su)

ARWS 141 Watercolor Workshop 1**Prerequisite:** None

A condensed learning experience introducing the student to the art of transparent watercolor. Emphasis is on the use of different papers, degrees of wetness, tools, and techniques. Students will progress to more complex problems as ability develops. (F, Sp, Su)

ARWS 142 Watercolor Workshop II 1**Prerequisite:** None

A condensed learning experience designed to advance the student in the variety of effects of transparent watercolor, stressing the fundamentals of design color and value in the composition. (Sp)

ARWS 145 Landscape Painting & Drawing 1**Prerequisite:** None

Emphasis is on the use of color, perspective, and compositional strategies of the landscape. Most sessions spent in the field. All types of media are acceptable. (Su)

ARWS 221 Calligraphy I 1**Prerequisite:** None

Introduces the student to the art of fine writing using italic pens. Emphasis on hand lettering, surveying different styles and scripts used in early manuscripts, and adaptation to modern use. (F, Sp)

ARWS 224 Cartooning Workshop 1**Prerequisite:** None

Emphasizes simple but imaginative characterizations and dramatic exaggerated action in a variety of media including pencil, fibertipped pen, and brush and ink. Previous drawing experience helpful. (F, Sp)

ASTR - ASTRONOMY**ASTR 201 Introductory Astronomy 4****Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4

A non-mathematical survey of astronomy. Topics include ancient astronomy, the night sky, telescopes, space exploration, the solar system, stellar evolution, neutron stars and black holes, galaxies and quasars, cosmology, and the expanding universe. The LCC planetarium and observatory augment laboratory activities which illustrate important concepts in astronomy. (F, Sp, Su)

AUTO - AUTOMOTIVE**AUTO 100 Auto Service I 3****Prerequisite:** Reading Level 3 and Writing Level 2 and Math Level 3

This course is intended to provide the student with an extensive orientation to an automotive repair facility, while developing tool and equipment usage skills needed to advance in the automotive repair field. (F, Sp, Su)

AUTO 102 Basic Car Care for the Novice 1**Prerequisite:** None

This course is designed for the typical automobile owner who wants to gain a better understanding of the automobile and be able to make some basic repairs. It will encompass an overview of servicing needs and factors related to vehicle safety. Students will be able to inspect their vehicles, make informed decisions on purchasing vehicle products and services, and identify service items the owner might do themselves. (F, Sp)

AUTO 105 Automotive Safety 1**Prerequisite:** Department Approval

This course will provide the student with an overview of safety policies and procedures used in the automotive repair field. (Su)

AUTO 110 Auto Electrical Theory 5**Prerequisite:** AUTO 100 1.5 minimum or Concurrently

This course in basic electricity covers the fundamentals of automobile electricity. Materials covered will include electron theory, circuits and wiring diagrams. The students will learn how circuits work and how to diagnose malfunctioning circuits. Maximum emphasis will be directed to vehicle diagnosis. (F, Sp)

AUTO 120 Auto Drive Train 2.5**Prerequisite:** AUTO 100 1.5 minimum or Concurrently

This course is designed to prepare the technician to enter the auto repair and service industry. The student will study the operation and repair procedures for manual transmissions and transaxles, manual and hydraulic clutches, drive shafts and half-shafts, rear-axles, front and rear-wheel drive differentials and four-wheel drive components. (F, Sp)

AUTO 121 Automatic Transmissions I 5**Prerequisite:** AUTO 110 1.5 minimum or Concurrently

This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: GM 125C, 700R4, and the Chrysler A404. (F, Sp)

AUTO 122 Automatic Transmissions II 2.5**Prerequisite:** AUTO 121 1.5 minimum

This course in automatic transmissions is designed to prepare the technician to enter the auto repair and service industry. The student will study the theory of operation, service procedures, problem diagnosis, repair techniques, and overhaul procedures for the following transmissions: Ford AXOD, General Motors 4T60E, and Chrysler 604. (F, Sp)

AUTO 130 Automotive Engines 2.5**Prerequisite:** AUTO 110 1.5 minimum or Concurrently

This advanced course in engine rebuilding is designed to prepare technicians to enter the auto repair and service industry. The student will disassemble, inspect (using precision measuring tools and specialized equipment) and reassemble an engine. Theory of operation, basic computer technology and machining procedures are also covered. (F, Sp)

AUTO 133 Small Engine Repair 2.5**Prerequisite:** None

This is a basic course covering servicing and repair of two-cycle and four-cycle small gas engines. Each student is required to supply a small engine for laboratory work. (F, Sp, Su)

AUTO 140 Automotive Brakes 2.5**Prerequisite:** AUTO 110 1.5 minimum or Concurrently

This course prepares technicians to enter the auto repair and service industry. Theory and operation of modern automotive brake systems, hydraulic system diagnostic procedures, and service procedures for disc and drum brake systems will be studied. A brief overview of anti-lock brake systems will also be covered. (F, Sp)

AUTO 141 Non-Structural Repair 3
Prerequisite: Department Approval
Recommended: Evidence of Mechanical Ability
 This course introduces the student to elementary repairs that are completed in the collision repair industry. This allows the student to become familiar with the collision repair field environment. (F, Sp, Su)

AUTO 142 Advanced Non-Structural Repair 5
Prerequisite: AUTO 141 2.0 minimum
 This course is for students who are familiar with the auto body repair environment and are ready to begin development of specific marketable repair skills. (F, Sp, Su)

AUTO 143 Auto Body Welding and Cutting 5
Prerequisite: Department Approval
Recommended: Evidence of Mechanical Ability
 This course will present welding processes that will be the basis of many of the repair techniques in any advanced auto body course. MIG, TIG, Oxy-acetylene resistance spot welding and oxy-acetylene plasma arc cutting are included. (F, Sp, Su)

AUTO 144 Auto Body Structural Repair 5
Prerequisite: AUTO 141 2.0 minimum and AUTO 143 2.0 minimum
 This course addresses the repair of the unibody and vehicle frames which often are damaged by major collision forces. The student will learn damage diagnosis and repair techniques including stress relief, heating, welding, and corrosion protection. (F, Sp, Su)

AUTO 145 Introduction to Refinishing 5
Prerequisite: Department Approval
 The material in this course will form the basis for all automotive refinishing work. Surface preparation, material selection, and the use of hand and power tools (including automotive spray guns) will be covered. (F, Sp, Su)

AUTO 146 Advanced Refinishing 5
Prerequisite: AUTO 145 2.0 minimum
 This course builds on skills developed in AUTO 145. Overall refinishing, spot repairs, and color matching with a variety of contemporary color-coat materials will be stressed. (F, Sp, Su)

AUTO 147 Collision Repair Estimating 3
Prerequisite: AUTO 142 2.0 minimum and AUTO 144 2.0 minimum and AUTO 146 2.0 minimum
 This course prepares the student for analyzing collision damage, determining what parts are needed for repair, calculating labor allowances and figuring the total cost of repair. Collision repair manuals and computer programs will be used as sources of information. (F, Sp, Su)

AUTO 148 Automotive Plastic Repair 3
Prerequisite: AUTO 145 2.0 minimum
 This course covers repair techniques and materials for repairing the wide variety of plastic materials used in the manufacturing of current vehicles. Refinishing repaired parts is also included. (F, Sp, Su)

AUTO 150 Auto Steering & Suspension 2.5
Prerequisite: AUTO 100 1.5 minimum or Concurrently
 This course is designed to prepare technicians to enter the auto repair and service industry. The student will study theory, problem diagnosis, and repair of suspension and steering components found on both front- and rear-wheel drive vehicles, and adjustment of alignment angles on front- and rear-wheel drive vehicles. (F, Sp)

AUTO 160 Auto Heat & Air Conditioning 2.5
Prerequisite: AUTO 110 1.5 minimum
 This course in automotive air conditioning service is designed to prepare technicians to enter the auto repair and service industry. The student will study the theory, application, diagnosis, and repair of automobile air conditioning systems. Both mechanical and electronic controlled systems will be studied. (F, Sp)

AUTO 165 General Auto Mechanics 2.5
Prerequisite: None
 Automobile owners will gain a better understanding of the automobile and be able to make some repairs. Areas covered include preventive maintenance, tune-ups, brakes, engines, electrical systems, drive lines, front end, and steering. (F, Sp, Su)

AUTO 188 Auto Body Repair and Painting 4
Prerequisite: Department Approval
 This is a combined course of auto body repair and painting. It provides an opportunity to practice the techniques learned in AUTO 141, 142, 143 and 145. (F, Sp, Su)

AUTO 215 Engine Performance/Tune-Up 5
Prerequisite: AUTO 130 1.5 minimum
 This course prepares technicians to enter the auto repair and service industry. Theory and fundamentals of basic engine tune-up procedures will be studied. General engine diagnosis, introduction to computerized engine controls, ignition system diagnosis and repair, carburetion and fuel injection, and examination of emission control systems will also be covered. (F, Sp)

AUTO 225 Automotive Computers 5
Prerequisite: AUTO 215 1.5 minimum
 This advanced course in automotive computer systems is designed to train the student in theory and diagnosis of varying automotive engine computer control systems. The systems covered will include ignition, air induction, emission control, exhaust gas recirculation, exhaust gas treatment, intake air temperature control, and early fuel evaporation. (F, Sp)

AUTO 230 Anti-Lock Braking Systems 3
Prerequisite: AUTO 140 1.5 minimum and AUTO 225 1.5 minimum
 This course in anti-lock brakes is designed to prepare the student to enter the auto repair and service industry. The theory, application, and diagnosis of Bosch, Teves, and Kelsey-Hayes anti-lock systems will be studied in detail. The students will also study the basic principles of other various anti-lock systems. (F, Sp)

AUTO 251 Advanced Computer Diagnosis 2
Prerequisite: AUTO 225 1.5 minimum
 This advanced course in automotive computer systems diagnosis is designed to prepare the student to enter the auto repair and service industry. The student will study computer diagnosis procedures for General Motors, Chrysler, and Ford vehicles. "Strategy Based Diagnosis" procedures will be emphasized. (F, Sp)

AUTO 260 Intro to Alternative Fuels 2
Prerequisite: AUTO 130 1.5 minimum and AUTO 225 1.5 minimum
 This course is designed to help prepare the student to enter the auto repair and service industry. The student will study the use of propane, methanol, compressed natural gas (CNG), ethanol, liquefied natural gas, hydrogen, and electricity as alternative fuels in cars and light trucks. Safety regulations will be covered. (F, Sp, Su)

AUTO 261 Alternative Fuels - CNG 3
Prerequisite: AUTO 260 1.5 minimum
 This course is designed to help prepare the student to enter the auto repair and service industry. It is an intensive study covering the use of compressed natural gas (CNG) on automobiles and light trucks. Theory, application, installation, diagnosis, and safety regulations pertaining to the use of CNG will be covered. (F, Sp)

AUTO 262 Alt Fuels-Propane (LPG) 3
Prerequisite: AUTO 225 1.5 minimum
 This course is an intensive study covering the use of propane as fuel for automobiles and light trucks. Theory, application, installation, diagnosis, and safety regulations applicable to LPG vehicles will be covered. (F, Sp)

AUTO 280 Automotive Service Laboratory 6
Prerequisite: Department Approval
 This laboratory course is designed to provide work experience and develop trade-entry skills in general and light-line repair. (F, Sp)

AUTO 285 Automotive Internship 6
Prerequisite: Department Approval
 Students are able to earn credits while employed as a technician in auto mechanics or auto body. The program coordinator must approve the training station and working conditions. (F, Sp)

AUTO 286 Indepen Study/Automotive 1-3
Prerequisite: Department Approval
 Special research projects and/or individual readings are used to apply personal and professional experience to the academic area of interest. A minimum of 48 hours of work is required per credit, and the completion of a written project report. This course cannot be audited. (Su)

AVAF - AVIATION AIRFRAME MAINTENANCE

- AVAF 125 Aircraft Systems I** 2
Prerequisite: Department Approval
 The study of fuel management, transfer, defueling, and fuel pump systems. The course covers the procedures used to inspect, check, service, troubleshoot, and repair aircraft fuel systems and fuel system components. Course material emphasizes fluid quantity indicating, fluid pressure, and warning systems. (Sp)
- AVAF 126 Aircraft Systems II** 6
Prerequisite: Department Approval
 The study, analysis, and repair of aircraft landing gear and brake systems and their related warning systems. Includes the study, inspection, servicing, and repair of aircraft hydraulic and pneumatic systems and their related components. (Sp)
- AVAF 127 Aircraft Systems III** 3
Prerequisite: Department Approval
 Course covers the inspection, checking, troubleshooting, servicing, and repair of aircraft heating, cooling, air-conditioning, pressurization, oxygen, ice and rain control, and fire protection systems. (Su)
- AVAF 130 Avionics Airframe Applications** 3
Prerequisite: Department Approval
 This course covers airframe related subjects necessary for an avionics technician. Topics include aircraft structure principles, installation procedures, material and fastener identification, and antenna installation procedures. Students will work with sheet metal and composite structures. (F)
- AVAF 134 Aircraft Instruments** 2
Prerequisite: Department Approval
 Course covers inspection, checking, servicing, troubleshooting, repair of electronic flight instrument systems (both mechanical and electrical speed), altitude, temperature, pressure, and flow instrument systems. Also, special removal and installation techniques applicable to aircraft instruments is included. (Su)
- AVAF 208 Aircraft Structures I** 4
Prerequisite: Department Approval
 This course introduces the procedures for identification, inspection, testing, and repairing of wood, fabric-covered, and sheet metal aircraft. The installation and removal of conventional rivets, the forming of aircraft sheet metal, the installation of special rivets and fasteners, and an introduction to applying finishing materials will also be covered. (Sp)
- AVAF 209 Aircraft Structures II** 4
Prerequisite: Department Approval
 Covers assembly and rigging of fixed wing and rotary wing aircraft control structures. Provides practical application in removal, installation, and adjustment of flight controls by balancing, cable tension, and motion studies. Aircraft inspection procedures to insure conformity with flight safety standards will be included. (F)
- AVAF 210 Aircraft Structures III** 3
Prerequisite: Department Approval
 An advanced course covering the inspection, repair, lay out, bending, and assembly of aircraft sheet metal. Inspection, testing, and repair of fiberglass, plastics, honeycomb, composite, and laminated structures are practiced. Installation and removal of special fasteners for bonded and composite structures and servicing of aircraft windows, doors, and interior furnishings is included. (F, Sp)
- AVAF 211 Aircraft Electrical I** 4
Prerequisite: Department Approval
 The intermediate aviation electrical course concentrating on the theory, calculation, and measurement of A.C. electrical systems. Includes reading and interpreting aircraft electrical circuit diagrams, including those with solid-state devices and logic functions. The installation, checking, and servicing of airframe and engine wiring, controls, switches, indicators, and protective devices is also covered. (Sp, Su)
- AVAF 212 Aircraft Electrical II** 4
Prerequisite: Department Approval
 Repair of airframe and engine electrical system components with an emphasis on the inspection, checking, servicing, and repair of alternating and direct current systems. General troubleshooting techniques are practiced with special emphasis on A.C. and D.C. electrical systems. (Su)

- AVAF 246 National Airframe Cert Proced** 1
Prerequisite: Department Approval
 Study of the Federal Aviation Regulations pertaining to national certification as a licensed airframe mechanic. Includes testing in all required areas of study as a prerequisite to receiving authorization to take the general and airframe national certification test administered by representatives of the Federal Aviation Administration. (F)

AVEL - AVIATION ELECTRONICS

- AVEL 130 Avionics Installations** 3
Prerequisite: None
 This course includes familiarization with the various types of wires and connectors used in the construction of aircraft wiring harnesses. The student will develop skills in soldering, aircraft wiring diagram reading, standard procedures, and weight and balance calculation. (F)
- AVEL 150 Avionics Installat/Generat** 2
Prerequisite: ELCT 110 2.0 minimum
Co-requisite Course: AVEL 151
 Covers the operational characteristics and operation of basic and specialized test equipment found in the avionics industry. Students will develop reading skills in aircraft wiring diagram and weight and balance calculation. Equipment covered includes multimeters, oscilloscopes, power supplies, multifunction test generators, wattmeters, time domain reflectometers and spectrum analyzers. (Sp)
- AVEL 151 Avionics Installat/Generat Lab** 1
Prerequisite: ELCT 110 2.0 minimum
Co-requisite Course: AVEL 150
 Subjects covered in AVEL 150 will be put to practical use in this laboratory. The student builds and calibrates his or her own volt ohm meter. The student will construct aircraft wiring harnesses and complete soldering exercises. Common electronic and specialized avionics test equipment is used in the lab. (Sp)
- AVEL 190 Receiver Troubleshooting** 2
Prerequisite: AVEL 151 2.0 minimum and ELCT 112 2.0 minimum
Co-requisite Course: AVEL 191
 Familiarization with basic superhetrodyne receiver principles and operation using block diagrams and component level theory. Various logical troubleshooting techniques are discussed. (Su)
- AVEL 191 Receiver Troubleshooting Lab** 1
Prerequisite: AVEL 151 2.0 minimum and ELCT 112 2.0 minimum
Co-requisite Course: AVEL 190
 Familiarization with basic superhetrodyne receiver principles and operation. Various logical troubleshooting techniques will be put to practical use in the laboratory. Students construct, align, and troubleshoot an AM superhetrodyne receiver. (Su)
- AVEL 200 Flight Line Testing** 2
Prerequisite: AVEL 151 2.0 minimum and AVGM 113 2.0 minimum
Co-requisite Course: AVEL 201
 A study of the avionics systems found aboard modern aircraft focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 201 Flight Line Testing Lab** 1
Prerequisite: AVEL 151 2.0 minimum
Co-requisite Course: AVEL 200
 A practical study of the electronics systems found aboard modern aircraft, focusing on the flight line testing of such systems as VHF communications, VHF navigation, ADF, radar, autopilots, and others. (F, Su)
- AVEL 220 Avionics Systems I** 3
Prerequisite: AVEL 190 2.0 minimum and AVEL 200 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 221
 A study of the communications, navigation, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturer's specifications. Students will have the opportunity to obtain factory certifications for the repair of various systems. (F)

AVEL 221 Avionics Systems I Lab 2
Prerequisite: AVEL 201 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 220
 A hands-on study of the communications, navigation, and other systems found in modern aircraft, focusing on component-level repair and testing to manufacturer's specifications. (F)

AVEL 225 Avionics Licensing/Regulations 1
Prerequisite: ELCT 112 2.0 minimum
 Federal Communication Commission rules and regulations are discussed as they pertain to the avionics technician. Elements 1 and 3 of the FCC General Radiotelephone Operator's License examination are presented to prepare the student for successful completion of the actual examination. (F)

AVEL 226 FAA Rules/Regs Avionics Techs 1
Prerequisite: AVAF 130 2.0 minimum
 This course covers various Federal Aviation Administration rules and regulations as they pertain to avionics shop operations and the avionics technician. (F)

AVEL 230 Avionics Systems II 3
Prerequisite: AVEL 190 2.0 minimum and AVEL 200 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 231
 A study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. Students will have the opportunity to obtain factory certification of the repair of various systems. (Sp)

AVEL 231 Avionics Systems II Lab 2
Prerequisite: AVEL 201 2.0 minimum
Restriction: Avionics Majors
Co-requisite Course: AVEL 230
 A hands-on study of navigation, microwave pulse equipment, and other systems found in modern aircraft, focusing on component level repair and testing to manufacturers' specifications. (Sp)

AVEL 297 Avionics Internship 2
Prerequisite: AVEL 151 2.0 minimum
Restriction: Avionics and Avionics Installation Majors
 Minimum 128 hours per semester as an aviation electronics intern. Part-time occupational internship in avionics technology. The internships will be at certified repair stations as established by the intern coordinator. (Su)

AVEL 299 Advanced Avionics Laboratory 2
Prerequisite: AVEL 151 2.0 minimum
Restriction: Avionics and Avionics Installation Majors
 Students will further develop troubleshooting and installation skills acquired in other courses. Students will work in an environment close to actual working conditions in most avionics repair stations. (Su)

AVFT - AVIATION FLIGHT TRAINING

AVFT 201 Flight Training I 7.5
Prerequisite: Department Approval
 Provides in-flight and ground training in a single-engine, non-complex aircraft culminating in aeronautical knowledge, experience, and skill in accordance with the Federal Aviation Administration Private Pilot Practical Test standards. (F, Sp)

AVFT 202 Flight Training II 5
Prerequisite: Department Approval
 Provides in-flight and ground training in a single-engine, non-complex airplane; developing the student's instrument, night, and cross-country flying skills. (F, Sp, Su)

AVFT 203 Flight Training III 5.5
Prerequisite: Department Approval
 Provides instruction in a complex, single-engine airplane; developing the student's skill at IFR navigation and ATC procedures in en route and terminal environments. (F, Sp, Su)

AVFT 204 Flight Training IV 5
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a complex airplane; developing the student's skill in IFR navigation and ATC procedures in en route and terminal environments. Student will develop skills at performing commercial proficiency flight maneuvers. At the completion of this course, the student will take the practical test for commercial/instrument pilot airplane. (F, Sp, Su)

AVFT 205 CFI Flight Training 3.5
Prerequisite: Department Approval
 Provides in-flight and ground training in common primary training and complex airplanes. The student will develop instructional skills necessary to train pilots for certification in accordance with Federal Aviation Regulations. The student will take his or her practical test for Certified Flight Instructor Airplane upon completion. (F, Sp, Su)

AVFT 206 Flight Inst Instrument Flight 2.5
Prerequisite: Department Approval
 Provides in-flight and ground training in a non-complex aircraft. The student will develop instructional skills necessary to train pilots for the instrument rating. The student will take the practical test for the instrument flight instructor rating airplane upon completion of this course. (F, Sp, Su)

AVFT 207 Multi-Engine Flight Training 1.5
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a multi-engine airplane. The student will take the multi-engine practical test upon completion of this course. (F, Sp, Su)

AVFT 208 Multi-Engine Instructor Flight .75
Prerequisite: Department Approval
 Provides in-flight and ground instruction in a multi-engine airplane. The student will develop instructional skills necessary to train students for the multi-engine practical test. The student will take the multi-engine instructor practical test upon completion of this course. (F, Sp, Su)

AVGM - AVIATION GENERAL MAINTENANCE

AVGM 111 Aviation General I 4
Prerequisite: Department Approval
 This course is designed to develop the skills and knowledge required to weigh an aircraft and record the appropriate data. It involves mathematical and basic physics principles related to aviation, including aerodynamics, theory of flight, aircraft structural design, and simple machines. (F, Sp)

AVGM 112 Aviation General II 6
Prerequisite: Department Approval
 Introduces the Federal Aviation Regulations involving the mechanic's privileges, limitations, and related aviation operations. Includes the selection and use of aviation publications, maintenance forms, records, reports, aircraft drawings, graphs and charts, symbols, blueprints, and system schematics. Also focuses on aircraft ground operations and servicing of related aircraft systems. (F, Sp)

AVGM 113 Aviation General III 4
Prerequisite: Department Approval
 This initial aviation electrical course offers instruction in basic electrical theory and its aviation application. It includes the calculation and measurement of voltage, current resistance, continuity, and power; and the theory, inspection, and servicing of aircraft lead-acid and ni-cad batteries; and the construction of a volt-ohm meter. (F, Sp)

AVGM 114 Material and Processes 5
Prerequisite: Department Approval
 This course covers identification and selection of the appropriate aviation hardware, hand tools, cleaning materials, fluid lines, and nondestructive testing methods. Performance of nondestructive testing, precision measurements, aircraft cleaning and corrosion control, fabrication, installation, and testing of fluid lines is included. (F, Sp)

AVGS - AVIATION GROUND SCHOOL**AVGS 101 Private Pilot Ground School 4****Prerequisite:** None**Recommended:** SDEV 124

This course prepares the student for successful completion of the Federal Aviation Administration private pilot written examination. The student will learn basic aerodynamic theory, principles of aircraft/powerplant operation and performance, Federal Aviation Regulations, air traffic control procedures, meteorology, navigation, and flight physiology. (F, Sp, Su)

AVGS 121 Aviation Meteorology 4**Prerequisite:** None**Recommended:** SDEV 124

This course focuses on the application of meteorological theory to the practical aspects of flight planning. The student will understand basic concepts of weather theory, obtain weather briefings by using a personal computer, interpret domestic and international weather charts, forecasts and reports, (ICAO), and make appropriate "go/no go" decisions. (Sp)

AVGS 211 Instrument Pilot Ground School 4**Prerequisite:** None**Recommended:** AVGS 121 and SDEV 124

This course prepares the student for the successful completion of the FAA instrument rating written examination. The student will learn operation and interpretation of the flight instruments; the use of en route, approach, SID and STAR charts for navigation; air traffic control procedures and meteorology as it applies to the instrument pilot. (F, Sp, Su)

AVGS 221 Commercial Pilot Ground School 4**Prerequisite:** None**Recommended:** AVGS 121 and SDEV 124

This course prepares the student for the successful completion of the FAA commercial pilot written examination. The student will develop knowledge of aerodynamics, high performance aircraft systems, aircraft performance, Federal Aviation Regulations, navigation and flight planning, and meteorology as it applies to commercial pilots. (F)

AVGS 222 Flight Instruct Ground School 4**Prerequisite:** None**Recommended:** AVGS 121

This course will prepare the student for the successful completion of the FAA Fundamentals of Instructing and the Flight Instructor-Airplane and Advanced Ground Instructor written exams. The student will develop a flight training syllabus with lesson plans for use in training pilots. (Sp)

AVIR - AVIATION INSTRUMENT REPAIR**AVIR 140 Avionics Instruments I 1****Prerequisite:** None

Familiarization with common aircraft instruments to include principles of operation, interpretation of indications, testing, proper handling, repair, and calibration. Students will learn the proper use of test equipment and instrument repair procedures. (F)

AVPP - AVIATION POWERPLANT MAINTENANCE**AVPP 185 Preventive Maintenance 2****Prerequisite:** Department Approval

This course will cover the items described in the Federal Aviation Regulation Part 43, Appendix A, titled Preventive Maintenance. These items include the removal and installation of tires, servicing of wheel bearings, and cleaning fuel and oil strainers or filter elements. The safety, responsibility, and operations of various aircraft systems will be discussed. (F, Sp, Su)

AVPP 241 Reciprocating Engine 8**Prerequisite:** Department Approval

Presents the theory and practices used in the removal, inspection, overhaul, service, repair, and installation of reciprocating engines. This course also studies the inspection, service, repair, and troubleshooting of reciprocating engine lubrication systems. (F)

AVPP 251 Reciprocating Engine Systems 2**Prerequisite:** Department Approval

This course covers the inspection, servicing, troubleshooting, and repair of reciprocating engine cooling and exhaust systems. In addition, the inspection requirements necessary to meet established conformity and standards of airworthiness are studied; and reciprocating engine operations and adjustments are conducted using FAA and maintenance publication procedures. (F, Sp)

AVPP 253 Reciprocating Ignition Systems 5**Prerequisite:** Department Approval

This course covers the operation, analysis, inspection, service and repair of reciprocating engine ignition systems and components. This includes magnetos, ignition harnesses, spark plugs and starter systems. (F, Sp)

AVPP 255 Reciprocating Induction System 4**Prerequisite:** Department Approval

Study and analysis of reciprocating engine fuel systems and components. Includes inspection, checking, servicing, troubleshooting, and repair of carburetors, water injection systems, heat exchangers, superchargers, intake and induction manifolds, and other engine fuel system components. Also includes carburetor overhaul procedures. (F, Sp)

AVPP 257 Aircraft Propeller Systems 4**Prerequisite:** Department Approval

Covers the study, analysis, service, and repair of aircraft propellers, systems, and controls. Includes propeller synchronizing, ice control, lubrication, balancing, pitch control, repair procedures and removal, and installation of both fixed-pitch and variable-pitch propellers. (F, Sp)

AVPP 259 Turbine Engine I 4**Prerequisite:** Department Approval

Covers the theory of operation and design of the varied turbine engine and turbine-driven auxiliary power unit types, including the induction and cooling systems of each. (F, Sp)

AVPP 261 Turbine Engine II 4**Prerequisite:** Department Approval

Covers inspection, checking, servicing, repair, removal, installation and troubleshooting of turbine engines and systems. Detailed study of the lubrication system and inspection procedures to insure conformity with FAA specifications and standards are included. (Sp, Su)

AVPP 263 Turbine Engine Systems 2**Prerequisite:** Department Approval

This course is a detailed study of turbine engine ignition, pneumatic and electric starters, exhaust and thrust reverser, fire detection and protection, fuel metering and electronic fuel control systems and components. Study also includes inspection, checking servicing, repair, and troubleshooting procedures. (Su)

AVPP 265 Powerplant Instruments 2**Prerequisite:** Department Approval

This course covers the inspection and repair of turbine and reciprocating engine instruments. Troubleshooting of mechanical/electrical fluid rate-of-flow, temperature, pressure, RPM, and airflow indicators will be included. (Sp, Su)

AVPP 267 National Powerplant Cert Proc 1**Prerequisite:** Department Approval

Study of the Federal Aviation Regulations pertaining to national certification as a licensed powerplant mechanic. Includes testing in all required areas of study as a prerequisite to receiving authorization to take the powerplant national certification tests administered by representatives of the Federal Aviation Administration. (Sp, Su)

AVST - AVIATION SIMULATOR TRAINING**AVST 211 Flight Simulator I 1****Prerequisite:** None

Provides flight simulator and ground training to develop student's basic altitude instrument flying skills. Course is intended to be taken concurrently with AVFT 201. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 212 Flight Simulator II 1

Prerequisite: None
Provides flight simulator and ground training to develop student's skills in IFR navigation and ATC procedures in terminal environment. This course is intended to be taken concurrently with AVFT 202. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 213 Flight Simulator III 1

Prerequisite: None
Provides flight simulator and ground training to further develop the student's skills at IFR navigation and ATC procedures in en route and terminal environments. This course is intended to be taken concurrently with AVFT 203. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 214 Flight Simulator IV 1

Prerequisite: None
Provides flight simulator and ground training to develop the student's skill to the level of instrument rating practical test standards. Student will perform simulated flights in en route and terminal environments, including compliance with emergency procedures. This course is intended to be taken concurrently with AVFT 204. Simulator used is GAT-I (or other approved simulator). (F, Sp, Su)

AVST 215 Multi-Engine Flight Simulator 1

Prerequisite: None
Provides flight simulator training culminating in aeronautical knowledge and maneuvering skills in support of advanced visual and instrument flight training in multi-engine aircraft. Intended for the Flightmatic multi-engine simulator. (F, Sp, Su)

BDCS - BUSINESS DEVELOPMENT SEMINARS

BDCS 201 Starting a Business .5

Prerequisite: None
Entrepreneurs are usually required to wear many "hats" and may have no idea what skills and processes are involved in starting and operating a business. If you decide that owning a business is feasible, this class can help you find assistance to begin and maintain a business. (F, Sp, Su)

BDCS 202 Pitfalls to Avoid:Open/Operate Bus .5

Prerequisite: None
This seminar, presented by a successful business person, can save you both problems and money. What to avoid! What to look out for! Where to seek help! Where to cut costs! How to help ensure your chances of a successful business venture! Come and learn from those who can help. (F, Sp, Su)

BDCS 205 Systems for Record Keeping .5

Prerequisite: None
This seminar increases the participants' working knowledge of the accounting process and the maintenance of accounting records, ledgers, and income statements, and the preparation for income tax time. (F, Sp, Su)

BDCS 209 Finan Mgmt for Sm Business .5

Prerequisite: None
This seminar offers practical presentation, application, and practice of basic financial management techniques, such as analyzing and applying information from balance sheets, income statement, and cash flow statements. (F, Sp, Su)

BDCS 210 Customer Relations .5

Prerequisite: None
Anyone who sells, greets, or provides services to customers can discover new ways for creating good customer relations. By communicating effectively, understanding customer personalities and how to deal with them, and assessing their own motivation and esteem needs, participants can serve their customers in a positive manner. (F, Sp, Su)

BDCS 211 Advertising for Small Business .5

Prerequisite: None
This seminar will teach how to plan, create, select, and evaluate advertising. Entrepreneurs can learn to develop an advertising plan that is unique to the special needs of their organizations. (F, Sp, Su)

BDCS 215 Developing a Marketing Plan .5

Prerequisite: None
This seminar familiarizes participants with marketing and provides an opportunity to write a marketing plan. Participants will learn to use a six-step process that involves obtaining data, developing the plan, and analyzing the results. (F, Sp, Su)

BDCS 225 Writing a Business Plan .5

Prerequisite: None
Participants can expect to become familiar with business planning and how to develop and maintain a business plan. Most creditors require a business plan before reviewing a loan application. Be prepared. Write your business plan with the information provided at this seminar. (F, Sp, Su)

BDCS 230 Small Business Taxes .75

Prerequisite: None
Federal, state, and local governments assess a variety of taxes on business. This seminar will identify the various taxes which pertain to small businesses in Michigan and provide information on the tax returns used and filing responsibilities of the business. (F, Sp, Su)

BIOL - BIOLOGY

BIOL 120 Environmental Science 4

Prerequisite: Reading Level 5 and Writing Level 6
Students will develop an ecological knowledge base to allow them to understand how human actions impact the environment. They will develop applied analytical skills through laboratories, fieldwork, simulations, and a discussion of contemporary issues. They will investigate and evaluate basic ecological and environmental issues. (F, Sp, Su)

BIOL 121 Biol Foundation for Physiology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: Chemistry
Topics include organic molecules, biological molecules, enzymes, metabolism, cell structure and function, passage of materials across membranes, harvesting energy, mitosis, meiosis, introductory genetics, and the relationship between DNA, RNA, and protein synthesis. (F, Sp, Su)

BIOL 127 Cell Biology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: CHEM 120 or CHEM 125 or High School Chemistry
One of two biology courses for science majors. Lecture topics include chemistry of carbohydrates, lipids, and proteins; structure and function of prokaryotic and eukaryotic cells; biochemistry of respiration and photosynthesis; and genetics and the regulation of gene expression. Laboratory stresses techniques of cell and molecular biology as well as genetics. (F, Sp)

BIOL 128 Organismal Biology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
This course examines adaptations of organisms to changing environments. Major emphasis is on physiological adaptations, natural selection, ethology, and ecology. Aquatic systems are examined in the laboratory; sampling techniques and statistical methods are used to analyze a local river. (Sp, Su)

BIOL 210 Natural Resource Conservation 4

Prerequisite: Reading Level 5 and Writing Level 6
This course examines the renewable natural resources and the policies which govern their use in the United States. Laboratory investigations include measurement techniques, land use evaluations, and environmental problem solving. These exercises will be oriented toward the completion of an environmental impact assessment covering a current local environmental situation. (F)

BIOL 260 Botany 4

Prerequisite: Reading Level 5 and Writing Level 6
Recommended: One Semester of Biology
An introduction to the study of plants that includes structure and function, development, and ecology. Emphasis will be placed on the diversity, adaptations, and life cycles of major plant groups. Laboratory will complement the basic concepts with emphasis on physiology, systematics, and species of value to medicine and agriculture. (Sp)

BIOL 265 Zoology 4

Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: Biology
Begins with an introduction to heredity, population genetics, the theory of evolution, and ecology. Deals principally with the taxonomy and comparative anatomy of members found within the major animal phyla. A phylogenetic approach is used to study the various animal phyla from Protozoa through Chordata. (Sp)

BIOL 270 Human Genetics 3**Prerequisite:** Reading Level 5 and Writing Level 6 and Math Level 5**Recommended:** BIOL 121 or Equivalent

Presents general principles of genetics with specific human application. Topics include Mendelian genetics, mitosis and meiosis, chromosome structure and aberrations, sex determination and x-linkage, molecular basis of inheritance, gene mutations, genetics of immune system, cancer genes, recombinant DNA technology, and genetic screening and counseling. (Sp)

BIOL 275 Molecular Biology I 4**Prerequisite:** BIOL 127 2.0 minimum, CHEM 151 2.0 minimum, CHEM 161 2.0 minimum, Reading Level 5 and Writing Level 6, and Math Level 4

Introduces basic principles of molecular biology, DNA/RNA structure, function and replication, Polymerase Chain Reaction, and recombinant DNA technology. Laboratory emphasizes reagent preparation, culturing bacteria, isolating and purifying both bacterial and plasmid DNA, restriction enzyme digests of DNA, and agarose gel electrophoresis analysis of DNA. Field trip to research laboratories. (F)

BIOL 276 Molecular Biology II 4**Prerequisite:** BIOL 275 2.0 minimum and Reading Level 5 and Writing Level 6 and Math Level 4

Continuation of BIOL 275. Advanced lecture topics in bacteriophage biology, gene analysis, gene sequencing, and applications of molecular biotechnology. Gene cloning experiments with lambda bacteriophage and plasmid vectors, Southern hybridizations, and construction of a genomic library of lambda phage DNA. (Sp)

BLDR - BUILDING RELATED**BLDR 101 Basic Woodworking** 2**Prerequisite:** None

The students learn about wood characteristics, hand and portable power tools, woodworking machinery, joint construction, fastening methods, woodworking techniques and procedures, and technical information to be applied to student-made projects. (F, Sp, Su)

BLDR 106 Furniture Making 2**Prerequisite:** BLDR 101 1.0 minimum

Design and construction of simple furniture, with emphasis on selection of materials, options in joint and fastening methods, construction techniques, assembly procedures, and problem solving. (F, Sp)

BLDR 109 Build Your Own Cabinets 2**Prerequisite:** BLDR 101 1.0 minimum

This course offers a hands-on experience in building vanities, base cabinets, and wall cabinets. It also covers use of tools and machines, cabinet construction, drawer construction, door style options, and formica work. Students supply their own lumber. (F, Sp, Su)

BLDR 110 Wood Projects 1.5**Prerequisite:** None

This class is designed to offer students a shop in which to work on individual woodworking projects. All of the tools and equipment in the shop are available for student use. The instruction demonstrates uses of tools/equipment and consults with students on their individual projects. (F, Sp)

BLDR 132 General Home Maintenance 2**Prerequisite:** None

This is an introductory course in general home maintenance. Areas to be covered will be basic tools, electrical, plumbing, framing, roofing, interior trim, drywall and painting, appliance maintenance and repair, and concrete flatwork and blocklaying. (F, Sp, Su)

BLDR 144 Build Your Own Home 2**Prerequisite:** None

This course is designed for students who wish to build their own homes. Included are design considerations, land acquisition, selection of materials, choosing contractors, scheduling of work, financing, and landscaping. Guest speakers, who are experts in their various fields, provide the instruction. (F, Sp, Su)

BLDT - BUILDING TRADES**BLDT 100 Introduction to Construction** 3**Prerequisite:** None

This course covers basic concepts of construction; including city and regional planning, managing, contracting, designing, engineering, estimating, bidding and inspecting; as well as the production work normally associated with construction. (F)

BLDT 103 Structural Blueprint Reading 4**Prerequisite:** None

This course covers symbols, conventions, and abbreviations used in structural blueprints. The student will be able to recognize conventions and verbally describe their interpretation in trade or lay terms according to standard architectural practices. Residential and commercial prints are used to show the relationship between working drawings and specifications. (F, Sp, Su)

BLDT 121 Residential Framing 4**Prerequisite:** None

Students will learn to frame residential buildings using accepted framing techniques such as framing member spacing, framing floor systems, interior and exterior walls, ceilings, roofs, and stairs. Various types of foundations and the advantages and disadvantages of each are covered. Hands-on methods are used. (F, Sp)

BLDT 124 Remodeling, Shingling/Siding 4**Prerequisite:** BLDT 121 1.0 minimum or Concurrently

Students will learn to remodel, shingle, and side a residential building. This course covers the analysis, designing, estimating, problem solving, building practices, materials, and installation methods for remodeling, roofing, and exterior wall covering projects. (Sp)

BLDT 126 Interior Carpentry 4**Prerequisite:** BLDT 121 1.0 minimum or Concurrently

Students will learn to finish the interior of a residential building. This course covers the materials, installation practices, and material takeoff to do the finish carpentry for a house to include windows, doors, base, chair rail, wood floors, stairs, simple built-ins, and cabinets. (F)

BLDT 262 Builder's Business License 4**Prerequisite:** None

This course covers the principles of residential builder organizations and business practices, along with other useful information to help students pass the State of Michigan Builder's License Exam. Preparation for a residential project from planning to actual construction and sale of the project is covered. (Sp)

BLDT 277 Construction Cost Estimating 4**Prerequisite:** (BLDT 103 1.0 minimum or ARCH 101 1.0 minimum) or Concurrently

Students will learn to do a structural material takeoff and a complete estimate for residential and light commercial buildings. The course uses standard estimating practices to estimate the cost of buildings based on detailed blueprints. (F, Sp)

BLDT 281 BOCA/Uniform Code 3**Prerequisite:** None

Students will be introduced to the two most commonly used building codes in the United States. The use, interpretation, and application of the Uniform and BOCA Building Codes will be emphasized. Requirement for materials, barrier-free design, and fire standards for residential and commercial construction will be emphasized. (F, Sp)

BLDT 285 Residential Building Intern 2**Prerequisite:** BLDT 121 1.0 minimum and Department Approval**Restriction:** Residential Building Majors

This course offers students the opportunity to work for a residential builder in an actual job situation. The students can gain experience working with tools used in the industry and applying what they learned in the classroom and laboratory. (F, Sp)

BLDT 296 Ceramic Tile Seminar .5**Prerequisite:** None

This seminar will teach the basic principles for installation of ceramic tile. This includes the selection of types of tile, how to lay out the tile, preparation of the surface, care of tools used, and estimation of labor and materials. (F, Sp)

BLDT 298 Builder's License Review 1**Prerequisite:** None

This is a two-day workshop designed to prepare individuals for the State of Michigan Residential Builder's Examination. This workshop will include concentrated instruction in blueprint reading, state regulations, building terms, basic math, and construction codes. (F, Sp, Su)

BUSN – BUSINESS**BUSN 118 Introduction to Business** 3**Prerequisite:** Reading Level 5

Introduces students to principles, problems, and practices related to the world of business. Topics covered include business management and organization, marketing, finance, economics, production, and international business. (F, Sp, Su)

BUSN 191 Independent Study/Management 1-3**Prerequisite:** Department Approval

Students are allowed to undertake special research projects and/or individual readings to apply personal and professional experience to academic area of interest. Minimum of 16 hours work per credit required, plus completion of written project report. (F, Sp, Su)

BUSN 201 International Business 3**Prerequisite:** None**Recommended:** BUSN 118

Overview of international business: organizational, social, cultural, and economic variables that create change in the international marketplace. Includes exchange rates, resource allocation, import quotas and export controls, balance of payments, and free trade versus protectionism. (F, Sp, Su)

BUSN 229 Public Relations 2**Prerequisite:** None

Provides an introduction to principles involved in creating and maintaining good public relations. Techniques for developing improved employer-employee relations, customer relations, and the total public relations effort will be discussed and applied. (F, Sp)

BUSN 250 Personal Finance 2**Prerequisite:** None

Provides a broad survey of topics including budgeting, smart shopping, buying a car, renting, buying or selling a home, credit requirements, investing, insurance, and estate and retirement planning. Not intended to be a financial planning course, but students will develop a fundamental knowledge of financial concerns. (F, Sp)

BUSN 251 Stock Market Essentials 3**Prerequisite:** None

Study of securities market to give framework with which to set investment goals and achieve desired results. Introduction to some of the more prevalent theories, concepts, and skills to aid in developing strategies and making sound investment decisions related to the stock market. (F, Sp)

BUSN 254 Introduction to Investments 2**Prerequisite:** None

This course covers the fundamental principles of investing and its role in our economy. Emphasis will be on developing terminology, types of investments, and personal financial planning such as mutual funds, real estate, CDs, money market funds, limited partnerships, insurance, IRAs, stock, and tax shelters. This is an overview course. (F, Sp)

BUSN 255 Advanced Investments 2**Prerequisite:** None**Recommended:** BUSN 254

Students will use their knowledge of investment options to develop and implement a personal investment strategy. Investment objectives and influencing factors will be examined. (Sp)

BUSN 295 Small Business Management 3**Prerequisite:** None

Small business operations, including business and managerial functions, principles of management, environment of small business, financial, marketing, production management, and legal and governmental relationships. Development of a small business plan is required. (F, Sp)

CABS – COMPUTER APPLICATIONS USING BUSINESS SOFTWARE**CABS 100 Seminar: Special Subjects** 25-1**Prerequisite:** None

This series of seminars provides the successful participant with operational proficiency in using specific microcomputer software. The seminars also provide the students with some experience using commands, functions, and features of the software beyond the basic level. Extensive hands-on activity is the primary method used in learning. (F, Sp, Su)

CABS 101 Begin Keyboarding on Computer 2**Prerequisite:** None

This course is designed for students having no previous typing experience. Basic keyboarding skills using the touch method for the microcomputer operator are developed. Emphasis is on speed and accuracy using the alphabetic keyboard, the figure keys, symbol keys, and the number pad. Basic speed level of 20-35 wpm is developed. (F, Sp, Su)

CABS 102 Microcomputers for Non-Majors 2**Prerequisite:** None

Surveys concepts and uses of software applications: word processors, spreadsheets, and database managers. Terminology, problem solving, and acquisition factors associated with personal computers are discussed. Hands-on computer use. (F, Sp, Su)

CABS 104 Skillbuilding for Computers 2**Prerequisite:** None**Recommended:** Previous Keyboarding

This course is designed to develop speed and accuracy at the keyboard and to individualize this development for each student. (F, Sp, Su)

CABS 110 Microsoft Office 3**Prerequisite:** None**Recommended:** Windows 95 and Keyboard Experience

This course provides an introduction to MS Office. It is designed to develop basic operational proficiency while using MS Office (MS Word, MS Excel, MS Access, and MS PowerPoint). Students learn how to use word processing, spreadsheet, database, and presentation software. Topics include creating letters, memos, simple spreadsheets, database structures, and desktop presentations. (F, Sp, Su)

CABS 113 Microsoft Word Office/Int Key 4**Prerequisite:** None**Recommended:** Typing Minimum 35 wpm

In addition to building speed and accuracy on the computer, this course is designed to develop a basic word processing skill on the microcomputer using Microsoft Word software for the rapid production, revision, and retrieval of routine business documents such as letters, envelopes, memorandums, tables, reports, short manuscripts, and repetitive correspondence. (F, Sp, Su)

CABS 117 Microcomputer Forms Design 2**Prerequisite:** None

This course covers the development and composition of business forms using forms design software on a microcomputer. Additional topics include forms layout, margins, type sizes, grades of paper, construction, reproduction, specifications, and forms management. (F, Sp)

CABS 118 Adv Microsoft Word for Office 4**Prerequisite:** None**Recommended:** CABS 113 2.0 minimum or Equivalent

In addition to building speed and accuracy on the computer, this course is designed to develop advanced word processing skill using Microsoft Word software for the rapid production, revision, and retrieval of medical and legal documents, manuscripts and reports, and business publications. (F, Sp)

CABS 119 Word for Windows 2**Prerequisite:** None**Recommended:** Windows 95 and Keyboard Experience

This course is designed to provide the person new to the Word for Windows program with the ability to perform the most common word processing functions. The course also covers less frequently used features, such as performing mail merge and creating tables. (F, Sp)

CABS 121 WordPerfect for Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Provides instruction in the use of WordPerfect for Windows. Topics include creating, editing, formatting, and storing word processing documents. Also learned are the use of the block technique, spell-checker, thesaurus, merge feature for form letters, and other related skills. (F, Sp, Su)

CABS 122 Lotus 1-2-3 Self-Taught 2
Prerequisite: None
 An introduction to using the Lotus 1-2-3 spreadsheet, graphics, and database management program. The course uses a variety of teaching techniques such as videotape and computer-assisted instruction. Provides hands-on experience in creating spreadsheets, producing graphs and reports, and searching and sorting databases. (F, Sp, Su)

CABS 123 Lotus 1-2-3 for DOS 2
Prerequisite: None
 Provides the student with a working knowledge of the Lotus 1-2-3 spreadsheet program and enables the student to apply Lotus to routine business problems. Topics include spreadsheet navigation, basic functions, spreadsheet formatting, formulas, special functions, move, copy, and an introduction to graphs, macros, and database. (F, Sp, Su)

CABS 126 Excel 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Beginner-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. Also included is instruction in file handling, disk management, and macro creation and use. (F, Sp, Su)

CABS 127 Quattro Pro 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Beginner-level training for the Quattro Pro spreadsheet program that provides the student with skills needed to apply Quattro Pro to routine business problems. Topics include basic operating concepts, functions, macros, and graphing. (F, Sp)

CABS 128 Lotus 1-2-3 for Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 Provides an introduction to the spreadsheet program Lotus 1-2-3 for Windows. Students develop a working knowledge of the program and the ability to apply Lotus to routine business problems through hands-on activities. Topics include creating, modifying, and enhancing a worksheet; graphing information; using databases; creating macros; and using multiple worksheets. (F, Sp)

CABS 129 Excel-Advanced 2
Prerequisite: None
Recommended: CABS 126
 Advanced-level training in the creating of spreadsheets and databases using the Microsoft Excel program. The instruction includes the manipulation and generation of reports, tables, and graphs. (F, Sp, Su)

CABS 132 Paradox Database 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course is designed for the person who uses an existing Paradox database or who needs to develop a simple database application with Paradox. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. Students learn how to use the Paradox Personal Programmer. (Sp)

CABS 133 Microsoft Access Database 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course is designed for the person who uses an existing Microsoft Access database or who needs to develop a simple database application with Access. Students learn how to create database structures, enter and edit data, find data, and prepare printed reports. (F)

CABS 140 Busn Graphics Harvard Graphics 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course uses the microcomputer as a tool to create and present information in a graphic form. Students learn to determine the most appropriate type of chart or graph to communicate specific kinds of information. They use Harvard Graphics software to produce and present information. (F, Sp)

CABS 180 Desktop Publishing PageMaker 3
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 This course provides experience in producing documents with text and graphics using the desktop publishing program PageMaker. Good design of documents is emphasized in addition to the mechanics of producing the document. The basics of publishing are also discussed. Documents produced include reports, flyers, and newsletters. (F, Sp, Su)

CABS 182 Microsoft PowerPoint/Windows 2
Prerequisite: None
Recommended: Windows 95 and Keyboard Experience
 MS PowerPoint for Windows is designed to give your computer the capabilities for desktop presentations. The user will learn to plan, compose, and create complete presentations. MS PowerPoint makes it easy for the individual to present professional, high quality presentations. (F, Sp, Su)

CABS 195 Microsoft Windows 2
Prerequisite: None
 This course is for a novice in the use of the Microsoft Windows environment. Topics include the use of Windows features (icons, dialogue boxes, etc.), functions (program manager, file manager, print manager, control panel), and applications included with Windows (Write, Paintbrush, Accessories, Recorder, Terminal). (F, Sp, Su)

CABS 210 Advanced Microsoft Office 3
Prerequisite: None
Recommended: CABS 110
 A sequel to CABS 110, this course provides advanced instruction in Microsoft Office Professional. Designed to develop advanced skills using MS Word, MS Excel, MS Access, and MS Powerpoint. This class uses extensive hands-on activity. (F, Sp, Su)

CABS 219 Advanced Microsoft Word 2
Prerequisite: None
Recommended: CABS 119
 Advanced-level training in word processing using the Microsoft Word program. The instruction includes footnotes, tables, using and defining styles, using graphics, creating forms, and advanced font and text formatting. (F, Sp, Su)

CABS 232 Advanced Microsoft Access 2
Prerequisite: CABS 133 2.0 minimum
 Advanced-level training in the creation of database management using the Microsoft Access Program. The instruction includes the manipulation and generation of reports and tables. (F, Sp)

CABS 234 Programming Microsoft Access 2
Prerequisite: None
Recommended: CABS 133 and CABS 232 and CABS 119
 Advanced-level database management for the Access user who already has a knowledge of databases and the basic objects of an Access database such as tables, queries, forms and reports, but now wants to learn how to program with Visual Basic for Applications to endow application with a professional and intelligent interface. (F, Sp, S)

CABS 282 Advanced Microsoft PowerPoint 2
Prerequisite: CABS 182 2.0 minimum
 A sequel to CABS 182, this course provides advanced-level training using Microsoft PowerPoint. Students will design and present professional high quality presentations. Emphasis will be placed on planning and making color changes, importing, applying group/ungroup, and integrating sound and movie clips into Microsoft PowerPoint. (F, Sp, Su)

CACR - COURT REPORTING**CACR 101 Machine Shorthand Theory I 6**

Prerequisite: Admission to Court and Conference Reporting Program and Reading Level 5 and Writing Level 4

This course is specifically designed for conflict-free theory, taught on a steno machine to develop note writing accuracy from 95 to 100 percent and speeds up to and including 70 wpm for five minutes. (F, Sp)

CACR 111 Machine Shorthand Theory II 6

Prerequisite: None

Recommended: CACR 101 3.0 minimum

This course is specifically designed for conflict-free theory taught on a steno machine to develop note writing accuracy from 96 to 100 percent and speeds up to and including 100 wpm for five minutes. (Sp, Su)

CACR 121 Introduction to Speedbuilding 6

Prerequisite: None

Recommended: CACR 111 3.0 minimum

This course is specifically designed for machine shorthand speedbuilding in the areas of Q & A and Literary dictation. It will assist students in developing the required levels of 110 and 120 for five minutes at 97 percent accuracy. (F, Su)

CACR 205 Court Reporting I 11

Prerequisite: None

Recommended: CACR 121 3.0 minimum

This course includes Literary dictation from 100–140 wpm, Q & A dictation from 130–170 wpm, and Jury Charge dictation from 120–140 wpm. Also included in the course is instruction in CAT (Computer-aided Transcription), vocabulary improvement, English skills, current events, multi-voice dictation, and medical terminology. (F, Sp)

CACR 206 Court Reporting II 11

Prerequisite: None

Recommended: CACR 205 3.0 minimum

This course includes Literary dictation from 150–180 wpm, Q & A dictation from 160–230 wpm, and Jury Charge from 160–200 wpm. This course also includes instruction in legal vocabulary, English skills assignments, medical vocabulary assignments, current events assignments, and multi-voice dictation. (F, Sp)

CACR 215 Intermediate Speedbuilding 6

Prerequisite: None

Recommended: CACR 206 3.0 minimum

This course is designed for machine shorthand speedbuilding in the areas of Q & A, Literary, and Jury Charge dictation. It will assist the students in developing the required speed levels. (F, Sp, Su)

CACR 225 Advanced Speedbuilding I 4

Prerequisite: None

Recommended: CACR 215 3.0 minimum

This course is taught concurrently with Court Reporting I (CACR 205) for students who need an additional semester to reach required speeds. It includes the Literary and Q & A speedbuilding and timing portions of CACR 205. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (F, Sp, Su)

CACR 226 Advanced Speedbuilding II 4

Prerequisite: None

Recommended: CACR 225 3.0 minimum

This course is taught concurrently with Court Reporting II (CACR 206) for students who need an additional semester to reach required speeds. It includes the Q & A, Literary, and Jury Charge speedbuilding and timing portions of CACR 206. This course can be waived if the student has already attained the speed requirements mandated by the National Court Reporters Association. (F, Sp, Su)

CACR 245 Court Procedures 1

Prerequisite: Department Approval

Students will attend lecture class and field trips to learn reporting techniques and procedures in courtroom, conference, hearings, deposition, realtime, and captioning settings. (Sp)

CACR 246 Internship 1

Prerequisite: Department Approval

Students placed in internship will spend 100 hours with official reporters, deposition reporters, hearings reporters, and/or captioners. They will write and transcribe notes in proper form and/or develop a personal dictionary in order to learn courtroom, conference hearings, deposition, realtime (or captioning) reporting techniques and procedures. (F, Sp, Su)

CACR 260 CSR Preparation .5

Prerequisite: None

This training and practice class is designed to prepare the Court and Conference Reporting student for the Certified Shorthand Reporter Examination using speedbuilding material, five-minute timings (Literary at 180 words per minute and 1.4 syllabic intensity, Jury Charge at 200 words per minute, Q & A at 225 words per minute), written knowledge test handouts, and mock CSR exams. (F, Sp)

CACR 270 Realtime Reporting 1

Prerequisite: None

This course consists of instruction in realtime reporting as related to people with disabilities through lectures, videotapes, and hands-on applications. (Sp)

CHCE - CONTINUING HEALTH CAREERS**CHCE 106 Cardiac Dysrhythmia Interpreta 2.75**

Prerequisite: None

This course introduces the student to identification of common dysrhythmias seen on a monitor or telemetry unit. Content will include criteria, causes, hemodynamic effects, and treatment of dysrhythmias according to ACLS guidelines. Use of monitoring equipment is integrated within the course content. (F, Sp, Su)

CHCE 114 Phys Asses Skill fr Nrs Protic 2.5

Prerequisite: None

This course is designed for nurses in any area of practice. Emphasis is on techniques of physical examination: inspection, palpation, percussion, and auscultation. History-taking and interpretation of physical findings are stressed. All major body systems are studied. Live models are used in supervised practice sessions. All equipment supplied. (F, Sp, Su)

CHCE 185 Lab Tests for Nurses .5

Prerequisite: None

A seminar for nurses and other health care personnel. Seminar content focuses on the systematic disease processes of specific lab tests, interpretation of test values, and application to practice. Mock lab reports and case study situations are used. (F, Sp)

CHCE 205 Intravenous Therapy .5

Prerequisite: None

This workshop will provide the most recent information on a variety of topics relating to intravenous therapy. Content can range from basic principles to advanced high-tech therapy. This seminar is designed for professional members of the health care team who routinely deal with IV therapy. (F, Sp)

CHCE 206 Hlth Care Pro Indpdnt Study .25-4

Prerequisite: None

This course is for health care professionals who need to acquire credits in continuing professional education. The individual student will provide specific course content and description. This information is often provided by the specific profession. An instructor will be identified to assist with the learning experience. (F, Sp, Su)

CHCE 210 PALS Training 1

Prerequisite: None

This seminar is designed for members of the health care team who work with pediatric patients. A combination of lecture and practice in skills stations will prepare the student for success in achieving American Heart Association certification as a Pediatric Advanced Life Support (PALS) Provider. Prior assigned reading mandatory. (F, Sp)

CHCE 211 PALS Refresher .5

Prerequisite: None

This seminar is designed to recertify, according to the American Heart Association (AHA) standards, those professionals currently possessing valid Pediatric Advanced Life Support (PALS) certification cards. Upon successful recertification, the AHA will issue each student a new PALS certification card. Prior assigned readings are mandatory. (F, Sp)

CHCE 227 New Dimensions in Nursing .25-3
Prerequisite: None
 Seminar content is dependent upon course requirement. (F, Sp, Su)

CHCE 230 ACLS Training Seminar 1
Prerequisite: None
 This seminar is designed for members of the health care team to develop knowledge and skills in Advanced Cardiac Life Support (ACLS). A combination of lecture and skills performance will prepare the student to achieve success in American Heart Association certification as an ACLS provider. Pre-preparation mandatory. (F, Sp, Su)

CHCE 235 ACLS Refresher .5
Prerequisite: None
 This seminar is designed to recertify, according to the American Heart Association standards, those individuals currently possessing valid Advanced Cardiac Life Support (ACLS) cards. The American Heart Association will issue a certificate to each student upon successful completion of the program. Prior assigned readings are mandatory. (F, Sp, Su)

CHCE 273 Reg Nurse Crit Cr Core Curr 3
Prerequisite: None
 A course for registered nurses practicing in critical care, preparing to work in critical care and/or considering taking the certification exam. Emphasis placed on the CCRN core course content which includes anatomy and physiology, pathophysiology of selected common conditions, related nursing interventions, and medical management. (F, Sp)

CHCE 287 Health Care Risk Management 4.5
Prerequisite: None
 This course covers the health care system and management functions necessary to control risk and promote quality, the skills necessary to develop and maintain an effective loss prevention and risk financing program in a health care setting, health care law, the medical malpractice arena, and claims management principles. (Sp)

CHCE 288 Rsk & Qual Mgmt/Hlth Care Set .25-.25
Prerequisite: None
 This course covers the integration of risk and quality management in an evolving health care delivery system; the role of accreditation ((JCAHO) and third-party payor (MPRO) bodies in the review of physician practice and patient care, quality and peer review processes, medical staff governance, credentialing, privileging, quality/risk issues in high risk clinical areas, future of risk and quality management, adapting to new technology, delivery models, and customer expectations. (F)

CHCE 295 Hlth Cr Rsk Mt & Qlty Rv/Sp Is .5
Prerequisite: None
 This seminar will highlight a specially selected issue and examine how that issue impacts health care risk management and quality review. (Su)

CHCE 296 Hlth Cr Rsk Mgt & Qlty Rv Updt .25-1
Prerequisite: None
 This seminar will be held yearly for graduates of the Health Care Risk Management and Quality Review program to update their risk management skills and review new issues in loss prevention and quality review. (F)

CHCE 299 ACLS Instructor Seminar 2
Prerequisite: None
 This course will train those health care professionals who are currently certified in Advanced Cardiac Life Support (ACLS), according to American Heart Association standards, as ACLS instructors. All participants are expected to recertify their ACLS skills at the time of the course. Prior assigned readings are mandatory. (F, Sp, Su)

CHDV - CHILD DEVELOPMENT

CHDV 101 Child Growth/Devel: 0-5 Years 4
Prerequisite: Reading Level 3 and Writing Level 4
 This course examines the growth and development patterns of children (prenatal to five years) in physical, social, emotional, cognitive, and language development. Additional topics include nutrition, health, play, families, and the preschool experience. Students acquire skills in observing, recording, and interpreting child behavior. CDA: developmental context; functional area: healthy. (F, Sp, Su)

CHDV 111 Child Guidance/Communication 4
Prerequisite: Reading Level 3 and Writing Level 4
 This course, which includes field work, examines interaction skills and environmental structures which foster social and emotional growth in children. Topics include positive guidance and discipline, effective communication with children, problem solving, social skill development, group management, and aggression prevention. CDA functional areas: learning environment, self, social, guidance, communication, professionalism. (F, Sp)

CHDV 112 Family Relationship/Child Care 2
Prerequisite: CHDV 111 2.5 minimum
 This course examines ways to establish and maintain positive and supportive relationships with families in child care programs. The focus includes understanding the parent's perspective, supporting the child's relationship with his or her family, encouraging parental involvement, and communicating with parents. CDA functional area: families. (Sp)

CHDV 113 Health/Safety Issue: Child Care 2
Prerequisite: None
 This course examines health and safety issues in child care homes and centers. Topics include understanding and preventing communicable illnesses, bloodborne pathogens, safe equipment and play areas, preventing accidents, nutrition, and health and safety education. It addresses the CDA competencies of safe and healthy. (F, Sp)

CHDV 120 Curriculum: Physical Dev 1
Prerequisite: None
 This course examines curriculum and activities which enhance the development of physical and motor skills of children in early childhood programs. It includes specific information on developmentally appropriate activities for fine motor, gross motor, and sensory development for a variety of ages. CDA functional area: physical. Uses seminar format. (Su)

CHDV 121 Curriculum: Cognitive/Lang 1
Prerequisite: None
 This course examines curriculum and activities which enhance cognitive and language development of children in early childhood programs. It focuses on designing developmentally appropriate activities which foster curiosity and exploration. Topics include math, science, language arts, and emergent literacy. CDA functional areas: cognitive and communication. Uses seminar format. (F)

CHDV 122 Curriculum: Creative Dev 1
Prerequisite: None
 This course examines curriculum and activities which enhance the creative development of children in early childhood programs. Specific information on developmentally appropriate and open-ended activities in the areas of art, music, creative, and dramatic play with a variety of materials are shared. CDA functional area: creative. Uses seminar format. (Sp)

CHDV 130 Introduction to Child Care 1
Prerequisite: None
 This course introduces factors in providing quality child care. Topics include program planning; curriculum development; child growth and development; positive guidance and discipline skills; safety, health and nutrition; parent communication and involvement; and professionalism. CDA functional area: learning environment, program management, and professionalism. (F)

CHDV 131 Family Child Care Management 2
Prerequisite: None
 This course presents a systematic approach to managing a family child care home and creating a positive learning environment for young children in a home setting. Topics include business aspects, program development, professionalism, managing personnel, and organizing the environment. CDA functional areas: learning environment, program management, professionalism. (F)

CHDV 181 Problem Solving with Adults 1
Prerequisite: None
Recommended: Experience in Child Care
 This course examines the child care provider's use of decision-making and problem-solving skills in challenging situations. Communication skills, values, priorities, and conflict resolution will be introduced and practiced. (Sp)

- CHDV 184 Children and Stress** 1
Prerequisite: None
 This course examines stress as it relates to children. Specific topics include symptoms and causes of stress, situations which are stressful for children, ways to help children cope with stress, and techniques for reducing stress. Specific information on divorce, death, family violence, and hospitalization are discussed. Seminar format is used. (Sp, Su)
- CHDV 185 Preventing Child Sexual Abuse** 1
Prerequisite: None
 This course explores preventing child sexual abuse through teaching personal safety to children. Topics include the sexually abusive situation, behavioral indicators, appropriate adult responses, legal mandates, and reporting protocol. It emphasizes appropriate ways of teaching personal safety to children, selecting personal safety materials, and adult concerns when teaching it. Seminar format is used. (F)
- CHDV 186 Child Self-Esteem/Pos Discip** 1
Prerequisite: None
 This course looks at children's self-esteem: what it is, where it comes from, and how it can be fostered in both homes and child care. It focuses on practical suggestions and teaches positive discipline techniques that build self-esteem. CDA functional area: self, guidance. Seminar format is used. (F, Su)
- CHDV 188 Caring/Children/Special Needs** 2
Prerequisite: None
 This course focuses on the special and diverse individual needs of children and their families, including handicapping conditions and cultural diversity in various settings. It addresses identification of children with disabilities or in "at-risk" categories; community services; inclusion in least restrictive environments; family-centered intervention; and communication skills which enhance work with children with special needs and their families in various settings. (Sp)
- CHDV 189 Help Children Value Diversity** 1
Prerequisite: None
 This course explores the various cultural groups and family structures that children encounter. It presents activities that caregivers can use to aid children in recognizing, valuing, and respecting diversity. Development of multi-cultural and anti-bias curriculum is emphasized. Seminar format is used. (F)
- CHDV 190 Child Care Seminars** .25-1
Prerequisite: None
 This course provides a variety of topics of special interest to child care providers. (F,Sp)
- CHDV 220 Preschool Curric/Learning Env** 4
Prerequisite: CHDV 101 2.0 minimum and CHDV 111 2.5 minimum
 This course, with field work, explores developmentally appropriate preschool programming which promotes physical, cognitive, language, and creative development. Emphasis is on active involvement of children in concrete experiences. Other topics include appropriate learning environments, materials and equipment, and children's learning objectives. CDA functional areas: learning environment; creative, physical, cognitive, and communication. (F, Sp)
- CHDV 221 Infant-Toddler Program Dev** 3
Prerequisite: CHDV 101 2.0 minimum or Concurrently
 This course, which includes field work, explores physical and emotional environments needed for quality child care for infants and toddlers. Focus includes developing nurturing skills, developmentally appropriate activities and materials, managing schedules and routines, observation, and record keeping skills. CDA functional areas: safe, healthy, learning environment; physical, cognitive, communication; program management. (F, Su)
- CHDV 222 School-Age Child Care Prog Dev** 2
Prerequisite: None
 This course examines the development of child care programs to meet the developmental characteristics of school-aged children (age 5-12). Content includes growth and development patterns in the areas of physical, cognitive, social and emotional; appropriate equipment and activities; environment and program structure; and individual and group management. (F, Sp, Su)
- CHDV 230 Child Care Center Admin** 2
Prerequisite: CHDV 220 2.5 minimum
 This course examines the administrator's role in directing an early childhood center and in providing a systematic approach to program management. Topics include goal-setting, safety, licensing, health and nutrition, policy development, business techniques, and personnel management. CDA functional areas: safe, program management, professionalism. (Sp)

- CHDV 251 CDA Credentialing Preparation** 3
Prerequisite: CHDV 111 2.5 minimum and (CHDV 220 2.5 minimum or CHDV 221 2.0 minimum) and Department Approval
 This course, and accompanying field work, examines credentialing procedures and competency standards for the Child Development Associate (CDA) Credentialing Assessment. Students complete the resource file, are observed using the CDA observation instrument, and prepare for the CDA situational assessment. Content of the course covers the functional area of professionalism. (F, Sp)
- CHDV 252 CDA Completion** 1
Prerequisite: CHDV 112 2.0 minimum and CHDV 220 2.5 minimum and (CHDV 284 2.0 minimum or Concurrently)
 This course is designed for associate degree candidates and allows them to complete the CDA assessment readiness requirements as part of the associate degree practicum. Resource file development, statements of competence, advisor observation, and assessment procedures are included. (F, Sp)
- CHDV 284 Child Development Practicum** 5
Prerequisite: CHDV 220 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval
 A supervised field experience working directly with children in a child care program. Students gain skill in planning and implementing the daily children's program, and in setting and assessing goals for individual children and the classroom. Accompanying seminar explores the teacher's professional role in planning, goal-setting, and evaluation. (F, Sp)

CHEM - CHEMISTRY

- CHEM 120 Gen Organic & Biological Chem** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
Recommended: Chemistry Inventory
 Introduces topics in general, organic, and biological chemistry that are used in health-related occupations. Included are scientific measurement, atomic structure and bonding, chemical equations and stoichiometry, solutions, acids, bases, buffers, gas behavior, nuclear radiation, organic functional groups, and the biologically important compounds: carbohydrates, lipids, and proteins. (F, Sp, Su)
- CHEM 125 Basic Chemistry** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
Recommended: Chemistry Inventory
 Intended for students who have not had high school chemistry or who require a refresher course. Measurement, problem solving, chemical formulas, chemical equations, stoichiometry, atomic structure, chemical bonding, gas laws, solutions, and acids and bases are emphasized. (F, Sp, Su)
- CHEM 130 Biochemistry** 4
Prerequisite: Writing Level 4
Recommended: CHEM 120 or CHEM 125 2.0 minimum
 This course is designed to provide an understanding of the chemistry of life processes. Topics include organic functional groups, enzymes, carbohydrates, lipids, proteins, metabolic pathways, nucleic acids, biochemical genetics, blood and respiratory chemistry, urine, electrolytes, acid-base balance, hormones, and nutrition. (F, Sp, Su)
- CHEM 135 Chemistry in Society** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
 A general education course which presents chemistry to non-science majors, who must function and make decisions in a society shaped by science and technology. Chemistry knowledge is introduced and applied on a need-to-know basis with respect to issues in society that have significant chemistry components. (F, Sp, Su)
- CHEM 151 General Chemistry Lecture I** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 5
Recommended: CHEM 125 2.0 minimum or High School Chemistry
 The first of two semester courses designed to provide an in-depth introduction to general chemistry for students who plan careers in the health professions, physical sciences, biological sciences, or engineering. Topics discussed include measurement, aqueous reactions, stoichiometry, thermochemistry, atomic structure, bonding, and modern materials. (F, Sp, Su)

CHEM 152 General Chemistry Lecture II	3
Prerequisite: Math Level 6.	
Recommended: CHEM 151 and MATH 121 2.0 minimum	
The second of two semester courses designed to provide an in-depth introduction to general chemistry for students who plan careers in the health professions, sciences, or engineering. Topics include kinetics, ionic equilibria, thermodynamics, electrochemistry, descriptive chemistry, and nuclear chemistry. (F, Sp, Su)	
CHEM 161 General Chemistry Lab I	1
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 5	
Recommended: CHEM 125 or CHEM 151 or Concurrently	
Laboratory course designed to complement CHEM 151. Stresses basic laboratory techniques, writing lab reports, and critical thinking exercises. Topics include density determination, synthesis, empirical formulas, molecular geometry, gas laws, pH, and water hardness. (F, Sp, Su)	
CHEM 162 General Chemistry Lab II	1
Prerequisite: None	
Recommended: CHEM 161 2.0 minimum and CHEM 152 Concurrently	
CHEM 162 is the second semester general chemistry laboratory course. The main focus of the course is inorganic synthesis and analysis. (F, Sp, Su)	
CHEM 182 Introductory Organic Chemistry	3
Prerequisite: None	
Recommended: CHEM 125 3.0 minimum or CHEM 151 2.0 minimum	
A survey of the principles of organic chemistry. Introduces the student to structure, nomenclature, chemical and physical properties, selected characteristics, preparations, and reactions of the most common classes of organic compounds. Other topics include polymers, optical isomerism, and selected reaction mechanisms. (Sp)	
CHEM 192 Intro Organic Chemistry Lab	1
Prerequisite: None	
Recommended: CHEM 182 2.0 minimum or Concurrently	
Designed for students in majors such as packaging, agriculture, and forestry who require only one credit of organic lab. It gives students an introduction to common techniques, equipment, and chemicals found in an organic laboratory. Particular attention is given to compounds studied in CHEM 182. (Sp)	
CHEM 251 Organic Chemistry Lecture I	4
Prerequisite: None	
Recommended: CHEM 152 2.0 minimum	
The first lecture course of a two-semester sequence in organic chemistry for chemical engineering, chemistry, or preprofessional majors. Topics include structure and bonding, hybridization, nomenclature, stereochemistry, thermodynamics and kinetics of organic reactions, functional groups including reactions and mechanisms, and applications of mass spectrometry. (F, Sp)	
CHEM 252 Organic Chemistry Lecture II	4
Prerequisite: None	
Recommended: CHEM 251 2.0 minimum	
Continuation of CHEM 251. Topics include aromatic compounds, spectroscopy, organometallic compounds, aldehydes and ketones, carboxylic acids and their derivatives, amines, enolates, phenols, carbohydrates, lipids, and proteins. (Sp, Su)	
CHEM 262 Quantitative Analysis	2
Prerequisite: CHEM 162 2.0 minimum	
Theory and procedures of classical analytical techniques, including gravimetric analysis and titrimetric methods. Use of instruments such as spectrophotometers, pH meters, and others is also included. (F)	
CHEM 272 Organic Chemistry Laboratory	2
Prerequisite: CHEM 251 2.0 minimum	
Designed for students (in majors such as chemistry, pre-med, and pre-pharmacy) who require more than one credit of organic lab. It gives students experience with the chemicals, techniques, and equipment commonly employed in organic laboratories. Particular attention is given to compounds studied in CHEM 251 and 252. (Sp)	

CHSE - COMMUNITY HEALTH SERVICES

CHSE 101 Acute Care Nurse Assis/Orderly	6.5
Prerequisite: Reading Level 3	
This course will prepare an individual for employment as a nursing assistant/orderly in a hospital or home health care agency. The course will provide the knowledge and skills needed in order to provide safe basic patient care. (F, Sp, Su)	
CHSE 108 Long-term Care Nurse Aide	4
Prerequisite: None	
This course will prepare an individual to be a nurse aide in a long-term care facility. This is a state-approved course and will provide specific knowledge and skills required for a nurse aide to safely function in a long-term care facility. Upon completion of this course, the student is qualified to take the State Competency Evaluation Nurse Aide Examination. (F, Sp, Su)	
CHSE 109 Advanced Acute Care Nr Assist	4.5
Prerequisite: CHSE 101 2.0 minimum or CHSE 108 2.0 minimum	
This course will prepare an individual for employment as an advanced acute care nursing assistant in an acute care hospital, long-term care facility, or home health care. The course will provide the knowledge and skills needed to perform patient care safely as a skilled nursing assistant. (F, Sp, Su)	
CHSE 121 Medical Term Allied Health I	2.5
Prerequisite: Reading Level 5 and Writing Level 4	
Medical Terminology I will provide a basic knowledge of word building, use, pronunciation, and spelling of medical terms. The use of medical terms in periodicals, textbooks, and medical care areas will be stressed. It provides a sound basis for those students interested in health careers. (F, Sp, Su)	
CHSE 122 Medical Term Allied Health II	2.5
Prerequisite: CHSE 121 2.5 minimum	
Medical Terminology II will teach the student to utilize medical terminology in context by applying terms to the function and structure of body systems and specific disease conditions. Students will build on knowledge learned in Medical Terminology I. (F, Sp)	
CHSE 123 Medical Insurance Billing I	3
Prerequisite: CHSE 121 2.5 minimum	
First course in a two-semester sequence which introduces the student to insurance billing, diagnostic and procedure coding for physician billing, and comprehensive billing directions for Medicare. The student must have a grade of 2.5, or better, to continue with Medical Insurance Billing II. (F)	
CHSE 124 Medical Insurance Billing II	3
Prerequisite: CHSE 123 2.5 minimum (previously CHSE 111)	
Second course in a two-semester sequence. Comprehensive billing directions for Medicare, Medicaid, PHP, and other commercial insurance carriers for billing in the physician's office are covered. A certificate of completion is awarded for Medical Insurance Billing if a grade point of 2.5 or better is earned in CHSE 123 and CHSE 124. (Sp)	
CHSE 125 Computers in Medical Office	1
Prerequisite: (CHSE 123 2.5 minimum (previously CHSE 111) or CHSE 124 2.5 minimum (previously CHSE 112)) or Concurrently	
This course offers an easy-to-follow approach to medical billing using Medisoft for Windows. Students will learn how to record charges and payments, schedule appointments, record information on patients, ICD-9 and CPT coding, produce claim forms and patient statements, submit claims electronically, and build office databases. (F, Sp)	
CHSE 126 Med Term for Insure Examiners	1.25
Prerequisite: None	
Medical terminology is a technically exact vocabulary used by professionals to speak and write precisely. This medical terminology course is designed for insurance examiners and insurance medical technicians. The use of medical terms in records and specific medical areas will be stressed. (F, Sp, Su)	
CHSE 132 Health Unit Coordinator	7
Prerequisite: CHSE 121 2.5 minimum	
Course is designed to introduce the student to basic health unit coordinator skills. Subject matter will include communication skills, computers, assertiveness, chart forms, admissions, transfers, discharges, death and dying, pharmacology, laboratory tests, transcribing physician orders, and job application skills. Clinical component is included. (F, Sp)	

CHSE 143 Phlebotomy Technician	2
Prerequisite: None	
This course is designed to prepare a person to function as a phlebotomy technician. It will provide the knowledge and skill necessary to safely and skillfully obtain a blood specimen from a patient. The course includes lecture, campus, and clinical laboratory. (F, Sp)	
CHSE 145 Central Service Technician	4
Prerequisite: None	
Prepares individuals to function competently in the central service department of a health care facility. Duties include (but are not limited to) processing of patient care equipment, supplies, and instruments for use in all departments. Includes principles and practices of decontamination, cleaning, disinfection, sterilization, and distribution of medical/surgical supplies. (F)	
CHSE 201 Dietary Manager I	5
Prerequisite: Department Approval	
The first course in a three-semester sequence which will prepare students for a career as a dietary manager. The course will include both classroom and field experience. Topics such as the role of the supervisor, quality assurance, and nutritional principles will be included. (F)	
CHSE 202 Dietary Manager II	5
Prerequisite: CHSE 201 2.5 minimum	
The second course in a three-semester sequence which will prepare students for a career as a dietary manager. This course will include both classroom and field experience. Content includes the purchasing process, sanitation principles, governmental laws as they apply to food service, and other required content to become a dietary manager. (Sp)	
CHSE 205 Advanced Dietary Therapy	2
Prerequisite: CHSE 202 2.5 minimum	
The third course in a three-semester sequence which is designed to provide advanced knowledge of diet therapy and nutritional care for dietary managers. The course will include knowledge of disease states, as well as laboratory data and nutritional assessment techniques as they relate to providing adequate nutritional care to patients. (Su)	
CHSE 235 Pharmacy Technician	4
Prerequisite: MATH 050 2.0 minimum or Math Level 4	
This course is designed to introduce students to the skills necessary for a pharmacy technician position in a hospital or retail pharmacy. Students will be prepared to function with knowledge and accuracy in dispensing and control of drugs in either setting. (F)	

CISB - COMPUTER INFORMATION SYSTEMS FOR BUSINESS

CISB 100 Intro Computer Info Systems	3
Prerequisite: None	
This course provides an introduction to computers, their role in managing business information systems, their influence on society, and their use in personal productivity. A hands-on introduction to major microcomputer tools, including Windows word processing, spreadsheet, and database management applications. (F, Sp, Su)	
CISB 102 Intro Internet in Business	2
Prerequisite: None	
Recommended: Windows Familiarity	
This course is designed to introduce the student to the use and potential use of the Internet for business. Hands-on assignments will allow the student experience using the Internet. (F, Sp, Su)	
CISB 104 Introduction to DOS	1
Prerequisite: None	
Students in this course develop skill in applying the most common commands of the disk operating system (DOS) used by IBM-type microcomputers. Students also learn how to organize disk directories and how to create and work with files. File attributes, pipes, filters, and redirection are also discussed. (F, Sp, Su)	
CISB 107 DOS Management	1
Prerequisite: None	
Recommended: CISB 104	
Students in this course learn advanced concepts in managing a DOS-based operating system. Techniques are introduced for batch files, replaceable parameters, batch programming, memory and configuration files, viruses, and the Windows Registry. (F, Sp, Su)	

CISB 114 Programming Logic	3
Prerequisite: None	
An introduction to programming logic which includes an introduction to structured design; programming control structures; arrays; object-oriented programming concepts; file update; and control break processing. The Warnier-Orr diagram is used for logic diagramming. Coding examples are studied using QuickBASIC and Visual BASIC. (F, Sp, Su)	
CISB 119 Intro Window Prog Visual BASIC	4
Prerequisite: None	
Recommended: MATH.050 or Equivalent	
This course introduces students to Windows programming using the Visual BASIC programming environment. Students learn to develop business applications by designing and creating a user interface and writing the necessary procedures. Students also learn to use logic development tools and object-oriented programming techniques. (F, Sp, Su)	
CISB 122 Adv Windows Prog Visual BASIC	3
Prerequisite: None	
Recommended: CISB 119	
A second course in the Visual BASIC programming sequence. This course presents programming in the Windows environment and leads to the creation of functional Windows application programs. Topics include advanced form design, random access files, development of error handlers, development of keyboard handlers creating class modules, database access and programming, developing help systems, and making Windows API calls. (F, Sp)	
CISB 130 Data Communications	3
Prerequisite: None	
Recommended: CISB 100 and (CISB 114 or CISB 119 or CISB 120)	
The course provides a comprehensive introduction to data communications systems: the major components, how they are integrated, and the differences between the various networks and network carriers. Students learn the terminology and major protocols to a level adequate to design application programs and discuss data communication topics with other professionals. (F, Sp, Su)	
CISB 133 Operating Systems	3
Prerequisite: None	
Recommended: CISB 100 and (CISB 114 or CISB 119 or CISB 120)	
The course covers what operating systems are, why they exist, what they do, and how they interface with the operators and programmers. Main memory management and processor scheduling are studied. Case studies of current operating systems are studied. (F, Sp)	
CISB 136 SQL: Structured Query Language	2
Prerequisite: None	
Recommended: Windows Familiarity	
This course covers the relational database language SQL. Topics include table definition, queries, special operators, the join operation, views, security, administration, and reports. A commercial SQL product is used to provide students with hands-on experience. (F, Sp, Su)	
CISB 140 Client/Server Computing	3
Prerequisite: None	
Recommended: CISB 100 and (CISB 114 or CISB 119 or CISB 120)	
The student will study the various features of the client/server environment including both software and hardware components. Communications technology, network operating systems, and training issues are investigated. Case studies are used. (F, Sp)	
CISB 141 Powerbuilder	2
Prerequisite: None	
Recommended: CISB 119 and CISB 136	
This course teaches the student how to program with PowerBuilder. Upon completion of this course, the student should be able to create a client-server application using PowerBuilder. Topics will include accessing a database, modifying and inserting data, and constructing an attractive graphical user interface including windows, menus, command buttons, etc. (F, Sp)	
CISB 143 ORACLE Database for Business	2
Prerequisite: None	
Recommended: Windows Familiarity and CISB 136 or CABS 136 or Equivalent	
This course introduces the student to the features and utilities of the Oracle relational database system as used in business. Among the topics included are datatypes, tables, indexes, views, snapshots, cursors, data integrity, triggers, stored procedures, and database security. Tuning Oracle applications are also covered. (F, Sp, Su)	

CISB 145 Operations Internship 1 2
Prerequisite: Department Approval
 This internship provides the student with on-the-job experience as a computer operator. The student may take the second internship concurrently with the first at a different site. This internship requires 150 hours of experience. (F, Sp, Su)

CISB 146 Operations Internship 2 2
Prerequisite: CISB 145 2.0 minimum
 This internship provides the student with on-the-job experience as a computer operator. The student may take the first internship concurrently with the second at a different site. This internship requires 150 hours of experience. (F, Sp, Su)

CISB 151 Using Lotus Notes 2
Prerequisite: None
Recommended: Windows Familiarity
 This course introduces the student to groupware using Lotus Notes. Included are the use of e-mail, name and address books, shared databases, tables, calendar and scheduling, mobile computing, and World Wide Web interface. Students use Lotus Notes as the learning tool both in the classroom and to complete course assignments. (F, Sp, Su)

CISB 152 Developing Lotus Notes Appl 2
Prerequisite: None
Recommended: CISB 151 or Equivalent
 A sequel to CISB 151, this course covers the creation of Lotus Notes applications. It includes the use of the development tools provided by Lotus Notes and strategies for developing application databases. Topics include the Lotus Notes editors, macros, user access, installing and maintaining a Lotus Notes database, and use of Lotus Notes on the World Wide Web. (F, Sp, Su)

CISB 170 COBOL I 4
Prerequisite: None
Recommended: CISB 100 and (CISB 114 or CISB 120)
 An introductory course in COBOL programming emphasizing syntax, structured program design, and business application processing concepts. Coding standards and program documentation are introduced. Topics include control breaks, table processing, data validation, sort report processing, and sequential file maintenance. (F, Sp, Su)

CISB 175 Beginning RPG on the AS/400 3
Prerequisite: None
Recommended: CISB 100
 This course develops the learner's competence in RPG programming in the AS/400 environment. This course includes problem definitions, file procedures, control-level processing, physical and logical file processing, and fundamentals of interactive programming. An AS/400 computer will be used and RPG/400 topics covered as well as basic skills in RPG II. (F)

CISB 176 AS/400 Environment 1
Prerequisite: None
 This course will provide the student with a customized set of materials about the AS/400 computer environment. The student and instructor will establish the specific course content from the available AS/400 tutorials and IBM Discover/ Education courses the first week of class. (F, Sp, Su)

CISB 177 AS/400 Operations 3
Prerequisite: None
Recommended: CISB 176
 A hands-on course in AS/400 operations. The course will cover the AS/400 architecture and facilities; operational requirements, such as save and restore; hardware and software installation; configurations for local and remote communications, CL and CMD programming; system problem determination; and problem resolution. (Sp)

CISB 180 C Programming Busn App 3
Prerequisite: None
Recommended: CISB 100 and (CISB 114 or CISB 120)
 Students will use professional development tools to become familiar with the C programming language by designing, implementing, and testing programming projects. Topics include pointers, linked lists, data structures, and dynamic memory allocation. (F, Sp)

CISB 199 Intro to Busn Use of Info Tech 3
Prerequisite: None
 This open entry/open exit course is designed to help the busy professional become better versed in the application of information technologies in the business world. The student may choose from activities providing a basic awareness of information technologies applicable to businesses, through basic hands-on skills in software productivity tools, to CASE-driven analysis and application of business information technology. (F, Sp, Su)

CISB 200 Info Sys Tech/Problem Solving 3
Prerequisite: Reading Level 5
 Fundamental changes have occurred in organizations with the application of computer technology. This course chronicles the source of that technology in science, explores the limitations of computer technology, examines the impact of the technology in business organizations and society, and develops problem-solving techniques for use in conjunction with computers. Students will practice TQM and work in teams. (F, Sp, Su)

CISB 202 Adv Internet Business/Educ 2
Prerequisite: None
Recommended: CISB 102 or Equivalent
 This course works with advanced features of common e-mail and World Wide Web programs to allow the student to compare and contrast different programs. In this sequel to CISB 102, students will use additional types of Internet software, plan for future changes, and develop advanced strategies involving multiple mediums for using the Internet and Intranets as business and research tools. (F, Sp, Su)

CISB 204 Web Site Management 2
Prerequisite: None
Recommended: CISB 202 or Equivalent
 This course covers detailed step-by-step procedures that guide the Web administrator through the process of selection of Web server software and hardware. Students will learn to install and configure a server and administer the server on an ongoing basis. Topics include: security and access controls, creating professional sites, UNIX site, and NT servers. (F, Sp)

CISB 227 Adv Concepts Computer Info Sys 25-4
Prerequisite: Department Approval
 With this course, students will learn advanced computer information systems topics as part of a class, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. (F, Sp, Su)

CISB 230 Intro to Local Area Networks 3
Prerequisite: None
Recommended: CISB 130 and CISB 133
 The student in this course learns how to install and maintain a Local Area Network (LAN). Topics start with basic network concepts and terms, then advances students to a point where they can install and maintain a particular network system such as Novell. (F, Sp)

CISB 231 Advanced Local Area Networks 3
Prerequisite: None
Recommended: CISB 230 or Equivalent
 The student in this course learns advanced administration techniques for a typical Local Area Network such as Novell NetWare. Topics start with an in-depth review of networking technology, then advance students to a point where they can tune a network to achieve maximum performance. (F, Sp)

CISB 233 Microsoft Windows NT Server 3
Prerequisite: None
Recommended: CISB 230 or Equivalent
 This course provides hands-on training in Microsoft Windows NT Server including setup of the hardware and software for server and client workstations. Students will set up and manage user accounts. Also covered are security management, access rights, permissions, and network devices. (F, Sp, Su)

CISB 235 Microcomputer Hardware Support 3
Prerequisite: None
Recommended: CISB 100 and CISB 130 and CISB 133
 This course provides the student with practical, hands-on experience in installing, maintaining, and trouble-shooting microcomputer hardware and software. Topics include CPU, storage devices, add-on boards, video displays, printers, communication devices, software installation, and configuration. (F, Sp)

CISB 236 Microcomputer Software Support 3	CISB 260 Systems Analysis and Design 4
Prerequisite: None	Prerequisite: None
Recommended: CABS 195 and CISB 133 and CISB 200	Recommended: CISB 100 and (CISB 114 or CISB 119 or CISB 120)
This course provides students with the skills necessary to diagnose and correct problems that microcomputer users frequently encounter in using software. The course covers installing operating systems, installing and upgrading applications, memory optimization, printer fonts, printer emulation, remote site support, telephone support, and software training. (F, Sp)	This course presents concepts and techniques used in development of computer business application systems. The traditional approach for systems development is presented and compared to the approach used in a 4th Generation Environment. Structured techniques are utilized in the development approach as well as Computer-Assisted Software Engineering (CASE) tools. (F, Sp)
CISB 245 Programming Internship 3	CISB 261 Sys Implementation Case Tools 3
Prerequisite: Department Approval	Prerequisite: CISB 260 2.0 minimum
This internship provides the student with on-the-job experience as a computer programmer. Two hundred hours of experience at a local computer information systems site is required. The student is expected to write or maintain programs, create documentation, learn job control commands, and work on interactive systems. (F, Sp, Su)	This course applies the concepts and techniques of systems analysis and design developed in CISB 260 into working systems. Computer-Assisted Software Engineering (CASE) tools will be used to develop a business computer system. Students will be formed into project teams for the course project. (F, Sp)
CISB 247 Microcomputer Project 2	CISB 270 COBOL II 3
Prerequisite: Department Approval	Prerequisite: None
With this course, students apply what they have learned about programming and systems development as a part of an internship, an independent study, or a project. Grading criteria and course objectives are determined at the first meeting. The course requires a minimum of 150 internship hours or 96 independent study hours. (F, Sp, Su)	Recommended: CISB 170
CISB 250 Database Concepts 3	An advanced COBOL course covering indexed file creation and updating, sub-program concepts, and writing interactive programs using CICS. Copy libraries are used, and a system of related programs is completed as a class project. (F, Sp)
Prerequisite: None	CISB 271 COBOL/400: Imp COBOL on AS/400 3
Recommended: CISB 100 and (CISB 114 or CISB 119 or CISB 120)	Prerequisite: None
Students learn the functions of a database management system. The relational model and SQL are used. Normalization and database design are covered. The CODASYL model is discussed and emerging trends are studied. (F, Sp)	Recommended: CISB 170 and AS/400 Experience
CISB 253 WWW Interactive Programming 4	This course provides the student with information and support necessary to master the implementation of COBOL programming in the AS/400 environment. Students will learn to use the user interfaces and relational file format native to the AS/400 as well as learning how to communicate between programs. (Sp)
Prerequisite: None	CISB 272 Object-Oriented COBOL 3
Recommended: (CISB 119 or Equivalent) and CISB 258	Prerequisite: None
This course provides instruction in programming the World Wide Web (WWW) to make it interactive. The fundamentals and techniques of Common Gateway Interface programming are presented as step-by-step instructions. Students progress to more advanced topics to design interactive Web pages. Complete instructions are given on implementing JavaScript, VBScript, C, and Perl. (F, Sp)	Recommended: CISB 270 or Equivalent
CISB 256 Multimedia in Business 3	This course is intended for those already familiar with the COBOL language. It includes the concepts and terminology of object-oriented development and uses object-oriented COBOL as the programming tool. Students will complete assignments using object-oriented COBOL. (F)
Prerequisite: None	CISB 275 Advanced RPG on the AS/400 4
Recommended: CISB 119 or (CISB 114 or CISB 120) or ARTS 233	Prerequisite: None
A detailed course covering fundamentals of modern usage of multimedia in business. Students will not only apply problem-solving skills and instructional design techniques to evaluate multimedia applications, they will also develop and modify simple, but practical, multimedia applications and demonstrate skills learned in a multimedia project. (Su)	Recommended: CISB 175 or Equivalent
CISB 257 Multimedia Presentations 2	A detailed course covering fundamentals of the modern RPG programming language. The course will cover RPG/400 programming techniques, modular programming, relational database manipulation and techniques, and system interaction. The course will use an AS/400 computer in the native AS/400 environment. (Sp)
Prerequisite: None	CISB 280 C++ Language with OOP 4
Recommended: CISB 100 or Equivalent	Prerequisite: None
In this course, students will develop presentations using one or more presentation tools, such as Powerpoint, and learn how to use clipart, graphics, and A/V files to enhance the presentations. (F, Sp)	Recommended: CISB 180
CISB 258 Dev Multimedia Home Pages WWW 2	Students will use the Borland Integrated Environment to become familiar with the C++ programming language and object-oriented programming and design by designing, implementing, and testing programming projects. (F, Sp)
Prerequisite: None	CISB 281 Visual C++ Programming 3
Recommended: CISB 102 or Equivalent	Prerequisite: None
In this course, students will review different types of home pages available on the World Wide Web and recognize the role of multiple medias in reaching the apparent goal of the page. Students will develop both HTML text based and multimedia pages. Students will have the opportunity to create graphics and digitized video sequences to enhance their creations. (F, Sp, Su)	Recommended: CISB 122
CISB 259 Intro to Dev Multimedia Trng 2	An introduction to the fundamentals of the modern usage of C++ as a control/linking program in the Windows environment. Emphasis will be placed on using existing classes and visual tools to rapidly create applications and linkages between applications. Students will learn to use object oriented techniques with a wide collection of existing C++ tools. (F, Sp)
Prerequisite: None	CISB 282 C/400: Imp C Language on AS/400 3
Recommended: CISB 114 or CISB 119 or CISB 120 or Equivalent	Prerequisite: None
In this course, the student will learn how to use rapid prototyping techniques (or rapid application development) to create multimedia training. (F, Sp)	Recommended: CISB 180 and AS/400 Experience

CISB 283 Intro to JAVA Programming 3**Prerequisite:** None**Recommended:** CISB 102 and (CISB 119 or CISB 122)

This course introduces students to the essential elements of the Java Programming language. As the first course in the Java Programming path, this course introduces students to object-oriented programming methodology and the features provided by the Java language. Students will create and modify simple Java applets. (F, Sp, Su)

CIVL - CIVIL TECHNOLOGY**CIVL 101 Civil Drafting 4****Prerequisite:** DTDS 100 2.5 minimum or Basic Drafting Test 70%

This course emphasizes traverse and topographical drawing problems. The course will equip the student with skills and line techniques, and the ability to prepare a clear, readable, graphical presentation from rough notes furnished by the survey party. (Sp)

CIVL 120 Surveying 4**Prerequisite:** MATH 114 3.0 minimum or Math Level 4

Introduces basic surveying practices and procedures. The course consists of field-work involving the use of surveying equipment and procedures (cloth tape, drag chain, Dumpy level, automatic level, level rods, optical transit, laser level, electronic transit and Total Station) and basic computational techniques (chaining corrections, azimuths, bearings, coordinates, and traverses). (F, Sp)

CIVL 124 Route Survey 4**Prerequisite:** CIVL 120 2.5 minimum

This course includes surveying computations in such areas as horizontal curves, vertical curves, spirals and data needed for highway construction layout. Also includes work with surveying computation software and fieldwork with lasers, total stations, and data collectors. (F, Sp)

CIVL 131 Traffic Technology 3**Prerequisite:** None

This course introduces the basic principles of traffic engineering design, signing and pavement marking, traffic signalization, and how these elements are used to improve motorists' safety. Emphasis is placed on the use of these devices in and around construction zones. Basic concepts on traffic flow and capacity analysis will be presented. (Sp)

CIVL 132 Construction Materials 5**Prerequisite:** MATH 114 3.0 minimum or Math Level 4

Students will study techniques and equipment used in constructing bridges, buildings, highways, and pipelines. Deals with the determination of properties of aggregates, concrete, and other bituminous materials. Teaches methods of designing concrete mixes for different uses and methods of sampling and testing. Comparison of building codes and construction specifications will be covered. (Sp)

CIVL 135 Soils Technology 3**Prerequisite:** MATH 114 3.0 minimum or Math Level 4

Exploring, sampling, testing, and evaluating subsurface materials and their effect on construction are covered in this course. Introduction to methods of subsurface drainage, soil classifications, and physical properties of soils. Includes discussion, demonstration, and performance with equipment used in density testing. (Sp)

CIVL 136 Hydrology and Highway Tech 5**Prerequisite:** CIVL 131 3.0 minimum and (MATH 114 3.0 minimum or Math Level 4)

This course is an introduction to highway inventory, planning, organization, rudiments of finance, geometric design, earthwork, and drainage structures. Emphasis is placed on these elements as components of final highway plans. Analysis of precipitation and the attendant runoff and recharge will be introduced. (Sp)

CIVL 200 Civil Mathematics 5**Prerequisite:** MATH 114 3.0 minimum or Math Level 4

This course applies differential calculus and integral calculus to practical technical problems. Topics include related rates, maximum and minimum problems, and areas under curves. (Sp)

CIVL 225 Independent Study/Civil 1-4**Prerequisite:** None**Restriction:** Civil Technology Majors

Students are allowed to undertake special research projects to apply to their professional experience and academic major. A minimum of 48 hours of work per credit is required and the completion of a written project report. This course cannot be audited. (Sp)

CIVL 241 Statics/Strength of Materials 5**Prerequisite:** CIVL 200 2.5 minimum

This course introduces structural terminology and concepts. The general behavior of structural members in compression, stress, strain, creep, fatigue, yield, tension, shear, bending, and torsion due to different loading conditions are studied. Loads and forces, conditions of stability and equilibrium in structural frames, and free body analysis for reactions and member forces are considered in the course. (Sp)

CJUS - CRIMINAL JUSTICE**CJUS 101 Intro to Criminal Justice 3****Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 3

A survey course designed to provide students with a current, coordinated, and comprehensive overview of criminal justice as an institution and as a system. Emphasizes historical, philosophical, constitutional, and organizational perspectives. (F, Sp, Su)

CJUS 102 Crime Causes and Conditions 3**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 3

Why do some individuals pursue a life of crime? This course introduces and analyzes the past, present, and future of criminology. Sociological, psychological, and biological factors are examined to determine their interaction with and impact on criminal behavior. (F, Sp, Su)

CJUS 103 Criminal Law 3**Prerequisite:** CJUS 101 1.0 minimum or Concurrently

Study of substantive criminal law. Includes classification of crimes, common law concepts, elements of specific crimes, and discussion of current trends in criminal law nationally and locally. (F, Sp, Su)

CJUS 106 Intro to Juvenile Justice 3**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 3

This course emphasizes the legal foundation, as defined by Michigan law, upon which the criminal justice practitioner must rely in dealing with the juvenile offender and the juvenile victim. In addition, this course will introduce the student to the juvenile offender. (F, Sp, Su)

CJUS 126 Juvenile Offenders/Their Fam 3**Prerequisite:** CJUS 106 1.0 minimum or Concurrently

The course takes an in-depth look at the diverse nature of juvenile offenders and their family backgrounds. Issues impacting juvenile behavior such as gender, gangs, drugs, and disabilities will be discussed. (F, Sp, Su)

CJUS 130 Local Detention 3**Prerequisite:** Reading Level 5 and Writing Level 4

The course explains operations of local detention facilities and their unique role in the criminal justice system. Emphasis is placed on Michigan jail and lockup operations, as well as the organization, management, policy environment, and emerging issues confronting American jails. Differences in jail and prisons regarding operations and differing clientele are also covered. (F, Sp)

CJUS 131 Introduction to Corrections 3**Prerequisite:** Reading Level 5 and Writing Level 4**Recommended:** Math Level 3

Introduction to agencies and processes within the correctional system. An examination of correctional officer behavior, corrections legislation, the courts, correctional institutions and their operation, and administration. Includes overview of history sentencing, probation, parole, and community corrections. This course is required for the corrections officer vocational certificate. (F, Sp)

CJUS 133 Juvenile Residential Services 3**Prerequisite:** CJUS 106 1.0 minimum or Concurrently

All aspects of court-placement of juveniles in residential facilities will be examined. Staffing and operations of both public and private agencies will be discussed, focusing both on treatment and detention issues. (F, Sp, Su)

CJUS 134 Probation and Parole 3**Prerequisite:** CJUS 101 1.0 minimum or CJUS 131 1.0 minimum

An introductory level course in probation and parole with strong emphasis on counseling, interviewing skills, and supervision techniques. Students will also learn the mechanics of writing violation, progress, and pre-sentence reports. (F, Sp, Su)

CJUS 135 Legal Issues in Corrections 3
Prerequisite: (CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently Study of current constitutional, federal, and state law as it pertains to penal institutions, inmates, and correctional employees. The course will provide students with insight into policy considerations behind state and federal law, legal process, court decisions, and inmate rights. This course is required for the correctional officer vocational certificate. (F, Sp, Su)

CJUS 170 Emergency Dispatching I 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 3
 This course has been designed to introduce the student to the history and role of the telecommunicator, equipment systems utilized in dispatching, the correct spelling of police/fire/medical terminology, stress management, legal issues, reference sources, emergency plans, history of police/fire/EMS services, and hazardous materials. (F, Sp)

CJUS 171 Emergency Dispatching II 4
Prerequisite: CJUS 170 1.0 minimum or Concurrently
 This course has been designed to introduce the student to effective communication skills, dispatch techniques, first aid and CPR techniques, telephone techniques, call-intake processing, and emergency medical dispatching. Simulation exercises are included. (F, Sp)

CJUS 201 Criminal Justice Org/Admin 3
Prerequisite: CJUS 101 1.0 minimum
 Examines the primary concepts of criminal justice organization and administration emphasizing processes and theories, communications, leadership, personnel, budgeting, planning, information management, and community relations. (F, Sp, Su)

CJUS 203 Criminal Procedure 3
Prerequisite: CJUS 103 1.0 minimum
 Study of criminal procedural law. Includes laws of arrest, search and seizure, and admissions and confessions; suspect identification; and rules of evidence. (F, Sp)

CJUS 204 Criminal Investigation 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
Recommended: CJUS 103 1.0 minimum
 Examines the fundamentals of criminal investigation such as crime scene procedures, collection and preservation of physical evidence, interviewing, interrogation, and latent investigation. (F, Sp)

CJUS 205 Policing into the 21st Century 3
Prerequisite: CJUS 101 1.0 minimum
 This course is designed to provide the student with an understanding of the philosophy of community policing. As such, the components and processes involved in the implementation of non-traditional policing methods, as well as the development of a partnership between the community and the police, will be examined. (F, Sp)

CJUS 206 Interview and Interrogation 2
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 3
 Provides students with the techniques and procedures utilized in conducting lawful, admissible, and successful investigative interviews and interrogations. (F, Sp, Su)

CJUS 242 Unarmed Defense 3
Prerequisite: None
 Hands-on techniques to prepare students to properly and effectively handle law enforcement related physical confrontations. Includes use of force decision-making skills, pressure points, control holds, and handcuffing. (F, Sp, Su)

CJUS 245 Report Writing in CJ 2
Prerequisite: CJUS 101 1.0 minimum or CJUS 131 1.0 minimum
 Designed to meet the needs of criminal justice writing. Components include grammar, punctuation, sentences, paragraphs, styles of writing, and proper documentation of work effort. Frequent writing practice. (F, Sp, Su)

CJUS 246 Jail Safety and I.D. Issues 4
Prerequisite: (CJUS 130 1.0 minimum and CJUS 242 1.0 minimum) or Concurrently and Department Approval
 This course introduces students to safety and identification issues in a jail setting. The course includes hands-on training in fire safety, fingerprinting, first aid and CPR, and legal defense techniques against spontaneous knife attacks. (F, Sp)

CJUS 250 Correctional Institutions 3
Prerequisite: CJUS 131 1.0 minimum or Concurrently
 Examines the historical development of corrections institutions in the United States. The organizational structure, purpose, programs, security aspects, and prisoner due-process rights, as well as the future of institutions, will be examined. This course is required for the correctional officer vocational certificate. (F, Sp, Su)

CJUS 251 Correctional Clients 3
Prerequisite: (CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently
 Emphasis is placed on the needs, identities and development of the recipient of correctional services. Students will gain insight into the behavior and motivations of the corrections client and learn intervention strategies. This course is required for the correctional officer vocational certificate. (F, Sp, Su)

CJUS 255 Human Relations/Criminal Just 3
Prerequisite: (CJUS 101 1.0 minimum or CJUS 130 1.0 minimum or CJUS 131 1.0 minimum) or Concurrently
 This course focuses on understanding those aspects of interpersonal relations most directly linked to attainment of organizational and individual goals in work settings. This course is required for the correctional officer vocational certificate. (F, Sp, Su)

CJUS 256 Interpersonal Comm in Jails 1
Prerequisite: CJUS 130 1.0 minimum and CJUS 255 1.0 minimum and Department Approval
 This course introduces students to the IPC model developed specifically to work with prisoners. Three basic components of the model will be taught, including the primary components of sizing up a situation, observing an encounter, and using application skills to control behavior of prisoners. (F, Sp)

CJUS 260 Criminal Invest & Procedures 3
Prerequisite: None
Co-requisite courses: CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 Designed for hands-on, practical instruction in the following areas: crime scene processing, on-scene preliminary investigation, witness interviewing, suspect identification, latent prints, photography, child abuse, sexual assault, narcotics, and preparation for court. (F, Sp, Su)

CJUS 261 Michigan Crim Law & Procedure 3
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 Designed for hands-on, practical instruction in criminal law and procedure as it pertains to law enforcement in the State of Michigan. Topics include crimes against persons and property, regulatory crimes, public order crimes, juvenile law, admissions/confessions, laws of arrest, search and seizure, and suspect identification. (F, Sp, Su)

CJUS 262 Patrol Procedures and Tactics 3
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 The course is designed to identify and utilize proper patrol techniques and procedures necessary for a police officer to function safely and effectively. Topics include preparation for patrol, types of patrol, responding to crimes in progress, roadblocks, civil process, handling abnormal persons, and officer survival. (F, Sp, Su)

CJUS 263 Standard First Aid 2
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 Designed to identify the roles and responsibility of a law enforcement officer at the scene of a medical emergency based upon American Red Cross standard first aid and CPR training. (F, Sp, Su)

CJUS 264 Rprt Writing in Law Enforce 1
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 Designed to prepare the student to effectively and efficiently write a proper police report that will serve as a basis for the issuance of a warrant and court prosecution. Topics include obtaining information, basic English skills, criminal justice terminology, and proper formatting. (F, Sp, Su)

CJUS 265 Highway Traffic Operations 3
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 266 and CJUS 267 and CJUS 268 and PFFT 114
 This course is designed to familiarize the student with the proper procedures for traffic control and enforcement. Emphasizes state motor vehicle laws and procedures, arrests and citations, O.U.I.L., and accident investigation. (F, Sp, Su)

CJUS 266 Basic Police Science 3
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 267 and CJUS 268 and PFFT 114
 This course is concerned with technical and physical techniques employed in the investigation of crime. The course involves traditional classroom as well as field experiences. (F, Sp)

CJUS 267 Law Enforcement Phys Traing 2
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 268 and PFFT 114
 Designed to assist law enforcement students in developing and improving their physical fitness. The course includes running, aerobics, calisthenics, and stretching. (F, Sp, Su)

CJUS 268 Precision Driving 3
Prerequisite: None
Co-requisite courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and PFFT 114
 The course is designed to identify and utilize proper driving techniques and procedures using the principles of precision driving. Course involves both classroom and hands-on driving. (F, Sp)

CJUS 281 Directed Independent Study 1-3
Prerequisite: Department Approval
 Sixteen hours of study and research are assigned per credit. Students are given criminal justice related research assignments which will introduce them to research procedures and resources. (F, Sp, Su)

CJUS 285 Law Enforcement Internship 2
Prerequisite: Department Approval
 Sixteen eight-hour shifts are scheduled with an approved police department. Written reports are required. (F, Sp, Su)

CJUS 286 Juvenile Internship I 3
Prerequisite: CJUS 106 1.0 minimum or Concurrently and Department Approval
 The student will be placed in a local program dealing with young people from at-risk populations. A classroom component includes preparation for job interviews and other skill-building exercises for working in the juvenile justice field. Written reports are required. (F, Su)

CJUS 287 Juvenile Internship II 3
Prerequisite: CJUS 133 1.0 minimum and CJUS 286 1.0 minimum and Department Approval
Recommended: For Juvenile Care Worker Students
 The student will be placed in a residential facility with juveniles who have been adjudicated by the court to be detained in a secure environment for treatment and rehabilitation purposes. (F, Sp, Su)

CJUS 288 Corrections Internship 3
Prerequisite: Department Approval
 The student will be placed in a local or state corrections facility that will allow him or her to experience many facets of correction operations. Weekly written reports are required and periodic meetings are mandatory. A minimum of 160 hours is required. (F, Sp, Su)

CNCP - COMPUTERIZED NUMERICAL CONTROL PROGRAM

CNCP 101 PC Applications for Technology 3
Prerequisite: None
 An introduction to PCs as used in a technical-industrial setting. Students will learn how computer hardware is set up. Windows-NT along with word processing, spreadsheet, computer graphic, and presentation software will be covered. Students will extensively use the Internet to obtain assignments, turn in homework and research projects. (F, Sp, Su)

CNCP 105 Basic Maching Processes 3
Prerequisite: (MATH 114 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 4
Recommended: Computer Experience
 This course is designed for non-machinist/Computerized Numerical Control (CNC) programming majors who need an introduction to machining processes and systems. Topics covered will include conventional machining processes, basic CNC programming, and Computer-Aided Manufacturing (CAM) operations. (F, Sp, Su)

CNCP 110 Foundations of CNC Programming 4
Prerequisite: MACH 105 3.0 minimum and (MATH 114 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 4
Recommended: Computer Experience
 This course lays the foundation for all other Computerized Numerical Control (CNC) courses. Methods of CNC programming including linear, circular and helical interpolation, z-axis cycles, roughing and pocketing cycles, tool diameter compensation, macros, and subroutines are examined. Students will write programs for 3-axis and 5-axis mills, 3-axis lathe, and 4-axis wire-EDM. (F, Sp, Su)

CNCP 130 Machine Controls and Setup 4
Prerequisite: CNCP 110 2.0 minimum
 Focuses on the setup and operation of a variety of CNC machines ranging from simple 3-axis to sophisticated 5-axis conversational controls. Topics will include proper machine start-up and shutdown, tool data management, fixture alignment and program loading and editing. (F, Sp)

CNCP 194 CNC Project Lab 1-4
Prerequisite: CNCP 130 2.0 minimum
 Further skills are pursued involving modern concepts of numerical control of machine tools, including the interrelationship of these new manufacturing methods in the various departments of a company. (F, Sp, Su)

CNCP 210 Mastercam 4
Prerequisite: CNCP 110 2.0 minimum
 Mastercam is a powerful graphics based programming software for CNC machine tools. Mastercam software is designed to generate CNC programs from mechanical CAD drawings. Students will use Mastercam to solve CNC programming problems in both 2-D and 3-D environments and run selected programs on CNC equipment. (F, Sp)

CNCP 215 Generative Machining 4
Prerequisite: CNCP 110 2.0 minimum
 Generative Machining is an advanced 3-D surface design and CNC software. This course will cover surface creation including Bezier and Nurbs, primitives such as cones and toroids and surface filleting. Full 5-axis CNC programs will be created, run and checked on a coordinate measuring machine. (F, Sp)

COOP - COOPERATIVE EDUCATION

COOP 210 Cooperative Education (Tech) 3
Prerequisite: Department Approval
Recommended: 2.5 GPA or Greater
 Provides technical students with professional and practical work experience in their career field. The student works for a co-op employer as a paid, temporary, part-time employee trainee in a planned, structured, and supervised work experience. Students apply knowledge and skills learned in academic courses to real-world situations. (F, Sp, Su)

CPSC - COMPUTER SCIENCE**CPSC 120 Introduction to Computers 3****Prerequisite:** Reading Level 3 and Writing Level 4 and Math Level 4

In this survey course, the student learns of the application of computers in society, considers their social and economic implications, examines questions of privacy and security, and considers recent advances in computer technology. In addition, the student is exposed to beginning instruction and practice in word processing, spreadsheet and database applications, programming, and user networks. (F, Sp, Su)

CPSC 150 Fortran 3**Prerequisite:** Reading Level 5 and Writing Level 4 and (Math Level 9 or MATH 122 2.0 minimum or MATH 126 2.0 minimum)

Structured programming techniques are applied in the design of algorithms and their implementation in FORTRAN 77. Topics included are stepwise refinement outlines, control structures, functions and subroutines, input and output procedures with text files, data types, arrays, and string processing. (F, Sp, Su)

CPSC 230 Algorithms and Computing W/C++ 4**Prerequisite:** Reading Level 5 and Writing Level 4 and (MATH 151 2.0 minimum or Concurrently)

This course is designed to establish an understanding of fundamental computational procedures required for continuing study in computer science. Techniques of structured design are applied in the implementation of algorithms in C++. Topics included are program development, control structures, functions, procedures, recursion, file operations, data types, arrays, string processing, pointer variables, and linked lists. (F, Sp, Su)

CPSC 231 Computing and Data Structures 4**Prerequisite:** CPSC 230 2.0 minimum and Reading Level 5 and Writing Level 4
Data abstraction and related theory for representation and access of information using C++. Algorithms and abstract data structures such as the stack, queue, binary search tree, heap, and priority queue are studied. (F, Su)**CPSC 260 Computer Science Structures 4****Prerequisite:** Reading Level 5 and Writing Level 4 and MATH 151 2.0 minimum and (CPSC 150 2.0 minimum or CPSC 230 2.0 minimum)

Introduction to logical and algebraic structures and techniques required for further study in computer science. Topics include statement logic and proof techniques, relations, functions, directed and undirected graphs and their matrix representations, Boolean algebras and logic networks, regular expressions, finite-state machines, and Turing machines. (Sp)

CPSC 295 Independent Study in Computer Sci 1-4**Prerequisite:** Department Approval

An independent study in some area of computer science not covered by an existing course. The student works independently under the supervision of a faculty member. Student devotes three or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)

CUAI - CREDIT UNION ACCOUNTING AND INSURANCE**CUAI 102 Credit Union Accounting 3****Prerequisite:** None

This course emphasizes those areas of financial accounting relevant to external reporting by credit unions. (Sp)

CUMA - CREDIT UNION MANAGEMENT**CUMA 100 Intro Credit Union Operations 3****Prerequisite:** None

This course provides students with an overview of the credit union movement, its position in the financial services industry, and basic credit union operating procedures. Directed toward staff, management, and elected officials of credit unions who wish to increase their knowledge of both the credit union movement and operations. (F)

CUMA 200 Credit and Collections 3**Prerequisite:** None

This course covers the basic fundamentals of the credit/collection industry. Emphasis on learning the basics of the credit decision and the collection of past due loans. The course is designed for credit union personnel who want to better understand the relevant laws and regulations of credit union credit and collections. (Sp)

CUMA 201 Credit U. Financial Counseling 2**Prerequisite:** None

This course is an overview of financial counseling techniques and skills for credit union employees. Emphasis is placed on skill-building exercises to enable students to develop a basic understanding of financial alternatives available to their customers. (Sp)

CUMA 215 Business Law for Credit Unions 3**Prerequisite:** None

Covers fundamental principles of law applicable to credit union personnel. This course will prepare students to perform the legal responsibilities of their jobs more knowledgeably. Course content includes study of contracts, personal and real property, torts, crimes, and the nature and sources of law as related to credit union operations. (F)

DADH - DENTAL ASSISTANT/DENTAL HYGIENE**DADH 128 Dental Radiography 4****Prerequisite:** (DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 114 2.0 minimum) or (DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum)

Co-requisite Courses: Second Semester Dental Hygiene and Dental Assistant Lectures discuss production and emission of dental X-radiation, indications for exposure, technics of exposure, processing, evaluation, and interpretation of dental radiographs. Individualized laboratory sessions provide students practice in exposing, processing, mounting, and evaluating radiographs. (Sp)

DANC - DANCE**DANC 100 Introduction to Dance 2****Prerequisite:** None

This course is designed for the student with no dance experience. Students will explore the basic techniques of the core dance forms including ballet, modern, tap, and jazz. Different aspects of dance are covered, including dance as art, the choreographer, the dancer, the viewer, dance production, dance in education, and dance careers. (F)

DANC 101 Ballet I 2**Prerequisite:** None

This course is designed for the student with no dance experience. Included are basic alignment principles, ballet vocabulary and steps, and elementary combinations of ballet technique for the beginning dance student. Basic barre and center floor combinations will be included. (F, Sp, Su)

DANC 102 Modern Dance I 2**Prerequisite:** None

This course is designed for the students with no dance experience. Included are basic alignment training techniques, spatial relationships, and elementary combinations. Some improvisation will be used throughout the course to assist in developing kinesthetic, spatial, cognitive, and physical awareness. (F, Sp, Su)

DANC 103 Jazz I 2**Prerequisite:** None

This course is designed for the student with no dance experience. Included are basic alignment, warm-up, and isolations in jazz dance technique for beginning dance students. Spatial relationships and rhythm are emphasized. (F, Sp)

DANC 104 Tap I 2**Prerequisite:** None

This course is designed for the student with no dance experience. Included are basic tap origins, vocabulary, steps, combinations, and rhythms. Basic alignment training techniques, spatial relationships, and elementary combinations are explored. (F, Sp)

DANC 105 Jazz I - Summer 1**Prerequisite:** None

This course includes basic alignment, warm-up, and isolation in jazz dance technique for beginning dance students. Spatial relationships and rhythm are emphasized. (Su)

DANC 106 Tap I - Summer 1**Prerequisite:** None

This course includes basic tap origins, vocabulary, steps, combinations, and rhythms for the beginning dance students. Basic alignment training techniques, spatial relationship, and elementary combinations are explored. (Su)

DANC 107 Ballet I - Summer 1
Prerequisite: None
 This course is designed for the student with no dance experience. Included are: basic alignment principles, ballet vocabulary and steps, and elementary combinations of ballet technique for the beginning dance student. Basic barre and center floor combinations will be included. (Su)

DANC 108 Modern Dance I - Summer 1
Prerequisite: None
 This course is designed for the student with no dance experience. Included are: basic alignment training techniques, spatial relationships, and elementary combinations. Some improvisation will be used throughout the course to assist in developing kinesthetic, spatial, cognitive, and physical awareness. (Su)

DANC 110 High School Dance Workshop 3
Prerequisite: Dance Audition
 This course is designed for the talented high school student. It is an intensive course of study in basic tap, ballet, modern, and jazz. This includes basic alignment training techniques, spatial relationships, and elementary combinations. Some improvisation used to develop kinesthetic, spatial, cognitive, and physical awareness. Basic performance skills are developed using all dance disciplines. (Su)

DANC 111 Ballet II 2
Prerequisite: None
Recommended: DANC 101 or Previous Ballet Experience
 Designed for the student who has successfully completed Beginning Ballet I, this course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. The student will begin to explore the aspects of building a personal movement style. (Sp, Su)

DANC 112 Modern Dance II 2
Prerequisite: None
Recommended: DANC 102 or Previous Modern Experience
 This course includes a continuation of movement theory, alignment, increased training practices, spatial relationships, vocabulary, and longer combinations. Improvisation will be used to develop kinesthetic, spatial, cognitive, and physical awareness. The student will begin to explore the aspects of building a personal movement style. (Sp, Su)

DANC 113 Jazz II 2
Prerequisite: None
Recommended: DANC 103 or Previous Jazz Experience
 This course includes a continuation of alignment, vocabulary, jazz movement theory, increased training practices, and longer combinations. A more comprehensive use of body isolations and movement rhythms will be explored. The student will begin to explore the aspects of building a personal movement style. (Sp)

DANC 114 Tap II 2
Prerequisite: None
Recommended: DANC 104 or Previous Tap Experience
 Designed for the student who has successfully completed Beginning Tap I, this course includes a continuation of tap vocabulary, steps, combinations, and rhythms. Emphasis is placed on increased complexity in rhythms and combinations. The students will begin to explore the aspects of building a personal movement style. (Sp)

DANC 115 Jazz II - Summer 1
Prerequisite: None
Recommended: DANC 103 or Previous Jazz Experience
 Emphasis is placed on beginning to develop a personal style of movement in preparation for performance. Course includes a continuation of alignment, warm-up, and isolations in addition to various rhythms and combinations. (Su)

DANC 116 Tap II - Summer 1
Prerequisite: None
Recommended: DANC 104 or Previous Tap Experience
 Emphasis is placed on increased complexity in rhythms and combinations. Course includes a continuation of tap vocabulary, steps, combinations, and rhythms. (Su)

DANC 125 Dance Improvisation 2
Prerequisite: DANC 101 2.0 minimum or DANC 102 2.0 minimum or DANC 103 2.0 minimum
 This course is designed for the major and nonmajor. It provides students with opportunities to discover the skills of critical and creative thinking, as well as convergent and divergent thinking through problem-solving exercises. Spatial, kinesthetic, and emotional awareness are uncovered, as well as the discovery of movement qualities. (F)

DANC 126 Choreography 3
Prerequisite: DANC 125 2.0 minimum (previously DANC 124)
 This course is designed to acquaint the student with basic choreographic techniques. Improvisation is utilized to explore ideas. Dance elements of time, space, and energy will be explored in addition to the mechanical and gestural aspects of movement. The concept of language and symbol system is studied. (Sp)

DANC 132 Spanish Dance 2
Prerequisite: None
 This course is designed for the beginning level student. It is an introduction to the origins and techniques of Spanish dance as performed in Spain. Included are traditional music, footwork, body work, costumes, customs, and use of castanets. (Sp)

DANC 134 African Dance 2
Prerequisite: None
 This course is designed for the Beginning II level student. It is an introduction to the origins and techniques of African dance as performed in various African countries. Included are traditional music, footwork, body work, costumes, and customs. (F, Sp)

DANC 161 Ballet Repertory 1
Prerequisite: Dance Audition for Ballet Repertory
 This course is designed for the student who has reached a minimum of the Beginning Ballet II level. The student participates in the process of auditions, rehearsals, and public performances in the ballet genre and concentrates on memorization, projection, and musicality. (Sp)

DANC 162 Modern Dance Repertory 1
Prerequisite: Dance Audition for Modern Dance Repertory
 This course is designed for the student who has reached a minimum of Modern Beginning II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the modern dance genre and concentrates on memorization, projection, and musicality. (Sp)

DANC 163 Jazz Repertory 1
Prerequisite: Dance Audition for Jazz Repertory
 This course is designed for the student who has reached a minimum of Beginning Jazz II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the jazz genre and concentrates on memorization, projection, and musicality. (F)

DANC 164 Tap Repertory 1
Prerequisite: Dance Audition for Tap Repertory
 This course is designed for the student who has reached a minimum of Beginning Tap II to gain performance experience in a controlled setting. The student participates in the process of auditions, rehearsals, and public performances in the tap genre and concentrates on memorization, projection, and musicality. (F)

DANC 165 Video Dance Repertory .5
Prerequisite: Department Approval
 This course is designed for the student who has reached the intermediate level or above. Students learn choreography, staging and performance, specifically designed for video production. A short-term rehearsal process culminates in a finished video performance. A maximum of one credit in video dance can be used for degree requirements. (F, Sp, Su)

DANC 191 Dance History 3
Prerequisite: None
 This course is a dance history overview commencing with the origins of ballet to the present. Important developments and contributors in the field of American dance education will be interwoven with the important developments and contributors of Western dance forms. (F)

DANC 193 Dance Anatomy 3
Prerequisite: DANC 101 2.0 minimum or DANC 102 2.0 minimum or DANC 103 2.0 minimum
 This course is an introduction to basic anatomy as it applies to dance. Terminology, practical application, theory of movement, nutrition, and injury prevention and care will be incorporated. Emphasis will be placed on major muscles, muscle groups, and skeletal structure. (Sp)

DANC 201 Ballet III	3
Prerequisite: Dance Audition for Ballet III	
This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, and development of a personal movement style in preparation for performance. Pointe shoes are optional. (F, Sp, Su)	
DANC 202 Modern Dance III	3
Prerequisite: Dance Audition for Modern Dance III	
This course includes a continuation of alignment training, spatial relationships, improvisation techniques, movement theory, increased training practices, movement symbols, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and development of a personal movement style in preparation for performance. (F, Sp, Su)	
DANC 203 Jazz III	3
Prerequisite: Dance Audition for Jazz III	
This course includes a continuation of alignment training, movement theory, increased training practices, isolations, and longer combinations. Emphasis is placed on jazz dance dynamics, center floor transitional techniques, and development of a personal movement style in preparation for performance. (F, Sp)	
DANC 204 Tap III	3
Prerequisite: Dance Audition for Tap III	
This course includes a continuation of tap vocabulary, steps, combinations, and rhythms. Emphasis is placed on increased complexity in rhythms and combinations, and development of a personal movement style in preparation for performance. (F, Sp)	
DANC 205 Jazz III - Summer	1.5
Prerequisite: Dance Audition for Jazz III	
Emphasis is placed on developing a personal style of movement. Course includes a continuation of alignments, warm-up, and isolations in addition to more complex rhythms and combinations. (Su)	
DANC 206 Tap III - Summer	1.5
Prerequisite: Dance Audition for Tap III	
Emphasis is placed on increased complexity of rhythms and combinations in order to develop a personal style in preparation for performance. (Su)	
DANC 207 Ballet III - Summer	1.5
Prerequisite: Dance Audition for Ballet III	
This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, and development of a personal movement style in preparation for performance. Pointe shoes are optional. (Su)	
DANC 208 Modern Dance III - Summer	1.5
Prerequisite: Dance Audition for Modern Dance III	
This course includes a continuation of alignment training, spatial relationships, improvisation techniques, movement theory, increased training practices, movement symbols, vocabulary, and longer combinations. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and development of a personal movement style in preparation for performance. (Su)	
DANC 211 Ballet IV	3
Prerequisite: Dance Audition for Ballet IV	
This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on dance dynamics and continued development of a personal movement style. Performance skills are sharpened and include: projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. Pointe shoes are optional. (F, Sp, Su)	
DANC 212 Modern Dance IV	3
Prerequisite: Dance Audition for Modern Dance IV	
This course includes a continuation of Intermediate Modern I. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and continued development of personal movement style. Performance skills are sharpened and include projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (F, Sp, Su)	

DANC 217 Ballet IV - Summer	1.5
Prerequisite: Department Approval	
This course includes a continuation of movement theory, alignment, increased training practices, vocabulary, and longer combinations. Emphasis is placed on dance dynamics and continued development of a personal movement style. Performance skills are sharpened and include: projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (Su)	
DANC 218 Modern Dance IV - Summer	1.5
Prerequisite: Department Approval	
This course includes a continuation of Intermediate Modern I. Emphasis is placed on center floor transitional techniques, dance dynamics, examination and practice of movement qualities, and continued development of personal movement style. Performance skills are sharpened and include projection, musicality, flow, articulation, clarity of intent, motivation, phrasing, and gesture. (Su)	
DANC 225 Jazz IV - Summer	1.5
Prerequisite: Dance Audition for Jazz IV	
Emphasis is placed on learning different styles of jazz dance appropriate to different performance needs. Course includes continuation of alignment, warm-up, and isolations in addition to more complex rhythms and combinations. (Su)	
DANC 244 Pointe Technique I	2
Prerequisite: Dance Audition for Pointe Technique I	
This course is designed for the intermediate level and above ballet student. Pointe technique continues the development of strength, flexibility, coordination, and balance. Emphasis is placed on elementary pointe technique exercises to strengthen ankles, calves, legs, and lower back for pointe work. (F, Su)	
DANC 295 Directed Studies I	1-3
Prerequisite: Department Approval	
Working under the guidance of an approved instructor, the student will pursue studies not otherwise available through scheduled course offerings. (F, Su)	

DAST - DENTAL ASSISTING

DAST 110 Dental Instruments	1
Prerequisite: Admission to Dental Assistant Program	
Co-requisite Courses: DAST 111 and DAST 112 and DAST 114 and DAST 116 and DAST 118	
Lecture and practical experience will introduce the student to dental instruments and equipment for tray, setups and the use and maintenance of these items for dental procedures. (F)	
DAST 111 Preclinical Dental Assisting	3
Prerequisite: Admission to Dental Assistant Program	
Co-requisite Courses: DAST 110 and DAST 112 and DAST 114 and DAST 116 and DAST 118	
Through lecture and simulated clinical experience the student will be introduced to these dental procedures: four-handed chairside assisting, charting, management of clinical records, and taking and recording vital signs. (F)	
DAST 112 Dental Anatomy	4
Prerequisite: Admission to Dental Assistant Program	
Co-requisite Courses: DAST 110 and DAST 111 and DAST 114 and DAST 116 and DAST 118	
Study of nomenclature, morphologic characteristics, and physiologic relationships of human primary and permanent teeth. Head and neck anatomy and the histologic and embryologic development is included with a review of basic oral pathology for the dental assistant. Laboratory activities develop observation and dexterity skills while studying this information. (F)	
DAST 114 Preventive Dentistry & Prc	3
Prerequisite: Admission to Dental Assistant Program	
Co-requisite Courses: DAST 110 and DAST 111 and DAST 112 and DAST 116 and DAST 118	
An introduction to the dental operator, aseptic technics, and oral hygiene procedures for preventing dental diseases. Dental emergency prevention, protocol, care, and OSHA regulations are reviewed. (F)	

DAST 116 Dental Materials 3**Prerequisite:** Admission to Dental Assistant Program**Co-requisite Courses:** DAST 110 and DAST 111 and DAST 112 and DAST 114 and DAST 118

Lecture and laboratory sessions address the properties, selection, manipulation, and evaluation of materials used in dentistry. Practice is provided in the preparation, manipulation, and delivery of the materials most often handled by the dental assistant. (F)

DAST 118 Dental Assisting Principles 1**Prerequisite:** Admission to Dental Assistant Program**Co-requisite Courses:** DAST 110 and DAST 111 and DAST 112 and DAST 114 and DAST 116

Various aspects of the dental profession are discussed to prepare the student dental assistant for entry to the health team. Subjects include dental law, ethics, liability, health profession organizations, employment, and current health care issues. (F)

DAST 120 Clinical Dental Assisting I 6**Prerequisite:** DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 116 2.0 minimum and DAST 118 2.0 minimum and EMSB 102 2.0 minimum**Co-requisite Courses:** DADH 128 and DAST 126 and DAST 130

A study of the clinical practice of four-handed chairside dental assisting with emphasis on general restorative and dental specialty procedures. Sessions correlate clinical procedures and practice with private practice and field experience participation. (Sp)

DAST 126 RDA Procedures - DA 3**Prerequisite:** DAST 110 2.0 minimum and DAST 111 2.0 minimum and DAST 112 2.0 minimum and DAST 114 2.0 minimum and DAST 116 2.0 minimum**Co-requisite Courses:** DADH 128 and DAST 120 and DAST 130

A study of the intra-oral functions delegated to the licensed registered dental assistant in the State of Michigan. Laboratory time is provided for the student to learn the technics and gain proficiency in those procedures that will be performed during clinic rotations. (Sp)

DAST 130 Clinical Dental Assisting II 2**Prerequisite:** (DADH 128 2.0 minimum and DAST 120 2.0 minimum and DAST 126 2.0 minimum) or Concurrently**Co-requisite Courses:** DADH 128 and DAST 120 and DAST 126

Lecture sessions teach basic communication, psychology, and effective dental office management skills for dental assistants. Students practice these skills during laboratory simulations. Field experience assignments provide on-site practice and integration of dental assisting chairside, specialty, RDA, and team skills. (Sp)

DAST 140 Clinical Dental Assisting III 4**Prerequisite:** DAST 130 2.0 minimum

Basic communication, writing, and psychology skills needed for effective patient management, dental office management, chairside assisting, and the employment process are emphasized. Computer application and field experience assignments provide preparation, practice, and integration of these skills to the dental office setting. (Su)

DHYN - DENTAL HYGIENE**DHYN 110 Preclinical Dental Hygiene** 6**Prerequisite:** Admission to Dental Hygienist Program**Co-requisite Courses:** DHYN 112 and DHYN 114 and DHYN 116

Through lecture and simulated clinical experience the student is introduced to the clinical practice of dental hygiene: operator preparation, oral examinations and assessment, oral prophylaxis procedures, oral health practices and patient education, and an orientation to the profession. Students will also learn success maintenance of their own oral health. (F)

DHYN 112 Oral Anatomy 4**Prerequisite:** Admission to Dental Hygienist Program**Co-requisite Courses:** DHYN 110 and DHYN 114 and DHYN 116

Study of nomenclature, morphologic characteristics, and physiologic relationships of human primary and permanent teeth. Head and neck anatomy and the histologic and embryologic development is also studied and related to the clinical practice of dental hygiene. Laboratory activities develop observation and dexterity skills while studying this information. (F)

DHYN 114 Oral Pathology 2**Prerequisite:** Admission to Dental Hygienist Program**Co-requisite Courses:** DHYN 110 and DHYN 112 and DHYN 116

Study of the diseases effecting oral tissues, including the principles of inflammation and repair, developmental disturbances, stains and accretions, diseases of the teeth and supporting structures, oral infection, injuries, and neoplasms. (F)

DHYN 116 Dental Pharmacology 2**Prerequisite:** Admission to Dental Hygienist Program**Co-requisite Courses:** DHYN 110 and DHYN 112 and DHYN 114

A study of the administration, use, action, and effects of drugs most commonly used by patients and their relationship to dental treatment and dental hygiene procedures. (F)

DHYN 120 Clinical Dental Hygiene I 6**Prerequisite:** DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum and EMSB 102 2.0 minimum**Co-requisite Courses:** DADH 128 and DHYN 122 and DHYN 124 and DHYN 126

Initial clinical practice of basic dental hygiene services: recognition and recording or oral conditions, medical history, oral health education, prophylaxis fluoride treatment, sterilization, radiography, and desk procedures. Skills are developed further in treatment planning, periodontal examination, caries detection, instrument sharpening, emergency recognition/prevention/care, and clinical photography. (Sp)

DHYN 122 Principles of Periodontics 2**Prerequisite:** DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum**Co-requisite Courses:** DADH 128 and DHYN 120 and DHYN 124 and DHYN 126

Study of anatomy, physiology, and histology of the periodontal tissues as they relate to the identification, etiology, prevention and treatment of periodontal disease, and occlusal disorders. Evaluation of disease status, diagnosis, patient management, and disease prevention is presented relative to the hygienist's role as a co-therapist in private practice. (Sp)

DHYN 124 Nutrition and Oral Health 1**Prerequisite:** DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum and EMSB 102 2.0 minimum**Co-requisite Courses:** DADH 128 and DHYN 120 and DHYN 122 and DHYN 126

Discussion of the identification, function, metabolism, and sources of specific nutrients required for normal growth, development, and repair of tissues. Application of principles to the individual's nutritional needs, providing nutritional counseling and diet information to special needs patients, and the relationship of nutrition to oral health are emphasized. (Sp)

DHYN 126 Dental Materials and Methods 3**Prerequisite:** DHYN 110 2.0 minimum and DHYN 112 2.0 minimum and DHYN 114 2.0 minimum and DHYN 116 2.0 minimum**Co-requisite Courses:** DADH 128 and DHYN 120 and DHYN 122 and DHYN 124

Study of terminology, selection, manipulation, and evaluation of materials used in dentistry. Activities emphasize dental materials and procedures utilized by the dental hygienist. Students are prepared in the knowledge needed to educate patients regarding the benefit of certain restorative procedures for good oral health. (Sp)

DHYN 210 Clinical Dental Hygiene II 6**Prerequisite:** DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum**Co-requisite Courses:** DHYN 212 and DHYN 214 and DHYN 216

A continuation of clinic, perfecting comprehensive treatment planning, and advanced prophylaxis technics: deep scaling, root planing, nutritional counseling, ultrasonic scaling, and the use of chemotherapeutic agents. This course coordinates the periodontal case study, advanced patient care and management, and a review of ethical case studies. (F)

DHYN 212 Advanced Dental Hygiene Proced 4**Prerequisite:** DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum**Co-requisite Courses:** DHYN 210 and DHYN 214 and DHYN 216

The study of advanced clinical dental hygiene procedures with emphasis on the hygienist's role as co-therapist in performing root planing, ultrasonic instrumentation, nutritional counseling, and applying chemotherapeutic agents. Students complete a periodontal case study to demonstrate appropriate implementation of their periodontal knowledge and therapy skills. (F)

DHYN 214 Clinical Oral Pathology 1
Prerequisite: DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum
Co-requisite Courses: DHYN 210 and DHYN 212 and DHYN 216.
 Case histories are presented in which the student's objective is to formulate a differential diagnosis of an unknown oral lesion and propose a rational approach for evaluation and treatment of the patient. (F)

DHYN 216 Dental Public Health & Educ 2
Prerequisite: DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 122 2.0 minimum and DHYN 124 2.0 minimum and DHYN 126 2.0 minimum
Co-requisite Courses: DHYN 210 and DHYN 212 and DHYN 214
 Students review scientific literature, dental epidemiology, principles of public health, and health care delivery systems. Further study includes human behavior, growth and development, attitudes, learning skills, teaching methodologies, interpersonal relations, group dynamics, and communication skills relating to patient education, motivation, and acceptance of health care. (F)

DHYN 220 Clinical Dental Hygiene III 7
Prerequisite: DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum
Co-requisite Course: DHYN 222
 Performing comprehensive dental hygiene care in a timely manner is emphasized. The management and care of elderly patients and persons challenged with physical, mental, social/emotional, and selected medical conditions is presented and coordinated with clinical practice. Employment preparation and legal and professional ethic issues are reviewed. (Sp)

DHYN 222 Community Oral Health 4
Prerequisite: DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum
Co-requisite Course: DHYN 220
 Students implement a program plan for a community project utilizing assessment, planning, implementation, and evaluation processes. Dental specialties and the dental hygienist's role in recognizing specialty care needed by patients is presented. Each student participates in a variety of community health projects and observing in dental specialty practices. (Sp)

DHYN 224 Testing Styles and Inventory 2
Prerequisite: DHYN 210 2.0 minimum and DHYN 212 2.0 minimum and DHYN 214 2.0 minimum and DHYN 216 2.0 minimum
 An introduction to dental hygiene licensure exam testing techniques, test construction, and item analysis. Students inventory their current knowledge of dental hygiene and through self-evaluation and planning, establish study skills while recognizing their personal study needs for national boards and licensing exams. (Sp)

DHYN 230 RDA Procedures - DH 2
Prerequisite: DADH 128 2.0 minimum and DHYN 120 2.0 minimum and DHYN 126 2.0 minimum
 A specially designed course for dental hygiene students wishing to learn auxiliary dental assistant procedures and those intraoral functions delegated only to the licensed registered dental assistant in the State of Michigan. Instruction is emphasized in the laboratory setting to prepare the student for practical application of these procedures. (Sp)

DTDS - DRAFTING AND DESIGN

DTDS 100 CAD/Drafting Concepts 4
Prerequisite: None
 This course teaches the fundamental concepts of drafting and design both manually and using computer-aided drafting (CAD). The student will learn the basics of orthographic projection, lettering, sketching, dimensioning techniques, computer hardware setup, Windows NT, file management, printing, and much more. (F, Sp, Su)

DTDS 101 Drafting I 4
Prerequisite: (DTDS 100 2.0 minimum or Drafting Placement Test 80%) and Reading Level 3 and Writing Level 2 and Math Level 4
 This is an introductory course in drafting concepts. Instruction includes orthographic projection, auxiliary views, sections, dimensioning techniques, and secondary auxiliary view projections. Students will complete a series of drawings to demonstrate understanding of the concepts presented. (F, Sp, Su)

DTDS 102 Drafting II 4
Prerequisite: DTDS 101 2.0 minimum
 This course covers advanced drafting and design techniques needed to project successive auxiliary views from various orthographic views. Layout and design concepts will also be stressed. Students will complete practical design projects in problem solving and creativity applicable to the automotive, industrial, and/or aerospace industries. (F, Sp, Su)

DTDS 103 Geometric Tolerancing 2
Prerequisite: DTDS 100 2.0 minimum or Drafting Placement Test 80%
 This course covers the principles and methods of dimensioning and tolerancing for specific design requirements on engineering drawings. Uniform practices for stating and interpreting these requirements will be stressed. Content includes use and understanding of the symbolic method of specification relating to tolerances being applied using ASME/ANSI M14.5Y 1994 standards. (F, Sp, Su)

DTDS 104 Descriptive Geometry 4
Prerequisite: DTDS 101 2.0 minimum
 This course covers the solution of space problems through the practice of advanced orthographic projection. Content includes points, lines and planes, parallelism, perpendicularity, developments, and intersections. Students will complete projects relating to architectural, civil, and industrial engineering situations. (F, Sp)

DTDS 110 Industrial Blueprint Reading 3
Prerequisite: DTDS 100 2.0 minimum or Drafting Placement Test 80%
 This course covers basic concepts in orthographic projection, with emphasis on interpretation of engineering drawings. Areas also covered include measurement systems, technical sketching, dimensioning, sectional and auxiliary views, and tolerancing. (F, Sp, Su)

DTDS 121 CATIA I 4
Prerequisite: DTDS 101 2.0 minimum
 An intermediate level computer aided design (CAD) class for students who have basic board drafting and CAD skills. Instruction covers basic concepts of the CATIA system of CAD. Students will learn 3-D wireframe modeling as well as basic solid modeling concepts. Students will construct models of aircraft parts, automotive components, and consumer goods. (F, Sp, Su)

DTDS 131 AutoCAD Basic 2-D 4
Prerequisite: DTDS 100 2.0 minimum or DTDS 101 2.0 minimum or Drafting Placement Test 80%
 This course gives an introduction to AutoCAD software. Creation of 2-D multiview mechanical drawings with dimensions and notes will be the main focus. Use of AutoCAD's layer, block, plot commands, and isometric views will also be covered in this course. (F, Sp, Su)

DTDS 132 AutoCAD Advanced 3-D 4
Prerequisite: DTDS 131 2.0 minimum
 This course builds on DTDS 131 and will focus on advanced AutoCAD commands and features, including tools for 3-D drafting and design, customizing toolbars, assigning quick keys, using profiles, blocks and attributes, external references, and much more. (F, Sp, Su)

DTDS 180 Unigraphics I 4
Prerequisite: DTDS 100 2.0 minimum or DTDS 101 2.0 minimum or Drafting Placement Test 80%
 This is the first of a three-semester course sequence that covers the fundamentals of the Unigraphics System of interactive design. This course covers Comprehensive CAD concepts of 2-D and 3-D construction and basic solid modeling, as well as some of the concepts of drafting. (F, Sp, Su)

DTDS 181 Unigraphics II 4
Prerequisite: DTDS 180 2.0 minimum and (DTDS 102 2.0 minimum or Concurrently)
 This is the second course of a three-semester course sequence. The course covers the construction of solid parts with assemblies and components constructed using primitives, extrusions, and bodies of revolution as well as surfaces. The solid models constructed will be dimensioned and plotted as drawings in class. (F, Sp, Su)

DTDS 182 Unigraphics III 4
Prerequisite: DTDS 103 2.0 minimum and DTDS 181 2.0 minimum
 This is the third of a three-semester course sequence that covers the design and construction of sophisticated solid models of complex assemblies and components, and the production of dimensioned and toleranced engineering drawings of those components. Advanced concepts of Unigraphics modeling will be discussed and utilized in class projects. (F, Sp, Su)

DTDS 202 Die Design and Construction 4
Prerequisite: DTDS 101 2.0 minimum
 This course will emphasize the proper steps to designing a die, the ability to read sheet metal die design layouts, tolerancing, and clearance fits as they apply to this area of learning. Also covered will be the names of various die components; students will be expected to understand and explain their workings. (F, Sp)

DTDS 204 Jigs and Fixture Design 4
Prerequisite: DTDS 101 2.0 minimum
 Detailing techniques and dimensioning will be emphasized through the development of working drawings. These drawings will be extracted from a design concept or assembly type drawing. Familiarization with standard components will also be stressed. Students will be responsible for being familiar with and understanding various jig and fixture components. (F, Sp)

DTDS 209 Industrial Drafting Lab 2
Prerequisite: Department Approval
 Gives additional lab time to industrial drafting students to fulfill extra requirements. This lab must be taken in conjunction with a drafting class. (F, Sp, Su)

DTDS 233 AutoCAD Mechanical Desktop 4
Prerequisite: DTDS 132 2.0 minimum
 This course teaches the student how to generate 3-D parametric models, produce 2-D views, and assemble parts while focusing on Autodesk Mechanical Desktop's designer and assembly modules. (F, Sp, Su)

DTDS 280 Drafting Project Lab 2-4
Prerequisite: Department Approval
 This course is intended to give the advanced drafting and design student an opportunity for more experience through mutual agreement between student and instructor. Students will complete advanced projects and research in a variety of design application situations. (F, Sp, Su)

DTDS 285 CADD Project Lab 2-4
Prerequisite: Department Approval
 This course is intended to give advanced drafting and design students an opportunity, through mutual agreement between student and instructor, to complete project(s) on one of several available CAD systems. (F, Sp, Su)

ECON - ECONOMICS

ECON 120 Power, Authority and Exchange 4
Prerequisite: Reading Level 5 and Writing Level 4
 A comparative study of primitive social economies and modern political systems. An emphasis will be placed on the evolution of economic organization in human society. (F, Sp, Su)

ECON 140 Current Economic Issues 3
Prerequisite: Reading Level 5 and Writing Level 4
 An introductory course focusing on economic problems and issues within the American economy. It provides an overview of economic analysis. Topic areas relate to an overall look at the economic system, government policy, prices and their application, money, income, and national income accounts of the United States. (F, Sp, Su)

ECON 201 Principles of Economics-Micro 3
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 3
 This course is designed to develop objective consideration of economic issues and provides information and understanding of how resources are allocated by prices. Topics for study include price theory, consumer demand, cost and market structure, the role of government in the market, resource pricing, and international trade. (F, Sp, Su)

ECON 202 Principles of Economics-Macro 3
Prerequisite: ECON 201 1.0 minimum or Concurrently and Reading Level 5 and Writing Level 4 and Math Level 3
 This course addresses the theory of national income, employment and the price level, and government fiscal and monetary policies designed to influence aggregate economic activity. It also addresses exchange rates, international financial relationships, and economic growth. (F, Sp, Su)

ECON 213 U.S. Economic/Business History 3
Prerequisite: Reading Level 5 and Writing Level 4
 This course provides a survey of American economic and business history, change, and growth since the colonial period. Topics include an overview of business organization, the role of government and technological change, American industrial development, labor unions, and capitalization patterns. (F, Sp, Su)

EDUC - EDUCATION

EDUC 201 Teacher Education Practicum 2
Prerequisite: Reading Level 5 and Writing Level 6
 Beginning practical experience and training in the field for individual students. The student is placed with an educational institution. (F, Sp, Su)

EDUC 220 Introduction to Education 3
Prerequisite: Reading Level 5 and Writing Level 6
 An introduction to education as a teaching profession including an overview of the foundations, philosophy, history, current issues and trends, and organization of education as a human endeavor. Also included are the use of audiovisual materials, school records, safety, discipline, dramatic play, and storytelling. (F, Sp, Su)

ELCT - ELECTRONICS TECHNOLOGY

ELCT 100 Schematic Drawing 1
Prerequisite: None
 A nonmathematical beginning course in electronics covering electronic component recognition, reading schematics, freehand and computer drawing of schematic diagrams, and relating schematic diagrams to electronic circuits. (F, Sp, Su)

ELCT 101 Analog Problems 5
Prerequisite: Reading Level 5 and Writing Level 2 and Math Level 4
Recommended: High School Algebra
 This course provides circuit analysis problem practice for both DC and AC circuits. Topics include algebraic manipulation and solution of electronic formulas and basic trigonometric solutions of AC circuits using complex notation. A scientific calculator is required for polar to rectangular conversion and binary, octal, and hexadecimal calculations. (F, Sp)

ELCT 109 DC Circuits 3
Prerequisite: ELCT 101 1.0 minimum or Concurrently
 A half-semester beginning DC circuit analysis course covering resistors, power supplies, and digital multimeters. Lecture and laboratory topics include resistor color code, series, parallel, series-parallel circuits, Kirchoff network laws, superposition, and Thevenin theorems. (F, Sp, Su)

ELCT 110 AC Circuits 3
Prerequisite: (ELCT 101 1.0 minimum and ELCT 109 1.0 minimum) or Concurrently
Recommended: ELCT 109 be taken first half of semester
 A half-semester AC circuit analysis course covering complex numbers and trigonometry to analyze series and parallel RCL circuits. RC filter networks and series and parallel resonant circuits are also discussed. AC generators, oscilloscopes, and frequency counters are used in laboratory experiments. (F, Sp, Su)

ELCT 112 Transistors 6
Prerequisite: ELCT 110 1.0 minimum
 A lecture and laboratory course dealing with diodes in power supply and regulator circuits, bipolar and field effect transistor biasing, and single and multistage amplifier circuits. Circuits are discussed from the analysis, design, and troubleshooting standpoints. (F, Sp)

ELCT 120 Programming Preparation 2
Prerequisite: None
 The student will learn software that provides preparation for machine or high-level language programming. Software used is DOS, Windows, a text editor, and a flowcharting program. Emphasis is placed on developing flowcharts for electronics related problems that can be programmed on a computer. (F, Sp, Su)

ELCT 131 Digital Basics 3
Prerequisite: None
 Introduces digital electronics microprocessor basics: Binary number system, basic gates, combination and sequential logic circuits, programming of a microprocessor using mnemonics and addressing modes. The laboratory work includes the analysis of digital circuits built on PC boards and the programming, debugging, and interfacing of a MPU trainer to several IO devices. (F, Sp, Su)

ELCT 151 Computer Troubleshooting 3
Prerequisite: ELCT 171 1.0 minimum or Concurrently
 This is a troubleshooting and repair course intended for students in the computer repair certificate and computer technician associate degree programs. Course topics include basic troubleshooting techniques, unit and board swap computer troubleshooting, and computer preventive maintenance. (Sp)

ELCT 160 Logic Problems Analysis 3
Prerequisite: None
Recommended: High School Algebra
 A fundamental analysis course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include manipulation of formulas used in electronics, basic gate operation, truth tables, Boolean algebra, binary, octal, and hexadecimal base number systems. (F, Su)

ELCT 161 Soldering/Desoldering 1
Prerequisite: None
 A basic soldering course. Topics include soldering electronic components to printed circuit boards and surface mount soldering. Desoldering components using solder wick, vacuum desoldering tools and equipment, and printed circuit board repair. Students assemble a digital multimeter as a final course project. (F, Sp, Su)

ELCT 170 Computer Repair Electronics I 6
Prerequisite: None
Recommended: ELCT 160 or Algebra
 A basic electronics course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. This course begins with basic electricity concepts and continues with topics through transistor circuits and basic digital electronics. (F)

ELCT 171 Computer Repair Electronics II 6
Prerequisite: ELCT 170 1.0 minimum
 A digital electronics and computer systems course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include semiconductor, magnetic and optical memory, computer system operation, microprocessors, peripheral adapters, and microcomputer systems. (Sp)

ELCT 180 Computer Test Equipment I 3
Prerequisite: None
 A basic test equipment course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. This course introduces the student to the operation of electronics test equipment including VOM, DMM, oscilloscopes, storage oscilloscopes, and basic digital test equipment. (F)

ELCT 181 Computer Test Equipment II 2
Prerequisite: (ELCT 171 1.0 minimum or Concurrently) or (ELCT 131 1.0 minimum and ELCT 110 1.0 minimum)
 An advanced test-equipment course intended for students in the Computer Repair Certificate Program and the Computer Technician Associate Degree Program. Course topics include software diagnostic routines, signature and data analysis, and computer troubleshooting equipment. (Sp)

ELCT 206 Project Lab 1-3
Prerequisite: ELCT 112 1.0 minimum and Department Approval
 A guided independent study of a topic of interest within the area of electronics. The student will write a research paper or construct an electronic device. Instructor approval must be obtained prior to enrolling in this course. (F, Sp, Su)

ELCT 211 Linear Circuits I 3
Prerequisite: ELCT 112 1.0 minimum
 Solid state devices such as the JFET, MOSFET, and op-amps are studied. Applications of op-amps and comparators are examined using active filters, summing and differential amplifiers, window comparators, and DC motor control circuits. (F)

ELCT 212 Linear Circuits II 3
Prerequisite: ELCT 112 1.0 minimum
 Linear devices such as PLL, VCO, waveform generators, and voltage regulator circuits are studied. A unit on printed circuit board design is included. The student will design a printed circuit layout and construct a bipolar power supply. (Sp)

ELCT 231 Advanced Digital Electronics 4
Prerequisite: ELCT 112 1.0 minimum and ELCT 131 1.0 minimum
 Deals with advanced topics in digital electronics: adders, comparators, code converters, ALUs, non-sequential and shift register counters, display systems, and solid-state memories. It also covers SIPO, PISO, SIGNATURE, and D/A and A/D circuits. Laboratory work includes the analysis, design, construction, and troubleshooting of digital circuits using SSI, MSI and LSI ICs. (F)

ELCT 232 Digital Comm and Networking 4
Prerequisite: ELCT 131 1.0 minimum
 Introduces serial (Asynchronous & Synchronous) and parallel data transfer standards and cabling: RS-232, RS-485, IEEE-488, SCSI, Centronics, modems, 10Base (2,5,T,F), and USB. Networking standards, protocols, medium construction and testing, monitoring, and troubleshooting. The laboratory work includes constructing cables, installing, monitoring and troubleshooting a fault tolerant LAN around popular client server NOS-WNNT4.0 (Sp)

ELCT 242 Comp Intrfcng and Peripherals 3
Prerequisite: ELCT 231 1.0 minimum
 This course covers 80X86MPU pins, address decoding, interfacing of static and dynamic memories, and IO adapters. Serial and parallel data transfer, interfacing of keyboard, display, floppy disk, modem, LAN network cards, and motor control hardware will also be covered. Laboratory work involves construction of hardware and writing programs in Assembly and C languages. (Sp)

ELCT 251 Electronic Troubleshooting 2
Prerequisite: (ELCT 112 1.0 minimum or Concurrently) and ELCT 131 1.0 minimum
 Introduces the principles of troubleshooting analog and digital circuits: analog circuits consisting of diodes, BJTs, FETs and digital circuits consisting of combination logic, decoders, multiplexers, counters, shift registers, and display units. Laboratory work is based on computer-simulated troubleshooting exercises and troubleshooting digital circuits built on PC boards. (F)

ELCT 261 Consumer Product Systems 3
Prerequisite: ELCT 112 1.0 minimum or Concurrently
 Common electronic consumer product operation is explained through block diagrams and schematic diagrams. Systems include AM and FM stereo radio, black-and-white and color television, and videotape recorders. Lab work will involve measurements and alignments of normally operating systems. (Sp)

ELCT 271 Communications I 4
Prerequisite: ELCT 112 1.0 minimum
 This course includes a review of resonant circuits, LC filter networks, radio frequency amplifiers, oscillators, amplitude modulation transmitting, and receiving circuits and systems. (F)

ELCT 272 Communications II 4
Prerequisite: ELCT 271 1.0 minimum
 The student will learn frequency modulation transmitting and receiving circuits and systems, transmission lines, antennas, and microwave devices. (Sp)

ELCT 290 Biomedical Internship 2
Prerequisite: Department Approval
 This course will allow students to be placed in hospital biomed repair shops and earn credit for satisfactory work performance. The students' occupational interests are considered along with their background or related courses to determine placement. (F, Sp, Su)

ELCT 291 Communications Internship 2
Prerequisite: Department Approval
 This internship will allow the student to gain practical work experience in the communication/electronics field of study. (Sp)

ELCT 292 Digital Electronics Internship 2
Prerequisite: Department Approval
 This internship will allow the student to gain practical work experience in the digital electronics field of study. (F)

ELTE - ELECTRICAL TECHNOLOGY**ELTE 100 Electrical Safety Practices 1****Prerequisite:** None

This course covers basic electrical safety practices in the home, electrical laboratory, and in construction and industry. Included are state and federal standards and practices. This course is a prerequisite for, or to be taken concurrently with, all ELTE courses that have a lab. (F, Sp, Su)

ELTE 110 Practical Electricity 3**Prerequisite:** ELTE 100 2.0 minimum or Concurrently and Reading Level 3 and Writing Level 2 and Math Level 3

This course introduces the student to electricity on a practical level. The student will learn to use meters to measure electrical quantities, do basic circuit calculations, install basic household electrical wiring, and investigate the behavior of motors and transformers. Reviews electrical codes and standards. (F, Sp, Su)

ELTE 112 Basic Wiring Installation 2**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum

This course covers installation of a variety of wiring systems in wood frame and masonry construction. Students will practice installing nonmetallic sheathed cable, flexible metal conduit, electrical metallic tubing, and rigid conduit. (F, Sp)

ELTE 121 Analyzing Electric Circuits 5**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum and (MATH 050 2.0 minimum or Math Level 4)

This course utilizes concepts in basic algebra, vector algebra, and trigonometry to solve DC and AC electric circuit problems. Topics will include units, Ohm's law, network analysis, series parallel and combination DC and AC circuits, inductance, and capacitance. (F, Sp)

ELTE 122 Industrial Control Electronics 5**Prerequisite:** None**Recommended:** ELTE 121 2.0 minimum and INAU 100 2.0 minimum

This course introduces the student to solid-state circuitry used in industry. Students will study diodes, transistors, SCRs, triacs, optical isolators, transducers, power circuits, etc. Laboratory will include oscilloscope usage. The course also includes an introduction to Boolean algebra and digital circuits. (Sp)

ELTE 123 Motors and Transformers 4**Prerequisite:** None**Recommended:** ELTE 121 2.0 minimum

This course begins with three-phase circuits, including three-phase power measurement. Contains practical introduction to single- and three-phase transformers, motors, and alternators. Brief coverage of DC machines. (F)

ELTE 131 Intro to Machine Control 4**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum

Covers relay logic and controls using industrial standards. Use of correct symbols and standard construction of wiring and ladder diagrams is emphasized. Laboratory exercises include wiring three-phase motor control circuits utilizing two- and three-wire control, and machine control circuits utilizing limit and proximity switches, timers, relays, etc. (F, Sp)

ELTE 141 National Electrical Code I 4**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum

An introductory course designed for individuals with little or no knowledge of the Electrical Code. Students will study the structure and scope of the National Electrical Code and learn how to locate often used code sections: Ohm's law, voltage drop, wire and conduit sizing, and installation methods. (F, Sp)

ELTE 142 National Electrical Code II 4**Prerequisite:** None**Recommended:** ELTE 141 2.0 minimum

This course is for individuals with field experience and basic electrical training who need a review for the State Journey Examination. Students will review the Code with focus on locating and interpreting the National Electrical Code. In addition to the NEC, State of Michigan electrical rules will be reviewed. (F, Sp)

ELTE 143 National Electrical Code III 4**Prerequisite:** None**Recommended:** ELTE 141 2.0 minimum or ELTE 142 2.0 minimum

For individuals with a journeyman electrician's license who need to review for the State Master's Exam. Students will cover the Code using the index method, discuss interpretation of the Code, study State of Michigan electrical and construction code rules and discuss topics appropriate to the Electrical Contractors Exam. (F)

ELTE 145 Electrical Prints for Building 4**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum or ELTE 141 2.0 minimum

Covers construction prints emphasizing standard and nonstandard symbols and interpretation of prints. Uses the National Electrical Code to calculate branch circuit, feeder, motor circuit, and service sizes. Other topics include uninterruptible power supplies, signaling, and safety systems. (Sp)

ELTE 147 National Electric Code Changes 1**Prerequisite:** None

Covers the changes to the National Electric Code and state codes in the most recent code cycle. (F, Sp, Su)

ELTE 150 Electric Motor Maintenance 2**Prerequisite:** None**Recommended:** ELTE 110 2.0 minimum

Students learn to diagnose and test electric motors. Students will learn to identify and repair common problems in motors using meters, test equipment, and appropriate tools. An introduction to rewinding and metal working procedures is also included. (Sp)

ELTE 232 Industrial Control Design 3**Prerequisite:** None**Recommended:** ELTE 131 2.0 minimum

This course is a continuation of ELTE 131, covering more components and larger more complex machine control diagrams, including automation interlocking and automatic continuous cycling of machinery. Students will be taught to design the control circuits for more complex machines in conformance with industry standards. (F)

ELTE 240 Electrical Estimating 3**Prerequisite:** None**Recommended:** ELTE 112 2.0 minimum and (ELTE 141 2.0 minimum or ELTE 142 2.0 minimum or ELTE 143 2.0 minimum or ELTE 145 2.0 minimum)

Basics of preparing accurate, competitive electrical estimates for the building trades. Topics include take-off procedure using electrical, mechanical and architectural prints; lighting design; labor and materials cost and evaluation techniques and specifications. Students should have wiring experience, and practice in the use of NEC rules and electrical prints before enrolling. (F)

ELTE 260 Intro/Programmable Controllers 4**Prerequisite:** None**Recommended:** ELTE 131 2.0 minimum

This course covers programmable logic controllers with focus on common operating principles. Topics include the capabilities, similarities and differences among controllers, programming (examine on/off, timers, and counters), and connecting external devices to Allen-Bradley, Modicon, and Omron. (F, Sp)

ELTE 261 Allen-Bradley PLC-5 Advanced 6**Prerequisite:** None**Recommended:** ELTE 260 2.0 minimum

This course covers programming and connections for Allen-Bradley PLC-5 controllers. Focus on math, subroutine, file, block transfer, sequencers, logic, and bit manipulation instructions. Students will learn logic for machine control, programming and utilizing intelligent cards, ASCII, analog input/output, and system documentation. (Sp)

ELTE 291 Project Lab 1-4**Prerequisite:** ELTE 110 2.0 minimum and Department Approval

A guided study of topics of interest in electrical technology. The student will prepare a summary report of activities and demonstrate results of laboratory experiences. (F, Sp, Su)

EMSA - EMERGENCY MEDICAL SERVICES

EMSA 100 First Aid and CPR 2
Prerequisite: None
 Designed to provide the knowledge and skills necessary to respond to and treat emergency situations until professional medical help is obtained. First aid and CPR certificates issued upon successful completion. (F, Sp, Su)

EMSA 150 Basic EMT for Health Prof 8.25
Prerequisite: None
 This course will prepare the students as an EMT. Lecture material to be covered includes airway management, patient assessment, CPR, soft tissue injuries, head, chest, and abdominal injuries, recognition and management of environmental and medical emergencies; verbal, written and radio communications, triage, emergency childbirth and pediatric emergencies, and OSHA standards. Practical skills will present the proper use of equipment in the delivery of basic emergency care. Clinicals will be included. (F, Sp, Su)

EMSB - EMERGENCY MEDICAL SERVICES SEMINARS

EMSB 101 CPR for Bystanders/Heartsaver .25
Prerequisite: None
 This seminar is designed for CPR instruction of the general public and adheres to American Heart Association guidelines. Content includes adult one-person CPR and foreign body airway obstruction. Also includes information about heart disease, risk factors, prudent heart living, and heart and lungs physiology. (F, Sp, Su)

EMSB 102 CPR for Health Care Prof .5
Prerequisite: None
 This seminar is designed for CPR instruction of health care providers and adheres to American Heart Association guidelines. Content includes one- and two-rescuer CPR, child and pediatric CPR, adult, child, pediatric foreign body airway obstruction, information about heart disease, risk factors, and physiology of the heart and lungs. (F, Sp, Su)

EMSB 103 CPR Recertification .25
Prerequisite: None
 This seminar is designed for CPR instruction for individuals who have previously obtained instruction in the basics of cardiopulmonary resuscitation and foreign body airway obstruction. The participants must have a current provider card for CPR. The curriculum and testing consists of recertification techniques for CPR. (F, Sp, Su)

EMSB 104 CPR Instructor .75
Prerequisite: None
 The CPR Instructor's seminar is to provide the opportunity and forum to acquire knowledge and skills to accurately instruct and test the Basic Life Support Provider's courses according to American Heart Association guidelines. (F, Sp, Su)

EMSB 106 Infant/Child CPR .25
Prerequisite: None
 This seminar provides instruction of CPR for special situations or groups. Infant and child CPR and foreign body airway obstruction for babysitters and parents would fall under this curriculum. (F, Sp, Su)

EMSB 107 First Aid/CPR Sem/Daycare Prov .5
Prerequisite: None
 This seminar is intended for daycare providers to meet the requirements of the Department of Social Services to maintain Daycare Licensure. It will provide eight hours of instruction in basic first aid and infant/child CPR with foreign body airway obstruction. (Sp)

EMSB 110 First Aid and CPR Seminar .5
Prerequisite: None
 This seminar offers adult CPR including airway obstruction and four hours of basic first aid. Red Cross certification is given to those successfully completing both components. (F, Sp, Su)

EMTA - EMERGENCY MEDICAL TECHNOLOGY

EMTA 100 Medical First Responder 4
Prerequisite: None
 A course to provide the student with the knowledge and skills necessary to manage ill or injured victims at the scene of an emergency until the arrival of ambulance personnel. Successful completion enables the student to apply for state licensure as a medical first responder. (F, Sp, Su)

EMTA 101 Basic EMT I 4
Prerequisite: Reading Level 5 and Writing Level 6
Co-requisite Course: EMTA 102
 First in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on didactic material including airway management, patient assessment, CPR soft tissue injuries, head, chest, and abdominal injuries, and proper use of equipment in the delivery of basic emergency care. (F, Sp, Su)

EMTA 102 Basic EMT II 2
Prerequisite: None
Co-requisite Course: EMTA 101
 Second in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on practical skills including patient assessment, bandaging, splinting, backboarding, oxygen delivery equipment, CPR, and airway management in the delivery of basic emergency care. (F, Sp, Su)

EMTA 103 Basic EMT III 4
Prerequisite: EMTA 101 3.0 minimum and EMTA 102 3.0 minimum
Co-requisite Courses: EMTA 104 and EMTA 112
 The third in a sequence of five courses to prepare the student as a basic EMT. Emphasis is placed on didactic material including the recognition and management of environmental and medical emergencies; verbal, written and radio communications; triage, emergency childbirth, and pediatric emergencies. (Sp, Su)

EMTA 104 Basic EMT IV 2
Prerequisite: EMTA 101 3.0 minimum and EMTA 102 3.0 minimum
Co-requisite Courses: EMTA 103 and EMTA 112
 The fourth course in a sequence of five to prepare the student as a basic EMT. Emphasis is placed on the overall delivery of basic emergency care through simulated emergencies. Successful completion of the course and the clinical component enables the student to apply for licensing as a basic EMT. (Sp, Su)

EMTA 105 Ambulance Driving 1
Prerequisite: Department Approval
 A course to provide the EMT with the knowledge and practical experience in the operation of an ambulance. The course will focus on safety, defensive driving techniques, and specialized driving maneuvers. (F, Sp)

EMTA 108 Legal Issues in Emergency Med 2
Prerequisite: Department Approval
 A course to assist the EMT in understanding the legal system and legal principles as they apply to emergency pre-hospital care. Emphasis is placed on the evaluation of legally sound report writing skills, deposition delivery, and legal testimony. (Sp)

EMTA 112 Basic EMT Clinical 2
Prerequisite: EMTA 101 3.0 minimum and EMTA 102 3.0 minimum
Co-requisite Courses: EMTA 103 and EMTA 104
 The fifth course in a sequence of five to prepare the student as a basic EMT. Includes required OSHA standards, hospital clinicals, ambulance clinicals, and community service component; teaching accident/sudden illness prevention and immediate first aid treatment to the community. (F, Sp, Su)

EMTA 114 Rescue/Extrication/Danger Situ 3
Prerequisite: Department Approval
 A course to provide EMS or rescue personnel with skills in light and heavy vehicle extrication, industrial rescue techniques, extrication from farm machinery, and other specialized rescue techniques. Emphasis is placed on patient and rescuer safety. (F, Sp)

EMTA 222 EMS Instructor Coordinator 6
Prerequisite: Department Approval
 A Michigan Department of Public Health approved course for EMS personnel interested in becoming an instructor coordinator. Includes teaching and testing methods, lesson plan development, writing performance objectives, course administration, MDPH application for course approval, and meeting state requirements. Student teaching required. (Su)

EMTA 223 Advanced EMS I: Critical Care 8**Prerequisite:** Department Approval

Prepares the student to become a critical care transport specialist and perform new expanded scope of practice skills. Topics include ventilators, 12-lead ECGs, IV pumps, pharmacology, invasive lines, and complications of transport. Successful completion requires passing written and practical exams plus the supervised clinical component. (F)

EMTA 224 Advanced EMS II: Para 8**Prerequisite:** Department Approval

This course will prepare the paramedic to work in a hospital or walk-in clinic environment. Hospital procedures, pharmacology, documentation, and assessment will be covered. Successful completion requires passing written and practical exams plus the supervised clinical component. (Su)

EMTA 225 Medical Hazardous Material 4**Prerequisite:** Department Approval

An advanced course in EMS designed to provide the skills and understanding necessary for paramedics to safely manage Haz-Mat exposed patients. Key topics include safety, scene operations, hazard identification, patient assessment, treatment such as specialized pharmacology, and transport. (Sp)

EMTA 226 Emergency Medical Service Mgmt 5**Prerequisite:** Department Approval

This course is designed to provide the student with knowledge and understanding of current EMS management issues. The course will explore the EMS specific aspects of human resources, administration, operations, finance, clinical management, medical control authority, system design, and public relations. (F)

ENGL - ENGLISH**ENGL 122 Writing: Literature and Ideas** 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 8)

An alternative to WRIT 122, ENGL 122 introduces the students to various literary forms and develops analytical skills in reading, writing, and research techniques. Writing assignments begin with short essays and conclude with an extensive literary research paper. (F, Sp, Su)

ENGL 132 Honors Writing: Lit and Ideas 4

Prerequisite: WRIT 121 3.5 minimum or WRIT 131 3.5 minimum

An alternative to WRIT 122, ENGL 132 is an introduction to various literary forms, in addition to the development of analytical reading and writing skills and research techniques leading to a literary research paper. (Same as ENGL 122 but taught on an advanced level.) (Sp)

ENGL 201 Introduction to Poetry 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

An introduction to the content, form, style, and technique of poetry; its structural types: metrical, blank, and free verse; its thematic types: lyric, narrative, and dramatic; and its effects or purposes. The course emphasizes poetry written in English but includes English translations of representative poetry from other languages and cultures. (Su)

ENGL 202 Introduction to Drama 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

Introduces drama and its literary techniques and conventions. Attention is given to principles and theory, but understanding of the plays is emphasized. Representative plays from Greek, European, English, and American dramatists. (Sp)

ENGL 203 Introduction to Prose 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

This course introduces students to selected prose genres that have evolved in cultural history. Students consider how different forms reflect the diverse functions of language in developing human societies. In addition to essays, novels, and short stories, works studied may include folk tales, epistles, prose poems, (auto)biographies, satires, or documentaries. (Sp)

ENGL 211 World Literature I 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

A selective survey of the literatures of major world cultures reflecting the diversity of the continents of Africa, the Americas, Asia, and Europe to approximately the 17th century. Explores the historical, ethnic, aesthetic, political, economic, and thematic elements of their respective cultures through narrative prose fiction, poetry, and drama. (F)

ENGL 212 World Literature II 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

A survey of the literatures of major world cultures reflecting the diversity of the continents of Africa, the Americas, Asia, and Europe from approximately the 17th century through the present. Explores the historical, ethnic, aesthetic, political, economic, and thematic elements of their cultures through narrative prose fiction, poetry, and drama. (Sp)

ENGL 220 Science Fiction 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

ENGL 220 is an introductory course which explores significant issues in science fiction. Novels and/or stories will be the main focus, although works from other media also may be studied. The course's emphasis transcends entertainment to include understanding, interpretation, and analysis as well. (F)

ENGL 240 The Film as Art 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

This course will introduce film as an art form capable of making perceptive comments on our civilization. Thematic analysis of 12 to 15 motion pictures of recognized merit will emphasize the filmmaker's visual and aural techniques as well as conventions more commonly associated with literature. (F, Sp, Su)

ENGL 245 Popular Culture and Mass Media 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

A study of the popular culture distributed by mass media (newspapers, radio, film, television, magazines, and music videos) and how the media and popular culture reflect and shape our cultural beliefs. Extensive use of multimedia. (F)

ENGL 255 American Literature I 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

Provides a perspective on the evolution of traditional American literature beginning with the writings of the first European explorers and Native American oral tradition. Features selected essays, autobiographical writings, poems, fiction, and drama from the mid-15th century to 1865, including the work of women and ethnic minorities, which have contributed to American thought. (F, Sp)

ENGL 256 American Literature II 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

Provides a perspective on the further development of traditional American literature from 1865 (the Realism period) to contemporary literature. Features selected essays, autobiographical writings, poems, fiction, and drama from the end of the Civil War to the literature of the late 12th century, including the work of women and ethnic minorities, which have profoundly shaped American literature. (F, Sp)

ENGL 260 African-American Literature 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)

Recommended: ENGL 122

This course introduces the African-American literary tradition as seen in the literature of the Americas, including the Caribbean. Selections explore the black experience in autobiography, essay, fiction, poetry, and drama. Themes of slavery, colonialism, and the Black Diaspora are discussed. Reading selections include the Harlem Renaissance and contemporary texts. (Sp)

- ENGL 265 Japanese Literature** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
Recommended: ENGL 122
 Arranged chronologically, this course draws heavily on many different genres of Japanese literature. The basis for selection of works to be read rests on the insight that each work gives to the Japanese society which produced it, and upon its universal characteristics. (Sp)
- ENGL 266 British Literature I** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
Recommended: ENGL 122
 British Literature I surveys the poetry, prose, and drama of the major British writers from Chaucer (14th Century) to the Satirists (18th Century). The works are selected to reflect the attitudes and values of British culture and the perception of the world from a British point of view. (F)
- ENGL 267 British Literature II** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
Recommended: ENGL 122
 British Literature II surveys the poetry, prose, and drama of the major British writers from the Romantics (19th Century) to late 20th Century. The works are selected to reflect the attitudes and values of British culture and the perception of the world from a British point of view. (Sp)
- ENGL 270 Literature by Women** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
Recommended: ENGL 122
 A study of selected works by English and North American women writers. Designed to increase understanding of the themes, images, issues, and modes of expression of women writers. (Su)
- ENGL 290 Shakespeare** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
Recommended: ENGL 122
 Introductory course in the dramatic works of William Shakespeare. Students will read 9 to 12 plays representative of the author's comedies, histories, and tragedies. (F)
- ENGL 295 Independent Study** 1-4
Prerequisite: Department Approval
 Special research projects and/or individual readings in English. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade-point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

ENRI - ENRICHMENT

- ENRI 098 Success Workshop** .5
Prerequisite: None
 Mini-workshop intended to introduce and/or review reading-related techniques essential for academic survival and success. Sessions cover time management, establishing frame of reference, scientific skimming, main idea identification, organized study procedures, enhancing comprehension, note-taking through "mapping," and keys to improving objective test scores. Includes much practical, hands-on activity. (Sp)
- ENRI 101 Individualized English I** 1
Prerequisite: Department Approval
 Individualized instruction in one of several language areas: writing; editing; vocabulary development, including pronunciation; and reading. Editing instruction may include spelling, standard English grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. (May repeat for credit three times.) (Sp)
- ENRI 102 Individualized English II** 2
Prerequisite: Department Approval
 Individualized instruction in one of several language areas: writing, editing, vocabulary, pronunciation, and reading. Editing instruction may include spelling, grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. Best for self-motivated students with independent study habits. (May repeat for credit three times.) (Sp)

- ENRI 103 Individualized English III** 3
Prerequisite: Department Approval
 Individualized instruction in one of several language areas: writing; editing; vocabulary development, including pronunciation; and reading. Editing instruction may include spelling, standard English grammar, organizational strategies, or punctuation. Students and instructors select instructional materials and design an individualized study program. (May repeat for credit three times.) (Sp)
- ENRI 105 Life Learning Portfolio** 1
Prerequisite: Reading Level 5 and Writing Level 6 and Department Approval
 This course provides the opportunity for students to create a portfolio to document learning acquired through work, volunteer, and/or life employment experience. The finished portfolio can then be submitted to the LCC Registrar's Office to request college credit for knowledge and skill—learning outcomes—that correspond to LCC courses. (Sp)
- ENRI 109 Academic Preparation I** 0-6
Prerequisite: Reading Level 3 and Writing Level 2
 Offers a unified and collaborative approach to learning basic language skills. Emphasizes reading, writing, speaking, listening, and thinking skills. Students assist one another in exploring topics of their choice from various academic disciplines. Requires enrollment in ENRI 005. (Sp)
- ENRI 152 Workshop: READ Success Skills** 1
Prerequisite: None
 Designed for beginning college students, whether recent high school graduates or returning adults. Develops college reading survival skills. Concentrates on reading speed and flexibility, study techniques, concentration and memory, note-taking, test-taking, and vocabulary expansion. (Su)
- ENRI 162 Workshop: WRIT Success Skills** 1
Prerequisite: None
 This course is designed for new and returning students, as well as others from the community. It helps students to develop their writing skills, enhances their understanding of writing as a tool for learning, and includes the study of writing for various disciplines. (Su)

ENVR - ENVIRONMENTAL SCIENCE

- ENVR 121 Environmental Rules and Regs** 3
Prerequisite: Reading Level 5 and Writing Level 4
 An overview of federal and some state environmental regulations (i.e., Clean Air Act, Clean Water Act, OSHA) and agency rules that control pollution by regulating discharges to air, water, and land. The emphasis is on those regulations that apply to the handling, treatment, storage, and disposal of hazardous materials. (F)
- ENVR 122 Enviro Sampl & Instrumentation** 4
Prerequisite: CHEM 151 2.0 minimum and CHEM 161 2.0 minimum and Reading Level 5 and Writing Level 4 and Math Level 5
 An introduction to a variety of sampling and monitoring procedures and the instrumentation to accomplish the task. Students will learn how to take samples of ground water, surface water, air, soil, sludges, drums, and tanks. Appropriate sampling protocol, records, quality assurance, safety, and decontamination are stressed. (Sp)
- ENVR 131 Indust Process & Pollut Preven** 3
Prerequisite: Reading Level 5 and Writing Level 4
 A nontechnical introduction to general manufacturing processes with emphasis on waste reduction and pollution prevention strategies, functions within facilities, and selected unit operations widely used in industry. Examples and case studies of specific industries will be examined with respect to their basic processes, materials flow, worker health and safety, waste reduction, and pollution prevention. (F)

ESLP - ENGLISH AS A SECOND LANGUAGE

- ESLP 011 English for Practical Purposes** 6
Prerequisite: Placement Test
 This course is designed for high beginning-level non-native speakers of English who have basic literacy skills. Emphasis is on reading and vocabulary skill-building activities designed to enable student to communicate in everyday situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)

- ESLP 012 Composition I** 4
Prerequisite: Placement Test
This course is designed for high beginning-level non-native speakers of English. Students will master the use of simple sentences and will write a variety of paragraphs using simple and progressive verb forms. A process approach to writing will be used and students will learn basic word processing skills. (F, Sp)
- ESLP 013 Oral/Aural Communication I** 4
Prerequisite: Placement Test
This course is designed for high beginning-level non-native speakers of English. Students will build awareness of American English pronunciation and will focus on troublesome pronunciation features. Students will practice speaking English and will improve basic listening comprehension in a variety of contexts, including academic, social, and professional settings. (F, Sp)
- ESLP 021 Engl in American Soc/Cult I** 6
Prerequisite: ESLP 011 2.0 minimum or Placement Test
This course is designed for low intermediate-level non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to enable students to communicate in a variety of academic, social, and professional situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)
- ESLP 022 Composition II** 4
Prerequisite: ESLP 012 2.0 minimum or Placement Test
This course is designed for low intermediate-level non-native speakers of English. Students will master the use of compound sentences and will understand complex sentences in writing paragraphs and essays. A process approach to writing will be used and students will learn more advanced word processing skills. (F, Sp)
- ESLP 023 Oral/Aural Communication II** 4
Prerequisite: ESLP 013 2.0 minimum or Placement Test
This course is designed for low intermediate-level non-native speakers of English. Students will build awareness of certain pronunciation points and will do related pronunciation exercises. Emphasis will be given to improving language use, listening comprehension, and speaking in a variety of contexts, including academic, social, and professional settings. (F, Sp)
- ESLP 031 Engl in American Soc/Cult II** 6
Prerequisite: ESLP 021 2.0 minimum or Placement Test
This course is designed for high intermediate-level non-native speakers of English. Emphasis is on reading and vocabulary skill-building activities designed to enable students to communicate in a variety of more complex academic, social, and professional situations. An integrated skills format allows language use, speaking/listening, and writing activities to be combined using themes. (F, Sp)
- ESLP 032 Composition III** 4
Prerequisite: ESLP 022 2.0 minimum or Placement Test
This course is designed for high intermediate-level non-native speakers of English. Students will be instructed in complex sentences, quoted and reported speech, perfect tenses, and other key grammatical structures used in writing essays. A process approach will be used and students will practice more advanced word processing skills. (F, Sp)
- ESLP 033 Oral/Aural Communication III** 4
Prerequisite: ESLP 023 2.0 minimum or Placement Test
This course is designed for high intermediate-level non-native speakers of English. Students will do pronunciation exercises to improve intelligibility. Emphasis will be given to improving listening comprehension and basic note-taking in academic and professional settings, and speaking English in a variety of more sophisticated academic, social, and professional settings. (F, Sp)
- ESLP 101 Vocational Preparation** 4
Prerequisite: ESLP 031 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who wish to pursue a certificate program or improve their English for work-related goals. Work-related topics will be used to foster the development of language skills. Emphasis will be on improving listening comprehension, oral communication, and reading comprehension. (F, Sp)
- ESLP 102 Comp for Bus and Tech Purposes** 4
Prerequisite: ESLP 032 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who will use English for business or technical purposes using a variety of complex sentences and grammatical structure. Students will use a process approach to produce business letters of various types, short reports, and memos. (F, Sp, Su)

- ESLP 103 Focus on Pronunciation** 4
Prerequisite: ESLP 033 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who wish to improve the intelligibility of their speech. Students will have an individual speech profile. Emphasis will be on building awareness of and practicing American English stress, intonation, and rhythm patterns, and clear pronunciation of individual sounds. (F, Sp, Su)
- ESLP 111 Academic Reading Skills** 4
Prerequisite: ESLP 031 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who wish to pursue an academic degree or transfer program. Emphasis is on vocabulary building and on developing reading strategies and skills, including critical reading, to improve overall comprehension. Students will practice using technology to enhance their learning. (F, Sp, Su)
- ESLP 112 Comp for Academic Purposes** 4
Prerequisite: ESLP 032 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who wish to complete an academic degree or transfer program. Students will use a process approach to writing to produce various types of essays for academic purposes using a variety of complex sentences and grammatical structure. (F, Sp, Su)
- ESLP 113 Academic Listening/Notetaking** 4
Prerequisite: ESLP 033 2.0 minimum or Placement Test
This course is designed for advanced-level non-native speakers of English who wish to pursue an academic degree or transfer program. Emphasis will be on improving overall listening comprehension, identifying the organizational structure of academic lectures, taking effective notes from a variety of sources, and improving vocabulary. (F, Sp, Su)
- ESLW - ENGLISH AS A SECOND LANGUAGE WORKSHOP**
- ESLW 020 ESL Summer Workshop** 6
Prerequisite: Placement Test
This integrated skills course is designed for low- to high-intermediate non-native speakers of English who wish to improve their oral-communication, writing, and reading skills through in-class activities, guest lecturers, and field trips. Student in this class will form cooperative learning groups to work on a variety of projects. (F, Sp, Su)
- FIRE - FIRE SCIENCE**
- FIRE 100 Introduction to Fire Fighting** 3
Prerequisite: None
An introduction to fire fighting with an overview of fire chemistry, fire fighting equipment and safety, types of department, apparatus, special techniques of rescue, future of fire service, customer service, fire prevention, and public education. (F, Sp, Su)
- FIRE 101 MI F.F.T.C. Basic Fire Lev I** 9
Prerequisite: Admission to Fire Science Program
Level I is basic training required for all firefighters in the State of Michigan. Training is certified by the Michigan Fire Fighters Training Council and includes the basics of fire suppression, apparatus operation, life safety, and physical fitness. (F, Sp, Su)
- FIRE 102 MI F.F.T.C. Basic Fire Lev II** 4
Prerequisite: FIRE 101 2.0 minimum or Concurrently
Level II is basic training required for all career firefighters in the State of Michigan. Training is certified by the Michigan Fire Fighter's Training Council and includes advanced fire suppression, aerial operation, life safety, and physical fitness. (F, Sp, Su)
- FIRE 110 Fire Prevention and Law** 3
Prerequisite: None
This course identifies applicable statutes of Michigan Law as they relate to the Fire Service. Covers selected portions of NFPA 101, the Life Safety Code, appropriate portions of BOCA, and other building codes. Focuses on the importance of an aggressive fire prevention plan in communities. (F)
- FIRE 115 Building Construction/Fire Ser** 4
Prerequisite: None
This course involves the essentials of building design and construction for the fire service with emphasis on life safety, evacuation, fire extension, and collapse. (F)

FIRE 120 Chemistry/Hazardous Materials 3
Prerequisite: None
 A college-level chemistry course focusing on hazardous materials encountered by fire fighters. Contains specific elements of NFPA 741, 742 and OSHA CFR 1041.120. Topics include atomic and molecular theory, bonding property of elements, oxidation and reduction reactions, kinetic-molecular theory, solutions, and electrochemistry. Includes Michigan Haz-Mat First Responder Certification. (F)

FIRE 125 Fire Protection Sys/Equipment 4
Prerequisite: None
 Identifies fixed systems typically encountered by fire fighters responding to industrial complexes or specialized environments. Emphasizes selected portions of detection and alarm (NFPA 72-85), sprinklers and standpipes (NFPA 13 and 1964), and special systems and design. (F)

FIRE 130 Fire Hydraulics/Pump Operation 4
Prerequisite: MATH 050 2.0 minimum or Math Level 4
 Describes the fundamentals of hydraulics, including water supply problems, standards and pump requirements, and practical application of knowledge to fire fighting problems. Includes selected portions of NFPA 1901 and 1002. (Sp)

FIRE 150 Fire Command and Operations 4
Prerequisite: None
Recommended: FIRE 102 or Firefighter
 This course centers on the initial fireground attack from a company officer's perspective. Deals separately with Engine and Truck Company Operations including initial assignments, use of resources, rescue, streams, and salvage. Covers selected portions of NFPA 1002, 1410, 1904, and 1961. Covers the National Fire Academy Incident Command System. (Sp)

FIRE 210 Fire Investigation 4
Prerequisite: None
Recommended: FIRE 101 or Firefighter
 This course investigates fire behavior, importance of determining cause and origin, accidental, incendiary, or arson type fires. Describes methods of recognizing and identifying motivation for arson, and covers applicable laws and court procedures. (Sp)

FIRE 220 Hazardous Materials/Fire Ser 4
Prerequisite: None
Recommended: FIRE 120 or Firefighter
 Explores the concepts and methods of detection, control, and mitigation of hazardous materials incidents. Contains specific elements of NFPA 741, 742, and OSHA CFR 1041.120. Includes Michigan Haz-Mat Operations Level Certification. (Sp)

FIRE 250 Fire Administration 4
Prerequisite: None
Recommended: FIRE 150 or Firefighter
 This course provides the student with a better understanding of motivation and the proper reaction from management. Covers labor relations and collective bargaining, fiscal management, and political interaction. Presents modern approaches to the challenges which face today's fire executives. (Sp)

FLNG - FOREIGN LANGUAGE

FLNG 295 Ind Study in Foreign Language 1-4
Prerequisite: Department Approval
 Special research projects and/or individual readings in Chinese, French, German, Japanese, or Spanish. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to Honors students who have grade-point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

FREN - FRENCH

FREN 115 Conversational French I 3
Prerequisite: None
 Students learn how to communicate orally in everyday life situations and in travel abroad. Emphasis is on the development of ability to communicate in French. French culture is explored. (F, Sp, Su)

FREN 116 Conversational French II 3
Prerequisite: None
Recommended: FREN 115 or Equivalent
 Continuation of FREN 115. Designed for advanced beginners who wish to improve their speaking ability in the context of daily living. Emphasis is placed on contemporary vocabulary, essentials of grammar, and pronunciation through class discussions conducted in French. Students will continue to explore different aspects of life and culture in the francophone world. (F, Sp, Su)

FREN 121 Elementary French I 4
Prerequisite: None
 Introductory course open to students with little or no knowledge of French. Students are introduced to basic patterns and structures of French, enabling them to develop listening, speaking, reading, and writing skills. Emphasis is placed on contemporary vocabulary, essentials of grammar, and pronunciation. (F, Sp, Su)

FREN 122 Elementary French II 4
Prerequisite: FREN 121 1.5 minimum
 Second course of a two-semester sequence. Introduction to more complex structures and patterns, and more active use of spoken and written French. (Sp)

FREN 201 Intermediate French I 4
Prerequisite: FREN 122 1.5 minimum
 First course of a two-semester sequence. Course provides grammar review, vocabulary building, listening comprehension, composition writing, group discussions, and readings of literary and cultural texts, short stories, and news articles for a better understanding of the francophone world. (F)

FREN 202 Intermediate French II 4
Prerequisite: FREN 201 1.5 minimum
 Second course of a two-semester sequence. Course includes a review of more complex grammar topics, readings of cultural and literary texts, short stories, and newspaper articles for a better understanding of the francophone world. Students will improve fluency through listening-comprehension, writing, and discussions in the target language. (Sp)

GEOG - GEOGRAPHY

GEOG 120 Introduction to Geography 3
Prerequisite: Reading Level 5
Recommended: WRIT 121
 An introductory course designed to provide contemporary geographic ideas and techniques to study the interaction between people and their physical environment. (F)

GEOG 121 Physical Geography 3
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: Word Software Experience
 Emphasizes landforms, natural vegetation, weather and climatic elements, and soils. Offers an extensive study of these forces, noting their ecological principles and their effects on human life. Includes mapping techniques, land site analysis, and air-photo interpretation. Field trips will be an integral part of the course. (F, Sp, Su)

GEOG 200 World Regional Geography 4
Prerequisite: Reading Level 5
 This course describes and analyzes human relationships with the natural and cultural environment and examines the physical and cultural aspects of the major regions of the world. International interdependency is examined to promote global awareness. (F, Sp, Su)

GEOG 202 Geography of North America 3
Prerequisite: Reading Level 5
 A study of the human and physical aspects of North America. This course will identify some of the factors that influence the quality of life and give character to each of the various subregions. (Sp)

GEOG 203 Economic Geography 3
Prerequisite: Reading Level 5
 The study of the distribution of economic activities throughout the world. Emphasizes agriculture, resources, population, industry, urbanization, and trade. (Sp)

GEOG 295 Independent Study in Geography 1-4**Prerequisite:** Department Approval

Independent project involving reading and research in geography. The project, chosen by the student, must be approved in advance by the department chair and be supervised by a faculty member. It must also meet specific academic goals. (F, Sp, Su)

GEOG - GEOLOGY**GEOG 210 Geology Field Studies 1-3****Prerequisite:** None

Opportunities to gain geology field experience through application of skills learned in the classroom. One-day and extended overnight excursions are offered. (Destination examples: Michigan gypsum mines, Michigan Upper Peninsula iron and copper country, Cincinnati fossil beds, Grand Ledge quarries, Western U.S. regional geology, etc.) (Su)

GEOG 221 Physical Geology 4**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4

This course investigates the dynamic physical earth using a cause-effect theme, and emphasizes relationships of geologic cycles (tectonic/hydrologic) to modifications of earth's crust (e.g., volcanism, mountain building, rivers, glaciers) with introduction to environmental topics and earth resources. Laboratory includes mineral and rock identification, topographic and geologic map interpretation, and plate tectonics exercises. (F)

GEOG 222 Historical Geology 4**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4

Plate tectonics is used to integrate crustal and organic evolution in the dynamic global system. Includes methods of geologic inquiry and critical evaluation of evidence. Laboratory stresses interpretation of the rock and fossil records, reconstruction of past ecosystems, geologic maps, and plate tectonics' influence on the environment. (Sp)

GEOG 230 Environmental Geology 4**Prerequisite:** Reading Level 5 and Writing Level 4 and Math Level 4

Concepts of physical geology are applied to human interaction with the environment. Geologic resources (e.g., minerals, energy, and water) and hazards (e.g., earthquakes, landslides, and flooding) are explored. Laboratory includes rock and mineral identification, map reading and interpretation, evaluation of land use alternatives, and problem-solving activities related to environmental issues. (Sp)

GERO - GERONTOLOGY**GERO 100 Introduction to Human Aging 3****Prerequisite:** Reading Level 3 and Writing Level 4

This course provides a basic orientation to the field of gerontology, with emphasis on social aspects: demography, physiology, psychology, sociology, economics, environment, death and dying, and community and government programs. (F, Sp)

GERO 101 Programs/Services for Aging 3**Prerequisite:** None**Recommended:** GERO 100

This course provides a description of the organization and functions of the aging services network, its relationship to the broader human services system, and how the services worker can use or develop community resources for the benefit of older adults. (Sp)

GERO 131 Pin for Older Adlts w/Dev Dis .5**Prerequisite:** None

This course presents an overview of the older adult with developmental disabilities including characteristics, demographics, public policy issues, and functional assessment. Michigan program initiatives are discussed and case studies are presented. (F, Sp)

GERO 161 Issues of Aging: Sexuality .25**Prerequisite:** None

This course presents an overview of issues relating to sexuality and older persons. Topics are societal attitudes, sexual behavior patterns, physiological changes, psychological responses, and special situations, such as institutional settings. (F, Sp)

GERO 164 Med & Alcohol Use/Older Adults .5**Prerequisite:** None

This course examines medication and alcohol use among older adults including prescription and nonprescription medicines, side effects, drug interactions, and strategies for using medicines wisely. Students learn to identify a substance abuse situation and how to make appropriate referrals. (F, Sp)

GERO 165 Dementia: Concepts and Causes .5**Prerequisite:** None

This course is an introduction to current concepts of dementia (Alzheimer's disease and related disorders) in older persons. It provides an overview of social, physical, psychological, and environmental factors resulting in dementia. Relationships to depression, techniques for communicating with older persons with dementia, family dynamics, and community resources are discussed. (F, Sp)

GERO 169 Legal Rights of Older Adults .5**Prerequisite:** None

This course focuses upon issues such as guardianship, conservatorship, power of attorney, the living will, joint tenancy, nursing home residency, and civil commitment, including actual and perceived choices a person has as aging and illness occur. (F, Sp)

GERO 170 Depression: Recog & Treatment .5**Prerequisite:** None

This course provides an examination of depression in later life. Symptoms, causes, "masks," diagnosis, and assessment of depression are introduced, including information on distinctions between depression and dementia. Basic techniques and guidelines for working with depressed older persons are presented. (F, Sp)

GERO 173 Activ: Older Adlts w/Alzheim .5**Prerequisite:** None

This course provides an overview of planning principles and processes effective in designing meaningful activities for older adults with Alzheimer's disease and related disorders. Practice opportunities are included. (F, Sp)

GERO 191 Seminar: Special Subjects .25-.5**Prerequisite:** None

This course consists of a series of seminars which address the most current issues in the field of gerontology. The seminars are designed to provide the most up-to-date information on selected, high-interest subjects concerning human aging. (F, Sp, Su)

GERO 203 Physical/Mental Health Aging 3**Prerequisite:** GERO 100 2.0 minimum or Concurrently

Physical and mental health of older adults is examined from an applied perspective for human services providers. Topics include normal and pathological changes; family and social factors; skills and adaptations for maintaining good physical health; assessment; intervention; and skills for helping older adults access appropriate treatment in the health care system. (F)

GERO 282 Gerontology Practicum I 4**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval**Recommended:** GERO 100 and GERO 101 and GERO 203 and HUSE 101 and Human Services Experience

This course combines classroom training with field placement (10 hours per week) at a community agency or institution serving older persons. Students apply learning about structure, funding, and organization of aging services; explore community resources; demonstrate appropriate work habits; assess their attitudes and career skills in gerontology; and relate current aging research to practice. (F)

GERO 284 Gerontology Practicum II 4**Prerequisite:** GERO 282 2.5 minimum

This course provides advanced field placement experience at a community agency or institution serving older persons (10 hours per week), combined with classroom training in practice concepts related to service delivery to older persons. Students learn resources and systems, develop networking skills, mobilize resources on behalf of older individuals or groups, and demonstrate their suitability for a career in gerontology. (Sp)

GRET - GEOGRAPHIC RESOURCE AND ENVIRONMENTAL TECHNOLOGY

- GRET 203 Beginning MicroStation** 3
Prerequisite: None
Recommended: LAND 282 or Basic CAD Experience
 This entry-level, computer-aided design and drafting course uses MicroStation software on an Intergraph workstation or PC. Students will create 2-D drawings using basic graphic tools and procedures. (F, Sp)
- GRET 204 MicroStation Graphic Environ** 3
Prerequisite: GRET 203 2.0 minimum
 This course explores the MicroStation graphic environment using the Intergraph Workstation. The analysis package, MGA, will be utilized as well. The development of a prototype Geographic Information System will be a highlight of this course. (F, Sp)
- GRET 205 Principles Geographic Info Sys** 3
Prerequisite: None
 This course describes the components of a basic GIS and how they are assembled. Requisition of data, maps, and other information used to build a database will be highlighted. A basic pilot project will be demonstrated step-by-step through various applications in GIS. (F, Sp, Su)
- GRET 208 Advanced Techniques in GIS** 3
Prerequisite: GRET 204 1.0 minimum
 This course expands upon the techniques, methods, and processes involved in developing a full GIS program. Different GIS software packages will be explored, as well as related databases and completed projects. (F, Sp)
- GRET 209 Applications in GIS** 3
Prerequisite: GRET 205 1.0 minimum and GRET 208 1.0 minimum
 This course specifically deals with all of the possible application areas for GIS, both present and future. Applications such as toxic materials, traffic flow, mining, forestry, natural resource, energy, and communication will be highlighted. A semester-long application project of your choice will be developed on the computer. (Sp)
- GRET 210 Global Positioning Systems** 3
Prerequisite: None
 This course covers the basic principles necessary to set up, operate, and run a Global Positioning System (GPS) receiving station, as well as collect information with a receiver. Data collection will be incorporated into a computer database program. The information link with Geographic Information Systems (GIS) and the use of GPS in GIS will be demonstrated. (F, Sp)
- GRET 211 GIS Mapping Systems** 3
Prerequisite: None
 This course covers the basics of computer mapping systems and how they relate to computer design, graphics, and GIS. C-Map, Map Info., and Mapping Office will be presented. Students will produce a variety of maps as they relate to daily activities, land planning, environmental geography, and information systems. (F, Sp)
- GRET 213 Advanced MicroStation** 3
Prerequisite: GRET 203 2.0 minimum
 This course is an advanced application of the MicroStation Software and deals with 3-D and other advanced aspects of this computer-aided drafting and design package. A basic understanding and/or beginning MicroStation class is necessary for success in this class. (F, Sp)
- GRET 214 G.R.A.S.S. Beginning** 3
Prerequisite: None
 This computer-based course will explore the Geographical Resource Analysis Support System (G.R.A.S.S.) software package developed by the U.S. Army Corp. of Engineers. The specific functions of the software will be explored as it relates to the world of Geographic Information Systems. This is a beginning course. (F)
- GRET 220 Hydrological Systems** 3
Prerequisite: None
 This course will cover the various aspects of water resources as they pertain to the geographic information system environments. Water systems, natural and man-made, will be emphasized. The evaluation, analysis, and environmental impacts of various water features as they pertain to environmental research and development will be highlighted. (F)
- GRET 221 Landforms/Soil Systems in GIS** 3
Prerequisite: None
 This course will discuss the important classifications of landform and soil systems. The relevance of these systems in the GIS environment will be highlighted. The importance of these systems in the information processing, land use, land planning, site design, and landscape form arenas will be emphasized. (Sp)
- GRET 223 Environmental Resource Mgmt** 3
Prerequisite: None
 This course will cover the broad spectrum of environmental resources such as forestry, agriculture, mining, soils, vegetation, and their impact and management in current computer information systems. Resources in the land planning disciplines will be highlighted as to their function in the present environmental processes, both public and private. (Sp)
- GRET 240 Basic Map Orient/Construction** 3
Prerequisite: None
 The basic principles, functions, and origins of maps will be discussed. The student will construct various types of maps. Computer-offered map planning and design along with how to read, print, and design maps will also be covered. (F)
- GRET 241 Air Photo/Remote Sensing** 3
Prerequisite: None
 This course will include the development of skills necessary for basic interpretation of aerial photography data, how it is collected, and the ability to analyze maps created from the data collected in this method. The current technology and GIS relationship will be highlighted. (Sp)
- GRET 243 ORACLE/Geographic Info Sys** 3
Prerequisite: None
 This course will cover the components of ORACLE needed to build a database for GIS applications. This is a hands-on computer course. Sample databases will be demonstrated. Students will construct several databases that apply to the GIS coverage layers. (F, Sp)
- GRET 248 GIS/GPS Field Systems** 3
Prerequisite: None
 MicroStation Analyst (MGA) is an advanced software package dealing with GIS MGA, which generates topologically-structured files from design files for use in performing spatial analysis. It will also cover system query sets and answers to questions posed to topological files. (F, Sp)
- GRET 253 Basics of ARC/View** 1
Prerequisite: None
 This course is an overview and introduction to the ARC/View software. Also covered are the basic components of a viewing program and its applications in GIS. Various demonstrations will be presented and project examples highlighted. Hands-on computer exercises will be completed. (F, Sp)
- GRET 255 Beginning ARC/Info** 3
Prerequisite: None
Recommended: Computer Experience
 This course will be an introduction to the use of the ARC/INFO software. ARC/INFO is a leading product used in the design of Geographic Information Systems. Basic product use and modeling will be demonstrated. There will be hands-on experience in the lab. (F, Sp, Su)
- GRET 256 Advanced ARC/Info** 3
Prerequisite: GRET 255 2.0 minimum
 This course advances the techniques acquired in the beginning ARC/INFO class. The student will learn additional modules and advanced application of modules such as GRID and TIN. The student will also develop projects using data sets. Students will develop a complete GIS project utilizing the full ARC/INFO module. (F, Sp)
- GRET 295 GRET Project Lab** 1-4
Prerequisite: Department Approval
 This project lab is designed for students who wish to pursue a specialty area in GIS beyond that which is offered in our curriculum. Inquiry through research and design is required. (F, Sp, Su)

GRMN - GERMAN

- GRMN 115 Conversational German I** 3
Prerequisite: None
 The first course in a two-semester sequence for persons with little or no knowledge of German. Emphasizes listening and speaking skills. Students learn correct pronunciation, essential language structures, and a practical vocabulary applied in conversational exchanges. Aspects of German culture are introduced through multimedia presentations. (F, Sp, Su)
- GRMN 116 Conversational German II** 3
Prerequisite: None
Recommended: GRMN 115 or Equivalent
 The second course in a two-semester sequence for persons with little or no knowledge of German. Emphasizes listening and speaking skills. Students learn correct pronunciation, essential language structures, and a practical vocabulary applied in conversational exchanges. Aspects of German culture are introduced through multimedia presentations. (F, Sp, Su)
- GRMN 121 Elementary German I** 4
Prerequisite: None
 First course of a two-semester sequence in elementary German. This course offers systematic practice in the four basic language skills: listening comprehension, speaking, reading, and writing. Communicative approach is combined with a solid grammar foundation, as well as familiarization with contemporary life and culture in Germany, Austria, and Switzerland. (F)
- GRMN 122 Elementary German II** 4
Prerequisite: GRMN 121 1.5 minimum
 Second course of a two-semester sequence in elementary German. This course offers more advanced practice in the four basic language skills: listening comprehension, speaking, reading, and writing. Communicative approach is combined with more complex structure as well as familiarization with contemporary life and culture in Germany, Austria, and Switzerland. (Sp)
- GRMN 201 Intermediate German I** 4
Prerequisite: GRMN 122 1.5 minimum
 First course of a two-semester sequence in intermediate German. Students receive intensive practice in the basic skills: speaking, listening comprehension, reading, and writing. Course includes a thorough review of German grammar, 20th century short story readings, composition writing, and German culture. Class is taught mainly in German. (F)
- GRMN 202 Intermediate German II** 4
Prerequisite: GRMN 201 1.5 minimum
 Second course of a two-semester sequence in intermediate German. Students receive advanced practice in the basic skills: speaking, listening comprehension, reading, and writing. Course includes a thorough review of advanced structures, short story readings, a short novel, composition writing, and German culture. Class is taught mainly in German. (Sp)

HIST - HISTORY

- HIST 150 African-American History** 4
Prerequisite: None
 Traces the developments which led to the African slave trade, the slave systems in North and South America, the cultural heritage of the African American in the Americas, and the problems of race in North American culture. (Sp)
- HIST 210 Studies in American History** 4
Prerequisite: None
 Covers problems of research, writing, philosophy, and interpretation of history, involving a detailed examination of a particular area of American history. (Sp)
- HIST 211 U.S. History to 1877** 4
Prerequisite: Reading Level 3 and Writing Level 6
 A history of the United States from colonial beginnings through reconstruction. (F, Sp, Su)
- HIST 212 U.S. History: 1877 To Present** 4
Prerequisite: Reading Level 3 and Writing Level 6
 A history of the United States from the end of reconstruction to the present. (F, Sp, Su)

- HIST 214 African History** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys African history with emphasis on precolonial and colonial Africa, nationalism and the struggle for independence, colonialism and economic development/underdevelopment, and cultures and traditions as factors in development. Covers some of these topics in three other countries of the Third World (e.g., Brazil, Pakistan, and Indonesia). (F)
- HIST 220 Michigan History** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 A survey of the political, economic, and social development of Michigan from pre-colonial times to the present. (F)
- HIST 230 British History** 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 A survey of the political, economic, legal, constitutional, and social forces which shaped British history and society from earliest times to the present with special emphasis on the interactions of British and American institutions, values, and ideas. (Sp)
- HIST 240 Latin American History** 4
Prerequisite: Reading Level 3 and Writing Level 4
Recommended: WRIT 121 or WRIT 131 2.0 minimum
 A survey of the history and culture of Latin America from pre-Columbian civilizations to the present. This course will examine political, social, and cultural developments in Latin America and assess the role of colonialism, nationalism, and world economic trends in shaping Latin American countries. (Sp)
- HIST 250 History of Modern Asia** 4
Prerequisite: Reading Level 3 and Writing Level 4
Recommended: WRIT 121 or WRIT 131 2.0 minimum
 This course will survey political, social, and economic developments as well as principal cultural trends in the major civilizations of Asia (excluding Western Asia) from approximately the 17th Century to the present. The course will also include an examination of the interactions among Asian societies and between Asia and the West. (F)
- HIST 260 Conflict & Revolu Southn Africa** 4
Prerequisite: None
Recommended: WRIT 121 or WRIT 131
 Study of historical-cultural origins and contexts of conflicts in Zimbabwe and Southern Africa with emphasis on socioeconomic causes of conflicts, cultural differences and conflicts, problems of development as sources of conflicts, inter-African conflicts, settler-African conflicts, international dimensions of conflicts, and solutions to conflicts. (Sp, Su)
- HIST 263 Seminar: Russia and the CIS** 3
Prerequisite: None
 A survey of Russia and its people from the Russian Revolution of 1917 to the present. Also examined will be the multinational character of the former USSR and the forces that shaped Soviet history, society, and politics, including U.S.-Soviet relations. (Su)
- HIST 265 Sem: American Legal Tradition** 3
Prerequisite: None
 A historical survey of the origins, growth, and development of the American legal-constitutional process. The legal system is studied in the context of American culture by examining the leading cases, philosophies, scholars and institutions, and approaches to the study of law. (Su)
- HIST 295 Independent Study** 1-4
Prerequisite: Department Approval
 Special research projects and/or individual readings in history. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

HMFS - HOTEL/MOTEL AND FOOD SERVICE OPERATIONS

- HMFS 101 Intro Hospitality/Tourism** 3
Prerequisite: Reading Level 3 and Writing Level 4
 Survey of all segments and disciplines related to the hospitality and tourism industries. Topics include hospitality trends, career opportunities, market segmentation, customer service and various tourism issues. (F, Sp, Su)

HMFS 110 Food Service Sanitation 2
Prerequisite: None
 Sanitation is critical to the success of a food service business. Topics include Hazard and critical control points, safe food handling, food spoilage, pathogenic and nonpathogenic bacteria, maintenance of equipment and facilities, and other quality issues in safe food management. Prepares students for national and state certification tests. (F, Sp)

HMFS 131 Food and Beverage Management 4
Prerequisite: None
Recommended: HMFS 101 and HMFS 110
 Explores food and beverage operations through discussion, lecture, and hands-on preparation. Topics include food preparation, equipment operation, and managerial responsibilities of food and beverages typically served in hospitality establishments. Laboratory preparation required. (F, Sp)

HMFS 132 Food Production 4
Prerequisite: HMFS 110 1.0 minimum or Concurrently and HMFS 131 1.0 minimum
Recommended: HMFS 101
 Production techniques, terminology and theory are covered in this course. The student will gain practical experience in food production along with basic organizational skills. Topics include purchasing, production, storing, and plate presentations. Qualitative and quantitative production issues are emphasized. (F, Sp)

HMFS 134 Nutrition 2
Prerequisite: None
 Discuss basic nutrition. Topics include Regular Daily Allowance (RDAs), energy balance, weight control, variety of diets, and dietary guidelines, food processing, natural and organic food, food fads, and fast food. Gain an in-depth knowledge of nutrients and their functions. (F, Sp)

HMFS 135 Quantity Food Purchasing 3
Prerequisite: None
Recommended: HMFS 101 and HMFS 131 and HMFS 132
 Explores purchasing standards in quality and quantity of food, beverage, china, glass, silver, linen, furnishings, and supplies used in a hospitality business. This course will cover writing specifications and establishing procurement policies. Describes how to develop and implement an effective purchasing program, explores issues pertaining to supplier relations and selection, negotiation, and evaluation. Includes an in-depth study of major categories of purchases, with a focus on food products. (F, Sp)

HMFS 137 Food Service Catering 4
Prerequisite: None
Recommended: HMFS 110 and HMFS 132 and HMFS 135
 Gain a knowledge of issues related to catering and how to begin a catering business. Student will learn how to purchase products, prepare menus, costing and pricing, equipment requirements, equipment maintenance, on/off premise functions, sanitation, and contractual agreements. Field project required. (F, Sp)

HMFS 190 Internship and Seminar 3
Prerequisite: HMFS 101 1.0 minimum
Recommended: HMFS 131 and HMFS 204
 An internship is to supplement the academic subject matter with practical experience so that principles, techniques, and procedures presented in the classroom situation are a meaningful. A minimum of 200 hours of work experience (to be completed during the semester), class attendance, and a development of an internship portfolio are required. (F, Sp)

HMFS 203 Hotel-Restaurant Law 3
Prerequisite: HMFS 101 1.0 minimum
Recommended: HMFS 131 and/or HMFS 206
 Designed to create an awareness of the responsibilities and rights which the law imposes upon and grants to hospitality operators. Recognition of potential legal problems so as to minimize action against the property. Topics include relationship to guest, guest property, frauds, employment, safety, taxes, and liquor control laws. (F, Sp)

HMFS 204 HR Mgt & Training 3
Prerequisite: None
Recommended: HMFS 101 and HMFS 170 and HMFS 203
 Survey of principles and practices for managing human resources in a culturally diverse hospitality workplace. Emphasis on the supervisor's role as the key to effective recruiting, selecting, and retaining of qualified workers, as part of continual quality improvement. (F, Sp)

HMFS 205 Hospitality Management 3
Prerequisite: (HMFS 101 1.0 minimum and HMFS 204 1.0 minimum) or Concurrently
Recommended: HMFS 131 and HMFS 203
 A survey of management principles and practices in the hospitality industry. Topics include basic financial statements, operating ratios, planning, organizing, directing, and controlling related to lodging and food service operations. (F, Sp)

HMFS 206 Front Office Management 3
Prerequisite: None
Recommended: HMFS 101
 Organization, control, and operation of the front office throughout the guest cycle. Topics include inter-departmental communications, guest services, yield management, statistical analysis, room rates, forecasting, budgeting, folio postings, and the night audit. (F, Sp)

HMFS 207 Financial Control/Mgmt I 4
Prerequisite: HMFS 101 1.0 minimum
Recommended: (HMFS 131 and/or HMFS 206) and HMFS 170
 A systematic integrated study of hotel-motel and food institutional activities. Principles, problems, and practices related to financial management will be presented. Topics include financial statements, interpretation of accounts, and statements unique to the hospitality industry. (F, Sp)

HMFS 208 Financial Control/Mgmt II 2
Prerequisite: HMFS 207 1.0 minimum
 Create a hypothetical business of the student's choice to demonstrate how a business is established and operated. Principles, problems, and practices related to financial and operating management will be utilized. A semester project is required. (F, Sp)

HMFS 215 Hospitality Sales/Marketing 3
Prerequisite: HMFS 101 1.0 minimum or Concurrently
Recommended: (HMFS 131 and/or HMFS 206) and HMFS 170
 Explores the principles of sales and marketing critical to today's business climate. Designed to provide the student with a working knowledge and practical experience, which will enable them to develop and implement strategic marketing plans for hospitality properties. (F, Sp)

HMFS 229 Convention/Meeting Management 3
Prerequisite: HMFS 101 1.0 minimum or Concurrently
Recommended: (HMFS 131 and/or HMFS 206) and HMFS 170
 Convention management is an integral part of today's hospitality industry. This course provides insight into convention marketing, events management, and a comprehensive study of methods and techniques for better service. (F)

HMFS 232 Food and Labor Cost Control 3
Prerequisite: HMFS 131 1.0 minimum or Concurrently and HMFS 207 1.0 minimum and Math Level 3
Recommended: HMFS 204 and HMFS 205
 Explores the principles and practices essential to control food, beverage, and labor costs. Sales income controls, standard operational procedures, ratio analysis, contribution margin, menu engineering, and qualitative controls are some of the topics studied in this capstone course. (F, Sp)

HMFS 251 Wine Appreciation 1
Prerequisite: Must be 21 Years of Age
 Explore and become familiar with the five basic types of wine, a short history of wine and how wines are made; a mastery of the presentation and serving of wines; and judging for appearance, bouquet, and taste. The class will learn how to choose and store wines. (F, Sp)

HMFS 252 Wines of America 1
Prerequisite: Must be 21 Years of Age
 A survey of wine growing areas of the United States with emphasis on the varietal selections of California, New York, Michigan, and Ohio. A study of wine making, comparative tasting, and field trips are used to acquaint the student with the wine industry in America. (F, Sp)

HMFS 254 Mixology 4
Prerequisite: None
 A practical course on commercial alcoholic beverage operations. Includes the making of over 150 mixed beverages in an accurate and consistent manner. The student will learn proper glassware, garnishes, and standard bar setups. Emphasis on an increased awareness of alcohol-related behavior. (F, Sp, Su)

- HMFS 260 Gourmet Basic Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Basic cookery is designed for the beginning student who needs to learn how to shop, read recipes, store, and prepare foods for their family. The student will produce part of a meal each class period. Sanitation, personal hygiene, and cleanup are emphasized along with nutrition. (F, Sp, Su)
- HMFS 261 Gourmet Italian Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Designed to explore regional and national foods from Italy. Students will learn to plan Italian meals, as well as purchase and prepare goods for the menus provided. Discusses basic cookery techniques and specialty menus within regional areas of Italy. Students will prepare meals for consumption. (F, Sp)
- HMFS 263 Gourmet American Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Our ancestors came from foreign lands. We explore why the U.S. is considered the melting pot of the world. During this course, you will travel through eight different U.S. regional cuisines. Sanitation, nutrition, and personal hygiene are essential topics along with various kitchen safety practices. (F)
- HMFS 264 Gourmet Barbecue Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Explores innovative techniques of preparing flavorful grilled foods. Meats, vegetables, hors d'oeuvres, salads, and desserts are prepared and consumed by students throughout the course. (F, Sp, Su)
- HMFS 265 Gourmet Chinese Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Chinese cooking is noted for its diversity of tastes, nutritionally sound meals, color and texture retention, and its ease of preparation. Regional areas will be studied. A complete meal is prepared each class period. Sanitation, safety, nutrition, presentation, and personal hygiene are emphasized. (F, Sp)
- HMFS 268 Gourmet Middle Eastern Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Designed for the person who would enjoy traveling through Mideastern countries via the foods prepared and consumed in the lab experience. Various ethnic, cultural, and specialty food items from Middle Eastern countries are experienced. (F, Sp, Su)
- HMFS 273 Gourmet Cajun Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Louisiana is home of cajun and creole cooking. The student will be able to prepare menus from each area. Different herbs, spices, and techniques will be explored. Sanitation, safety, nutrition, plate presentation, and personal hygiene are stressed. (Sp)
- HMFS 274 Gourmet Lean Cookery** 2
Prerequisite: None
Recommended: HMFS 110
 Basic cookery using less fat and salt, as well as healthier ingredient choices. Examines the composition of food and why some foods make better choices for our diets than other foods. Students will consume meals prepared. (F, Sp, Su)
- HMFS 275 Bakery Products** 2
Prerequisite: None
Recommended: HMFS 110
 A course designed to expose the student to various bakery products including pastries and bread. Demonstrations, as well as student preparation, in the diverse areas of the fine art of baking highlight this hands-on course. (F, Sp)
- HMFS 276 Ice Carving Seminar** .5
Prerequisite: None
 This course is designed to expose the student to the tools, techniques, and skills required to carve a block of ice. The student will be carving from a block of ice before the conclusion of the course. This is a hands-on one day course. (F, Sp)

- HMFS 280 Food Decorating Garnishes** 3
Prerequisite: None
Recommended: HMFS 110 and HMFS 132
 Practice decoration and presentation of cold foods. Explore cold food specialization, vegetable carving, hors d'oeuvres, canapes, the use of spices, sauces, dressings, and complete buffet setup. Garde manger is the showcase for the artistic presentation of foods. Students will receive an edible art education along with knowledge of proper garnishes for appetizers, soups, salads, entrees, and desserts in the hands-on course. (Sp)
- HMFS 281 Soups and Sauces** 3
Prerequisite: None
Recommended: HMFS 110 and HMFS 132
 Compose several different types of stocks using raw materials. Topics discussed include seasonings in stock, glazes prepared from stocks, preparation of various soups, proper garnish of soups, and major classifications and uses of sauces. (Sp)

HONR - HONORS

- HONR 151 Honors Colloquy I** 1
Prerequisite: Honors Program Approval
 Interdisciplinary forum for Honors Program members and other interested students. Includes presentations by experts in such fields as the arts, business, communication, education, humanities, government, mathematics, science, and the social sciences, followed by discussion. Topics concerning international issues, diversity, and technology are often featured. Students write essays reacting to each presentation. (F)
- HONR 152 Honors Colloquy II** 1
Prerequisite: Honors Program Approval
 Interdisciplinary forum for Honors Program members and other interested students. Includes presentations by experts in such fields as the arts, business, communication, education, humanities, government, mathematics, science, and the social sciences, followed by discussion. Topics concerning international issues, diversity, and technology are often featured. Students write three substantive research papers. (F)
- HONR 155 Service Learning Practicum** 1
Prerequisite: Honors Program Approval
 A practicum course requiring a minimum of 32 hours of volunteer service with a community agency of the student's choice and attendance at three classroom discussion sessions. Students will develop practical skills and evaluate their service in terms of its relevance to the community and their educational, career, and life goals. (Sp)

HORT - HORTICULTURE

- HORT 100 Field Experiences Horticulture** 2
Prerequisite: None
 This course will introduce the student to various aspects of the horticulture profession through discussion, videos, slides, field trips, and guest speakers. Topics will include greenhouse operators, bedding plant growers, nursery growers, sod producers, floral shop operators, retail garden centers, and garden suppliers wholesalers. (F, Sp)
- HORT 102 Intro Ornamental Horticulture** 2
Prerequisite: None
 An introductory course involving botanical and horticultural principles and practices. Basic plant structures and their functions as well as soil and plant nutrition are discussed. Job opportunities and the role of horticulture will also be covered. Field trips and laboratory experiments will highlight the course. (F, Sp)
- HORT 105 Pest/Problem Ornamental Plants** 2
Prerequisite: None
 This course is for the professional or homeowner interested in a knowledge of basic environmental and specific pest problems of trees and shrubs. Problems related to soil, light, water, planting, and fertilizer as well as insects, diseases, and vertebrates will be discussed. Integrated pest management and total plant health concepts will form the basis for problem management. (F, Sp)
- HORT 107 Beginning Floral Design** 2
Prerequisite: None
 This is an introductory course for students interested in learning the principles of floral design. Tools and techniques as well as basic arrangement shapes are learned through hands-on experiences. Students will use fresh, silk, and dried flowers to create traditional and contemporary designs. (F, Sp, Su)

HORT 109 Contemporary Floral Design 2
Prerequisite: None
Recommended: Basic Floral Design Experience
 Contemporary floral designs are taught as well as theme arrangements, tools, and techniques. The basic principles of design are reviewed with the student transferring techniques to stylized arrangements. This is a hands-on course with participants working with floral materials each week. (F, Sp)

HORT 110 Wedding Floral Design 2
Prerequisite: None
Recommended: Basic Floral Design Experience
 This course is designed for the advanced floral designer who has demonstrated the ability to apply the principles of design. Wedding designs covered include colonial, cascade, crescent, and arm bouquets. This is a hands-on class with students working with floral materials each week. (F, Sp, Su)

HORT 143 Cut Flower, Foliage, Pot Plant 4
Prerequisite: None
 The functional aspects of plant material commonly found in the floriculture industry will be covered. The identification of cut flowers, cut foliage, and potted and foliage plants will be required. A course that would benefit the floral designer, greenhouse grower, or landscape designer. (F, Sp, Su)

HORT 230 Plant Propagation/Nursery Op 4
Prerequisite: HORT 102 1.0 minimum
 This course will cover the basics of plant propagation and nursery operations. It will focus on the process of setup, planting, and follow-up maintenance. The tools and techniques of seed propagation, as well as cuttings, grafting, budding, and layering will be emphasized. Knowledge of plant selection, soils, pruning, harvesting, and marketing nursery products will be included. (F)

HORT 235 Greenhouse Structures/Environ 3
Prerequisite: None
 This course is an introduction to the construction and operation of a commercial greenhouse. Types of greenhouses, including construction materials, are discussed. Environmental control such as heating, cooling, and irrigation practices and procedures are presented. In addition, methods of planting, fertilizing, and insect and disease control are also included to provide a basis of knowledge for greenhouse crop production. (F)

HORT 236 Greenhouse Ornamentals 3
Prerequisite: HORT 235 1.0 minimum
 This is an advanced course for the greenhouse grower. The course will cover the production techniques for cut flowers, holiday crops, and other greenhouse ornamentals. Topics of discussion will include scheduling and timing crops, spacing, production costs, and cultural practices. (Sp)

HORT 237 Bedding Plant Production 3
Prerequisite: HORT 102 1.0 minimum
 An advanced course for the greenhouse grower to produce healthy bedding plants at a profit. Topics will include scheduling, spacing, and production costs as well as cultural practices. New varieties will also be presented. (F)

HORT 238 Garden Center/Nursery Sales 3
Prerequisite: None
 This course provides business principles for retail sales managers. A thorough discussion of management topics is presented. Emphasis is placed on planning and organizing a garden center, nursery, greenhouse, or florist operation. Effective pricing and merchandising strategies as well as advertising and display techniques are discussed. (Sp)

HORT 295 Horticulture Project Lab 1-4
Prerequisite: Department Approval
 This project lab is designed for students who wish to pursue a specialty area in horticulture beyond that which is offered in our curriculum. Inquiry through research is required. (F, Sp, Su)

HUMS - HUMANITIES

HUMS 120 Western Art and Music History 4
Prerequisite: Reading Level 5 and Writing Level 4
 An introduction to the masterpieces of art and music from preliterate times to the 20th century. Audio and visual material will be used to illustrate artistic and musical contributions of Europe and America to the development of Western culture. (F, Sp, Su)

HUMS 160 Mythology 4
Prerequisite: Reading Level 5
 Classical Greek and Roman myths constitute the first half of the course with the remainder chosen from at least two of the following areas: African, American, Far Eastern, Medieval European, Near Eastern, or Norse. Reading and analysis of primary sources in translation and their cross-cultural comparison are emphasized. (F, Sp, Su)

HUMS 211 History of Art I 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys the history of painting, sculpture, and architecture of world civilizations in Africa, the Americas, Asia, and Europe from preliterate times to the 15th century. Emphasizes analysis and comparison of artistic concepts, styles, and techniques; and investigates how the arts reflect ideas, issues, and values of society and the individual. (F, Sp, Su)

HUMS 212 History of Art II 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys the history of painting, sculpture, and architecture of world civilizations in Africa, the Americas, Asia, and Europe from the 15th to the 20th century. Emphasizes analysis and comparison of artistic concepts, styles, and techniques; and investigates how the arts reflect ideas, issues, and values of society and the individual. (F, Sp)

HUMS 213 World Civilizations I 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys the literature and art, science and technology, and the social and political systems of major civilizations in Africa, Asia, Europe, and the Americas to approximately the 17th century. Emphasizes the contributions of early civilizations to the creativity, richness, and diversity of the human condition. (F, Sp, Su)

HUMS 214 World Civilizations II 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys the literature and art, science and technology, and the social and political systems of major civilizations in Africa, Asia, Europe, and the Americas from approximately the 17th century to the present. Emphasizes the contributions of modern civilizations to the creativity, richness, and diversity of the human condition. (F, Sp, Su)

HUMS 215 American Civilization 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 This course will explore the cultural foundations of the United States from the period of exploration to the present. This is an interdisciplinary course which examines central themes of American culture and their representation in history, literature, art, philosophy, and religion. (F, Sp, Su)

HUMS 225 Grt Lake Native Amer: Hist&Trad 4
Prerequisite: None
 Surveys the Great Lakes Native American culture and people, the differences in oral tradition and written histories of the Great Lakes Anishnaabek (First People), the Talking Circle for community problem solving, and an introduction to the language. (F, Sp, Su)

HUMS 260 Seminar: Ancient Egypt 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 This course explores the achievements of one of the earliest and most successful of world civilizations. Developments in Egyptian art, architecture, and literature will be emphasized and the roles of religion, kingship, and geography will be studied. Great discoveries and discoverers of Egyptian archaeology will also be featured. (F)

HUMS 265 Sem: Ethical Issues in Medicine 3
Prerequisite: None
 This course will present some of the ethical dilemmas which arise in relation to health care and develop a framework for ethical decision-making with which to deal with these and other related problems. It is designed for both health care professionals and others who are interested in these issues. (F, Su)

HUMS 295 Independent Study 1-4**Prerequisite:** Department Approval

Special research projects and/or individual readings in humanities. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

HUSE - HUMAN SERVICES**HUSE 100 Introduction to Human Services** 3**Prerequisite:** Reading Level 3 and Writing Level 4

This course presents an overview of the basic programs and social institutions which provide human services. It provides the student with an orientation to and overview of methods and problem-solving skills used by human service workers in a variety of settings. (F, Sp, Su)

HUSE 101 Personal Dimensions/Human Serv 2**Prerequisite:** None

This course explores the nature and development of personal dimensions of human services, including knowledge, values, and skills needed by people who are preparing for careers in the helping professions. The potential impact and influence of these skills on the helping process are also explored. (F, Sp)

HUSE 110 Intro/Child Abuse and Neglect 3**Prerequisite:** None

This course reviews the history and scope of child abuse and neglect, including socioeconomic and psychological factors. This course explores the world of abnormal rearing, roles of community agencies and disciplines, approaches to treatment and prevention, coordination of cases and services, and legal aspects and the law. (F, Sp, Su)

HUSE 112 Introduction/Substance Abuse 3**Prerequisite:** None

This course reviews substance abuse and use from a historical, sociological, and psychological perspective. It includes drug classifications, street terminology, causes of abuse, and also examines present and past legislation regarding substance abuse and use. (F, Sp, Su)

HUSE 120 Introduction/Family Violence 2**Prerequisite:** None

This course provides an overview of the historical, socioeconomic, cultural, and psychological factors associated with family violence emphasizing battered women. Child abuse, woman abuse, elder abuse, and sibling violence are discussed as well as the resources available, intervention techniques, and the role of law enforcement agencies, legislative bodies, and social service agencies. (F)

HUSE 240 Substance Abuse: Spec Pop/Adol 3**Prerequisite:** HUSE 112 2.5 minimum or Concurrently

This course surveys substance abuse in various populations including adolescents, older adults, women, individuals with physical or psychological disabilities or challenges, as well as various ethnic groups including African Americans, Native Americans, and Hispanics. Commonalities and areas of uniqueness for each is examined. Reasons for abuse, dependency dynamics, and treatment considerations are explored. (Sp)

HUSE 241 Substance Abuse Prevention 3**Prerequisite:** HUSE 112 2.5 minimum

This course provides a developmental framework for a better understanding of the factors contributing to substance abuse prevention. It facilitates students' abilities to critique existing programs, identify current community needs, and address the growing demand for consultation and assistance in the field of substance abuse prevention. (Sp)

HUSE 242 Chemically Dependent Family 3**Prerequisite:** None**Recommended:** HUSE 112

This course provides a conceptual framework within which to understand, assess, and effectively intervene/interact in a counseling fashion with the chemically dependent family. Specific subgroups and issues within or resulting from the chemically dependent family are explored. (F)

HUSE 244 Sub Abuse: Treatment, Intrv 3**Prerequisite:** HUSE 112 2.5 minimum

This course covers the addiction cycle of alcoholics and drug abusers, personality and interactional patterns of addiction, and casework and group work techniques. It provides an analysis of current models of treatment within programs, including review of inpatient, outpatient, halfway houses, and occupational programs. (F)

HUSE 282 Human Services Practicum I 4**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval**Recommended:** HUSE 100 and HUSE 101 and (SOCL 254 or SOCL 260) and Human Services Experience

This course combines classroom training with beginning field experience (10 hours per week) in a community-based human services agency. Emphasis is on knowledge of the community power structure, funding bases, and the internal working of human services organizations. Opportunities in the labor force, certification requirements, and networking are explored. (F)

HUSE 284 Human Services Practicum II 4**Prerequisite:** HUSE 282 2.5 minimum

This course provides classroom training on principles of human services delivery with advanced practical experience (10 hours per week) in a community-based human services agency. Emphasis is on identifying systems and resources to link the systems with the people and how to mobilize the systems and the people. (Sp)

HUSE 286 Substance Abuse Practicum I 4**Prerequisite:** SOWK 203 2.5 minimum and Reading Level 5 and Writing Level 6 and Department Approval**Recommended:** HUSE 101 and HUSE 240 and HUSE 241 and HUSE 244

This course combines classroom training with beginning field placement (10 hours per week) at a community agency specializing in substance abuse. Content focuses on the community power structure, funding bases, and the internal workings of substance abuse agencies. It explores opportunities in the labor force, certification requirements, and networking. (F)

HUSE 288 Substance Abuse Practicum II 4**Prerequisite:** HUSE 286 2.5 minimum

This course combines advanced field placement (10 hours per week) at a community agency specializing in substance abuse, with classroom instruction in concepts related to service delivery. Students identify systems and resources to link the systems with the people receiving services and how to mobilize the systems and the people. (Sp)

HUSE 297 Human Services Indepen Study 1-3**Prerequisite:** Department Approval

This course includes special research, directed study, or service-learning projects in human services areas, such as child development, gerontology, social work, substance abuse, or related areas. It requires at least 32 hours of laboratory work or 64 hours of fieldwork per credit. A learning contract is required. (F, Sp, Su)

HVAC - HEATING, VENTILATING, AND AIR CONDITIONING**HVAC 100 Fundamentals of HVAC** 3**Prerequisite:** None

This course is an introduction to the mechanical refrigeration cycle and its individual components. Compressors, evaporators, condensers, and metering devices, as well as their functions, are covered in detail. Exercises in psychrometrics and an introduction to system design are also covered. (F, Sp, Su)

HVAC 105 Sheet Metal Fabrication/Instal 2**Prerequisite:** None

Designed to aid the installer in the skills and techniques for installation of residential heating and cooling systems. Covered will be sheet metal layout, identification of sheet metal fittings, insulated duct, and general furnace installation procedures. (F, Sp)

HVAC 110 Applied Electricity I 2**Prerequisite:** None

An introduction to basic electricity (AC and DC) using both theory and applied study methods. Topics will include electrical components, symbols, basic schematic diagrams, Ohm's Law applied to series and parallel circuits, and motor types and usages. In conjunction with lab exercises, meters and their proper usage will be covered. (F, Sp, Su)

HVAC 111 Applied Electricity II	2
Prerequisite: HVAC 100 1.5 minimum and HVAC 110 1.5 minimum	
Basic construction and function of components in residential gas and oil fired furnaces with detail on theory, application, troubleshooting, and servicing. Motor controls, control circuits, protection devices, and discussion of energy conservation as related to motors will be covered in detail. (F, Sp)	
HVAC 120 Heating I	4
Prerequisite: HVAC 100 1.5 minimum and HVAC 110 1.5 minimum	
Basic construction and function of components in residential gas and oil fired furnaces with detail on theory, application, troubleshooting, and servicing standard heating systems. Installation procedures and codes are also covered. Additional equipment studied will include humidifiers, air cleaners, and vent dampers. (F, Sp)	
HVAC 130 Air Conditioning I	4
Prerequisite: HVAC 100 1.5 minimum and HVAC 110 1.5 minimum	
Fundamentals and principles of residential air conditioning systems. Students will learn soldering and brazing of tubing, wiring, component testing, evacuation procedures, charging and maintenance of both split systems, as well as small packaged units. (F, Sp)	
HVAC 201 Mechanical Code	4
Prerequisite: HVAC 120 1.5 minimum and HVAC 130 1.5 minimum	
A fundamental course designed to acquaint the student with the methods and techniques used in field inspection of mechanical systems. Both the Uniform Mechanical Code and the Building Officials and Code Administrators (BOCA) Code will be discussed. (F, Sp)	
HVAC 211 Schematics	3
Prerequisite: HVAC 100 1.5 minimum and HVAC 110 1.5 minimum	
An in-depth study into the cause and effect aspects of schematic diagrams. The student will learn to simplify complicated schematics to obtain the sequence of operation necessary for the proper troubleshooting of heating, ventilation, and air conditioning equipment. (F, Sp)	
HVAC 220 Heating II	4
Prerequisite: HVAC 111 1.5 minimum and HVAC 120 1.5 minimum and HVAC 211 1.5 minimum	
Fundamentals and principles of electronic ignition systems including troubleshooting and servicing. The major emphasis is placed on high efficiency and condensing furnaces to include sequence of operation, troubleshooting, servicing, and proper installation. (F, Sp)	
HVAC 221 Introduction to Hydronics	3
Prerequisite: HVAC 220 1.5 minimum	
Covers hot water and steam residential heating systems, piping and all accessories, safety controls, expansion tanks, zone valves, installation procedures, and codes. Students perform testing, troubleshooting, adjusting, and servicing of components to insure maximum efficiency. (F, Sp)	
HVAC 230 Air Conditioning II	4
Prerequisite: HVAC 111 1.5 minimum and HVAC 130 1.5 minimum and HVAC 211 1.5 minimum	
Advanced air conditioning, light commercial equipment, water cooled units, cooling towers, and wiring both control and line voltage circuitry. The latest in test equipment and meters will aid the student in becoming proficient in servicing and maintenance of commercial equipment. (F, Sp)	
HVAC 231 Heat Pump	4
Prerequisite: HVAC 230 1.5 minimum	
This course deals entirely with heat pumps (air-to-air, water-to-air) and their installation, servicing, proper application of heat pump components, and extensive wiring schematics. (F, Sp)	
HVAC 240 Refrigeration I	4
Prerequisite: HVAC 230 1.5 minimum or Concurrently	
The student will study domestic and light commercial refrigeration systems with an emphasis on controls operation and adjustment. (F, Sp)	
HVAC 241 Refrigeration II	4
Prerequisite: HVAC 240 1.5 minimum	
The student will learn servicing of commercial units, heat load calculations for component selections, special valve applications, and piping procedures. (F, Sp)	
HVAC 250 Pneumatic Control	3
Prerequisite: HVAC 230 1.5 minimum	
Basic concepts of pneumatic controls for HVAC equipment in commercial structures and the adjustment and calibration of pneumatic equipment. (F, Sp)	

HVAC 251 Fund of Direct Digital Control	2
Prerequisite: HVAC 250 1.5 minimum	
Fundamentals and principles of Direct Digital Controls will be covered. The major emphasis will be placed on computer based energy management systems to increase efficiency of HVAC/R commercial and industrial equipment. (F, Sp)	

IDMS – DIAGNOSTIC MEDICAL SONOGRAPHY

IDMS 200 Sonographic Introduction	2
Prerequisite: Admission to Diagnostic Medical Sonography Program	
Co-requisite Courses: IDMS 201 and IDMS 202 and IDMS 280	
Introduction to sonography including equipment history, criteria, limitations of ultrasound, and sonographer ethics. General information provided regarding patient preparation, history/clinical correlation, and basic nursing care specific to ultrasound. Strong emphasis on terminology and abbreviations most commonly used with ultrasound. (F)	
IDMS 201 General Sonography I: Abdomen	4
Prerequisite: Admission to Diagnostic Medical Sonography Program	
Co-requisite Courses: IDMS 200 and IDMS 202 and IDMS 280	
Provides the student with cross-sectional anatomy and pathology as it relates to sonographic scanning of the abdomen, vascular system, thyroid, prostate, scrotum, breast, and neurology of the neonate. (F)	
IDMS 202 OB/GYN Sonography I	4
Prerequisite: Admission to Diagnostic Medical Sonography Program	
Co-requisite Courses: IDMS 200 and IDMS 201 and IDMS 280	
Provides the student with cross-sectional anatomy and pathology as it relates to gynecological and obstetrical sonography. Fetal cardiac anatomy and appearance will be presented. (F)	
IDMS 234 Sonographic Physics	2
Prerequisite: IDMS 200 2.5 minimum and IDMS 201 2.5 minimum and IDMS 202 2.5 minimum	
Co-requisite Courses: IDMS 265 and IDMS 266 and IDMS 281	
The student will study the fundamental principles of acoustical physics, how sound is produced and manipulated, and how it reacts in various mediums. (Su)	
IDMS 245 Sonographic Instrumentation	3
Prerequisite: IDMS 234 2.5 minimum	
Co-requisite Course: IDMS 283	
The student will be introduced to the mechanics of A-Mode, M-Mode, Doppler, and Real-time equipment. Accessory equipment such as the camera, transducer, and cathode ray tube will be presented. Methods of quality assurance will also be presented. (F)	
IDMS 265 General Sonography II	4
Prerequisite: IDMS 201 2.5 minimum	
Co-requisite Courses: IDMS 234 and IDMS 266 and IDMS 281	
The student will be presented with the identification of and interpretation of anatomy and pathology on sonographic exams as it relates to the abdomen, vascular system, and small parts. (Sp)	
IDMS 266 OB/GYN Sonography II	3
Prerequisite: IDMS 202 2.5 minimum	
Co-requisite Courses: IDMS 234 and IDMS 265 and IDMS 281	
The student will be presented with the identification of and interpretation of anatomy and pathology on sonographic exams as it relates to the obstetric and gynecologic patient. (Sp)	
IDMS 280 Clinical Experience I	5
Prerequisite: Admission to Diagnostic Medical Sonography Program	
Co-requisite Courses: IDMS 200 and IDMS 201 and IDMS 202	
First course in a four-semester sequence of clinical application in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F)	
IDMS 281 Clinical Experience II	7
Prerequisite: IDMS 280 2.5 minimum	
Co-requisite Courses: IDMS 234 and IDMS 265 and IDMS 266	
Building on material presented in IDMS 280, this is the second course in a four-semester sequence in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Sp)	

IDMS 282 Clinical Experience III 12

Prerequisite: IDMS 234 2.5 minimum and IDMS 265 2.5 minimum and IDMS 266 2.5 minimum

Based on material presented in IDMS 281, this is the third course in a four-semester sequence of clinical application in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)

IDMS 283 Clinical Experience IV 7

Prerequisite: IDMS 282 2.5 minimum
Co-requisite Course: IDMS 245

Building on material presented in IDMS 282, this is the final course in a four-semester sequence of clinical application in diagnostic medical sonography. Clinical experience is provided under the direct supervision of an ARDMS Registered Sonographer. Clinical competencies will be given corresponding to complete didactic work. (F)

IMAG - PHOTOGRAPHY TECHNOLOGY**IMAG 101 Basic Photog for Non-Majors** 2

Prerequisite: None

Students will learn to use camera controls, exposure controls, photographic composition, and lighting to make better photographs. Color film and commercial processing will be used. Designed for students with little or no previous still photography experience who do not plan to major in imaging technology. (F, Sp, Su)

IMAG 102 Advanced Photo for Non-Majors 2

Prerequisite: IMAG 101 2.0 minimum

A continuation of IMAG 101. Students will learn to apply advanced design concepts, techniques, and accessories for problem solving and creative image making. Color film and commercial processing will be used. For students who do not plan to major in imaging technology. (F, Sp)

IMAG 111 Intro to Photographic Tech I 4

Prerequisite: Reading Level 3 and Writing Level 2 and Math Level 3

A continuation of IMAG 101. Students will learn to apply advanced design concepts, techniques, and accessories for problem solving and creative image making. Color film and commercial processing will be used. For students who do not plan to major in imaging technology. (F, Sp, Su)

IMAG 112 Design for Imaging Tech 3

Prerequisite: (IMAG 101 2.0 minimum or IMAG 111 2.0 minimum) or Concurrently

This course introduces students to design theory and its application to imaging technologies on both a practical and theoretical level. Students will learn and apply design elements and principles to their evolving work. (F, Sp, Su)

IMAG 113 Lighting Concepts/Applications 3

Prerequisite: (IMAG 101 2.0 minimum or IMAG 111 2.0 minimum) or Concurrently

Introduces the student to the theories and applications of contemporary color photographic materials and processes. Students will learn to produce acceptable color images by applying the concepts of film selection, film testing, color temperature, lighting, and color image design to their evolving work. (F, Sp, Su)

IMAG 114 Intro Photographic Color Tech 3

Prerequisite: IMAG 111 2.0 minimum and IMAG 112 2.0 minimum and IMAG 113 2.0 minimum and Reading Level 5 and Writing Level 2 and Math Level 3

Introduces the student to the theories and applications of contemporary color photographic materials and processes. Students will learn to produce acceptable color images by applying the concepts of film selection, film testing, color temperature, lighting, and color image design to their evolving work. (F, Sp, Su)

IMAG 115 Color Directed Study 1

Prerequisite: IMAG 114 2.0 minimum or Concurrently

Introduces student to practical applications of contemporary color photographic materials and processes. Student will learn through laboratory experiences, demonstrations, and other direct involvement with color imaging materials and equipment. Designed to increase the student's technical working knowledge and problem-solving skills when working with currently available color photographic materials. (F, Sp, Su)

IMAG 117 Intro to Photographic Tech II 4

Prerequisite: IMAG 111 2.0 minimum

Continuation of IMAG 111. Students will learn intermediate and advanced black-and-white exposure, developing, and printing controls and techniques. Students will acquire knowledge and skills to solve technical, aesthetic, and communication problems. Successful completion required for continuation in the Imaging Technology Program (Still Track) at the 200 level. (F, Sp, Su)

IMAG 118 Film Production I 4

Prerequisite: None

Introduces storytelling practices using sound and pictures. Students will learn to plan and produce short programs, developing basic skills in plot structure, staging scenes, photography, sound recording, editing, and audience evaluation. (F, Sp, Su)

IMAG 119 Intermediate Lighting 4

Prerequisite: IMAG 113 2.0 minimum or IMAG 118 2.0 minimum

An exploration of intermediate lighting theories, practices, and techniques. This course emphasizes the use of natural light and electronic flash as applied to people, locations, and advanced studio settings. (F, Sp, Su)

IMAG 120 Photographic Technology Lab 3

Prerequisite: IMAG 117 2.0 minimum

Designed for students whose lack of photographic competencies prevent their continuation in the Imaging Technology Program above the 100 level. Individualized learning objectives are formulated for each student. Successful completion of these objectives will allow the student to continue into the 200 level course sequence. (Sp, Su)

IMAG 121 Imaging Technology 2

Prerequisite: None

A survey of the imaging technology field, including the role of the imaging professional, materials, processes, and new technology as related to advertising, communications, film/multimedia, illustration, portrait, and self-expression. Includes an overview of projected employment opportunities in imaging technology. (F)

IMAG 122 Imaging Technology Forum 1

Prerequisite: None

Students will learn through demonstration, laboratory experiences, and other direct involvement in imaging technologies. Includes presentations, demonstrations, and workshops that expose students to the current state of development in the areas of hybrid imaging and emerging technologies. (Sp)

IMAG 201 Topics Commercial Photography 3

Prerequisite: IMAG 113 2.0 minimum and IMAG 117 2.0 minimum

Exposes students to photography for commercial use. Students will explore various tools, techniques, methodologies, principles, and opinions as applied to commercial photography. Designed to sharpen students' technical and aesthetic knowledge and skills in order to better compete in the commercial photographic market. (F, Sp, Su)

IMAG 202 Topics in Photo Communication 3

Prerequisite: IMAG 117 2.0 minimum

Designed for intermediate and advanced students to enhance their competencies and explore areas of interest using still photography in combination with words. Emphasis on communicating clear messages to mass media audiences through documentary photography, newspaper and magazine photojournalism, and public relations photography. (F, Sp, Su)

IMAG 203 Topics in Film/Multimedia 3

Prerequisite: None

Provides students with basic photographic skills, an opportunity for intensive study in selected aspects of motion picture production, or multimedia production. (F, Sp, Su)

IMAG 204 Topics in Imaging Self-Express 3

Prerequisite: IMAG 117 2.0 minimum

An exploration of self-expression through various imaging technology-based tools, processes, and thought. Students will create process-based images and will research, discuss, critique, formulate opinions, and establish personal goals in order to better understand and practice personal style and expression. (F, Sp, Su)

IMAG 205 Topics in Hybrid Imaging 3

Prerequisite: ARTS 171 2.0 minimum

Designed for intermediate and advanced students to enhance their competencies and explore the areas of emerging hybrid imaging tools and techniques. (F, Sp, Su)

IMAG 206 End Technologies 3
Prerequisite: IMAG 117 2.0 minimum
 Designed for intermediate and advanced students to enhance their competencies and knowledge in the area of currently available image output technologies. (F, Sp, Su)

IMAG 207 Imaging Issues 3
Prerequisite: IMAG 117 2.0 minimum or IMAG 118 2.0 minimum
 An exploration of historical, ethical, and aesthetic issues relating to imaging technology. Intended to help students better understand, appreciate, and make aesthetic judgments about historical, contemporary, and future imaging technology issues. (F, Sp, Su)

IMAG 208 Input Processes 3
Prerequisite: IMAG 117 2.0 minimum
 Designed for intermediate and advanced students to enhance their competencies and knowledge in the areas of currently available image input and creation technologies. (F, Sp, Su)

IMAG 210 Intermediate Color Ap and Tech 3
Prerequisite: IMAG 114 2.0 minimum and IMAG 117 2.0 minimum
 Introduces the student to the contemporary materials and processes of the negative to positive color photographic print process. Students will learn to produce professionally acceptable prints from a wide variety of color negatives by applying color balancing and printing controls, print finishing techniques, and lab efficiency skills to their work. (F, Sp, Su)

IMAG 211 Advanced Color Appl and Tech 4
Prerequisite: IMAG 210 2.0 minimum (previously IMAG 222)
 A continuation of IMAG 210 that involves the advanced student with color as a critical communication tool. Students, individually and as team members, will learn to produce highly effective and professionally acceptable photographs with color transparency film. A high level of technical accomplishment and aesthetic development will be reached. (F, Sp)

IMAG 220 Intermed Still Imaging Tech 4
Prerequisite: IMAG 114 2.0 minimum and IMAG 117 2.0 minimum and (IMAG 210 2.0 minimum (previously IMAG 222) or Concurrently)
 Introduces the still imaging student to large format and medium format imaging technologies and their diverse applications. Students will work in areas directly linked to the technical and expressive elements of these formats. Camera applications will include commercial illustration, fine art, and portrait techniques. (F, Sp)

IMAG 221 Advanced Still Imaging Tech 4
Prerequisite: IMAG 220 2.0 minimum and (IMAG 211 2.0 minimum (previously IMAG 223) or Concurrently)
 Introduces students to techniques and practices of photojournalism, documentary photography, and public relations photography. Historical and contemporary photographic styles that reflect the program's areas of emphasis will be examined. Students will apply critical thinking processes and imaging technologies to produce a portfolio of work illustrating their areas of special interest. (F, Sp)

IMAG 224 Emerging Image Technologies I 2
Prerequisite: IMAG 114 2.0 minimum and (IMAG 117 2.0 minimum or IMAG 118 2.0 minimum)
 An intermediate-level course designed to expose imaging technology majors to the latest technological innovations affecting the areas of photography, imaging, and related fields. Course format will include lectures, discussion, demonstration, and hand-on experiences. (F, Sp)

IMAG 225 Emerging Image Technologies II 2
Prerequisite: IMAG 224 2.0 minimum
 An advanced-level study that further explores the effects of new technologies and processes on the areas of photography and imaging. (Sp)

IMAG 226 Film Production II 4
Prerequisite: IMAG 118 2.0 minimum
 An intermediate-level course that exposes the student to advanced storytelling practices using sound and images. Hands-on production exercises help the student to develop skills in script writing, storyboarding, production planning, photography, animation, editing, and sound track production. Emphasis on Avid non-linear editing techniques. (F, Sp)

IMAG 227 Film Production III 4
Prerequisite: IMAG 118 2.0 minimum
 Hands-on production exercises help the student develop skills in script writing, directing, working with dialogue shooting, and editing sync sound. Students work individually and as group members and apply critical thinking and problem-solving processes to produce creative, dramatic, and effective communications programs. (F, Sp)

IMAG 228 Independent Study 3
Prerequisite: IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal
 Allows advanced students to pursue study in areas not formally taught within the curriculum. Students will work in consultation with an instructor. Acceptable written proposal required prior to registration. (F, Sp, Su)

IMAG 229 Advanced Imaging Applications 1
Prerequisite: IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal
 Allows advanced students to work on improving skills or to enhance skills in an area of strength or interest. Students will work with an instructor in a directed learning experience. Acceptable written proposal required prior to registration. (F, Sp, Su)

IMAG 230 Imaging Technology Major I 3
Prerequisite: (IMAG 221 2.0 minimum and IMAG 211 2.0 minimum (previously IMAG 223) and IMAG 224 2.0 minimum) or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum)
 An advanced-level major concentration course, the first of a two-course sequence. Students will create images that are professionally acceptable visual solutions to problems typical of their chosen field. Emphasis is on critical thinking, problem solving, and refining technical, aesthetic, and communication skills. (F)

IMAG 231 Imaging Technology Major II 3
Prerequisite: IMAG 230 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum)
 A continuation of IMAG 230. Continued emphasis on problem solving, critical thinking, and refining technical, aesthetic, and communication skills. Students will create professional quality images that may be included in the portfolio which is required for completion of the Imaging Technology Program. (Sp)

IMAG 232 Internship 3
Prerequisite: IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Department Approval
 Allows advanced students to work as an intern developing competencies in the technical, business, creative, and communicative aspects of photography, film making, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

IMAG 233 The Business of Photography 3
Prerequisite: IMAG 114 2.0 minimum and IMAG 117 2.0 minimum
 Exposes the student to the general business practices and approaches used in the photographic marketplace. The student will learn to undertake market research, develop a marketing plan, understand and apply basic accounting and tax principles, prepare a business plan, and determine where their specialties and interests fit within the industry. (F, Sp)

IMAG 234 Portfolio Assembly/Degree Comp 3
Prerequisite: (IMAG 211 2.0 minimum and IMAG 221 2.0 minimum) or Concurrently
 Concluding course for photo program associate degree. Finalizes the student's portfolio and immediate career plans. Students edit and assemble their best work into a cohesive, visual résumé in order to secure employment or gain admission to another institution for continued studies. Students present portfolios in a public program. (Sp)

IMAG 238 Project Lab Independent Study 3
Prerequisite: IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Approved Proposal
 Allows advanced students to pursue study in areas not formally taught within the curriculum when these studies require the use of the Photography Center facility. Students will work in consultation with an instructor. Acceptable written proposal required prior to registration. (F, Sp, Su)

IMAG 240 Internship 4
Prerequisite: IMAG 117 2.0 minimum or (IMAG 226 2.0 minimum and IMAG 227 2.0 minimum) and Department Approval
 Allows advanced students to work as interns developing competencies in the technical, business, creative, and communicative aspects of photography, film making, or electronic imaging. Acceptable written application and internship agreement required prior to registration. (F, Sp, Su)

INAU - INDUSTRIAL AUTOMATION

INAU 100 Intro Industrial Automation 4
Prerequisite: None
 This course provides a hands-on introduction to current manufacturing technology. Students will learn to use the MS/PC DOS computer including word processor, spreadsheet, and operating system applications. Students will experience the use of industrial robots, programmable logic controllers, machine vision, computer-aided design, discrete electronic components and statistical process control. (F, Sp, Su)

INAU 200 Applied Automation 4
Prerequisite: ELTE 122 2.0 minimum
 Provides experience in the operation, programming, and set up of automated industrial equipment, including robots, vision equipment, and industrial software. (F)

INSU - INSURANCE

INSU 121 Property Liability Ins Prin 3
Prerequisite: None
 This course will cover the basic principles of insurance, an introduction to insurance contracts, and an overview of the nature and operation of the insurance business. (F)

INSU 122 Personal Insurance 3
Prerequisite: None
 This course will cover the basic personal loss exposures and how they can be met through insurance such as automobile, homeowners, life, health, and others. It will also discuss governmental insurance for personal loss and how personal insurance affects society. (F, Sp)

INSU 123 Commercial Insurance 3
Prerequisite: None
 This course will cover all major forms of commercial liability and property insurance. In addition to covering standard property and casualty forms, the course will also include boiler and machinery, farm, ocean marine, surety and excel, and surplus line coverage. (F, Sp)

INSU 265 Principles Risk and Insurance 3
Prerequisite: None
 At the completion of this course, the student will have a working knowledge of the theory of risk, insurance terminology, legal insurance contracts, and use of risk management. (F, Sp)

INTR - INTERIOR DESIGN

INTR 106 Interior Graphic Standards 3
Prerequisite: None
 Students will learn how to draw floor plans, interior elevations, and axonometric drawings using manual drafting techniques. Topics include drafting equipment, media, reproduction methods, lines, symbols, lettering, orthographics, and sketching. (F, Sp)

INTR 110 Applied Design 3
Prerequisite: None
 A studio course in basic design theory. Topics include two- and three-dimensional design fundamentals, elements and principles of design, color, creativity, and problem solving as they relate to interior design. (F, Sp)

INTR 132 Interior Presentation Standard 3
Prerequisite: None
Recommended: INTR 106 or Equivalent
 This course is the study of three-dimensional visual and oral presentation techniques. Students will create perspective drawings and color renderings using a variety of media. (Sp)

INTR 140 Interior Drafting/Detailing 3
Prerequisite: None
Recommended: INTR 106 or Equivalent
 Students will learn drafting techniques for interior design including floor plans, elevations, sections, axonometrics, cabinetry, and furniture detailing. Emphasis on developing residential construction documents for kitchens. (F)

INTR 151 Computer-Aided Kitchen Design 3
Prerequisite: None
Recommended: INTR 106 or ARCH 100 and Windows or Keyboarding
 This course is an in-depth study of kitchen planning, design, and remodeling through computer software applications. Lecture/Lab. (F, Sp, Su)

INTR 170 Planned Interiors 3
Prerequisite: Reading Level 3 and Writing Level 4
 This course is an overview of the basic knowledge required for the education of the professional interior designer. Human needs are the focal point of solving problems of space planning and furniture arrangement. Students will use the elements and principles of design to evaluate function and aesthetics of interior spaces. (F, Sp)

INTR 175 Interior Space Planning 3
Prerequisite: None
Recommended: INTR 132 and INTR 140
 This course is a study of the theory and application of interior design. Emphasis is on developing the creative problem-solving process through programming and installation, and their effect on the environment. Students will study kitchens, bathrooms, cabinets, ceilings, walls, floors, and paint. (Sp)

INTR 190 Interior/Materials/Equipment 3
Prerequisite: None
Recommended: INTR 106 or ARCH 100 or Equivalent
 Study of nonstructural interior finishes and materials, their methods of application and installation, and their effect on the environment. Students will study kitchens, bathrooms, cabinets, ceilings, walls, floors, and paint. (Sp)

INTR 201 Cultural Diversity In-Housing 3
Prerequisite: Reading Level 5 and Writing Level 6
 This multidisciplinary course is the study of how culturally diverse ideas, issues, values, and institutions in global societies have shaped the built environment and the political, social, and economic impact this has on the individual and the group. (F)

INTR 222 CADD for Interiors 3
Prerequisite: None
Recommended: INTR 140 and INTR 151 and CNCP 101
 This first course in a series of three, introduces students to the basic principles of computer-assisted drafting and design. Students use computer software to create and print one- and two-dimensional interior design drawings with dimensions and notes. Students are expected to have college drafting experience, and computer literacy. (F, Sp)

INTR 225 CADD for Space Planning 3
Prerequisite: None
Recommended: INTR 222 or Equivalent
 This second course in a series of three, is the study of advanced computer-assisted drafting and design applications. Manufacturers furniture symbol libraries will be used to create interior design and space planning drawings with systems furniture. (Sp)

INTR 230 World Decorative Arts 3
Prerequisite: None
Recommended: INTR 170 or Concurrently
 This course is a survey of the decorative arts of the world including furniture, interior architecture, textiles, and accessories. Students will study designers, styles, materials, and techniques and their influence upon the political, geographical, economic, and religious cultures of Africa, Asia, Europe, and the Americas. Period is from antiquity to 17th century. (F)

INTR 231 Period Interiors 3
Prerequisite: None
Recommended: INTR 170 or Concurrently
 This course is a study of the decorative art periods including furniture, interior architecture, textiles, and accessories from the Italian Renaissance to the 19th century western industrial revolution. (Sp)

- INTR 232 Twentieth Century Interiors** 3
Prerequisite: None
Recommended: INTR 170
 This course is a selective survey of interior design covering the history and philosophy of modern and international styles from the turn of the century to the 1930s. Student projects will include a colored sketchbook. (F, Sp)
- INTR 240 Interior Environmental Systems** 3
Prerequisite: Interiors Placement Test 70%
 This course introduces color and light as a design element for residential and commercial applications: creating reflected ceiling plans and power plans, and preparing calculations for lighting needs, environmental systems, heating, cooling, and solar passive. (F)
- INTR 244 3-D Visual Display** 3
Prerequisite: None
Recommended: INTR 110 and INTR 132 and INTR 170
 Students will study interior design and lighting in three-dimensional spaces and apply the principles and elements of design within an existing building context or create a new space, such as kiosks. Students will communicate with their solutions using floor plans, elevations, reflected ceiling plans, color rendered perspectives, and axonometrics. (F)
- INTR 245 Residential Interiors** 3
Prerequisite: None
Recommended: INTR 175 and INTR 190 and INTR 240
 This course examines the relationship of human needs to interior environmental design with emphasis on alternative housing design. (Sp)
- INTR 248 Non-Residential Interiors** 3
Prerequisite: None
Recommended: INTR 175 and INTR 240 and INTR 261
 This course is a study of contract and commercial design. It includes designing all types of nonresidential interiors: programming, problem solving, furniture, fixtures and equipment, and lighting, building codes, and barrier-free space planning with the use of systems furniture and computer-aided planning programs. (F)
- INTR 252 Interior Specifications** 2
Prerequisite: None
Recommended: INTR 190 and INTR 248
 This course is the study of practices and procedures of working drawings, interior materials, cost estimating, installation methods for furniture, cabinets and shop drawings, floor coverings, wall coverings, and window treatments. Emphasis on furniture, fixture, and equipment selection and specifications. (Su)
- INTR 254 Certification Review** 1
Prerequisite: None
 This course is specifically intended to prepare interior design students with appropriate information plus practicum exercises which will enable them to prepare for the National Council for Interior Design Qualification Examination. (F, Sp, Su)
- INTR 256 Interiors Project Management** 3
Prerequisite: None
Restriction: Interior Design Majors
Recommended: Second Year Interior Design Students
 This course is an in-depth study of the business and professional practices of interior designers. Students prepare written communications, contract forms, and schedules. The study of marketing, ethics, and project management are included. For the final project, students prepare a project control book. (F)
- INTR 260 3-D CADD for Interiors** 3
Prerequisite: None
Recommended: INTR 132 and INTR 222 or Equivalent
 This is the third course in a series in the study of computer-assisted drafting and design applications for interior design. Students will learn how to create 3-D models, wire frames, and surfaces. (F)
- INTR 261 Interiors Project Laboratory** 1-4
Prerequisite: Department Approval
Restriction: Interior Design Majors
Recommended: INTR 222
 This course is a directed study of special projects not incorporated in regular course offerings. (F, Sp, Su)

- INTR 270 Interior Design Portfolio** 2
Prerequisite: None
Restriction: Interior Design Majors
Recommended: INTR 132 and INTR 256 and INTR 263
 The portfolio course is an opportunity for students to organize photographs, matte/frame, and display their visual works. At the completion of the course, the students will have developed a format for a portfolio. (Sp)

IRXT - RADIOLOGIC TECHNOLOGY

- IRXT 100 Introduction to Imaging** 4
Prerequisite: Admission to Radiologic Technology Program
 Survey of the role of the radiographer in the health care industry. Explores the historical development of X-ray, medical, and legal ethics, radiation protection, patient-staff relationships, and other imaging technologies. A clinical component allows the new radiography student to correlate this material in the practical setting. (F, Sp)
- IRXT 111 Radiographic Positioning I** 5
Prerequisite: Admission to Radiologic Technology Program
 Student radiographers are introduced to radiographic positioning of the upper and lower extremity, chest, abdomen, bony thorax, pelvis, and spine. Associated topographic, skeletal, chest, and abdominal anatomy is studied. A laboratory experience is provided to evaluate the student skills in performing each position/projection. (F, Sp)
- IRXT 112 Radiographic Positioning II** 4
Prerequisite: IRXT 111 2.5 minimum
 A continued study of routine radiographic positioning with the addition of fluoroscopic procedures. Included are studies of the skull, G.I. tract, G.U. tract, myelography, and bronchography. In addition, various contrast media are studied. Laboratory experiences are provided to evaluate student skills in performing selected position/projections. (F, Sp)
- IRXT 113 Additional RAD Procedures** 1
Prerequisite: IRXT 112 2.5 minimum
 Special radiologic procedures are studied and some related imaging modalities surveyed. Procedures include neurologic, cardiovascular, arthrographic, mammographic, digital imaging, and tomographic studies. (F, Su)
- IRXT 114 Cross-Sectional Anatomy** 3
Prerequisite: IRXT 113 2.5 minimum
 Provides an overview of transverse, coronal, and sagittal cross-sectional anatomy of the human body. Special emphasis will be placed on the brain, thorax, and abdominal area. Correlations between cross-sectional anatomy, radiographs, and three-dimensional drawings will be explored. (F, Sp)
- IRXT 121 Radiographic Exposure I** 3
Prerequisite: Admission to Radiologic Technology Program
 The formation of the radiographic image is the focus of IRXT 121. Photographic and geometric variables are related to radiographic factors and their various interactions compared and contrasted. Finally, a study of the history of radiology, basics of radiation formation, and anatomy of the X-ray tube is discussed. (F, Sp)
- IRXT 122 Radiographic Exposure II** 2
Prerequisite: IRXT 121 2.5 minimum
 Various beam modifying devices are presented and their relation to formation of a radiographic image studied. Includes a study of manual processing and the theory of image formation. Dark room procedures, quality control, both radiographic and photographic, will also be explored. (F, Sp)
- IRXT 131 Radiologic Physics** 3
Prerequisite: IRXT 122 2.5 minimum and MATH 112 2.5 minimum
 Basic physical principles are related to the radiologic process. A study of basic electricity and the operation of the X-ray circuit is presented. Finally, advanced topics regarding the formation of radiation, protection of the X-ray tube, and X-ray attenuation are studied. (F, Sp)
- IRXT 132 Radiobiology and Protection** 2
Prerequisite: IRXT 131 2.5 minimum
 A focus on the reasons for good radiation hygiene and methods to implement protection of the patient and technologist. Current theories regarding the physiological effects of radiation are explored. (Sp, Su)

- IRXT 200 Intro/Radiologic Pathology** 2
Prerequisite: None
Emphasizes how disease processes are diagnosed radiographically and the relationship of the radiographic appearance of the disease to its anatomic, physiologic, and pathologic characteristics. The etiology, treatment, and resolution of each disease is discussed, with an attempt to relate more recent advances in these areas. (F, Sp)
- IRXT 202 Clinical Practice I** 5
Prerequisite: IRXT 111 2.5 minimum
First in a two-semester sequence of clinical application in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual semester with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (Sp)
- IRXT 203 Clinical Practice I-S** 3
Prerequisite: IRXT 111 2.5 minimum
First in a two-semester sequence of clinical application in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual term with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (Sp, Su)
- IRXT 204 Clinical Practice II-S** 3
Prerequisite: IRXT 202 2.5 minimum
Second course in a two-semester sequence of clinical applications in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual term with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (Su)
- IRXT 210 Radiology Career Management** 1
Prerequisite: None
Designed to acquaint the student with the organization, function, supervision, and financial arrangements relative to departments of radiology, basic X-ray equipment for performing preventive maintenance, and detecting simple functioning difficulties. (Sp, Su)
- IRXT 213 Clinical Practice II** 5
Prerequisite: IRXT 203 2.5 minimum (previously IRXT 232)
Second course in a two-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F, Su)
- IRXT 214 Comprehensive Experience I** 6
Prerequisite: IRXT 204 2.5 minimum (previously IRXT 233) or IRXT 213 2.5 minimum
First in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (F, Sp)
- IRXT 215 Comprehensive Experience II** 6
Prerequisite: IRXT 214 2.5 minimum
Second in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Sp, Su)
- IRXT 219 Imaging Update** 1
Prerequisite: IRXT 132 2.5 minimum
This course will provide the advanced imaging student with an update of positioning, exposure, and physics. In addition, the use of a comprehensive test will assess the student's level of knowledge in the imaging technology. (F, Sp, Su)
- IRXT 235 Comprehensive Experience II-S** 4
Prerequisite: IRXT 214 2.5 minimum
Second in a three-semester sequence of clinical application in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the student's progress. (Su)

- IRXT 236 Comprehensive Experience III-S** 4
Prerequisite: IRXT 215 2.5 minimum
Third in a three-semester sequence of clinical applications in radiography. Clinical experience is provided under the direct supervision of an ARRT Registered Technologist. Clinical competencies will be given corresponding to completed didactic work. Performance standards are used to evaluate the students progress. (Su)
- IRXT 246 Comprehensive Experience III** 6
Prerequisite: IRXT 235 2.5 minimum
Third in a three-semester sequence of clinical applications in radiography. The course is programmed with specific performance activities. Credit is arranged for each individual term with a ratio of one credit hour to three clinical clock hours. The ratio for lecture is consistent with the one-to-one ratio. (F)

ISCI - INTEGRATED SCIENCE

- ISCI 110 Science Discovery: A Process** 4
Prerequisite: Reading Level 3 and Writing Level 2 and Math Level 3
Emphasizes reducing anxiety and improving reasoning skills necessary for participation in science courses. Methods to identify and reduce anxiety associated with science topics are presented. Science reasoning skills will be inventoried, including observation; experimental techniques, critical thinking, and communication. (F, Sp, Su)
- ISCI 121 Integrated Sci for Education I** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
The first of two general science courses focusing on important scientific discoveries and revolutions in their cultural and historical environment. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp, Su)
- ISCI 122 Integrate Sci for Education II** 4
Prerequisite: ISCI 121 2.0 minimum
The second of two general science courses focusing on important scientific discoveries and revolutions in their cultural and historical environment. Science processes, methods, and reasoning skills are emphasized throughout. Recommended for education majors. (F, Sp, Su)
- ISCI 131 Integrated Science - Physical** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 4
A general education course designed to provide students with a basic understanding of the methods and applications of science. Topics include basic chemistry, thermodynamics, the hydrologic cycle, climate, and weather. Critical thinking and problem-solving skills are applied to environmental issues. Laboratory activities illustrate and amplify lecture topics. (F, Sp, Su)

JAPN - JAPANESE

- JAPN 115 Conversational Japanese I** 3
Prerequisite: None
First course in conversational Japanese. Designed for people with little or no knowledge of Japanese who wish to acquire conversational skills. Students learn correct pronunciation, basic sentence structures, and practical vocabulary for everyday use and traveling. Selected features of Japanese culture and everyday life in Japan will be introduced. (F, Sp, Su)
- JAPN 116 Conversational Japanese II** 3
Prerequisite: None
Recommended: JAPN 115 or Equivalent
Second course in conversational Japanese. Designed for people with some prior knowledge of Japanese who wish to improve their conversational skills. Students learn practical vocabulary and essential grammar to converse in Japanese. Selected features of Japanese culture and everyday life in Japan will be introduced. (F, Sp)
- JAPN 121 Elementary Japanese I** 4
Prerequisite: None
First course of a two-semester sequence in elementary Japanese. Designed to provide students with basic knowledge of Japanese for practical communication and skills in speaking, reading, writing, and listening comprehension. Provides information concerning everyday life and culture of Japan. Hiragana and Katakana syllabaries and 40 Kanji will be introduced. (F, Sp, Su)

JAPN 122 Elementary Japanese II 4
Prerequisite: JAPN 121 1.5 minimum
 Second course of a two-semester sequence in elementary Japanese. Students receive more practice in Japanese for practical communication. Develops speaking, reading, writing, and listening skills. Previously acquired knowledge and skills are refined and ability to communicate in Japanese is increased. Additional 100 Kanji will be introduced. Class is taught mostly in Japanese. (Sp)

JAPN 201 Intermediate Japanese I 4
Prerequisite: JAPN 122 1.5 minimum
 First course of a two-semester sequence in intermediate Japanese. Includes introduction of more advanced grammar, vocabulary building, composition, group discussions, and more information on Japanese culture and everyday life. Additional 150 Kanji will be introduced. (F)

JAPN 202 Intermediate Japanese II 4
Prerequisite: JAPN 201 1.5 minimum
 Continuation of Japanese 201. Includes more advanced grammar, intensive vocabulary building, writing composition, reading contemporary materials, discussions, and student presentations of Japanese language or culture. Additional 150 Kanji will be introduced. Natural and practical communication will be emphasized. Class is taught in Japanese. (Sp)

JRNL - JOURNALISM

JRNL 151 Newswriting and Reporting 3
Prerequisite: None
Recommended: Computer and/or Keyboarding Experience
 Introduction to, and practice in, writing news stories. Students learn news terminology, style, objectivity, attribution, accuracy, and copy-editing skills. Basic news gathering and reporting tactics are presented and practiced. (F)

JRNL 254 Editorial Writing 3
Prerequisite: JRNL 151 2.0 minimum or WRIT 121 2.0 minimum or WRIT 131 2.0 minimum
Recommended: Computer and/or Keyboarding Experience
 A course in how to write effective editorials. Students analyze content, structure and style of editorial models, learn methods of finding subjects, learn methods of research, and write editorials and articles on important issues. (F)

LABR - LABOR RELATIONS

LABR 200 Intro to Labor Relations 3
Prerequisite: None
 This course surveys both historical and legal frameworks of the labor movement. Major labor laws, causes, and goals of the labor movement and union structure and behavior will be discussed. Students will explore both labor and management approaches to solving employment disputes. (F, Sp, Su)

LABR 201 Collective Bargaining 3
Prerequisite: None
Recommended: LABR 200 or Related Work Experience
 This course studies the collective bargaining process; the administration of collective bargaining agreements, and wage/benefit issues of employment. (F)

LABR 202 Grievances and Arbitration 3
Prerequisite: None
Recommended: LABR 200 or Related Work Experience
 Grievance procedure, including employee discharge and discipline, is examined in-depth with a review of pertinent legislation. This "how to" course introduces the basic knowledge and skills necessary for grievance handling and understanding the fundamentals of contract language. (Sp)

LABR 203 Labor Law 3
Prerequisite: None
Recommended: LABR 200 or Related Work Experience
 An in-depth study of traditional labor law including NLRB law, court decisions, and historical origins which impact union organizing, representation elections, unfair labor practices, bargaining, strikes, and enforcement of labor contracts. (Sp)

LABR 204 Employment Law for Managers 3
Prerequisite: None
 This course provides an introduction and overview to the principles and application of laws affecting the workplace, not including traditional labor relations law. Areas of law covered include discrimination, wage-hour, unemployment benefits, personnel records, and common law issues relating to discharge and other matters. (F, Sp)

LAND - LANDSCAPE

LAND 100 Intro to Landscape Drafting 2
Prerequisite: None
 This course covers the use of drafting equipment with an emphasis on lettering, line convention, and title blocks. The students will develop a basic format for design construction drawings. The course provides essential drafting skills for beginning the Landscape Program. (F, Sp, Su)

LAND 104 Landscape Lecture Series .25
Prerequisite: None
 This course is the study of the many facets in the fields of landscape architecture and horticulture. (F, Sp)

LAND 120 Basics/Landscape Contracting 3
Prerequisite: None
 This course will explore the field of landscape contracting and its relationships to landscape architecture and management. Landscape contractors and their role in plan evaluation, landscape material selection and their installation and construction features will be fully analyzed. The role of the individual in the design/build industry will be highlighted. (F, Sp)

LAND 130 Interior Landscaping 3
Prerequisite: None
 This course includes the identification, culture, placement, and use of foliage and flowering plants in the office, mall, restaurant, or home. Basic principles of landscaping are covered to include soil media, watering, light requirements, fertilizer, and insect and disease control. Management in relation to the plant's placement and use within the interior landscape is also discussed. (Sp)

LAND 132 Residential Landscaping 2
Prerequisite: None
 This course highlights a basic design process approach for developing a home landscape. The development of a basic design focusing on your own home including placement of plant material, decks, patios, water features, and other landscape elements will be demonstrated. A course for the new homeowner, homeowner renovating his or her landscape, residential landscaper, or nursery person. (F, Sp, Su)

LAND 133 Home Landscape Maintenance 3
Prerequisite: None
 This course will provide a basic understanding of landscape maintenance problems and solutions. Students will develop records and schedules for pest control as well as tree, shrub, lawn, and flower maintenance. Plant selection, installation, pruning, and fertilization will be covered. (F, Sp, Su)

LAND 140 Evergreen and Deciduous Trees 3
Prerequisite: None
 This course emphasizes identification of both common and uncommon deciduous trees, shrubs, evergreens, vines, and ground covers used in the landscape trade. Weekly lab walks facilitate development of field identification skills based on form, foliage, bark, bud, flower, and fruit characteristics. Landscape use and basic culture of individual plants are also covered. (F, Su)

LAND 141 Flowering Trees, Shrubs, Vines 3
Prerequisite: None
 This course explores spring flowering trees, shrubs, broadleaf evergreens, and ground covers. Identification in the field is emphasized during weekly lab walks. Design characteristics of individual plants including size, habit, flowers, fruit, bark, foliage, and buds are discussed as well as basic cultural requirements. (Sp, Su)

LAND 142 Perennial/Annual Flower Plants 3
Prerequisite: None
 This course covers the identification and basic culture of approximately 170 perennial and annual flowering and budding plants. Specific features of each plant will be discussed in relation to their proper landscape use. Herbs, grasses, and rock and water garden plants will also be highlighted. (Sp, Su)

LAND 145 Field Exper Landscape Arch 3
Prerequisite: None
 This course will introduce the student to various aspects of the landscape architecture profession. Different aspects of the profession will be presented through discussion, videos, slides, field trips, and guest speakers. Topics will include urban planning, zoo design, ecological planning, landscape construction, recreation, and park design. (F, Sp, Su)

LAND 150 Principles of Landscape Arch 3
Prerequisite: None
 Students will explore the broad scale philosophical, historical, and technical aspects of landscape architecture. Basic problem-solving techniques and design theory are introduced along with implementation of the design process. (F, Sp, Su)

LAND 152 Landscape Graphics Comm-Begin 3
Prerequisite: LAND 150 2.0 minimum or Concurrently
 This course explores basic illustration techniques relative to the field of landscape architecture. Both the formal and informal applications of mechanical and free-hand drafting communication are emphasized to include reproduction printing methods. (F, Sp, Su)

LAND 153 Landscape Graphics Comm-Adv 3
Prerequisite: LAND 152 1.0 minimum
 This course acquaints the student with visual presentation techniques used in landscape architecture. Plan, section, and three-dimensional graphics are explored using a range of media. The students will develop sketching and mechanical-drafting techniques for the preparation of professional graphic presentations. (Sp)

LAND 160 Planting Design I 3
Prerequisite: (LAND 140 1.0 minimum and LAND 150 1.0 minimum) or Concurrently
 This course provides an overview of the planting design principles from site analysis to construction documents. Planting design principles are emphasized as well as practical aspects of plant selection and design implementation in a range of design situations. Contemporary issues concerning today's design and construction industries are also discussed. (F)

LAND 161 Planting Design II 3
Prerequisite: LAND 160 1.0 minimum
 This course applies the planting design skills gained in LAND 160 to a broad range of sites and issues typically encountered in today's landscape design and construction industries. Topics covered include functional uses of plants, native plant material, and planting design in the urban environment. (Sp)

LAND 163 Designing Ornamental Gardens 3
Prerequisite: LAND 141 1.0 minimum or Concurrently
 This course is a practical approach to designing the herbaceous garden. Annuals, perennials, herbs, and ornamental grasses are analyzed to create a design that will be in harmony with its environment. Color, height, texture, form, and fragrance are some of the plant's characteristics which will be discussed. (F, Sp)

LAND 164 Site Design 3
Prerequisite: LAND 150 2.0 minimum
 This course emphasizes use of the design process to solve a variety of urban and nonurban site planning problems. Project design solutions require graphic delineation stressing plan view presentations. A variety of drawing scales, graphic materials, and techniques will be explored. (F)

LAND 170 Site Grading I 3
Prerequisite: LAND 150 2.0 minimum
 This course covers basic through advanced principles, methods, and procedures for grading a site. Use of contour lines, land form interpretation, and earthwork computation are studied and applied to problem solving for both typical and special requirement sites. (F)

LAND 171 Site Grading II 3
Prerequisite: LAND 170 2.0 minimum
 This is an advanced site-grading course that builds on the skills gained in LAND 170. This Michigan Soil Erosion Control Act is emphasized with respect to the requirements related to circulation systems and recreational and utility facilities. (Sp)

LAND 172 Site Layout 3
Prerequisite: LAND 171 2.0 minimum or Concurrently
 This course covers plan dimensioning and layout techniques for vehicle and pedestrian circulation systems, building locations, utilities, and sporting and recreational facilities. Professional graphic techniques are emphasized. (Sp)

LAND 180 Landscape Ecology 3
Prerequisite: None
 This course is for the professional as well as the interested individual covering the relatively new field of landscape environments. Develop a basic understanding of landscape communities, how they developed, and how they function. Plant communities, native species, natural design, and environmental impact are some of the topics covered. (F, Sp)

LAND 181 Landscape Restoration/Manage 3
Prerequisite: None
Recommended: LAND 180
 This course will cover the detailed steps necessary to complete a total restoration of a damaged ecosystem. Specific system designs dealing with wetlands and prairies in particular will be highlighted. Specific native plants, animals, and insects will be discussed. Field experiences and native plant identification are a critical part of this course. (Sp)

LAND 182 Wetland Delineation/Evaluation 2
Prerequisite: None
 This course will explore the basic elements of wetland identification. Wetland indicator vegetation, hydric soils, and wetland hydrology will be covered. The U.S. Army Corps. of Engineers Wetland Delineation Manual will be used as the guideline for this class. Certification credits can be secured by taking this course. (F, Sp)

LAND 183 Planned Wetlands Eval/Restorat 2
Prerequisite: None
 This course will discuss goals which are desirable for designing planned wetlands, constructed, restored or enhanced with specific targeted functions in mind. The class will focus on assessment of wetland functions during the design process and tools available to accomplish this. Wetland design restoration, evaluation, and management will also be discussed. (F, Sp)

LAND 185 Arboriculture (Urban/Forestry) 3
Prerequisite: None
 The care of trees and shrubs in the urban environment is thoroughly discussed. The course emphasizes tree physiology as it relates to plant selection, installation, decay prevention, pruning, and fertilizing. Field demonstrations of arboricultural practices such as pruning, bracing, and fertilizing will be offered. (F, Sp)

LAND 195 Irrigation Design and Manage 3
Prerequisite: None
 This course is for the professional or beginner interested in irrigation system design, installation, maintenance, and troubleshooting. Lectures will cover a range of systems including residential, commercial, drip, and golf course. (Sp)

LAND 220 Wetland Restoration 5
Prerequisite: None
 This course will present current information available from the MDNR, EPA, and Army Corp of Engineers as it relates to wetland regulations and policy. Wetland delineation, mitigation, design, construction, and planting will be highlighted. Restoration enhancement, and creation of wetlands will be outlined and developed. (F, Sp, Su)

LAND 222 Landscape Construct Tech Begin 3
Prerequisite: None
 This course will deal with the basic concepts needed to operate as a landscape contractor in the design/build industry. The fundamentals of landscape design evaluation, development of materials lists, and cost takeoffs will be demonstrated. Basic site analysis, site survey, drainage, and grading techniques will be demonstrated. (F, Sp)

LAND 225 Landscape Cost Estimation 3
Prerequisite: None
 This course is an introduction to the study of landscape contracting and the cost estimating process. The class covers the project management process and the costing factors associated with it. The areas of material costs, equipment cost, labor costs, and related management charges will be evaluated. The preparation of bids and the bidding process will be highlighted. (F, Sp)

LAND 232 Professional Res. Land Design 3
Prerequisite: LAND 100 2.0 minimum
 This course is designed for the individual interested in residential and small commercial design projects on a professional scale. Several design problems will be presented and detailed projects will be developed. (F, Sp, Su)

LAND 233 Grounds Management 3
Prerequisite: None
 The student will evaluate a landscape design and/or specific site plan with total management of the site in mind. Seasonal management such as pruning, transplanting, pesticide applications and fertilization as well as cost evaluations will be based on commercial and office sites. This course is for the professional grounds manager. (F, Sp)

LAND 242 Ecological Land Planning 3
Prerequisite: None
 This course will introduce the student to the land planning process. The ecological method of land planning will be emphasized with projects demonstrated. Field trips to planning meetings and project sites will be an intricate part of this course. (F, Sp)

LAND 250 Landscape Construction Methods 3
Prerequisite: LAND 150 2.0 minimum
 This course examines the properties and uses of concrete, asphalt, masonry, wood, and other landscape construction materials. Basic design and installation methods of landscape structures are emphasized in addition to the introduction of professional construction drafting techniques. (F)

LAND 252 Landscape Construction Details 3
Prerequisite: LAND 250 2.0 minimum
 Focuses on graphic techniques for drawing construction details and coordination of details with site plan layout. Studies detailing utilities, irrigation systems, circulation systems, recreational facilities, and various light construction features. Design-build procedures are stressed, including material tabulation and cost estimating. (Sp)

LAND 276 Landscape Documents and Spec 2
Prerequisite: LAND 164 2.0 minimum
 This course explores the relationship and principles between specifications and working drawings. The cost of projects as well as bid preparations will be highlighted. The student will prepare bids, write specifications, and participate in a class bid opening. (F)

LAND 281 CAD Basics in Landscape Design 1
Prerequisite: None
 This basic introduction to computer-based landscape design software packages will include basic computer concepts related to landscape drafting and design principles. Hands-on computer exercises will feature landscape modules of site design and selection. (F, Sp, Su)

LAND 282 Computer Draft/Dsgn Land Arch 3
Prerequisite: None
 This course assumes no previous computer experience. A beginning class for the individual interested in computers and what they can do for you in landscape design, maintenance, construction, plant selection, land survey, and cost estimating. AutoCAD will be surveyed and utilized for the computer-aided drafting and design portion of this course. (F, Sp, Su)

LAND 283 Beginning LANDCADD 3
Prerequisite: LAND 282 2.0 minimum
 This course assumes basic AutoCAD experience and covers the Site Design LANDCADD package. Site planning and the related modules in site analysis, coordinate geometry, planting design, plant selection, and construction details will be demonstrated and hands-on exercises will be completed. A 3-D landscape design project will also be completed and plotted. (F, Sp, Su)

LAND 284 Advanced LANDCADD 3
Prerequisite: LAND 283 2.0 minimum
 This course continues the use of LANDCADD modules and project development. The student will complete detailed drawings utilizing the site planning package. 3-D customization will also be covered including solid modeling, macro commands, line type creation, and customized symbol library. This is an advanced LANDCADD class. (Sp)

LAND 285 Computer Landscape Animation 3
Prerequisite: LAND 282 2.0 minimum
 This course will familiarize the student with the animation aspects of computer design and presentation. The student will learn to produce an animation project using the latest computer technology. Students will also become familiar with the integration of video and animation in various applications. (Sp)

LAND 286 LANDCADD: Photo Imaging 3
Prerequisite: None
Recommended: LAND 282
 This computer course will cover how to use photo-imagery and animation in a landscape design situation by way of lecture, video, and computer usage. Computer painting as well as imaging will be demonstrated. Various software will be utilized. (F, Sp)

LAND 288 Beginning Site Designer CAD 3
Prerequisite: None
 This course provides an introduction to the Site Designer computer design software. The class presents the site planning module as well as topography, plant selection, landscape construction, and rendering. All modules will be presented and several design projects will be completed. No previous computer experience necessary. (F, Sp, Su)

LAND 289 Land Computer Design/Studio 3
Prerequisite: LAND 282 2.0 minimum
 This course involves the use of computer animation presentation software in the three-dimensional arena. Various 3-D presentation softwares will be utilized to create graphic animations and presentations. (F, Sp)

LAND 295 Landscape Project Lab 1-4
Prerequisite: Department Approval
 This project lab is designed for students who wish to pursue a specialty area in landscape architecture beyond that which is offered in our curriculum. Inquiry through research and design of landscapes is required. (F, Sp, Su)

LEGL - LEGAL ASSISTANT/LAW

LEGL 115 Legal Assistant Career/Ethics 3
Prerequisite: Reading Level 5 and Writing Level 6 and Department Approval
 Introduction to the legal assistant's role in the legal system, including essential skills used in the litigation process and law practice. Introduces student to legal terminology, legal analysis, procedural, and substantive law. Surveys paralegal employment and regulation. 2.0 minimum required to continue program. (F, Sp, Su)

LEGL 120 Legal Research I 3
Prerequisite: LEGL 115 2.0 minimum
Recommended: LEGL 215
 Introduces research procedures and resources for finding federal and Michigan law, using digests, encyclopedias, reporters, statutes, court rules, treatises, administrative publications, citators, etc. Students complete research assignments utilizing the publications; and the assignments must be completed using the Michigan Uniform System of Citation. Some classes may be at off-campus libraries. (F, Sp)

LEGL 121 Legal Writing I 3
Prerequisite: (WRIT 122 1.0 minimum or Writing Level 9) and LEGL 115 2.0 minimum and (LEGL 120 1.0 minimum or Concurrently)
Recommended: LEGL 215
 Students will learn to analyze court opinions and apply them to particular fact situations. This skill will then be used to write summaries of court opinions, legal memoranda, appellate briefs, and other legal documents. Learning methods include reading assignments, class discussion, lecture, and writing assignments of increasing difficulty. (F, Sp)

LEGL 160 Critical Thinking in Law 3
Prerequisite: None
 This course strongly emphasizes the "learn by doing" approach, specifically by utilizing group dynamics. The panorama of thinking skills, particularly those relevant in law and criminal justice, will be examined and practiced. Innovative evaluation skills, both personal and group, are a regular part of each session. (F, Sp, Su)

- LEGL 210 Litigation Procedures** 4
Prerequisite: LEGL 115 2.0 minimum
Recommended: LEGL 215
 Provides in-depth study of pre-trial, trial, and post-trial practice and procedure. Emphasizes Michigan and federal rules of court. Detailed study of drafting pleadings, discovery procedures, and case preparation for trial and appeal. Also covers evidentiary rules as they relate to trial practice and preparation. (F, Sp, Su)
- LEGL 211 Tort Law** 2
Prerequisite: LEGL 115 2.0 minimum
Recommended: LEGL 215
 Covers principles of negligence, intentional torts, and strict liability. Emphasizes the role of the legal assistant in dealing with these areas of law in actual practice situations. (F, Sp)
- LEGL 215 Busn Law I, Basic Principles** 3
Prerequisite: None
 Introduction to the legal system, its purpose, and the fundamental principles of various areas of the law. Course content includes sources of law, court procedures, contracts, torts, crimes, constitutional rights, no-fault auto insurance, landlord-tenant law, and bailments. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 216 Busn Law II, Commercial Law** 3
Prerequisite: LEGL 215 1.0 minimum
 An in-depth analysis of the Uniform Commercial Code allows students to explore the law of sales, commercial paper, secured transactions, banking, insurance, and debtor-creditor rights. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 217 Busn Law III, Busn Organiza** 3
Prerequisite: LEGL 215 1.0 minimum
 Introduces basic business organizations, including agency law, partnerships, sole proprietorships, and corporations. Additionally, the course will delve into government regulation of business, real estate, wills, trusts, and estates. Taught in traditional classroom style or via Computer Managed Learning (C.M.L.). (F, Sp, Su)
- LEGL 218 Litigation Specialties** 3
Prerequisite: LEGL 211 1.0 minimum
 Covers several specialty areas of law, including personal injury, professional malpractice, products liability, workers' compensation, and no-fault auto insurance. Emphasizes role of legal assistant in these practice areas, including drafting of pleadings and other legal instruments. (F, Su)
- LEGL 219 Adv Busn Law for Acct Majors** 4
Prerequisite: LEGL 215 1.0 minimum
Recommended: Accounting Background
 This self-paced course is intended for students majoring in accounting who have a goal of becoming a CPA. This course covers the law of sales; commercial paper; security devices; debtor-creditor relations; bankruptcy; insurance; agency; partnership; corporations; wills, trusts and estates; employment regulation; real property; and accountant's liability. This course is taught via Computer Managed Learning (C.M.L.). (F, Sp)
- LEGL 220 Internat Legal Issues/Organiza** 3
Prerequisite: LEGL 215 1.0 minimum
 This class will introduce global issues and organizations from the legal perspective and related economic and ethical perspectives. Cases based on events from around the globe will be used to illustrate principles, structures, and perspectives of citizens from many countries. Students will examine how these topics impact their daily activities. (Sp)
- LEGL 221 Real Estate Transaction** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 Covers fundamental principles of real estate property law and introduces the student to common types of real estate transactions encountered by a legal assistant in a typical real estate practice. Subject matter includes deeds, land contracts, mortgages, title insurance, environmental issues, forfeitures and foreclosures, and landlord-tenant relationships. (F)
- LEGL 222 Probate Law and Procedure** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 Probate process will be addressed in detail, from commencement of proceedings through closing the estate of a decedent. Other topics will include wills, trusts, guardianships, conservatorships, adoptions, and other probate court procedures. Emphasis is on the part played by the legal assistant in preparation of documents and other probate practice tasks. (Sp)
- LEGL 223 Domestic Relations** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 In-depth study of marriage, divorce, separation, annulment, paternity proceedings, custody, support, property division, and other areas of domestic relations law. Emphasis will be on the legal assistant's role in dealing with clients and applying appropriate statutes, case law, and court rules as part of a domestic law practice. (Sp)
- LEGL 224 Administrative Law** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 The relationship of governmental administrative agencies to private citizens is explored by studying how law is created and enforced by such agencies at the state and federal levels. Legal assistant students will focus on topics including rule making procedures, regulations, adjudication, licensing, and informal action. (Sp)
- LEGL 225 Legal Research and Writing II** 3
Prerequisite: LEGL 120 1.0 minimum and LEGL 121 1.0 minimum
 Reviews principles of legal research, analysis, and writing. Introduces student to computer-assisted legal research (LEXIS). Student will draft legal memoranda, opinion letters, and an appellate brief based on extensive research assignments in federal and Michigan publications. Some classes may be at off-campus libraries. (F, Sp, Su)
- LEGL 226 Legal Interview/Investigation** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 Interviewing and investigation methods including information gathering, analysis, and effective communication. Emphasis will be placed on the role of the legal assistant with numerous practical exercises. (F, Sp)
- LEGL 227 Bankruptcy and Collections** 3
Prerequisite: LEGL 115 2.0 minimum and LEGL 215 1.0 minimum
 Explores federal bankruptcy law and procedure with emphasis on the legal assistant's role in collecting information, interviewing clients, and preparing documents. Topics include a comparison of selected chapters within the bankruptcy code, exemptions, preferences, petitions, schedules, and the part played by the bankruptcy trustee. (Su)
- LEGL 228 Computer Tech for Legal Assist** 3
Prerequisite: LEGL 120 1.0 minimum
Recommended: Windows 95 and Keyboarding Experience
 This course focuses on computer technology as it is applied within the law firm, including the use of computers to perform legal assistant functions in litigation support, legal research, communication and case management applications, such as calendar and docket control, and checking conflicts of interest among clients. (F, Su)
- LEGL 280 Legal Assistant Internship** 3
Prerequisite: Department Approval
 Student will experience the paralegal career by working as a legal assistant in a supervised capacity. Placements include private law firms, governmental law offices, courts, corporations, and other law-related settings. Requirements include at least 160 hours in the workplace, weekly reports, periodic meetings, and performance evaluations by on-site supervisor. (F, Sp, Su)
- LING - LINGUISTICS**
- LING 230 Introduction to Linguistics** 3
Prerequisite: None
 Examines human language from the perspective of contemporary American linguistics: generative syntax, phonology, and morphology. Special attention to the structure of English. Considers regional and social variation, and implications for teachers of language skills. (F, Sp)
- MACH - MACHINE TOOL TECHNOLOGY**
- MACH 100 Manufacturing Processes** 4
Prerequisite: None
Recommended: MATH 050 or Math Level 4
 This course provides students with a comprehensive study of the materials, concepts, and processes used in modern manufacturing, augmented by field trips to local manufacturing plants. This course is designed for those who are pursuing careers in manufacturing design, engineering, and supervision. (F, Sp, Su)

MACH 105 Machine Tool Survey	3
Prerequisite: None	
Recommended: MATH 050 or Math Level 4	
Informs students of the machine tool principles and practices used in industry. Safety, terminology, measurement, and procedures are used to complete required projects. A working knowledge of hand and machine tools is achieved through a series of lectures, demonstrations, and hands-on projects. (F, Sp, Su)	
MACH 110 Machine Tool Technology I	4
Prerequisite: MACH 105 2.0 minimum	
Informs students of shop safety, shop terminology, hand tools, machine tools, measurement, and layout practices. To complete the course, a series of lectures, demonstrations, and projects are used to guide the students. The competency required to successfully complete this course is at the apprentice level. (F, Sp)	
MACH 111 Machine Tool Technology II	4
Prerequisite: MACH 105 2.0 minimum	
Recommended: MACH 110	
This course is structured to apply hands-on applications to metal working saws, mills, drills, and surface grinders. Bench work and layout procedures with technical terminology and mathematical applications are developed to the technical level of an apprentice. (F, Sp)	
MACH 112 Machine Tool Technology III	4
Prerequisite: MACH 110 2.5 minimum and MACH 111 2.5 minimum	
This course will use indexing, precision grinding, close tolerance milling, lathe work, and broaching to complete the required projects. The student will accomplish these goals by using modern machine shop technology, applied math skills, planning, and precision measuring instruments. (F, Sp)	
MACH 120 Effect Use Machinery Handbook	4
Prerequisite: None	
Recommended: MATH 114 or TECH 101	
Machinery's Handbook has been recognized as the "bible" for all phases of the metal working industry. This course will familiarize each student with the effective utilization of information contained in Machinery's Handbook. (F, Sp, Su)	
MACH 130 Die Construction	4
Prerequisite: None	
Recommended: MACH 110 and MACH 111	
This course will provide each student with a basic understanding of the essential principles of cutting and forming operations; die components such as punches, punch plates, die blocks, and strippers; and an in-depth knowledge of how to repair and maintain the equipment common to the die industry. (F, Sp)	
MACH 135 Metallurgy and Heat Treat	4
Prerequisite: None	
This course is designed to give students a working knowledge of the properties, uses, and heat treat processes of commonly used metals and alloys. The basic principles of metallurgy presented apply to the design, selection, processing, and testing of metal products. (F, Sp, Su)	
MACH 140 Tooling Theory and Practices	4
Prerequisite: None	
Recommended: MACH 110 and MACH 111	
This course examines tooling used in mechanical material removal. Tooling materials from high-speed steel to diamond will be discussed and demonstrated. Tooling geometry, resharpening methods, speeds and feeds, failure mechanisms, and problem diagnosis will be addressed. Students will analyze tooling performance and write up technical reports. (F, Sp)	
MACH 194 Machine Tool Tech Project Lab	4
Prerequisite: Department Approval	
Recommended: MACH 110 2.5 minimum or MACH 111 2.5 minimum	
An advanced course for students wishing to do in-depth work in the machine shop area or to develop trade-entry skills. Students select projects compatible with their individual fields of work. (Approval may be given to take this course twice for a maximum of eight credits.) (F, Sp, Su)	
MACH 210 Prin Electric Discharge Mach	4
Prerequisite: None	
Recommended: MACH 105 and MACH 111 and CNCP 110	
This course introduces the student to the fundamentals of Electrical Discharge Machining (EDM). Safety, principles of operation, programming, and operation of both Ram and Wire EDM are explored. Lectures, demonstrations, and projects are used. Projects assigned will require setup, programming, and operation of EDM machines. (F, Sp)	

MASG - MASSAGE THERAPY

MASG 270 Massage Therapy-Beginning	2
Prerequisite: None	
This course introduces the student to Swedish massage. The student will learn the history, theory, terminology, physiology, and techniques of Swedish massage. (F, Sp, Su)	
MASG 271 Massage Therapy-Intermediate	2
Prerequisite: MASG 270 2.5 minimum	
Following a review of MASG 270 the student is introduced to specialized massage techniques. The student will learn contraindicated techniques, and exploration of Swedish acupressure. (F, Sp, Su)	
MASG 273 Human Structural Dynamics	2
Prerequisite: ANAT 145 2.5 minimum	
This course will provide the massage therapy student with an in-depth view of the areas of anatomy which are particular to massage, primarily within the musculoskeletal and nervous systems. (F, Sp)	
MASG 274 Massage Laboratory	2
Prerequisite: MASG 271 2.5 minimum or Concurrently	
This course is designed for students who intend to complete the Massage Therapy Certificate of Completion curriculum. It will provide the student with supervised practice of massage techniques in basic massage, polarity therapy, clinical, and sports massage. (F, Sp)	
MASG 275 Touch for Health	1
Prerequisite: None	
This course introduces the student to the combination of ancient Oriental disciplines with the modern practice of applied kinesiology. The student will learn basic muscle techniques to improve postural balance, which can affect the mental, emotional, and physical state. (F, Sp)	
MASG 277 Polarity Therapy I	2
Prerequisite: None	
This course introduces the student to polarity therapy as a form of massage that balances the life energy of the physical body. Hands-on application of balancing techniques, basic theory, and philosophy are taught to enhance relaxation and awareness of energy flow in the body. (F, Sp)	
MASG 278 Polarity Therapy II	2
Prerequisite: MASG 277 2.5 minimum	
This course will deepen the student's understanding of polarity therapy. Advanced hands-on techniques and sequences will be taught to balance the various energy patterns of the physical body. Lectures will be on the philosophical, energetic, and spiritual principles that sustain and vitalize the physical form. (F, Sp)	
MASG 279 Business Applications/Masg	2
Prerequisite: MASG 270 2.5 minimum	
This course introduces students to aspects of business and marketing in the field of massage and body work. Emphasis is placed on development of a professional and personal business sense and philosophy using planning and persistence, client-practitioner relationships and ethics, research, marketing strategy, goal-setting, motivation, and professional legalities. (F, Sp)	
MASG 280 Clin Approach Therap Massage	3
Prerequisite: MASG 271 2.5 minimum and MASG 273 2.5 minimum	
The student will learn various therapeutic massage techniques and related therapies that will help relieve tension and pain in the musculature. Course includes contraindications, client-therapist relationship, health evaluations, draping procedures, and anatomy/physiology review pertinent to therapeutic massage. (F, Sp)	
MASG 281 Sports Massage Techniques	2
Prerequisite: MASG 280 2.5 minimum	
The student will learn various massage techniques and related therapies that are specifically beneficial to the athlete. Application to pre-, inter-, and post-athletic event and athletic training massage will be emphasized. (F, Sp)	

MATH – MATHEMATICS

MATH 001 Math Minus Anxiety Workshop	5
Prerequisite: None	
A workshop for adults who feel insecure about doing mathematics and need help and encouragement to succeed in math. The workshop uses technology and diverse real world applications to improve problem solving techniques, math study skills, and reduce math anxiety. Students at any math level may enroll. (F, Sp)	
MATH 050 Math-Principles and Practices	4
Prerequisite: (MATH 030 2.0 minimum or MATH 033 2.0 minimum or Math Level 3) and Reading Level 3 and Writing Level 2	
This course reviews mathematical operations involving fractions and decimals. Topics include percents, ratios, proportions, U.S. and metric measurements, integers, statistical graphs, Pythagorean Theorem, perimeter, area, and volume. It also introduces algebraic concepts using expressions and equations. Problem solving, estimation, and reasoning skills are taught. The calculator and real-life applications are integrated throughout the course. (F, Sp, Su)	
MATH 103 Introductory Algebra, Part A	2
Prerequisite: (MATH 050 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 2	
Graphing Calculator required. This course is the first half of MATH 107. Topics include properties of real numbers and exponents, variable expressions, solving linear equations, polynomial operations, ratio and proportion, graphing, solving systems of equations, and inequalities. Graphing calculator, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)	
MATH 104 Introductory Algebra, Part B	2
Prerequisite: (MATH 103 2.0 minimum or Math Level 4 or MATH 103 Proficiency Test) and Reading Level 5 and Writing Level 2	
Graphing Calculator required. This is the second half of MATH 107. Topics include properties of exponents, polynomial operations, solving quadratic equations, factoring polynomials, rational expressions and equations, and radicals. Graphing calculator, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)	
MATH 107 Introductory Algebra	4
Prerequisite: (MATH 050 2.0 minimum or Math Level 4) and Reading Level 5 and Writing Level 2	
Graphing Calculator required. Topics include properties of real numbers and exponents, variable expressions, solving linear and quadratic equations, polynomial operations including factoring, graphing, solving systems of equations, rational expressions and equations, ratio and proportion, radicals, and inequalities. Graphing calculator, diverse, real-life applications, and geometry are integrated throughout the course. (F, Sp, Su)	
MATH 112 Intermediate Algebra	4
Prerequisite: (MATH 104 2.0 minimum or MATH 107 2.0 minimum within 2 years or Math Level 5) and Reading Level 5 and Writing Level 4	
Graphing calculator required. This is an extension of beginning algebra, using the graphing calculator, with emphasis on graphing and diverse, real-life applications, including linear, quadratic, rational, and other functions. Also emphasized are polynomials, rational expressions, radicals, rational exponents, equations, inequalities, systems of equations, with an introduction to complex numbers, interpreting data and matrices. (F, Sp, Su)	
MATH 114 Technical Math I	4
Prerequisite: (MATH 050 2.0 minimum or Math Level 4) and Reading Level 3	
This course introduces and/or reviews algebra, geometry, and trigonometry. Topics include order of operations, simplifying algebraic expressions, powers, roots, formulas, area, volume, ratio and proportion, linear and quadratic equations, linear systems of equations, graphing, angles, triangles, Pythagorean Theorem, and right triangle trigonometry. Emphasis is placed on problem-solving techniques for technical applications. (F, Sp, Su)	
MATH 115 Technical Math II	4
Prerequisite: MATH 114 2.0 minimum and Reading Level 5	
A continuation of MATH 114. Topics include: congruent and similar triangles; polygons; circles with angles, chords, and tangents; applications of right and oblique triangles using the Pythagorean Theorem, trig functions, law of sines, law of cosines, and law of cotangents. Emphasis is placed on problem-solving techniques for technical applications. (F, Sp, Su)	
MATH 116 Technical Math III	4
Prerequisite: MATH 115 2.0 minimum	
This course combines solid geometry and solid trigonometry, enabling students to solve problems involving angles in three-dimensional space in industrial applications. Emphasis on applications of actual tooling setups for complex machining operations is used to make the course relate to real-life situations. (F, Sp, Su)	
MATH 117 Math for Business	4
Prerequisite: (MATH 104 2.0 minimum or MATH 107 2.0 minimum or Math Level 5) and Reading Level 5 and Writing Level 4	
This course surveys math applications in business. Applications representing management, marketing, finance, accounting, and statistics are used. Analysis of situations in business and correct use of business theory is emphasized in addition to accuracy in math. (F, Sp, Su)	
MATH 121 College Algebra I	4
Prerequisite: (MATH 112 2.0 minimum or Math Level 6) and Reading Level 5 and Writing Level 4	
First in two-course sequence. Graphing calculator required. Topics include functions, mathematical models, symmetry, absolute value, distance, solving equations algebraically and graphically, solving inequalities, linear functions, quadratic functions, geometric transformations, real and complex zeros, and rational, radical, exponential, and logarithmic functions. Degree credit may not be earned in both MATH 121–122 and MATH 126. (F, Sp, Su)	
MATH 122 College Algebra II and Trig	3
Prerequisite: (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
Second in a two-course sequence. Graphing calculator required. Topics include right triangle trigonometry, reference angles, graphing, identities, inverse trig functions, law of sines and cosines, binomial theorem, systems of linear equations, vectors, sequences, mathematical induction, series, permutations, and combinations. Degree credit may not be earned in both MATH 121–122 and MATH 126. (F, Sp, Su)	
MATH 126 College Algebra and Trig	5
Prerequisite: (MATH 112 3.5 minimum or Math Level 7) and Reading Level 5 and Writing Level 4	
This is a very intensive course which covers the same material as that in MATH 121 and 122. Topics include functions, absolute value, solving equations and inequalities, graphing, linear and quadratic functions, zeros, rational, radical, exponential, logarithmic and trigonometric functions, right triangle trigonometry, law of sines and cosines, DeMoivre's Theorem, binomial theorem, vectors, sequences, mathematical induction, and series. Degree credit may not be earned in both MATH 126 and MATH 121–122. (F, Sp)	
MATH 130 Finite Mathematics	3
Prerequisite: (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
This is an alternate course to MATH 122 for students whose programs do not require trigonometry. Topics studied include mathematics of finance, matrices, linear programming, permutations, combinations, probability, random variables, game theory, and Markov chains. In addition, students will solve applied problems by completing required computer assignments. (F, Sp, Su)	
MATH 141 Calculus with Applications	3
Prerequisite: (MATH 121 2.0 minimum or MATH 126 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4	
This course is for students in business, economics, social science, life sciences, and other areas not requiring a rigorous study of calculus. Topics studied include limits, derivatives, and integrals with an emphasis on applications to the above-mentioned disciplines. (F, Sp, Su)	

- MATH 151 Calculus I** 4
Prerequisite: (MATH 122 2.0 minimum or MATH 126 2.0 minimum or Math Level 9) and Reading Level 5 and Writing Level 4
 The first course in a three-semester calculus sequence. Topics include limits, continuity, derivatives of algebraic, trigonometric, exponential and logarithmic functions, linear approximation, integration, and the fundamental theorems of calculus. Applications of the calculus to both physical and geometric problems are emphasized. (F, Sp, Su)
- MATH 152 Calculus II** 4
Prerequisite: MATH 151 2.0 minimum and Reading Level 5 and Writing Level 4
 The second course in a three-semester calculus sequence. Topics include techniques and applications of integration, L'Hopital's rule, derivatives of inverse trigonometric functions, improper integrals, sequences and infinite series, power series representation of functions, conic sections, and polar coordinates. (F, Sp, Su)
- MATH 201 Math for Liberal Arts I** 3
Prerequisite: (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 6
 Topics studied provide an understanding of what mathematics is. Topics include analysis and interpretation of data, application of functions, the real numbers, bases other than 10, *n*-gons, golden figures, and tiling. A strong historical theme is present throughout. The student is involved in concept development as well as in finding answers. (F, Sp, Su)
- MATH 202 Math for Liberal Arts II** 3
Prerequisite: MATH 201 2.0 minimum and Reading Level 5 and Writing Level 6
 Topics studied provide an understanding of what mathematics is. Topics include number theory, logic, calculus, mathematical games, graph theory, trigonometry, and algorithmic reasoning. A strong historical theme is present throughout. The student is involved in concept development as well as in finding answers. (F, Sp, Su)
- MATH 253 Calculus III** 4
Prerequisite: MATH 152 2.0 minimum and Reading Level 5 and Writing Level 4
 The last course in a three-semester calculus sequence. Multivariable calculus and vector analysis are studied. Topics include vector algebra, curves and surfaces in 3-space, vector valued functions, partial derivatives, multiple integrals, and line integrals. Applications of all these topics are presented. (F, Sp, Su)
- MATH 254 Intro: Differential Equations** 3
Prerequisite: MATH 253 2.0 minimum and Reading Level 5 and Writing Level 4
 An introduction to the basic methods for solving ordinary differential equations. Topics include the methods of undetermined coefficients, variation of parameters, series, Laplace transforms, and numerical methods. Applications are emphasized. (F, Sp, Su)
- MATH 260 Linear Algebra** 3
Prerequisite: MATH 253 2.0 minimum and Reading Level 5 and Writing Level 4
 This introduction to linear algebra includes the study of systems of linear equations, matrix algebra, vector spaces, linear transformations, eigenvalues and eigenvectors, with applications. (F, Sp, Su)
- MATH 281 Honors Math Seminar I** 1
Prerequisite: MATH 151 2.0 minimum and Department Approval
 Students solve a set of challenging mathematics problems which are not normally encountered in other classes. Creative and independent thinking is encouraged and developed. (Sp)
- MATH 295 Independ Study in Mathematics** 1-4
Prerequisite: Department Approval
 An independent study in some area of mathematics not covered by an existing course. Student works independently under the supervision of a faculty member. Student devotes three or more hours per week to this study in addition to their work with the assigned instructor. (F, Sp, Su)

MEDA - MEDICAL ASSISTANT

- MEDA 100 MA Administrative/Communicat** 3
Prerequisite: Admission to Medical Assistant Program
Co-requisite Courses: MEDA 131 and MEDA 141
 Introduction to role of medical assistant administrative/clinical functions: professionalism, written communication, telephone communication, scheduling, referrals, filing, medical records management, processing incoming and outgoing mail, pegboard system, and basic banking functions. Also provides students with an understanding of interpersonal skills. (F)

- MEDA 131 Clinical Skills I** 3
Prerequisite: Admission to Medical Assistant Program
Co-requisite Courses: MEDA 100 and MEDA 141
 Designed to provide knowledge in clinical skills relating to the following topics: universal precautions; vital signs, health history and physical examination, infection control, instrument sanitation, disinfection and sterilization, problem-oriented medical records, and physical therapy. (F)
- MEDA 132 Clinical Skills II** 3
Prerequisite: AHCC 112 2.5 minimum and CHSE 111 2.5 minimum and CHSE 122 2.5 minimum and MEDA 100 2.5 minimum and MEDA 131 2.5 minimum
Co-requisite Course: MEDA 142
 Designed to cover both in theory and campus lab the more advanced technical skills necessary to perform in the clinical setting. Skills and procedures covered will include surgical asepsis, minor surgery assisting, electrocardiography, medication administration, radiography, and nutrition. (Sp)
- MEDA 141 Basic Medical Laboratory Proc** 2
Prerequisite: Admission to Medical Assistant Program
Co-requisite Courses: MEDA 100 and MEDA 131
 This course introduces the student to the clinical laboratory. Laboratory organization and safety will be discussed. Quality assurance issues will be emphasized. Basic principles and procedures for laboratory tests will be presented including collection and preparation of specimens, venipuncture, capillary puncture, urinalysis, and hematological testing. (F)
- MEDA 142 Adv Medical Laboratory Proc** 2
Prerequisite: AHCC 112 2.5 minimum and CHSE 111 2.5 minimum and CHSE 122 2.5 minimum and MEDA 100 2.5 minimum and MEDA 131 2.5 minimum and MEDA 141 2.5 minimum
Co-requisite Course: MEDA 132
 This course enables the student to understand and perform some of the more complex laboratory tests performed in medical offices. Basic pathophysiology will be discussed. Tests from the following areas will be covered: clinical chemistry, immunology, microbiology, and hematology. Collection and preparation of specimens, etc. (Sp)
- MEDA 181 Administrative Practicum** 2
Prerequisite: AHCC 110 2.5 minimum and MEDA 132 2.5 minimum and MEDA 142 2.5 minimum and OADM 207 2.5 minimum
Co-requisite Course: MEDA 182
 Administrative practicum is designed to provide application of administrative theory. This course is programmed with specific performance objectives and activities. (Su)
- MEDA 182 Clinical Practicum** 2
Prerequisite: AHCC 110 2.5 minimum and MEDA 132 2.5 minimum and MEDA 142 2.5 minimum and OADM 207 2.5 minimum
Co-requisite Course: MEDA 181
 Clinical practicum is designed to provide application of theory and practice relevant to the clinical skills required of a medical assistant. The course is designed with specific performance objectives and activities. (Su)

METR - METEOROLOGY

- METR 220 Introduction to Meteorology** 4
Prerequisite: Reading Level 5 and Writing Level 4 and Math Level 5
 This course includes a study of the interrelationships of the elements (temperature, moisture, pressure, wind) that create weather. Human-atmospheric interactions (e.g., pollution, severe weather, greenhouse effect), world climate, and climatic change are also discussed. Laboratory includes making weather observations and measurements, and learning how to draw and interpret weather maps. (F)

MFGM - MANUFACTURING MAINTENANCE

- MFGM 101 Industrial Hydraulics** 4
Prerequisite: None
 Industrial hydraulics introduces the theory of fluid power and circuits covering pumps, pressure valves, flow valves, cylinders, filters and motors, etc., as they are used in industry today. This will be done with lectures and labs related to each of the respective components. (F, Sp, Su)

MFGM 102 Industrial Pneumatics	3
Prerequisite: None	
Introduces the students to the theory of industrial pneumatic systems. The theory of gas laws, pumps, filters, valves, etc., will be discussed as they are applied to the industrial pneumatics systems. The use of lecture and labs will give the students a hands-on approach to the use of pneumatics. (F, Sp)	
MFGM 110 Machine Maintenance I	4
Prerequisite: None	
Theory and industrial application of machine repair, preventive maintenance, safe practices and troubleshooting, with actual dismantling and rebuilding of tool room machines. (F, Sp)	
MFGM 111 Machine Maintenance II	4
Prerequisite: MFGM 110 2.0 minimum	
Advanced theory and practice of machine tool repair including preventive maintenance. The theory and repair of pumps and pneumatic tools will be covered. (F, Sp)	
MFGM 120 Industrial Presses	4
Prerequisite: None	
Covers different types of mechanical presses, terminology, purposes, and functions in industry. Includes movies and slides of mechanical action, maintenance systems and safety, supplemented by visits to plants using presses and press repairs. For mechanical trades apprentices, press repair and maintenance people, stamping plant employees, press operators, and die setup employees. (F, Sp)	
MFGM 125 Rigging	2
Prerequisite: None	
Covers uses and strengths of ropes, chains, block and tackles, and the construction and erection of gin poles, with a study of rope knots used in rigging. Safe working strength of slings, hooks, sheaves, ropes and chains, and the use of personal safety equipment will be covered. (F, Sp)	
MFGM 170 Fork Lift Truck Driver Train	5
Prerequisite: None	
Students will learn the basic safety guidelines and basic operational procedures of industrial fork trucks. The instruction will combine lecture, written materials, and hands-on operation of a fork truck. (F, Sp, Su)	

MGMT - MANAGEMENT

MGMT 200 Creative Thinking for Business	3
Prerequisite: None	
Recommended: Have Taken at Least Two or More BUSN, MGMT or Business Experience	
This course is designed to develop thinking skills and break down barriers to creativity. An experiential approach is used to apply both critical and creative thinking skills to business situations. (F, Sp)	
MGMT 223 Supervision	3
Prerequisite: None	
This course presents supervisory principles and practices for first-line supervisors. Managerial functions of planning, organizing, staffing, directing, and controlling are discussed, along with policies, decision-making, and the responsibilities of supervisors for overall work performance and employee development and evaluation. (F, Sp)	
MGMT 224 Human Resource Management	3
Prerequisite: None	
This is a survey course which examines the role of human resources management and its contribution to the total management effort. Emphasis will be placed on the evolution of human resource management, recruitment and selection, appraising and improving performance, compensation and incentives, safety and health, employee-management relations, and current legislation. (F, Sp)	
MGMT 225 Principles of Management	3
Prerequisite: None	
This course is designed to reflect the dynamics of our changing world and to provide students with an introduction to some of the issues, topics, and processes that managers face. Covers such topics as management functions and processes, quality, ethics, global issues, and the challenges and opportunities of diversity. In this course students will manage themselves and their learning. (F, Sp, Su)	

MGMT 227 Training/Development for Busn	2
Prerequisite: None	
Training and development for business is a course designed to cover all aspects of training in the business environment. The course will focus on assessing training needs, identifying training barriers, curriculum design, instructional techniques, evaluation, and adult learning theory. (Sp)	
MGMT 228 Organizational Behavior	3
Prerequisite: None	
Examines the dynamics of relationships at work. Integrates and applies behavioral and social science knowledge, using a systems approach, and focusing on the nature of both people and organizations. Students will study individual and group behavior and will have opportunities to work on skills necessary for successful interaction in organizations. (F, Sp)	
MGMT 229 Compensation Management	3
Prerequisite: MGMT 224 1.0 minimum	
Recommended: LABR 204	
Students will gain a practical understanding of the principles and applications of compensation management. Students will study the theories, behaviors, and legal constraints affecting compensation practices, including job analysis, job evaluation methodologies, labor market surveys, variable pay approaches, and the administration of legally mandated and voluntary employee benefit programs. (F)	
MGMT 231 Team Development	3
Prerequisite: None	
This course defines and examines team building, team leadership, and self-managed teams in the context of today's workplace. Students develop skills in writing team mission and vision statements, and team goals and action assignments. Students will develop skills in chartering, problem solving, decision-making, conducting effective meetings and work sessions, negotiating, and presenting. (F, Sp)	
MGMT 234 Diversity in the Workplace	3
Prerequisite: Reading Level 5	
This course explores cultural, gender/sexual, physical, and other minority experiences in the workplace and in the world. The management of human resources will be examined from a global perspective. Emphasis is on helping the majority and the minority become aware of the other's opinions, feelings, and perspective. Instruction takes an experiential, awareness training approach. (F, Sp)	
MGMT 237 Managing/Continual Improvement	3
Prerequisite: None	
Provides an introduction to concepts of quality, continual improvement, systems thinking, and other new management practices. Covers the history of the quality movement including key thinkers/leaders. Explores new ways of thinking and leading, methods for continual improvement teams, empowerment, and "learning organizations." (F, Sp)	
MGMT 239 Time and Stress Management	3
Prerequisite: None	
Explores relationship between time and stress management: stress is the causal factor for many of our physical and psychological problems. Suggests methods for harnessing its energy positively. Techniques and strategies for wise utilization of time and energy. Emphasis on creating action plan and initiating corrective actions. (F, Sp)	
MGMT 240 How Manager Make Things Happen	2
Prerequisite: None	
This practical skills-building program concentrates on the functions that most often determine management success. Students will learn how to improve their performance in key areas by analyzing their job, breaking it down into functional components, spotting weaknesses, and taking concrete action to turn them around. (F, Sp, Su)	
MGMT 241 How Successful Women Manage	1
Prerequisite: None	
This course is an overview of the various functions and processes involved in management. Students will explore possible explanations for women's slow rate of progress in attaining managerial positions. It is enlightening and an absolute must for any woman who is considering entering or is now a part of management. (F, Sp, Su)	

MGMT 242 Mgrs Guide/Working With People 1
Prerequisite: None
 Managers who want to work effectively with people—both on and off the job—will find this course full of valuable information. Students will acquire an understanding of human needs and motivation, leadership styles, problem-solving techniques, and effective methods for being assertive. Students will also learn how to deal with difficult behavior through positive work strategies. (F, Sp, Su)

MGMT 243 How to Delegate Effectively 1
Prerequisite: None
 This course will show students how to increase their productivity through delegation. It is designed to increase comfort with the delegation process, and demonstrates how this method of organizing and dispersing work can help improve everyday job performance. (F, Sp, Su)

MGMT 244 Supervisory Management 2
Prerequisite: None
 This course is designed to help managers at all levels to develop, enhance, and update their skills. Major areas of emphasis include planning, operating, controlling, personnel functions, decision-making, job design, job analysis, and quality control within the department. (F, Sp, Su)

MGMT 245 Leadership Skills for Managers 1
Prerequisite: None
 In this course, the student will discover the secrets of great leadership and learn about the four basic leadership styles. You will master the art of goal-setting, find your most effective leadership style, and know when to use the right style at the right time. (F, Sp, Su)

MGMT 246 Fundamental MOD Personnel Mgmt 1
Prerequisite: None
 An organization's success often rests on the management of its staff. This course provides managers with comprehensive ideas and techniques for human resources programs that increase productivity and profits. (F, Sp, Su)

MGMT 247 Be a Successful Project Mgr 1
Prerequisite: None
 Gain a comprehensive understanding of the techniques and methodology needed to plan and control any project—large or small—in any industry. Students will examine both basic and sophisticated tools, and learn how to use those tools as decision aids during a project's tracking and controlling phase. (F, Sp, Su)

MGMT 248 Team Building 1
Prerequisite: None
 More than ever, teams are a vital force in today's working environment. This course presents positive, practical methods for building and managing effective teams. Learn how to build trust, confidence, and group work skills; and how to balance and fine-tune the team process. Participants will focus on key aspects of team building, ranging from recruitment to empowering team members with authority and responsibility. (F, Sp, Su)

MGMT 249 Dealing with Difficult People 1
Prerequisite: None
 Discover how seasoned managers cope with difficult personalities in the workplace. This course covers effective communication, motivational, and conflict resolution approaches used by experienced managers. Students will also learn how to avoid difficult behaviors by instituting positive work strategies, structures, and values before problems develop. (F, Sp, Su)

MGMT 250 Fundament Fin/Acct/Non-Fin Mgr 2
Prerequisite: None
 Provides the manager with an understanding of finance. This course will help students learn to read and interpret financial statements, annual reports, and balance sheets. This course will help students use financial and accounting data more effectively. (F, Sp, Su)

MGMT 251 Communication Skills for Mgrs 1
Prerequisite: None
 All managers have a basic tool they can use to effectively get messages across to staff and colleagues: communication. This course presents practical applications for communicating such as writing effective letters, memos and reports, running meetings, conducting interviews, and listening. (F, Sp, Su)

MGMT 252 Deliver a Winning Presentation 1
Prerequisite: None
 This course will provide the student with a basic awareness of the steps necessary for making an effective oral presentation. It is designed for anyone who wants to reduce the fear of public speaking by learning how to deliver presentations. (F, Sp, Su)

MGMT 253 How to Write Winning Reports 1
Prerequisite: None
 This course helps students develop a more concise straight forward writing style. It will help the student express ideas more clearly in memos, letters, and reports. (F, Sp, Su)

MGMT 254 How to Write a Business Plan 2
Prerequisite: None
 This course is designed for managers who want to give real meaning and power to their company's business plan. Participants will learn how to develop realistic action programs and responsibility plans for allocating scarce resources, installing workable monitoring and control systems, and creating supportive policies and procedures. (F, Sp, Su)

MGMT 256 Strategic Plan/Entrepren Bush 1
Prerequisite: None
 Owners and managers of new and growing businesses, or of companies that operate within an entrepreneurial environment, will learn how to prepare a strategic plan. Students will learn about organizational charts, goal-setting matrices, diagnostic summary sheets, and checklists—all designed to help them create a plan that works. (F, Sp, Su)

MGMT 257 Using Math as a Business Tool 1
Prerequisite: None
 This course is designed to increase familiarity with formulas and calculations most frequently used in business. Participants will learn to apply various ratios to test a company's strength, use statistical tools to read results more accurately, forecast more reliably, and assess the viability of a project through break-even analysis. (F, Sp, Su)

MGMT 258 Strategic Resúmes 1
Prerequisite: None
 The resúme is a sales tool for finding new career opportunities. Students will rethink their personal marketing tool, develop strategies, marshal resources, and create a packaged strategic, concise resúme to help the applicant stand out and be noticed. (F, Sp, Su)

MGMT 260 How to Analyze the Competition 2
Prerequisite: None
 This course will enable students to pinpoint competitors' strengths and weaknesses so students can identify and act upon competitive challenges before they occur. The course assists students in the design, implementation, and management of a competitor "intelligence" system. (F, Sp, Su)

MGMT 261 Psychology of Selling/Winning 1
Prerequisite: None
 This course helps students realize their full potential for total success. It goes beyond positive thinking or other motivational programs to offer the key that unlocks inner power. It teaches participants what to do to become top professional salespeople and what they should do in order to sell successfully. (F, Sp, Su)

MGMT 262 Keep Satisfied Customers 1
Prerequisite: None
 This course is designed to help simplify the task of keeping customers satisfied. The ultimate goal of this course is to help improve students' abilities to communicate effectively with customers. (F, Sp, Su)

MGMT 263 Successful Marketing/Serv Org 1
Prerequisite: None
 Marketing concepts long associated with manufactured goods are now applied to the service sector. Learn how to create services for markets rather than markets for services. This course is designed for service company managers and others who need to sharpen their competitive edge. (F, Sp, Su)

MGMT 264 How to Write a Marketing Plan 2
Prerequisite: None
 This course is designed for future or current small business owners, marketing managers, product managers, and others responsible for creating the marketing plan. Students will learn how to fuse vital elements to create a marketing plan that is right for their product line, service department, company, or organization. (F, Sp, Su)

MGMT 265 WWW Skills: Busn/Personal Dev 1
Prerequisite: None
 This course is designed for individuals who wish to benefit from online knowledge—the information superhighway. Included is a highly visual introduction to the World Wide Web, with Windows overview and basic WWW skills. Students will be introduced to Web page creation. The course is designed for interactive WWW learning or reading. (F, Sp, Su)

MGMT 266 Enter International Markets 2
Prerequisite: None
 International trade and marketing is growing rapidly in business. This course will help the student to capitalize on "going global" by providing information on how to research resources, learn terminology, and develop foreign market entry strategy. It is designed for the individual entrepreneur or a manager wishing to improve the bottom line. (F, Sp, Su)

MGMT 268 Organizing Your Workspace 1
Prerequisite: None
 Organization is a skill that is easy to learn. Personal productivity is reduced by as much as 20 percent or more from ineffective organization of the workspace environment. This course is for anyone who experiences "clutter" in their daily activities. The student will get organized and stay organized as technology impacts the way we work. (F, Sp, Su)

MGMT 270 Time and Stress Management 1
Prerequisite: None
 Time management techniques can be applied to both personal and professional situations. Learners will discover basic principles of time management, and will also become aware of positive and negative stress, relaxation and balance techniques, and ways to reduce stress through changes in lifestyle. (F, Sp, Su)

MGMT 271 Managing/Resolving Conflict 1
Prerequisite: None
 Conflict can be managed and yield positive results. Students of this course will gain practical knowledge, learn proven techniques, and acquire psychological insights they can use to resolve conflicts successfully. This course uses case studies, critical incidents, and realistic examples of conflict resolution to teach crucial skills. (F, Sp, Su)

MGMT 272 Success Through Assertiveness 1
Prerequisite: None
 This course will help to put participants in command of their career in order to respond to difficult situations according to individual desires, interests, and feelings. Participants will learn how being properly assertive at the right times and in the right place can help them achieve their goals. (F, Sp, Su)

MGMT 273 Assess Prsnal Interactn Skills 1
Prerequisite: None
 This course is designed to increase awareness of personal styles and preferences for interacting with others. It is also designed to heighten awareness of styles and preferences of people with whom the student interacts daily. (F, Sp, Su)

MGMT 274 Personal Financial Planning 2
Prerequisite: None
 This course will show students how to start building financial security. It emphasizes spending strategies and capital-building techniques rather than housekeeping methods. The course is designed for anyone. (F, Sp, Su)

MGMT 275 How to Build Memory Skills 1
Prerequisite: None
 This course is designed to help the student apply the skills that increase ability to obtain and utilize information. The result of using improved listening and memory skills will help realize leadership potential. (F, Sp, Su)

MGMT 276 How to Improve Writing Skills 1
Prerequisite: None
 This course helps students strengthen their skills in key communication areas by knowing how to properly use words and phrases associated with business. (F, Sp, Su)

MGMT 277 Speed Learning 1
Prerequisite: None
 This course offers an entirely different way to read that reduces reading time while increasing comprehension. It teaches how to organize thinking systematically so the reader can learn quickly and efficiently in all reading situations. (F, Sp, Su)

MGMT 278 Creative Fund-Raising 2
Prerequisite: None
 As traditional funding sources become scarce, creative fund-raising is critical for an organization's survival. This course will guide the student through the process of defining fund-raising in an organization, identifying grant resources, and developing donors through special events. The student will design a strategic fund-raising plan for the solicitation and creative utilization of resources. (F, Sp, Su)

MGMT 279 Learn APA Write Style for Bus 1
Prerequisite: None
 This course offers a self-paced, hands-on opportunity to learn the rules and style of the Publication Manual of the American Psychological Association. Practice is emphasized, not memorization, allowing the student to use APA as a skill or tool for improving business report writing skills. (F, Sp, Su)

MGMT 280 Management Internship 3
Prerequisite: Department Approval
Recommended: Have Completed a Minimum of 30 Credits
 Internships provide students with actual job training and experience by working with business owners and/or managers in organizing and/or operating a business. Minimum of 160 hours of work required. (F, Sp, Su)

MGMT 300 Managerial Leadership 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses, and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Provides an overview of the changing roles of leadership within an organization. A review of historical perspectives in managerial leadership lays a foundation for exploration of the emerging roles and functions of leadership in today's changing environments. Theories and skills are applied to a variety of organizational settings. (F)

MGMT 304 Organizational Development 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Based on the assumption that all managers must recognize, plan for, and manage organizational change, this course examines the process of improving organization effectiveness by means of a systematic change program. Students practice identifying problems, selecting appropriate interventions, building action plans, and developing facilitator skills. (F, Sp)

MGMT 329 Adv Mgmt Communication Skills 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 This is an advanced course in interpersonal communication skills for business. It includes components of listening, interpersonal communication, oral presentations, interviewing techniques, meeting management, business report writing, and persuasive speaking. This class is both informational and experiential. (F, Sp)

MGMT 332 Managerial Ethics 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Designed to sensitize participants to the impact of ethics on decision-making, both personal and organizational. Participants will examine the basis for the behavior of managers, their own behavior, various means of controlling organizational behavior, and the bases for ethical standards. (F, Sp)

MGMT 335 Managerial Statistics 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Application of statistical tools and techniques to improve decision-making processes and reduce managerial decision difficulty from less-than-perfect data. Includes sampling, description of sample data, methods of averaging, standard deviation, probability theory, estimation, and hypothesis testing. (F, Sp)

MGMT 337 Human Resource Mgmt Skills 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Skill areas involved in the management of human resources are developed. Techniques for setting objectives with employees, conducting performance appraisals, and working with employee problems are practiced. Students plan techniques for managing teams and for leading and motivating employees. (F, Sp)

MGMT 338 Current Topics in Management 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 Study of specific topics and issues in today's society that affect managerial decisions. Students explore internal and external constraints on actions. External factors considered are legal, social, educational, and political. Special emphasis is given to international events impacting domestic management practices. Internal factors considered are shareholders, employees, and customers. (F)

MGMT 339 Mgmt Styles/Corp Strategies 3
Prerequisite: None
 Numerous current materials relating to management styles and corporation strategies in Japan will acquaint the student with management as practiced in Japan. Japanese management practices are presented as an alternative managerial style for the United States to explore. (This course is offered only as part of the Japan Adventure Program.) (Sp, Su)

MGMT 346 Managerial Finance 3
Prerequisite: None
Recommended: Have Taken Previous MGMT Courses and/or are Enrolled in the Northwood 3+1 Program, or Have Management Work Experience
 This course is designed to provide necessary and practical skills to deal with financial matters and communicate with people who specialize in finance. Topics covered include basic financial analysis, short-term and long-term financing, financial planning, and managing the finance function. (F, Sp)

MGMT 348 Strategic Management/Policy 3
Prerequisite: (MGMT 225 1.0 minimum or MGMT 300 1.0 minimum) and Any Northwood 3+1 Program, or Have Management Work Experience
 This course pulls together learning from the areas of management and marketing to gain an overall organizational perspective which is applied to strategic plan formulation and implementation for the whole organization. The process involves pursuing organizational mission while managing the relationship of the organization to its environment. (F)

MICR - MICROBIOLOGY

MICR 203 Microbiology 3
Prerequisite: Reading Level 5 and Writing Level 6 and Math Level 4
Recommended: Biology and Chemistry
 An introduction to bacteria, viruses, and other microorganisms as they relate to human health. Emphasis on bacterial and viral structure, life cycles, and genetics; antimicrobial therapy; immunology and host defenses; and the epidemiology, treatment, and prevention of selected infectious human diseases. (F, Sp, Su)

MICR 204 Microbiology Laboratory 1
Prerequisite: MICR 203 2.0 minimum or Concurrently
 Basic laboratory principles of microbiology for allied health students. Emphasis on microscopy, aseptic cultivation of microorganisms, differential staining, assays of antimicrobial agents, and diagnostic laboratory techniques. Students will identify unknown bacterial species and examine medically important parasites. (F, Sp, Su)

MILS - MILITARY SCIENCE

MILS 101 Leadership: Military Profession 1
Prerequisite: None
 This course analyzes the military profession and organization of the U.S. Army from several academic perspectives and explores the technical, ethical, and personal ramifications of service as an officer in the U.S. Army. This course provides an introduction to military leadership which draws upon examples from military history. (F, Sp)

MILS 102 Leadership: Wilderness Survival 1
Prerequisite: None
 This course includes an overview and practical exercise in the use of military topographic maps. This course will cover methods of reading and interpreting map symbols; determining elevation and relief; measuring distance; and using the techniques of intersection, resection, modified resection, and polar coordinates to determine location. Lab includes land navigation exercises using a lensatic compass in a field environment. (F, Sp)

MILS 201 Leadership: The Military Leader 1
Prerequisite: None
 This course examines individual leadership development using standardized assessment technology to evaluate potential to command and lead. Communications, administrative, personal relations and decision-making skills training, ethical career assessment, and sources of professional obligation will be reviewed. Lab includes rappelling and smallbore rifle marksmanship. (F, Sp)

MILS 202 Intro to Land Navigation/Tactics 1
Prerequisite: None
 This course provides instruction in emergency first aid techniques including casualty evaluation, lifesaving measures, CPR, and environmental injury prevention. It reviews the Army's Physical Fitness Program, and introduces individual and group fitness programs. Rappelling, individual/squad tactics, and field training exercises are provided. Lab includes leadership training. (F, Sp)

MKTG - MARKETING

MKTG 100 Current Issues in Business 3
Prerequisite: None
 This is an introductory course designed to enhance a student's occupational preparedness and competence by promoting a better understanding of the competitive enterprise system. Classroom instruction will be combined with relevant marketing projects and professional community involvement to give students a solid foundation of marketing knowledge and managerial "know-how." (F, Sp)

MKTG 119 Mktg/Manage Your Profess Image 3
Prerequisite: None
 This course is a complete guide for everything people and their companies need to know to do the right thing at the right time in every business situation. Students will understand the importance of a professional image as it relates to business success and will develop a personal image development plan. (F, Sp)

MKTG 120 Sales 3
Prerequisite: None
 This course presents the fundamentals of sales and highlights its role in the marketing mix. Students will develop basic skills needed to enter the field. Topics include customer buying habits, the sales process, product demonstration techniques, and the analysis of human relations aspects of sales. (F, Sp, Su)

MKTG 122 Field Sales Internship 3
Prerequisite: Department Approval
Recommended: Have Completed a Minimum of 30 Credits
 Practical field sales experience working in consumer or industrial sales. Opportunity to develop advanced selling techniques and refine selling skills. Minimum of 160 hours of work required. (F, Sp, Su)

MKTG 123 Comput Field Sales Internship 3
Prerequisite: Department Approval
Recommended: Have Completed a Minimum of 30 Credits
 Practical computer field sales experience working in consumer or industrial sales. Opportunity to develop advanced selling techniques and refine selling skills. Minimum of 160 hours of work required. (F, Sp, Su)

MKTG 130 Retailing 3
Prerequisite: None
 Students will gain understanding of activities and strategies used in selling goods to ultimate consumers. The course develops an awareness of problems facing retailers and explores feasible solutions. Career opportunities in retailing are examined. (F, Sp)

MKTG 131 Merchandising 2
Prerequisite: None
 Functions and policies: what, when, where, how much, how to, and from whom to buy. Introduction to merchandising, merchandise management, store management and operations, how to evaluate and set up effective controls, and new trends in merchandising. Career opportunities are also explored. (Sp)

MKTG 140 Introduction to Advertising	3	MTEC 122 Sound Reinforcement	4
Prerequisite: None		Prerequisite: MTEC 120 2.0 minimum	
Methods and techniques used in modern advertising. Information on the entire advertising function. Preparation of an advertising campaign will be required to facilitate hands-on understanding of the component parts which include marketing review, marketing plan, creative strategy, and media selection. (F, Sp)		A beginning course in sound reinforcement which covers the theory and practice of sound systems and components used for concert sound and other live reinforcement operations. Includes equipment specifications, system design, troubleshooting, and operation of live systems. (Sp)	
MKTG 200 Principles of Marketing	3	MTEC 130 Radio Production I	4
Prerequisite: None		Prerequisite: Reading Level 5 and Writing Level 6	
Recommended: BUSN 118		Survey of the radio broadcast industry including careers, qualifications, responsibilities, and station operation. Introduces basic studio production and on-air presentations. (F, Sp, Su)	
Designed to define marketing, develop an understanding of the marketing concept and functions, and generally investigate the field of marketing. Will cover the marketing environment; identifying consumer needs; examining product, price, promotion; and distribution strategies within our society. Provides a basic marketing understanding with practical applications. (F, Sp, Su)		MTEC 150 TV Production I	4
MKTG 202 Managerial Marketing	3	Prerequisite: Reading Level 5 and Writing Level 6	
Prerequisite: MKTG 200 1.0 minimum		Recommended: Basic Computer Skills	
Recommended: MKTG 204 and Second Year Student		This course places special emphasis on the components of effective visual communication. The development of pre-production processes related to visual composition, scriptwriting, storyboarding, lighting, and floor plot designs are emphasized. An introduction to studio and field production formats is included in classroom activities. Class sessions contain instructional and performance exercises. (F, Sp)	
The course focuses on the solution of marketing problems through case analysis. It relates marketing to the total enterprise by analyzing problems, and suggesting approaches to business decision-making. Particular attention is paid to the elements of the marketing mix and how marketing management deals with these variables. (Sp)		MTEC 151 Electronic Field Production I	4
MKTG 204 Marketing Research	3	Prerequisite: (MTEC 150 2.0 minimum or IMAG 118 2.0 minimum) and Reading Level 5 and Writing Level 6	
Prerequisite: MKTG 200 1.0 minimum		Recommended: Basic Computer Skills	
Types of data, sampling, data collection, analysis, interpretation, and applications of marketing research. A practical managerial approach—not a statistical or mathematical orientation. Students will design and execute a marketing research project. (F)		This course provides the student with an introduction to the process of single camera, remote video production. In addition, the course helps the student in developing an aesthetic reference for critiquing contemporary video programming. In-class assignments are evaluated using technical and artistic guidelines. (F, Sp)	
MKTG 221 Consumer Behavior	2	MTEC 220 Audio Production II	4
Prerequisite: None		Prerequisite: MTEC 120 2.0 minimum	
Covers the basic perspectives involved in consumer motivation and decision-making. Students will investigate relevant variables that shape consumer actions and concepts that integrate the study of consumer behavior with the practice of marketing. (F)		Recommended: Basic Computer Skills	
MKTG 231 Independent Study in Marketing	1-3	A second course in audio production providing advanced audio theory and production practice. Included are topics in tape editing of musical material, use of audio effects in production, additional production mixing, and audio post-production for video. (F, Sp)	
Prerequisite: Department Approval		MTEC 221 Audio Recording II	4
Advanced marketing students design, implement, and draw conclusions relevant to a marketing project in a specific area of interest in marketing. Minimum of 16 hours of work per credit is required. (F, Sp, Su)		Prerequisite: MTEC 121 2.5 minimum	
MKTG 235 Marketing Internship	3	Recommended: Basic Computer Skills	
Prerequisite: Department Approval		A second course in audio recording that covers advanced techniques used in multitrack studio recording. Emphasis is on use of the multitrack studio and signal processing equipment for multitrack mixdown as well as the use of SMTE and MIDI. (Sp)	
Recommended: Have Completed a Minimum of 30 Credits		MTEC 223 Sound Reinforcement Practicum	2
Practical work experience in an approved business setting. Minimum of 160 hours work required. (F, Sp, Su)		Prerequisite: MTEC 122 2.5 minimum and Department Approval	
MTEC - MEDIA TECHNOLOGY			
MTEC 110 Intro Broadcast/Elec Media	4	A practical sound reinforcement activity combining specific theories related to the larger project with the opportunity to design, assemble, load, transport, erect, operate, and strike a large outdoor reinforcement system. Students operate the system to provide reinforcement for the bands that play in Riverfront Park on the Fourth of July. (Su)	
Prerequisite: Reading Level 5 and Writing Level 6		MTEC 230 Radio Production II	4
A survey of the history, technology, regulation, economics, programming, and societal effects of the electronic media. (F, Sp, Su)		Prerequisite: MTEC 130 2.0 minimum	
MTEC 120 Audio Production I	4	Recommended: Basic Computer Skills	
Prerequisite: Reading Level 5 and Writing Level 6		Presentation of advanced studio and remote-production techniques. Emphasis on writing, producing, and performing for commercials, news, and sports programs. (F, Sp)	
Recommended: Basic Computer Skills		MTEC 231 Radio Programming and Promo	3
A beginning course which covers the basics of audio theory and production techniques. Included are topics in tape editing, audio mixing, and basic nonlinear digital editing. This class provides the foundational theory for the other classes in the audio series. (F, Sp, Su)		Prerequisite: MTEC 130 2.0 minimum	
MTEC 121 Audio Recording I	4	Recommended: Basic Computer Skills	
Prerequisite: MTEC 120 2.0 minimum		A survey of diverse radio formats. Consideration is given to the role of the program director and the tools used in format decision-making. Techniques used in creating and promoting station image and the effects of ratings are analyzed. (Sp)	
Recommended: Basic Computer Skills and MTEC 220		MTEC 232 Radio Workshop	2
A beginning course in audio recording which covers the basic principles of multitrack recording, both studio and remote. Emphasis is placed on microphone selection and placement, use of mixing consoles for the recording session, and multitrack recorders. (F, Sp)		Prerequisite: MTEC 130 2.0 minimum and Department Approval	
		Recommended: Basic Public Speaking Skills or SPCH 120	
		An opportunity for practical experience through access to the campus radio facility. Students work in a variety of station staff positions. (F, Sp, Su)	

- MTEC 240 Script/Copywriting for Media** 3
Prerequisite: MTEC 110 2.0 minimum and WRIT 121 2.0 minimum
Recommended: Basic Computer Skills
 Basic writing techniques and formats used in preparing program scripts for television, radio, and multimedia productions. Emphasis on practical copywriting techniques for commercial, promotion, public affairs, documentary, and entertainment programs. (Sp)
- MTEC 241 Radio News Reporting** 3
Prerequisite: MTEC 130 2.0 minimum and WRIT 121 2.0 minimum
Recommended: Basic Computer Skills
 Survey of the broadcast news industry with special emphasis on radio news. This course includes practical exercises in preparing news stories through writing, production, and presentation. Interviewing and feature production are also covered. (F)
- MTEC 242 Radio Sales and Marketing** 3
Prerequisite: MTEC 110 2.0 minimum
 An introductory course to the profession of advertising sales as it relates to the broadcast media but with special emphasis on radio—the primary training ground for broadcast media account executives. This course covers the profession from advertising basics to the activities of a winning radio sales superstar. (Sp)
- MTEC 243 Ethics/Social Impact of Media** 3
Prerequisite: MTEC 110 2.0 minimum and WRIT 121 2.0 minimum
Recommended: Basic Computer Skills
 This course explores the effects of the mass media on American culture and society. Topics such as privacy, censorship, violence, and portrayals of minorities and women are discussed. These discussions take place within an ethical reasoning framework. (F, Sp, Su)
- MTEC 250 TV Production II** 4
Prerequisite: MTEC 150 2.0 minimum
Recommended: Basic Computer Skills and MTEC 151
 An advanced production course focusing on the development of the technical and creative skills necessary to direct the work of a studio production team. Production assignments are modeled after activities found in broadcast production environments. Additional academic exercises include interpretation and translation of script ideas into effective video programming. (Sp)
- MTEC 251 Electronic Field Production II** 4
Prerequisite: (MTEC 151 2.0 minimum or IMAG 118 2.0 minimum) and Reading Level 5 and Writing Level 6
Recommended: Basic Computer Skills
 An advanced production course designed to provide the student with high-level instruction in videography and electronic editing techniques. Class sessions contain instructional and critical analysis exercises of contemporary video programming. All production exercises are conducted outside of classroom sessions. Course assignments are evaluated on technical and artistic guidelines. (F)
- MTEC 252 Lighting for Television/Video** 3
Prerequisite: (MTEC 150 2.0 minimum or THEA 111 2.0 minimum or IMAG 118 2.0 minimum) and Reading Level 5 and Writing Level 6
Recommended: MTEC 151
 An advanced instructional seminar on lighting techniques for video and television production. Special emphasis is placed on developing creative and technical lighting approaches applicable to a broad range of program subjects. In-class examples and assignments are used for developing individual lighting techniques. (Sp)
- MTEC 254 Electronic Presentat Graphics** 3
Prerequisite: MTEC 150 2.0 minimum
Recommended: Basic Computer Skills
 An introduction to the production of electronically-generated visuals for use with video presentations. Computer and video hardware will be used to create desktop graphics and special effects as elements of television programs. (Sp)
- MTEC 255 Video Workshop** 2
Prerequisite: MTEC 151 2.0 minimum and Department Approval
Recommended: Basic Computer Skills
 This course provides guided laboratory and practical production experience in the creation of professional video programming. Projects will include opportunities to work in a variety of production and post-production positions during the semester. Emphasis will be placed on developing course materials of a professional caliber that students can later use as portfolio or resumé materials. (F, Sp, Su)

- MTEC 290 Guided Independent Study** 1-4
Prerequisite: MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval
Restriction: Media Technology Majors
Recommended: 75% of the way through Media Technology Program
 An opportunity for self-directed learners to explore topics of particular interest more thoroughly. Students will meet intermittently throughout the semester with an assigned faculty member for guidance and evaluation of progress. A proposal detailing the area of independent investigation must be submitted by the student prior to registration. (F, Sp, Su)
- MTEC 295 Media Practicum** 3
Prerequisite: MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval
Restriction: Media Technology Majors
Recommended: 75% of the way through Media Technology Program
 An opportunity to gain practical production experience in the media. Students are assigned to work on various audio, video, radio, and television projects within the Media Department. Faculty guidance and evaluation are an integral part of the experience. Practicum is intended only for advanced media technology students. (F, Sp, Su)
- MTEC 296 Media Internship** 3
Prerequisite: MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval
Restriction: Media Technology Majors
Recommended: 75% of the way through Media Technology Program
 An opportunity for students to work in external media settings under professional supervision. Students work closely with faculty in arranging and evaluating the workplace experience. Interview results determine intern placement. The internship is intended only for media technology majors who have completed at least 75 percent of their academic programs. (F, Sp, Su)
- MTEC 298 Special Projects** 1-4
Prerequisite: MTEC 110 2.0 minimum and MTEC 120 2.0 minimum and MTEC 130 2.0 minimum and MTEC 150 2.0 minimum and Department Approval
Restriction: Media Technology Majors
Recommended: 75% of the way through Media Technology Program
 An opportunity for students to work closely with faculty in the design and development of media-based programs and projects to be used by departments or divisions within the College. (F, Sp, Su)

MUSC - MUSIC

- MUSC 100 Women's Chorus - Summer** 5
Prerequisite: None
Recommended: Music Reading Skills
 An ensemble of women vocalists composed of students and community members, which develops general musicianship and provides training in choral singing. This group performs two to four concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (Su)
- MUSC 101 Lanswingers Vocal Ensemble** 1
Prerequisite: Vocal Audition—Lanswingers
Recommended: Music Reading Skills
 The purpose of Lanswingers, a vocal jazz ensemble, is to develop artistic and creative vocal jazz skills for ensemble performance. Advanced solo experience, microphone techniques, and vocal improvisational skills will be developed. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)
- MUSC 102 Women's Chorus** 1
Prerequisite: None
Recommended: Music Reading Skills
 An ensemble of women vocalists composed of students and community members, which develops general musicianship and provides training in choral singing. This group performs four to six concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)

- MUSC 103 Men's Ensemble** 1
Prerequisite: None
Recommended: Music Reading Skills
 An ensemble of male vocalists which develops general musicianship and provides training in choral singing. This group performs two to three concerts each semester. Men's Ensemble may be taken up to six semesters for credit. (F, Sp)
- MUSC 105 Private Lesson I** 1
Prerequisite: None
Restriction: Music, Dance and Theatre Majors
 This course is a private lesson, 40 minutes per week, for performing arts majors. Only music, dance, or theatre majors are eligible to enroll. This course may be taken up to six semesters for credit. (F, Sp, Su)
- MUSC 106 Private Lesson II** 2
Prerequisite: None
Restriction: Music, Dance and Theatre Majors
 This course is a private lesson, 60 minutes per week, for performing arts students. Only music, dance, or theatre majors are eligible to enroll. This course may be taken up to six semesters for credit. (F, Sp, Su)
- MUSC 108 Concert Choir** 1
Prerequisite: Vocal Audition - Concert Choir
Recommended: Music Reading Skills
 A select group of singers who perform a wide range of music, sacred and secular. This group performs four to six concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp)
- MUSC 119 Lansing Concert Band** 1
Prerequisite: Instrumental Audition - Lansing Concert Band
 A community band serving as the official band of the City of Lansing. The group performs throughout the year, and plays all types of music but primarily concentrates on traditional concert band literature. Students are required to play in public performances of the band. May be taken up to six semesters for credit. (F, Sp, Su)
- MUSC 121 Percussion Ensemble** 1
Prerequisite: Instrumental Audition - Percussion
Recommended: Music Reading Skills
 The percussion ensemble rehearses and performs pieces in a variety of styles and periods. Rhythmic reading skills and percussion techniques will be honed and developed further. This ensemble performs two to four times per year. The course may be taken up to six semesters for credit. (F, Sp)
- MUSC 123 Jazz Ensemble** 1
Prerequisite: Jazz Ensemble Audition
Recommended: Music Reading Skills
 The jazz ensemble will rehearse and perform pieces of various styles and from various periods in jazz and big band development. Improvisational skills will be taught and developed. The group performs two to four concerts throughout the year. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Sp, Su)
- MUSC 138 Class Piano Major I** 2
Prerequisite: Reading Level 5 and Writing Level 4
Restriction: Music Majors
 The first in a series of two, this course is designed to develop the practical keyboard skills used in a music career. Students will gain keyboard facility, skill in sight-reading, and the ability to transpose. This series does not teach classical piano performance. MUSC 138 will cover all major scales. Students are required to attend live performances. (F)
- MUSC 139 Class Piano Major II** 2
Prerequisite: MUSC 138 2.0 minimum and Reading Level 5 and Writing Level 4
Restriction: Music Majors
 Last in a series, this course will increase technical facility through playing more advanced compositions and minor scales in all forms. Students will gain skill in accompanying a melody using a variety of patterns. Students will learn to read open score and lead sheets using letter and numeral notation. (Sp)
- MUSC 143 Beginning Piano I - Summer** 5
Prerequisite: None
 Course assumes no prior music experience or knowledge. Students are introduced to the rudiments of playing piano. Concepts such as staff notation, rhythmic notation, correct fingering/hand positions, major scales, and primary chords will be the focus for this course. May be taken up to three semesters for credit. (Su)
- MUSC 144 Beginning Piano I** 2
Prerequisite: Reading Level 3 and Writing Level 2
 Course assumes no prior music experience or knowledge. Students are introduced to the rudiments of playing piano. Concepts such as staff notation, rhythmic notation, correct fingering/hand positions, major scales, and primary chords will be the focus for this course. May be taken up to three semesters for credit. (F, Sp)
- MUSC 145 Beginning Piano II** 2
Prerequisite: MUSC 144 2.0 minimum and Reading Level 3 and Writing Level 2
 This course is designed to take the student up to an intermediate level of playing. Rhythmic subdivisions, more complex fingering, and new major and minor keys are introduced. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 154 Class Voice Commercial I-Summr** 1
Prerequisite: None
 Beginning course designed to introduce students to vocal techniques and performance skills required in singing/performing commercial music. Breathing, posture, diction, tone production, interpretive skills, and microphone techniques are presented and developed. Students are required to attend live performances. May be taken up to three semesters for credit. (Su)
- MUSC 155 Class Voice Commercial I** 2
Prerequisite: None
 Beginning course designed to introduce students to vocal techniques and performance skills required in singing/performing commercial music. Breathing, posture, diction, tone production, interpretive skills, and microphone techniques are presented and developed. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 156 Class Voice Commercial II** 2
Prerequisite: MUSC 155 2.0 minimum
 The advanced course in a series of two, this course will refine techniques introduced in MUSC 155. Students will prepare a final public performance. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)
- MUSC 157 Applied Lesson I** 2
Prerequisite: Music Major Audition
Restriction: Music Majors
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is by audition only. Auditions are held the Friday prior to Fall Semester or as requested during Fall and Spring Semester juries. The course may be taken up to three semesters for credit. (F, Sp, Su)
- MUSC 158 Applied Lesson II** 2
Prerequisite: MUSC 157 2.0 minimum or Music Major Audition
Restriction: Music Majors
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is by audition only. Auditions are held the Friday prior to Fall Semester or as requested during Fall and Spring Semester juries. The course may be taken up to three semesters for credit. (F, Sp, Su)
- MUSC 163 Aural Skills I** 1
Prerequisite: None
 This course allows students to develop their aural capacity through exercises in beginning melodic and rhythmic dictation. The ability to sing melodies on sight through the use of solfeggio will also be developed. This is the first of two courses in freshman aural skills. (F)
- MUSC 164 Aural Skills II** 1
Prerequisite: MUSC 163 2.0 minimum
 This course allows students to develop their aural skills through intermediate exercises in melodic and rhythmic dictation. The ability to sight-sing melodies through the use of solfeggio continue to be developed. This course is the second in a sequence of two freshman music major requirements. (F)
- MUSC 168 Intro to Musicianship I** 2
Prerequisite: None
 This course is for beginning musicians to gain an understanding of notating and reading pitch, rhythm, and music terminology and theory. Students are introduced to musical scales, key signatures, intervals, and chords. Students are required to attend live performances. (F, Sp)

MUSC 169 Intro to Musicianship II 2
Prerequisite: MUSC 168 2.0 minimum or Music Theory Placement Test
 This course is the second in a pair of courses for novice musicians to further their understanding of music notation and theory fundamentals. MUSC 169 builds on material covered in MUSC 168. Students will learn to construct melodies, create phrases, and to harmonize a given or original melody. Students are required to attend live performances. (Sp)

MUSC 179 Class Voice Major I 1
Prerequisite: WRIT 121 2.0 minimum or (Reading Level 5 and Writing Level 6)
Restriction: Music Majors
 This course is designed to train singers in the International Phonetic Alphabet, assisting them in the pronunciation of English and foreign languages. This course focuses on English and Italian IPA skills, using the literature of major composers from the United States, Great Britain, and Italy with historical and performance emphasis. Students are required to attend live performances. (F)

MUSC 180 Class Voice Major II 1
Prerequisite: MUSC 179 2.0 minimum and (WRIT 121 2.0 minimum or Reading Level 5 and Writing Level 6)
Restriction: Music Majors
 This course continues to train singers in the use of the International Phonetic Alphabet. Focus is on the German and French languages, with a historical and performance emphasis. These language skills will be utilized in performing the literature of the major composers of German lieder and French chanson. Students are required to attend live performances. (Sp)

MUSC 181 Class Voice I - Summer .5
Prerequisite: None
 The first in a series of two courses for group and individual work on varied song literature. Emphasis is placed on vocal techniques such as breathing, posture, diction, tone production, and stage presence. Students are required to attend live performances. May be taken up to three semesters for credit. (Su)

MUSC 182 Class Voice I 1
Prerequisite: None
 The first in a series of two courses for group and individual work on varied song literature. Emphasis is placed on vocal techniques such as breathing, posture, diction, tone production, and stage presence. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)

MUSC 183 Class Voice II 1
Prerequisite: MUSC 182 2.0 minimum
 The advanced course in a series of two. This course will refine techniques, such as breathing, posture, diction, tone production, and stage presence, introduced in MUSC 182. Students are required to attend live performances. May be taken up to three semesters for credit. (F, Sp)

MUSC 187 Class Guitar - Summer 1
Prerequisite: None
 This course is for beginners and experienced players who desire note-reading skills. Folk, blues, and classical guitar traditions are presented using basic plectrum technique. Beginning chord theory is introduced. Students will provide their own guitar, and attend live performances. (Su)

MUSC 188 Class Guitar 2
Prerequisite: None
 This course is for beginners and experienced players who desire note-reading skills. Folk, blues, and classical guitar traditions are presented using basic plectrum technique. Beginning chord theory is introduced. Students will provide their own guitar, and attend live performances. The course may be taken up to four semesters for credit. (F, Sp)

MUSC 193 Basic Musicianship I 3
Prerequisite: MUSC 168 2.0 minimum and Reading Level 5
Co-requisite Course: MUSC 163
 This course allows students to gain knowledge and skills necessary to hear and notate pitches, rhythms, scales, modes, and intervals. This course is the first in a sequence of two courses in music theory. It serves as a freshman requirement for a four-year college music degree. (F)

MUSC 194 Basic Musicianship II 3
Prerequisite: MUSC 193 2.0 minimum and Reading Level 5
Co-requisite Course: MUSC 164
 This course presents intermediate music theory principles including diatonic and chromatic harmony, four-part writing, counterpoint, basic music forms, and analysis. This course is second in a sequence of two. It serves as a freshman requirement for a four-year college music degree. (Sp)

MUSC 199 Music Appreciation 2
Prerequisite: Reading Level 3 and Writing Level 4
 Designed for non-music majors, this course develops well-informed, focused listening. Students are acquainted with representative composers, compositions, and musical characteristics of a variety of style periods from early music through 20th Century music. Students are required to attend live performances. (F, Sp, Su)

MUSC 200 Music Fund for Elemen Teachers 3
Prerequisite: None
Recommended: Music Reading Skills
 A mandatory course for elementary, special education, and early childhood majors, this course assumes little, if any, prior musical experience. The basic fundamentals of music are covered, in addition to a sampling of successful teaching methods for singing and focused listening. Performance skills are taught through the piano and recorder. (F, Sp)

MUSC 230 Directed Independent Study 1-2
Prerequisite: Department Approval
Restriction: Music Majors
 Advanced study in areas relating to, but not taught in, the curriculum. Student will meet with an assigned faculty member once per week. Students must submit written application detailing their projects for department approval. Students are required to attend live performances. (F, Sp)

MUSC 232 Music Seminar 1
Prerequisite: Department Approval
 Student will be given the opportunity to attend master classes on various related topics or perform in a production on the main stage or comparable space. Limited to individuals who have been selected as cast members or approved for master class. (F, Sp, Su)

MUSC 233 Music Seminar 2
Prerequisite: Department Approval
 Student will be given the opportunity to attend master classes on various related topics or perform in a production on the main stage or comparable space. Limited to individuals who have been selected as cast members or approved for master class. (F, Sp, Su)

MUSC 240 World Music History I 4
Prerequisite: Reading Level 5 and Writing Level 6
 Basic musical elements and the ways which civilizations/cultures use music will be introduced. This includes composers and musical characteristics of specific style periods starting with ancient civilizations of the world through the year 1600. Eastern and Western music will be compared/contrasted in focus, content, and process. (F)

MUSC 241 World Music History II 4
Prerequisite: Reading Level 5 and Writing Level 6
 Building on historical information gleaned from MUSC 240, this class covers world music history from 1600 to the present. Characteristic music, musicians, and instruments from all areas of the world are discussed, focusing on uses/functions and qualities of music, and emphasizing similarities and differences between world cultures. (Sp)

MUSC 245 Jazz History 2
Prerequisite: None
 Students will be introduced to the origins and traditions of the music loosely categorized as "jazz." Musical styles influential in the development of jazz, such as Stride, Ragtime, New Orleans, Swing, Bebop, "Free" or Avant-garde, and others, will be studied. Students are required to attend live performances. (F)

MUSC 248 Rock History I: 1920 to 1963 2
Prerequisite: None
 This course provides an overview to the elements of rock and roll, and its origins. The student will be introduced to the major figures of rhythm and blues/early rock and roll via recordings of their music. Students are required to attend live performances. (F)

MUSC 249 Rock Hist II: 1963 to Present 2
Prerequisite: None
 Students will be introduced to the changes in pop music that have occurred since the early '60s. Developments in styles will be covered via examination of a variety of recordings from the early '60s to the present. Students are required to attend live performances. (Sp)

MUSC 251 Blues History 2
Prerequisite: None
 An introductory overview of the African-American musical form known as the blues. Using recordings of musicians as a primary source, supplemented with reading, the student will become familiar with the stylistic variations of both regional styles and individual performers. This course will show how the music changed as performers dealt with the factors of urbanization, electricity, social/cultural elements, and more. Students are required to attend live performances. (Sp)

MUSC 253 Business of Music 3
Prerequisite: None
 An introduction to the business aspects of the music industry. Areas covered include copyrights, contracts, trademarks, publishing, recording and record company operations, personal managers, booking agents, concert promotions, and unions. Students are required to attend live performances. (F)

MUSC 254 Band Management 2
Prerequisite: MUSC 253 2.0 minimum
 This course is designed to assist the professional musician or manager in creating or improving a performing band. All major aspects of band management are covered, including intra-band arrangements, contracts, negotiations, format and material choice, equipment, finances, promotion and sales, road management, and basic organizational information. Students are required to attend live performances. (Sp)

MUSC 257 Applied Lesson III 2
Prerequisite: MUSC 158 2.0 minimum or Music Major Audition
Restriction: Music Majors
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is allowed upon successful completion of the MUSC 158 juried performance. This course may be taken up to three semesters for credit. (F, Sp, Su)

MUSC 258 Applied Lesson IV 2
Prerequisite: MUSC 257 2.0 minimum or Music Major Audition
Restriction: Music Majors
 This course is a private lesson, 60 minutes per week, for music majors. Enrollment is allowed upon completion of the MUSC 257 juried performance. This course may be taken up to three semesters for credit. (F, Sp, Su)

MUSC 263 Aural Skills III 1
Prerequisite: MUSC 164 2.0 minimum
 This course is a continuation of the first year of aural skills training. The student will proceed to more advanced training in sightsinging and eartraining. This course is the first in a sequence of two sophomore level aural skills courses. (F)

MUSC 264 Aural Skills IV 1
Prerequisite: MUSC 263 2.0 minimum
 Advanced training in aural skills will continue as this course is the second in a sequence of two sophomore aural skills courses. Melodic and harmonic dictation involving chromaticism and modulation will be studied, as well as more advanced sightsinging exercises. (Sp)

MUSC 270 Rock Guitar I 1
Prerequisite: None
 A presentation on fundamental rhythm and lead guitar techniques and music theory concepts applicable to rock music from its rhythm and blues origin to the present, as well as other related popular styles. Students must provide own guitars. Students are required to attend live performances. (F, Sp, Su)

MUSC 276 Lyric Writing 2
Prerequisite: None
 This course introduces students to the craft of writing song lyrics. The work of professional songwriters as well as the students' work will be examined and discussed. Students are required to attend live performances. (F, Su)

MUSC 280 Private Songwriting 1
Prerequisite: Music Major Audition
Restriction: Music Majors
 Private coaching for music majors, 40 minutes per week, in writing and copyrighting music compositions, giving attention and suggestion in harmony, chord substitution, and formal design. Students are required to attend live performances. May be taken up to six semesters for credit. (F, Su)

MUSC 293 Advanced Musicianship I 3
Prerequisite: MUSC 194 2.0 minimum and Reading Level 5
Co-requisite Course: MUSC 263
 This course is a continuation of elements of music theory acquired in MUSC 193 and 194. Students will learn advanced elements of harmony such as modulation, Phrygian II chords, augmented sixth chords, and chromatic voice leading techniques. Basic principles of musical form will be introduced. Students are required to attend live performances. (F)

MUSC 294 Advanced Musicianship II 3
Prerequisite: MUSC 293 2.0 minimum and Reading Level 5
Co-requisite Course: MUSC 264
 MUSC 294 concerns the study of major classical forms including: variation, sonata, rondo, and concerto forms. Counterpoint, 19th Century harmony, jazz, set theory, and twelve-tone theory will be studied. This is the second of two sophomore level music theory courses. Students are required to attend live performances. (Sp)

MUSC 297 Synthesizers & Computer Music 2
Prerequisite: None
Recommended: Music Reading Skills
 This course introduces students to the role of computers in the music discipline. Topics include basic IBM and Macintosh personal computer skills, a thorough exploration of MIDI, music sequencing software, music printing software, and orchestration with electronic/digital instruments. (F, Sp)

NURS - NURSING

NURS 150 Fundamentals in Nursing Care 9
Prerequisite: Admission to Nursing Program and Reading Level 5 and Writing Level 6
 The focus of this course is the nursing process as a problem-solving technique for meeting basic human needs. The concepts of perioperative care and cancer are presented and the aging process is emphasized throughout. Clinicals are in nursing homes, extended care facilities, and hospitals. (F, Sp)

NURS 160 Acute Nursing Care 6
Prerequisite: NURS 150 2.5 minimum and NURS 200 2.5 minimum and PHGY 202 2.5 minimum and (PSYC 205 2.5 minimum or Concurrently)
Co-requisite Course: NURS 165
 Students are assisted in using the nursing process in the care of adults adapting to common acute health problems. Pathophysiology and nursing interventions affecting the cardiovascular, respiratory, endocrine, gastrointestinal, neurological, and musculoskeletal body systems is presented. Clinical in acute care hospital systems. (F, Sp)

NURS 165 Maternity Nursing Care 5
Prerequisite: NURS 150 2.5 minimum and NURS 200 2.5 minimum and PHGY 202 2.5 minimum and (PSYC 205 2.5 minimum or Concurrently)
Co-requisite Course: NURS 160
 The concepts of maternity nursing, well-child care, and therapeutic communication are discussed. Assessment and care of the childbearing family is presented. Basic needs and developmental tasks of childhood are discussed including effects of change in family systems. Clinicals are in maternal-child units of hospitals and community agencies. (F, Sp)

NURS 200 Pharmacology 3
Prerequisite: PHGY 202 2.0 minimum or Concurrently
 This course is recommended for students who wish to transfer to a BSN program. Drug categories are discussed in-depth as well as nursing responsibilities associated with medication administration. Students are expected to calculate drug dosages. (F, Sp)

NURS 210 LPN-RN Transition 2
Prerequisite: Department Approval and Reading Level 5 and Writing Level 6
Recommended: Current Work Experience and Current BCLS and OSHA
 Introduces the returning licensed practical nurse (LPN) to the nursing process, patient records, role transition, and curriculum concepts. Assessment and evaluation of nursing skills will be done. (F, Sp)

- NURS 260 Mental Health Nursing Care** 5
Prerequisite: NURS 160 2.5 minimum and NURS 165 2.5 minimum and PSYC 205 2.5 minimum and EMSB 103
Co-requisite Course: NURS 265
 The student is expected to use the nursing process in caring for clients adapting to psychosocial health problems including the high risk mother and infant. Emphasis is placed on therapeutic communication skills. Clinicals are in psychiatric and maternal units of acute care hospitals and day treatment facilities and community sites. (F, Sp)
- NURS 265 Pediatric Nursing Care** 5
Prerequisite: NURS 160 2.5 minimum and NURS 165 2.5 minimum and PSYC 205 2.5 minimum and EMSB 103
Co-requisite Course: NURS 260
 Concepts of illness in children are discussed utilizing a systems perspective. Students are expected to integrate the nursing process and course concepts into their care of children in hospital acute care maternity units, pediatric units, and other selected health care settings. (F, Sp)
- NURS 280 Advanced Chronic Nursing Care** 4
Prerequisite: MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum
Co-requisite Courses: NURS 285 and NURS 290
Recommended: MICR 204
 The student will use the nursing process in caring for adult clients adapting to chronic health problems. Client adaptation to chronic illness, selected neurological and immune system problems, cancer, AIDS, and care of the dying client is discussed. Clinical experiences in nursing homes, home health care agencies, and selected community facilities. (F, Sp)
- NURS 285 Advanced Acute Nursing Care** 4
Prerequisite: MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum
Co-requisite Courses: NURS 280 and NURS 290
 The student will use the nursing process in caring for adult clients adapting to critical health problems. Homeostatic changes in the neurological, cardiovascular, and respiratory systems is discussed, as well as fluid-electrolyte and acid-base imbalance. Clinical experiences are in acute care hospitals. (F, Sp)
- NURS 290 Leadership in Nursing Care** 3
Prerequisite: MICR 203 2.5 minimum and NURS 260 2.5 minimum and NURS 265 2.5 minimum
Co-requisite Courses: NURS 280 and NURS 285
 The role of the nurse as manager of care and the role of the associate degree nurse within the discipline of nursing are presented. Students are expected to use the nursing process with various management systems within a health care system. Clinicals in acute care hospitals and nursing homes. (F, Sp)

OADM - OFFICE ADMINISTRATION

- OADM 102 Editing Business Documents** 2
Prerequisite: None
Recommended: WRIT 114 or Proficiency in English Grammar and Mechanics
 This course teaches office personnel applied editing skills for business documents and emphasizes locating and correcting errors in typing, word division, format, numbers, word usage, capitalization, and punctuation. Grammar rules will be reviewed as needed. Classroom activities may require completion of some exercises in one of the computer labs. (F, Sp, Su)
- OADM 110 Machine Transcription** 3
Prerequisite: None
Recommended: (CABS 105 or CABS 113) and WRIT 114
 This course is designed for the production of mailable communications by using transcribers, recorded cassettes, and an IBM PC with word processing software. Proficiency in spelling, punctuation, grammar, and business vocabulary is emphasized. (F)
- OADM 114 College Speedwriting** 4
Prerequisite: None
Recommended: CABS 101 or Previous Keyboarding
 Students will learn an alphabetic shorthand. The minimum performance level for dictation and transcription is 70 wpm for three minutes at 95 percent accuracy. (Sp)

- OADM 150 Cert Pro Secretar (CPS) Rvw I** 3
Prerequisite: None
Recommended: Experience as Professional Secretary
 Discussion of the secretary's proficiency in office administration and communication. Executive travel, office management, records management and reprographics, written business communications, editing, abstracting, and preparing communications in the final format. (F, Sp, Su)
- OADM 155 Cert Pro Sec (CPS) Rvw II** 3
Prerequisite: None
 This course covers the basics of office technology and behavioral science. Topics include automated office systems, telecommunication, and problem solving. (F, Sp, Su)
- OADM 195 Human Behavior in Work Place** 3
Prerequisite: None
 This course emphasizes the importance of the skill of human relations in the work-place. Through a combination of case studies, self-analysis exercises and discussion, students become more aware of the impact of positive interactions at work. Proficiency in enhancing good human relations and in handling difficult situations is stressed. (F, Sp, Su)
- OADM 197 Medical Vocabulary** 3
Prerequisite: Reading Level 3
 This course provides instruction in spelling, definition structure, and concepts of medical terminology using a body-systems approach. Requires good study skills. (F, Sp)
- OADM 198 Medical Record Management** 3
Prerequisite: None
Recommended: OADM 197 or Equivalent
 This course is a concentrated study of the health care providers, control reimbursement, legal, and quality assurance systems which affect the maintenance of the medical record in various health care delivery settings. (Sp)
- OADM 200 Critical Thinking** 3
Prerequisite: None
 Critical thinking is designed to provide basic and higher-order thinking skills including reasoning, creative thinking, decision-making, and problem solving. Emphasis is placed on gaining proficiency in critical awareness to enable students to confidently appraise and discriminate information, problems, issues, etc., whether in a societal, educational, or organizational setting. (F, Sp)
- OADM 201 General Pharmacology/Business** 2
Prerequisite: None
Recommended: OADM 197 or Equivalent
 This overview course is designed for students in medical secretarial, medical transcriptionist, and court and conference reporting curricula. It provides an introduction into pharmacology, its history and terminology, drug categories, and the clinical applications of common drugs by body systems. Provides experience in using several drug references. (F)
- OADM 203 Professional Office Procedures** 1
Prerequisite: None
 The topics of this course include telephone techniques, handling incoming and outgoing mail, writing certain office documents such as minutes and reports, planning meetings and travel arrangements, and interviewing. Computer usage may be emphasized. (Sp)
- OADM 206 Legal Vocabulary and Form Prep** 3
Prerequisite: None
Recommended: Word Processing Experience
 This course utilizes basic legal terminology in general and specialized areas of law. It defines legal terms and their use in legal context and stresses forms preparation. (Sp)
- OADM 207 Medical Transcription** 3
Prerequisite: None
Recommended: (OADM 197 or CHSE 121) and (ANAT 145 or ANAT 151) and Typing Experience
 This course is designed to develop skill in defining and transcribing medical reports with the use of transcriber and microcomputer. Emphasis is on development of accuracy and knowledge of medical terminology for the transcription of medical reports. (F)

OADM 215 Records and Info Management I 3
Prerequisite: None
 This course includes managing the creation, protection, storage, and disposition of business records; alphabetic indexing; the foundation of other storage methods; selection of proper equipment; and procedures for the operation and control of filing methods and systems. (F, Sp, Su)

OADM 216 Records and Info Management II 4
Prerequisite: None
Recommended: OADM 215
 This course familiarizes students with the aspects of micrographics and the study of planning, organizing, and controlling records and information management systems. Management of both paper- and electronic-based forms and documents will include design, analysis, usage, retention, and disposal procedures for manual and electronic systems. (F, Sp)

OADM 220 Administrative Office Mgmt 4
Prerequisite: Reading Level 3 and Writing Level 4
 This course emphasizes the principles of office management and the role of an office as a service center. Office functions, structure and design, workflow, procedures, job analysis, and issues relating to human resources are covered. (F, Sp, Su)

OADM 222 Advanced Medical Transcription 4
Prerequisite: OADM 207 2.0 minimum
 This course is designed to equip students with entry-level medical transcription skills. This course incorporates advanced medical terminology and actual physician dictation from a wide variety of medical specialties. (F)

OADM 240 Office Internship 3
Prerequisite: None
Recommended: See Internship Coordinator Before Registering
 This course is designed to provide on-the-job training relating to an office administration major. Placement is made in an approved training station to earn credits for satisfactory work performance and to earn wages for work performed. Volunteer work may be substituted for earning wages. Minimum of 180 hours work is required. (F, Sp, Su)

OADM 275 Cultural Differences in Busn 3
Prerequisite: Reading Level 5 and Writing Level 4
 This course is designed to help students become familiar with, understand, and appreciate people from different cultures to promote a more effective basis for working together in the business world. Emphasis and application is placed upon business etiquette and business practices as they differ in various cultures. (F, Sp)

PARA - PARAMEDIC

PARA 221 Paramedic Medical Trauma I 4
Prerequisite: Admission to Paramedic Program and Reading Level 5 and Writing Level 6 and Math Level 3
Co-requisite Courses: PARA 231 and PARA 241 and PARA 251 and PARA 261
 Builds on previous knowledge acquired as a basic EMT. Provides theoretical background material for management of prehospital emergencies. Course includes roles and responsibilities, anatomy/physiology, airway maintenance, parenteral therapy, assessment and management of respiratory, maternal, neonatal, and pediatric emergencies. (F)

PARA 222 Paramedic Medical Trauma II 4
Prerequisite: PARA 221 3.0 minimum
Co-requisite Courses: PARA 232 and PARA 242 and PARA 252 and PARA 262 and PARA 263
 PARA 222 incorporates previous knowledge of basic EMT and PARA 221. Provides theoretical background material for management of prehospital emergencies including assessment and management of neurological, behavioral, abdominal, metabolic, geriatric, and multiple trauma patients. The principles of triage, management of mass casualty incidents, and telecommunications are also included. (Sp)

PARA 231 Paramedic Cardiology I 2
Prerequisite: Admission to Paramedic Program
Co-requisite Courses: PARA 221 and PARA 241 and PARA 251 and PARA 261
 Enables paramedic students to read EKG rhythm strips. It will give them background and understanding of the anatomy, physiology, electrophysiology, and pathophysiology of the heart and cardiovascular system. Much emphasis will be placed on arrhythmia interpretation, treatment modalities, and patient management. (F)

PARA 232 Paramedic Cardiology II 2
Prerequisite: PARA 231 3.0 minimum
Co-requisite Courses: PARA 222 and PARA 242 and PARA 252 and PARA 262 and PARA 263
 Utilizes information learned in PARA 231 as a basis for more advanced arrhythmia interpretation. Management of cardiac arrest including medications, cardioversion, and defibrillation will be a major emphasis. Pacemakers, other advanced procedures, and arrhythmia will be presented. Application of information, judgment, and decision-making are evaluated. (Sp)

PARA 241 Paramedic Pharmacology I 2
Prerequisite: Admission to Paramedic Program
Co-requisite Courses: PARA 221 and PARA 231 and PARA 251 and PARA 261
 The first course in a two-course sequence. Designed to give the student background information necessary for the preparation and administration of drugs used in the field. ACLS drugs will be covered in-depth. (F)

PARA 242 Paramedic Pharmacology II 2
Prerequisite: PARA 241 3.0 minimum
Co-requisite Courses: PARA 222 and PARA 232 and PARA 252 and PARA 262 and PARA 263
 The second course in a two-course sequence. In-depth information on ACLS drugs will be covered. Common drugs that paramedics administer in the field will also be covered. Drug classification, action, use, and side effects are included. (Sp)

PARA 251 Paramedic Skills I 2
Prerequisite: Admission to Paramedic Program
Co-requisite Courses: PARA 221 and PARA 231 and PARA 241 and PARA 261
 Provides introduction of the paramedic skills required for advanced life support and provides the opportunity to apply theory courses information to field practice in a tabletop setting. Skills will be demonstrated, practiced during supervised labs, and tested for competency. Must have excellent basic EMT skills upon entry. (F)

PARA 252 Paramedic Skills II 2
Prerequisite: PARA 251 3.0 minimum
Co-requisite Courses: PARA 222 and PARA 232 and PARA 242 and PARA 262 and PARA 263
 A continuation of Skills I with the introduction of new skills and additional application of theory. Measurement criteria for Skills I competencies becomes more stringent and students must become competent in all paramedic skills as well as applying theory to practice. (Sp)

PARA 261 Paramedic Clinical I 3
Prerequisite: Admission to Paramedic Program
Co-requisite Courses: PARA 221 and PARA 231 and PARA 241 and PARA 251
 Provides clinical time for paramedic students in the first semester. Assignments include nursing home; hospital units such as ED, CCU, ICU, Burn Unit, OB, and Peds; Psych unit simulations on-campus; and designated EMS agencies under licensed paramedics. (F)

PARA 262 Paramedic Clinical II 4
Prerequisite: PARA 261 3.0 minimum
Co-requisite Courses: PARA 222 and PARA 232 and PARA 242 and PARA 252 and PARA 263
 Provides clinical time for paramedic students in the second semester. Assignments include hospital units such as ED, CCU, ICU, Burn Unit, OB, and OR; simulations on-campus; designated EMS agencies under licensed paramedics; and a community service project. (Sp)

PARA 263 Paramedic Internship 3
Prerequisite: PARA 221 3.0 minimum and PARA 231 3.0 minimum and PARA 241 3.0 minimum and PARA 251 3.0 minimum and PARA 261 3.0 minimum
Co-requisite Courses: PARA 222 and PARA 232 and PARA 242 and PARA 252 and PARA 262
 This course provides field internship with paramedic agency and testing for certification in Advanced Cardiac Life Support. (Sp)

PFAQ - PHYSICAL FITNESS: AQUATICS

PFAQ 100 Swimming: Primary Skills 1
Prerequisite: None
 This course focuses on the development of basic swimming strokes, rhythmic breathing, survival swimming, and beginning diving skills. (F, Sp, Su)

PFAQ 101 Swimming: Stroke Development 1
Prerequisite: None
Recommended: PFAQ 100
 This course stresses development of skills in front crawl and backstroke. Students will be introduced to the elementary backstroke and breaststroke. (F, Sp, Su)

PFAQ 102 Swimming: Stroke Refinement 1
Prerequisite: None
Recommended: PFAQ 101
 This course builds upon the stroke development level skills. Skill development is placed on front crawl and rhythmic breathing, breaststroke, diving, and survival swimming skills. Emphasis is placed on polishing strokes and increasing swimming distances. (F, Sp, Su)

PFAQ 104 Swimming/Training 1
Prerequisite: None
 This course is designed for persons interested in skill development in all competitive swimming strokes as well as in a fitness program design. The student should be able to swim 500 yards in 10 minutes. (F, Sp, Su)

PFAQ 105 Advanced Swimming/Training 2
Prerequisite: None
Recommended: PFAQ 104
 This course is designed for the competitive swimmer seeking a high level of swimming. Advanced swimming/training incorporates some dry land training and water polo. (F, Sp, Su)

PFAQ 106 Water Walking/Toning 1
Prerequisite: None
 This course utilizes a variety of walking moves in shallow water to enhance cardiovascular fitness. Toning exercises for arms, abdominal, and thighs are used extensively. (F, Sp, Su)

PFAQ 107 Water Exercise I 1
Prerequisite: None
 This course utilizes stationary water exercises and water games to improve cardiovascular fitness and flexibility. (F, Sp, Su)

PFAQ 108 Water Exercise II 1
Prerequisite: None
 This course uses stationary water exercise and an introduction to swimming techniques to improve cardiovascular fitness. Wall exercises and water jugs are used to increase strength and flexibility. (F, Sp, Su)

PFAQ 109 Water Exercise-Plus 2
Prerequisite: None
 This course is an intensive water fitness exercise program designed to increase cardiovascular output and muscle strength. Students use water movements to increase flexibility and strength. (F, Sp, Su)

PFAQ 110 Hydro-Fit Exercise I 1
Prerequisite: None
 This course is designed to give the student an overall water fitness workout with little impact to joints or back. The class is held in deep water while exercising with Hydro-Fit weights. Participants must be comfortable in deep water. (F, Sp, Su)

PFAQ 111 Hydro-Fit Exercise II 2
Prerequisite: None
Recommended: PFAQ 110
 This course is a water fitness program using water resistance to tone, strengthen, develop coordination, and increase flexibility by using Hydro-Fit exercise equipment. Emphasis is placed on increasing abdominal, shoulder/arm, and lower body strength. (F, Sp, Su)

PFAQ 112 Scuba 2
Prerequisite: None
 This course is a basic course in scuba diving. The course includes both classroom and pool training instruction. Upon successful completion of class, the student is eligible for scuba certification following open water training. (F, Sp, Su)

PFAQ 113 Scuba: Advanced 2
Prerequisite: None
Recommended: PFAQ 112
 This course is designed for certified divers who wish to further their scuba diving skills and knowledge. Topics covered will include diving equipment, underwater navigation, stress and rescue, limited visibility and night diving, dry suit diving, and underwater photography. Certification as an advanced and/or specialty diver is available with optional open water training. (F, Sp, Su)

PFAQ 114 Parent/Infant Water Adjustment .5
Prerequisite: None
 This course places emphasis on parent/infant water adjustment, safety, and fun. Emphasis is placed on development of water experience and improvement of motor skills and coordination. (Infant ages between 6 months to 2 years) (F, Sp, Su)

PFAQ 115 Parent/Toddler Water Adjustment .5
Prerequisite: None
Recommended: PFAQ 114
 This course places emphasis on parent/toddler water adjustment, skill development, safety, and fun. Emphasis is on development of water experiences, improvement of motor development, coordination, and social skills. Toddlers should be 2 to 5 years old, depending upon skill development and/or instructor approval. (F, Sp, Su)

PFAQ 116 Parent/Child Swim .5
Prerequisite: None
Recommended: PFAQ 115
 This course focuses on parent/child water skill development, socialization skills, and safety. Individualized instruction is given for advancement of motor skill and coordination in the aquatic environment. Children should be 4 to 5 years old and/or instructor's approval. (F, Sp, Su)

PFAQ 118 Arthritis Aquatics 1
Prerequisite: None
 This course will give the student exercises for range of motion in comfortable water temperatures and will improve and help maintain flexibility and well-being. (F, Sp)

PFAQ 119 Scuba Certification Class 1
Prerequisite: PFAQ 112 2.0 minimum or PFAF 112 2.0 minimum
 This course is designed to allow students who have completed scuba PFAF 112/PFAQ 112 or equivalent to complete their open water scuba certification training. Upon successful completion of the class, the student will receive Scuba Schools International's open water certification. (F, Sp, Su)

PFCW - PHYSICAL FITNESS: COMBATIVE/WEIGHT TRAINING

PFCW 100 Fencing: Beginning 1
Prerequisite: None
 This course is designed to introduce the student to basic skills and theories in foil fencing. Course emphasis is placed on 12 basic skills: advance, retreat, lunge, disengage, coupé, one-two double, reposte, counter parry and reposte, and advance-lunge. (F, Sp, Su)

PFCW 101 Fencing: Intermediate 1
Prerequisite: PFCW 100 2.0 minimum
 This course builds upon the 12 basic fencing skills and introduces rules and complex fencing movements. Students will use acquired skills in fencing bouts. (F, Sp, Su)

PFCW 102 Fencing: Advanced 1
Prerequisite: PFCW 101 2.0 minimum
 This course reviews the basic skills of fencing and its rules. Students will be introduced to a sequence of fencing movements in foil facing as well as limited use of Sabre and Epee. (F, Sp, Su)

PFCW 103 Judo: Beginning 1
Prerequisite: None
 This course is designed to familiarize students with basic Judo techniques of falling, throwing, and grappling. (F, Sp, Su)

PFCW 104 Judo: Intermediate 1
Prerequisite: None
Recommended: PFCW 103
 This course works toward a series of sequential Judo movements with continued emphasis on throwing and grappling. (F, Sp, Su)

PFCW 105 Karate: Beginning	1
Prerequisite: None	
This course introduces the basic skills of karate: kicking with the feet and knees, and punching with the fist and hands. (F, Sp, Su)	
PFCW 106 Karate: Intermediate	1
Prerequisite: None	
Recommended: PCFW 105	
This course further develops karate skills in punching with the fists and hands, kicking with feet and knees, and essential body movement in combative activities with an emphasis on free sparring. (F, Sp, Su)	
PFCW 107 Karate: Advanced	1
Prerequisite: None	
Recommended: PFCW 106	
This course places primary emphasis on the development of sparring techniques as they relate to punching and kicking. Students spar and move toward the competitive aspect of karate as a martial art. (F, Sp, Su)	
PFCW 108 Weight Training: Beginning	2
Prerequisite: None	
This course is designed to promote physical fitness through weight training. Instruction will include different principles, methods and techniques for progressive resistance training. Students will design a program of their choice with emphasis on weight reduction, muscle strengthening, and body building with an aerobic component. (F, Sp, Su)	
PFCW 109 Body Building: Introduction	1
Prerequisite: None	
This course is designed to introduce weight training and proper lifting techniques. Introduction to safety rules, proper use of machinery, and concepts of lifting will be emphasized. (F, Sp, Su)	
PFCW 110 Body Building: Beginning	2
Prerequisite: None	
This course acquaints students with the beginning aspects of body structuring through the application of weights. Emphasis on weight reduction or increase in muscle size through an individualized training program is stressed. (F, Sp, Su)	
PFCW 111 Body Building: Intermediate	2
Prerequisite: None	
Recommended: PFCW 108 or PFCW 110.	
This course expands the student's ability to use machines and free weights to increase variations and methods of lifting techniques. Students will also monitor food intake to provide information to assist with proper diet and nutritional needs. (F, Sp, Su)	

PFDA - PHYSICAL FITNESS, DANCE COURSES

PFDA 141 Ballroom Topics	1
Prerequisite: None	
This course will focus on one or two dances for in-depth study. Introduction to partnership technique, dance posture, basic patterns, and music appropriate for the dance(s) selected. Dances will be selected that reflect student interest, new partnership dance forms, or current popular trends. Enrollment with a partner is strongly encouraged. (F, Sp, Su)	
PFDA 142 Ballroom Swing I	1
Prerequisite: None	
Introduction to the study of ballroom swing including partnership technique, dance posture, basic patterns, music and style of the swing dances. Includes introduction to dances using different styles and speeds of music such as East Coast swing, West Coast swing, jitterbug, and jive. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 143 Ballroom Western Swing	1
Prerequisite: None	
Techniques, patterns, movements, and styles of Western swing dancing. Includes evaluations of the differences in movement, rhythms, and techniques of various styles. (F, Sp, Su)	

PFDA 145 Ballroom Swing II	1
Prerequisite: None	
Recommended: PFDA 142	
Course designed to build on the techniques introduced in Ballroom Swing I. Includes dances using different styles and speeds of music such as East Coast swing, West Coast swing, jitterbug, and jive. New steps and syncopated rhythms will be introduced. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 147 Latin Ballroom I	1
Prerequisite: None	
This course includes an introduction to partnership technique, dance posture, basic patterns, and music for Latin partnership dancing. Dances will be selected from the following: cha-cha, rumba, mambo, merengue, salsa, samba, and tango. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 151 Ballroom Bronze I Workshop	1
Prerequisite: None	
Introduction to the study of ballroom including partnership technique, dance posture, basic patterns, and music for traditional ballroom dances including waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly suggested. (F, Sp, Su)	
PFDA 152 Latin Ballroom II	1
Prerequisite: None	
Recommended: PFDA 147	
This course is designed to build on the techniques introduced in Latin Ballroom I, Ballroom I, Ballroom Swing I, or Ballroom Topics. Emphasis will be placed on the following dance styles: cha-cha, rumba, mambo, samba, salsa, merengue, and tango. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 153 Cha-Cha/Mambo Workshop	.5
Prerequisite: None	
Introductory course in the Latin ballroom dances cha-cha and mambo covering basic components of partnership dancing and basic patterns of movement, footwork, technique, and style. (F, Sp, Su)	
PFDA 154 Tango/Samba Workshop	.5
Prerequisite: None	
Introductory course in the Latin ballroom dances tango and samba, covering basic components of partnership dancing and basic patterns of movement, footwork, technique, and style. (F, Sp, Su)	
PFDA 155 Ballroom Hustle Workshop	1
Prerequisite: None	
Designed to introduce students to hustle dance steps and styling. Emphasis is on effective partnering, mastering basic patterns, and adapting dance to varieties of music. Class usually includes field trips to local dance venues. (F, Sp, Su)	
PFDA 156 Ballroom II	1
Prerequisite: None	
Recommended: PFDA 151	
This course is designed to build on the skills and techniques introduced in Ballroom I, Latin Ballroom I, Ballroom Swing I, or Special Topics. Emphasis will be placed on the following dance styles: waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 157 Ballroom III	1
Prerequisite: None	
Recommended: PFDA 156	
This is an advanced course in traditional ballroom designed to build on the techniques introduced in Ballroom II, Ballroom Bronze, or Latin Ballroom II. Emphasis will be placed on the following dance styles: waltz, fox trot, cha-cha, rumba, and swing. Enrollment with a partner is strongly recommended. (F, Sp, Su)	
PFDA 158 Line Dancing	1
Prerequisite: None	
Line dancing provides a fun way for students to learn basic steps and patterns to a variety of dances. The class consists of Western dances, Latin dances, and ballroom dance steps. Partner unnecessary. (F, Sp)	

PFFT - PHYSICAL FITNESS: FITNESS COURSES

PFFT 100 Total Fitness A 2

Prerequisite: None

This course is a comprehensive fitness course with a view toward the whole person. Students will be given a fitness assessment including aerobic capacity and strength. Students will develop an exercise plan tailored to their individual needs, with the guidance and supervision of their instructor. (F, Sp, Su)

PFFT 101 Total Fitness B 2

Prerequisite: None

This course views the whole person's fitness needs. Students will be given a fitness assessment, including aerobic capacity, body composition, flexibility, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health will be discussed. (F, Sp, Su)

PFFT 102 Total Fitness C 2

Prerequisite: None

This course is a comprehensive fitness course with a view of the whole person. Students will be given a fitness assessment, including aerobic capacity, body composition, circuit-training, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health will be discussed as well as stress reduction techniques. (F, Sp, Su)

PFFT 103 Total Fitness D 2

Prerequisite: None

This course involves students in planning a fitness regimen. Students will be given a fitness assessment, including aerobic capacity, body composition, flexibility, and strength. Students will receive a computer-generated exercise plan tailored to individual needs. Nutritional aspects of health and stress reduction techniques will be discussed as part of daily lifestyles. (F, Sp, Su)

PFFT 105 Aerobic Walking 2

Prerequisite: None

This course centers on improving one's fitness level through outdoor walking at an individually determined speed. Students will also develop a personalized healthy lifestyle plan which integrates exercise, diet, and stress management. (F, Sp, Su)

PFFT 107 Jogging: Beginning 1

Prerequisite: None

This course introduces jogging as a fitness modality and covers how to care for feet, proper equipment choices, clothing, and safety. (F, Sp, Su)

PFFT 110 Fitness Maintenance 2

Prerequisite: None

This course is for students with prior experience and knowledge in physical fitness-related activities and a desire to continue fitness maintenance. (F, Sp)

PFFT 111 Aerobic Boxing .5

Prerequisite: None

This course will teach the art of self-defense while improving your aerobic and anaerobic capacity. (F, Sp, Su)

PFFT 112 Body Flexibility 1

Prerequisite: None

This course is designed to increase body flexibility by learning proper stretching techniques and applying these techniques to increase muscle and joint flexibility. (F, Sp, Su)

PFFT 113 Tone and Stretch 1

Prerequisite: None

This course combines calisthenics and stretching. Students will use floor exercises to tone muscles and increase flexibility. Proper stretching techniques as well as which muscle groups are being worked will be examined. (F, Sp, Su)

PFFT 114 Advanced Circuit Training 2

Prerequisite: None

Co-requisite Courses: CJUS 260 and CJUS 261 and CJUS 262 and CJUS 263 and CJUS 264 and CJUS 265 and CJUS 266 and CJUS 267 and CJUS 268

This course is designed to incorporate strength conditioning, muscle endurance, flexibility, and cardiovascular training for a total body workout. This can be accomplished in a relatively short time frame by utilizing the circuit training method. (F, Sp, Su)

PFFT 120 Aerobic Exercise 2

Prerequisite: None

This course helps students to improve cardiovascular function and oxygen efficiency to enhance muscle structure and function through toning exercises, aerobic dancing, and stretching. (F, Sp, Su)

PFFT 122 Step Aerobics 2

Prerequisite: None

This course helps students improve cardiovascular efficiency through the use of step platforms. Movement combinations with increasing complexity will be used to increase student's balance and coordination. Toning and stretching exercises will be used to complete muscle balancing and flexibility. Educational material will be distributed to increase student's knowledge of fitness and wellness to improve personal quality of life. (F, Sp)

PFFT 136 Dance Exercise 1

Prerequisite: None

This course includes warm-ups and exercises from various dance genres including ballet, modern, and jazz designed to develop flexibility, strength and coordination. Emphasis is placed on toning and stretching. (F, Sp, Su)

PFHC - PHYSICAL FITNESS: HEALTH/FITNESS CARDIAC

PFHC 150 Cardiac Education .5

Prerequisite: None

This course introduces the student to information about the cardiac disease process, rehabilitation, and prevention techniques. The student will learn the role exercise, diet, and stress plays in heart disease. (F, Sp)

PFHC 151 Cardiac Rehab Exercise 3

Prerequisite: Department Approval

This continuing course includes medically-monitored exercise and education, which emphasizes reducing the risk factors known to contribute to heart disease. Methods and level of exercise are determined by the participant's physician and the program medical director. Monitored by professional staff. (F, Sp, Su)

PFHW - PHYSICAL FITNESS: HEALTH/FITNESS WELLNESS

PFHW 100 Health and Wellness Seminar .5-2

Prerequisite: None

This course introduces the student to eight hours of various topics related to health awareness, wellness, and/or prevention. (F, Sp, Su)

PFHW 105 Med Alternatives/Hlth & Wins 2

Prerequisite: None

This course discusses alternatives in maintaining health and correcting illness. The students will examine the six major medical systems, as well as many alternative therapies from around the world. (F, Sp)

PFHW 108 Emer Services Hlth Awareness 1

Prerequisite: None

Restriction: Emergency Medical Services, Paramedic or Fire Science student
Emergency services health awareness introduces the future emergency service student to health and wellness issues. This information includes changing attitudes/lifestyles, issues of prevention, techniques for management of health, and more. (F, Sp, Su)

PFHW 109 Emergency Services Fitness I 1

Prerequisite: None

Restriction: Emergency Medical Services, Paramedic or Fire Science student
This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 110 Emergency Services Fitness II 1

Prerequisite: None

Restriction: Emergency Medical Services, Paramedic or Fire Science student
A continuation of PFHW/PEAK 109. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)

PFHW 111 Emergency Services Fitness III	1
Prerequisite: None	
Restriction: Emergency Medical Services, Paramedic or Fire Science student	
A continuation of PFHW/PEAK 110. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)	
PFHW 112 Emergency Services Fitness IV	1
Prerequisite: None	
Restriction: Emergency Medical Services, Paramedic or Fire Science student	
A continuation of PFHW/PEAK 111. This course provides emergency service students with techniques and practice to maintain and improve the high degree of physical fitness necessary to meet the demands of their profession. (F, Sp)	
PFHW 123 Human Nutrition	3
Prerequisite: None	
Recommended: Biology	
An introductory course in human nutrition. Topics include the role of nutrients; digestion, absorption, and metabolism of nutrients; role of vitamins and minerals; and the introduction of current and controversial topics when relevant. Such topics can include fad diets, obesity, nutrition of athletes, food labels, alcohol, sugar, and food additives. (F, Sp)	
PFHW 131 Osteoporosis Prevention I	2
Prerequisite: None	
This course introduces the student to principles that can aid in the prevention of osteoporosis. The student will learn risk factors, nutritional information, and progressive strength and flexibility exercises related to osteoporosis prevention. (F, Sp, Su)	
PFHW 132 Osteoporosis Prevention II	1
Prerequisite: None	
This course continues the focus on osteoporosis prevention. The student will continue progressive strength and flexibility exercises, current research, and nutrition information. (F, Sp, Su)	
PFHW 146 Choice for Chng Weight Cont	1
Prerequisite: None	
This course introduces the student to a weight management program that follows the American Dietetic guidelines. The student will learn the principles of nutritionally sound low-fat eating and the necessity of regular exercise for permanent weight loss. (F, Sp, Su)	
PFHW 147 Mini Choice for Chng Wght Cont	.5
Prerequisite: None	
This mini-course introduces the student to a weight management program that follows the American Dietetic guidelines. The student will learn the principles of nutritionally sound low-fat eating and the necessity of regular exercise for permanent weight loss. (Su)	
PFHW 148 Stay on Track: Life Wght Mgmt	1
Prerequisite: None	
A continuation of the principles of Choice for Change Weight Control Program. The student will focus on the behavioral aspects of eating, better techniques for weight management, and changing behavior through awareness. (F, Sp, Su)	
PFHW 149 Cholesterol Management	.5
Prerequisite: None	
This course introduces the student to a dietary program that can assist in lowering cholesterol levels. The student will learn ways to identify high cholesterol and saturated fat foods substituting them with a practical, nutritionally sound food plan. (F, Sp, Su)	
PFHW 161 Self-Awareness: Key to Witness	2
Prerequisite: None	
This course introduces the student to aspects of self-awareness that can lead to greater vitality in all aspects of life. The student will learn ways in which he or she is influenced by family and cultural beliefs. Tools for changing behavior will be presented. (F, Sp, Su)	
PFHW 163 Healthy Lifestyles	2
Prerequisite: None	
This course introduces the student to lifestyle skills that lead to better health. The student will learn healthy nutritional habits, basic fitness concepts, positive stress reduction, and development of a personalized healthy lifestyle plan. Assessment skills and wellness concepts will be put into practice. (F, Sp, Su)	

PFHW 167 The Consumer and Health Issues	2
Prerequisite: None	
This course introduces the student to the study of health from a holistic perspective—seeing life as a total system. The student will learn awareness and tools for the "Triangle of Health" including the physical, mental, and spiritual. Alternatives in health care will be examined. (F, Sp, Su)	
PFHW 168 Un-Smoking for Life	1
Prerequisite: None	
This course introduces the student to the habit, patterns, and health effects of smoking. The student will learn ways to permanently stop smoking and will gain information to make healthy lifestyle choices. (F, Sp, Su)	
PFHW 169 Fit for Life Exercise	1
Prerequisite: None	
This course introduces the older student to the benefits and importance of a regular exercise program to combat the debilitating effects which inactivity has upon aging. The student will learn the benefits of cardiovascular exercise as well as flexibility, mobility, and range of motion. (F, Sp)	
PFHW 180 Positive Approaches to Stress	1
Prerequisite: None	
This course introduces the student to the role stress has in our lives: physically, emotionally, and mentally. The student will learn to identify his or her own stress styles and become aware of options with coping techniques. (F, Sp)	
PFHW 181 Stress Management	1
Prerequisite: None	
This course introduces the student to the nature of stress, how it affects us, and techniques to handle it. The student will learn to develop individualized strategies to deal with his or her stress and increase overall health. (F, Sp, Su)	
PFHW 182 Stress Management for Parents	1
Prerequisite: None	
This course introduces the student to effects of stress in child-rearing, for child care providers and parents. The student will gain an understanding of how stress influences family relationships and learn techniques to apply to daily life. (F, Sp, Su)	
PFHW 261 Adult Lifestyles Exercise	2
Prerequisite: Current Fitness Evaluation and Department Approval	
An opportunity for students to maintain and/or improve their fitness level through supervised aerobic exercise sessions and health education. Emphasis is on regular, safe exercise and healthy lifestyles. (F, Sp, Su)	
PFIS - PHYSICAL FITNESS: INDIVIDUAL SPORT/INTEREST	
PFIS 100 Bowling: Beginning	1
Prerequisite: None	
This course is a basic introduction to bowling. Primary emphasis is placed on spot bowling, release, and approach. Students become familiar with bowling etiquette and scoring. (F, Sp, Su)	
PFIS 101 Bowling: Intermediate	1
Prerequisite: None	
This course develops further strategies in spot bowling, consistent ball release, and scoring strategies. (F, Sp, Su)	
PFIS 102 Bowling: Advanced	1
Prerequisite: None	
Recommended: PFIS 101	
This course is an extensive review of skills introduced at the beginning and intermediate levels. Students develop strategies in lane reading. (F, Sp, Su)	
PFIS 103 Golf: Beginning	1
Prerequisite: None	
This course is an introduction to the basics of golf which include equipment, grip, stance and posture, club swing, and the rules and etiquette of golf. (F, Sp, Su)	
PFIS 105 Golf: Intermediate	1
Prerequisite: None	
Recommended: PFIS 103	
This course will review the basics of golf: equipment, grip, stance and posture, and club swing. Students will be given drills to foster and improve proper swing mechanics for course play. (F, Sp, Su)	

PFIS 108 Pool: Beginning 1
Prerequisite: None
 This course introduces students to the fundamentals of pool (pocket billiards). Primary course emphasis is on stance, grip, bridge, aim, and stroke. Cue ball position shots such as stop, follow, draw, and center are covered. (F, Sp, Su)

PFIS 109 Pool: Intermediate 1
Prerequisite: None
Recommended: PFIS 108
 This course reviews the fundamentals of stance, grip, bridge, aim, and stroke. Skill improvement and concentration techniques are stressed. (F, Sp, Su)

PFIS 111 Table Tennis: Beginning 1
Prerequisite: None
 This course is an introduction to table tennis as played by tournament players. Strokes covered include forehand and backhand topspin drives, pushes and blocks, and defensive strokes. Discussions will include the rules of table tennis tournaments. (F, Sp, Su)

PFIS 112 Table Tennis: Intermediate 1
Prerequisite: None
Recommended: PFIS 111
 This course is an extension of the beginning course and provides more training in the basic strokes. More advanced strokes such as the loop and the lob are covered. (F, Sp, Su)

PFIS 113 Competitive Table Tennis 1
Prerequisite: None
Recommended: PFIS 111
 This course is offered for students who are considering participation in United States Table Tennis Association-sanctioned tournaments. Match play is stressed. Rules are discussed in detail and observed during practice. Footwork and service practice are strongly encouraged. (F, Sp, Su)

PFIS 115 Tennis: Beginning 1
Prerequisite: None
 This course will introduce the student to the lob, half volley, and a number of different serves. The student should be able to demonstrate and execute the fundamentals of tennis: ground strokes, net volley, serve, and the knowledge of scoring the game. (F, Sp, Su)

PFIS 116 Tennis: Intermediate 1
Prerequisite: None
Recommended: PFIS 115
 This course will introduce the student to the lob, half volley, and a number of different serves. The student should be able to demonstrate and execute the fundamentals of tennis: ground strokes, net volley, serve, and the knowledge of scoring the game. (F, Sp, Su)

PFIS 117 Tennis: Advanced 1
Prerequisite: None
 This course deals with developing good ball control, court position, topspin shots, and serve/slice shots. Students should be able to execute and demonstrate the following tennis skills: solid ground strokes, net volleys, lobs, and good control of the serve. (F, Sp, Su)

PFIS 118 Bicycling/Touring 1
Prerequisite: None
 This course deals with emergency repairs, proper fit of bicycle, good cycling techniques, and safe use of roads. Students are shown a variety of routes suitable for bicycling in the Lansing area. (F, Sp, Su)

PFIS 119 Bicycling Camping/Touring 1
Prerequisite: None
 This course is a two-day, self-contained bicycle trip in a scenic area of Michigan. Participants carry on their bicycles all gear and items needed for the entire trip. Students will cycle 45–50 miles each day. (F, Sp, Su)

PFIS 120 Tai Chi I 1
Prerequisite: None
 This course introduces the first 30 forms of the Yang-style Tai Chi. Students develop techniques to focus on relaxation and inner calmness. Slow movements train the mind to be in better control of the body. (F, Sp, Su)

PFIS 121 Tai Chi II 1
Prerequisite: None
Recommended: PFIS 120
 This course covers more difficult forms in Tai Chi. Yang-style Tai Chi stresses the health and well-being of the whole person. Yang-style movements allow students to move in slow, smooth, steady, and continuous movement. (F, Sp, Su)

PFIS 122 Aikido 1
Prerequisite: None
 This course is an introduction to the philosophy of Aikido. Basic movements of Aikido as a martial art are introduced. (F, Sp, Su)

PFIS 123 Aikido: Continuing 1
Prerequisite: None
Recommended: PFIS 122
 This course presents the 6th KYU forms through the 3rd KYU techniques. This course examines the philosophical underpinnings of Aikido. (F, Sp, Su)

PFIS 124 Yoga: Beginning 1
Prerequisite: None
 This course is an introduction to yogic breathing and gentle yogic stretching exercises with emphasis in guided relaxation and meditation. Psycho-acoustic music is used to reduce stress and tension. (F, Sp, Su)

PFIS 125 Yoga: Continuing 1
Prerequisite: None
Recommended: PFIS 124
 This course promotes psycho-physical integration of body and mind through yogic breathing, stretching, and relaxation. Guided breathing and visualization are used to enhance depth and quality of relaxation and meditation. (F, Sp, Su)

PFIS 126 Yoga: Special 1
Prerequisite: None
 This course teaches modified and adaptive yogic breathing and stretching exercises to enhance the body's mobility of the movement-handicapped person. Feldenkais audio and video instructional tapes are used to extend range of movement. Self-massage, guided relaxation, and meditation are used to reduce stress and tension, as well as to enhance well-being. (F, Sp, Su)

PFIS 131 Seminar: Special Subjects .5-3
Prerequisite: None
 Seminars are designed to meet specific community needs. (F, Sp, Su)

PFIS 134 Theory and Practice of Yoga 2
Prerequisite: None
Recommended: PFIS 124
 This class explores the theoretical foundations of yoga and its historical framework. Lecture, discussion, and in-class practice will give participants an opportunity to deepen their understanding of yoga theory and how it pertains to their daily practice. Students will explore how yoga exercises and relaxation practices promote health and fitness through stress reduction. (F, Sp, Su)

PFIS 139 Therapeutic Touch and Yoga 3
Prerequisite: None
 This course will combine the theories and practices of yoga and Therapeutic Touch (TT). Each class will provide practice in the Theory of Energy as it applies to the individual learner and as an agent of healing. Balanced with TT will be physical postures, breathing and relevant research and theory. (F, Sp)

PFIS 145 Parent/Child Tumbling I .25
Prerequisite: None
 This course introduces basic tumbling skills to work toward greater motor skill development through tumbling, stretching, balancing skills, and controlled movement. (F, Sp)

PFIS 146 Parent/Child Tumbling II .25
Prerequisite: None
Recommended: PFIS 145
 This course introduces children to elementary combinations of movements to enhance flexibility, strength, and coordination. Children learn balancing techniques and sequential movements on a low balance beam. (F, Sp)

PFIS 147 Basketball Fitness Training 2

Prerequisite: None
This course is not a traditional basketball class. Participants will be in a workout class that will have an emphasis on conditioning using basketball drills and basketballs. Class activities will include running, continuous movement, shooting, defensive slides, and dribbling. (F, Sp)

PFIS 201 Independent Study .5-4

Prerequisite: None
This course is a directed research project in the area of physical education, recreation, or athletics. (F, Sp, Su)

PFOA - PHYSICAL FITNESS: OUTDOOR ACTIVITY

PFOA 105 Angling: Beginning 1

Prerequisite: None
This course is an introduction to the sport of angling with demonstrations of basic angling tackle and techniques. Information is provided on Michigan sport fish and their habitat. The class will take fishing trips for steelhead, walleye, salmon, trout, bass, and other game fish. (F, Sp, Su)

PFOA 107 Angling: Advanced 1

Prerequisite: None
This course is designed to improve the angler's skills and knowledge of fish habitat. Many sophisticated angling techniques will be discussed. Weekly fishing trips for Michigan's premier gamefish are scheduled. (F, Sp, Su)

PFOA 110 Sem: Wilderness Survival Tech 3

Prerequisite: None
This course provides basic outdoor survival skills and techniques to campers, outdoor enthusiasts, and group leaders. Among the topics are shelter, fire, water, signals, orienteering, food procurement, hot/cold stress management, toxic bites, edible plants of the world, and survival at sea. Optional three-day field trip exercise. (F, Sp, Su)

PFOA 111 Seminar: Wild Food Plants 3

Prerequisite: None
This course introduces 77 kinds of edible wild plants and their toxic look-a-likes from Michigan and adjoining states. The students learn to distinguish these plants on the basis of observed plant characteristics. The material is illustrated in slides and handouts. Several outdoor experiences are provided. Conservation stressed. (F, Sp, Su)

PFOA 115 Sailing: Beginning 1

Prerequisite: None
This course is an introduction to basic sailing on Lake Michigan. Students will become familiar with the parts and functions of a sailing vessel. Students will be taught rigging procedures, use of wind, and other basic sailing functions. (F, Su)

PFOA 116 Basic Sailing/Cruising 2

Prerequisite: None
This course will help students gain first-hand experience in the art of sailing and seamanship. Students will attain confidence necessary to handle a cruising sailing vessel under various conditions which present themselves in the Great Lakes. (Sp, Su)

PFOA 117 Advanced Sailing 2

Prerequisite: None
This course is designed to give the student an opportunity to experience a major voyage on the Great Lakes applying the terms and course objectives covered in the introductory cruising class. Major emphasis will be placed on advanced piloting and helmsmanship. (Sp, Su)

PFOA 118 Windsurfing 1

Prerequisite: Department Approval
This is an entry-level class designed to provide the student with enough knowledge and experience to safely sail a windsurfer alone in protected waters during moderate weather conditions. Windsurfers and life-jackets are provided. Classes are conducted at the MSU Sailing Club on Lake Lansing. (F, Sp, Su)

PFPR - PHYSICAL FITNESS: PROFESSIONAL COURSES

PFPR 103 Athletic Training I 2

Prerequisite: None
This course is an overview of injury prevention and care techniques, first aid principles, and equipment and facilities. Other course topics covered are taping procedures and the legal implications for the athletic trainer. (F, Sp)

PFPR 104 Athletic Training II 2

Prerequisite: PFPR 103 2.0 minimum or PEAA 103 2.0 minimum
This course will complement the skills and knowledge acquired in Athletic Training I. Course emphasis will be placed on injury assessment, injury treatments, and further rehabilitation skills as they relate to athletic injury. (Sp)

PFPR 105 Psychology of Coaching 1

Prerequisite: None
This course is a comprehensive introduction to the art and science of coaching, and the art of positive coaching philosophy. (F, Sp, Su)

PFPR 106 Aerobic Inst Trning & Cert 3

Prerequisite: None
This course will train the student on how to instruct a safe and effective aerobic fitness class. High- and low-impact aerobics, step aerobics, and muscle repetition work using light weights and resistance bands will be emphasized. Safe exercise techniques, developing creative choreography, and teaching modifications for special populations will be covered. Certification exams will be given. (F, Sp)

PFPR 107 Officiating Basketball 2

Prerequisite: None
This course is an officiating mechanics class for students wishing to officiate basketball at the high school and college level. Proper court positioning, arm signals, and whistle use are topics covered. (F, Sp)

PFPR 110 Coaching Basketball 2

Prerequisite: None
This course is designed to prepare the student for coaching the technical aspects of basketball as well as to enhance the student's knowledge of the duties, roles, and responsibilities of the coach. Material will apply to all levels of competition with emphasis placed on high school and college levels. (F, Sp)

PFPR 111 Coaching Volleyball 2

Prerequisite: None
This course is designed to develop coaching skills in the areas of basic through advanced individual volleyball skills as well as team strategies. Teaching skill progressions and practice planning will be covered. (F, Sp, Su)

PFPR 112 Coaching Soccer 2

Prerequisite: None
This course places emphasis on teaching the proper execution of the fundamental skills and components of soccer. Individual and team skills will be taught as well as skill progression. (F)

PFPR 114 Basic Lifeguarding 1

Prerequisite: None
This course is designed to provide the necessary minimum skills of training to qualify as an entry-level lifeguard. (F, Sp)

PFPR 115 Lifeguard Training 2

Prerequisite: None
This course is designed to provide the necessary minimum skills training for a person to qualify as a non-surf lifeguard. (F, Sp)

PFPR 116 Water Safety Instruction 2

Prerequisite: None
This course is designed to assist in teaching basic aquatic skills for instructors. Teaching modalities and how different students learn is covered. (F, Sp)

PFTS - PHYSICAL FITNESS: TEAM SPORTS

PFTS 100 Basketball: Beginning 1

Prerequisite: None
This course introduces the student to the fundamental skills of basketball. Course emphasis is placed on ball handling, passing, shooting, and rules. (F, Sp, Su)

PFTS 101 Basketball: Women 1
Prerequisite: None
 This course for women is designed to emphasize the game, rules, and regulations of women's basketball. The student will be instructed on passing, shooting, skill development, and team play as well as individual skill improvement. (F, Sp, Su)

PFTS 102 Basketball: Advanced 1
Prerequisite: None
Recommended: PFTS 100
 This course is designed for the student who has a sound understanding of basketball skills. Drills will be used to enhance passing and shooting skill development. Emphasis is placed on team play as well as individual skill improvement. (F, Sp, Su)

PFTS 103 Volleyball: Beginning 1
Prerequisite: None
 This course introduces the student to the fundamental skills of volleyball. Course emphasis is on proper serving, setting, forearm passing, spiking, positioning, rules, and game strategy. (F, Sp, Su)

PFTS 104 Volleyball: Intermediate 1
Prerequisite: None
Recommended: PFTS 103
 This course focuses on the development of proper serving, setting, forearm passing, and spiking skills. Game strategies and player positioning are taught in more detail. (F, Sp, Su)

PFTS 107 Indoor Soccer 1
Prerequisite: None
 This course is designed to introduce students to the basics of indoor soccer and to improve the level of understanding the game through instructions and discussions. Passing and shooting drills are emphasized along with team play concept. Modifications to soccer rules are used to accommodate indoor soccer rules and safety. (F, Sp, Su)

PFTS 108 Indoor Soccer Team Comp: Men 1
Prerequisite: None
 This course provides the students with concepts, strategies, and framework of team effort to compete successfully in a competitive soccer environment via intraclass team competition similar to indoor soccer leagues. (F, Sp, Su)

PFTS 109 Indoor Soccer Team Comp: Women 1
Prerequisite: None
 This course provides the students with concepts, strategies, and framework of team effort to compete successfully in a competitive soccer environment via intraclass team competition similar to indoor soccer leagues. (F, Sp, Su)

PHGY - PHYSIOLOGY

PHGY 202 Human Physiology 4
Prerequisite: ANAT 201 2.0 minimum and Reading Level 5 and Writing Level 6
Recommended: Chemistry and Biology
 The physiology, regulation, and biochemistry of the various organ systems in the human body is presented along with the integration of body function. Emphasis is on normal function, but clinical aspects may be discussed when appropriate. Laboratory topics complement the lecture. (F, Sp, Su)

PHIL - PHILOSOPHY

PHIL 151 Intro: Logic & Critical Think 4
Prerequisite: Reading Level 5
 Introduction to modern logic and elements of reasoning, with special attention given to the roles of language in reasoning, distinguishing deductive from inductive arguments, recognizing levels of meaning and differing world views (Weltanschauungen), analyzing truth-functional relations, avoiding fallacious reasoning or misleading language, and using logical skills in everyday life. (F, Sp, Su)

PHIL 152 Introduction to Ethics 4
Prerequisite: Reading Level 5
 Designed to explore essential requirements for moral reasoning and to call attention to both the factual foundation as well as the traditional criteria utilized for value judgments. Major ethical theories will be discussed, along with their applications to everyday situations. The course will include cross-cultural references, when appropriate. (F, Sp, Su)

PHIL 153 Knowledge and Reality 4
Prerequisite: Reading Level 5
 Select issues from classical and contemporary philosophy provide an introduction to differences between knowledge and opinion, ways of supporting knowledge claims, and the relationship between the knower and what exists. (F)

PHIL 211 World Philosophies I 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys major developments in theories of knowledge, reality, ethics, and society, and their historical role in shaping cultures and human identity. Covers Chinese, Indian, Greek, Roman, Christian, Islamic, and European thought from mythic beginnings to the period of early scientific reasoning. (F)

PHIL 212 World Philosophies II 4
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 Surveys major developments in theories of knowledge, reality, ethics, and society, and their historical role in shaping cultures and human identity. Covers European, Asian, African, Native American, and American pragmatic thought from the scientific revolution to contemporary global concerns. (Sp)

PHIL 260 Contemporary Ethical Problems 4
Prerequisite: Reading Level 5 and Writing Level 4
 This is an advanced course designed to examine contemporary moral issues which arise through technological and social developments. It will explore the limits of traditional ethical theories and/or their possible adaptation to a changing world. Where appropriate, course includes issues of cross-cultural importance which involve multinational concerns. (Sp)

PHIL 295 Independent Study 1-4
Prerequisite: Department Approval
 Special research projects and/or individual readings in philosophy. Students will invest no less than 32 hours for each credit earned. Enrollment is usually restricted to honors students who have grade point averages of at least 3.0 in courses offered by this department. (F, Sp, Su)

PHON - PHONICS

PHON 108 Introduction to Phonics 4
Prerequisite: Reading Level 1 and Writing Level 1
 Explores relationship of English language sounds to their corresponding printed alphabetical letters and letter combinations. Examines rules governing variations in these sounds, the process of syllabification, accent, the dictionary pronunciation system, structural analysis of words, and the relationship of phonics to reading and spelling. (F, Sp)

PHYS - PHYSICS

PHYS 200 Applied Physics 4
Prerequisite: Math Level 4
 This course includes basic principles of construction, electronics, electrical, civil, hydraulics, metal working, heating and air conditioning technologies, as they relate to the physical sciences. Provides basic training in fundamental physical phenomena and simple machines with emphasis put on their application to practical shop and field problems. (F, Sp)

PHYS 201 Introductory Physics I 4
Prerequisite: (MATH 122 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 6
 First in a two-semester sequence of algebra-based physics courses designed to present the fundamental principles of physics, with applications to other fields. Core topics include one- and two-dimensional, circular and rotational motion, kinematics, forces, energy, and momentum. Optional topics include solids and fluids, heat, and alternative energy sources and technologies. Demonstrations and hands-on activities complement the lecture topics. (F, Sp, Su)

PHYS 202 Introductory Physics II 4
Prerequisite: PHYS 201 2.0 minimum and Math Level 8
 Continuation of PHYS 201. Core topics include electricity, magnetism, vibrations and waves, sound, light, and optics. Optional topics include nuclear physics, quantum physics, elementary particles, semiconductors, relativity, and cosmology. Demonstrations and hands-on activities and projects complement the lecture topics. (F, Sp, Su)

PHYS 215 Physics I: Mechanics 5**Prerequisite:** MATH 152 2.0 minimum or Concurrently and Reading Level 5

First in a three-semester sequence of calculus-based physics courses for science and engineering students. Topics include force and motion, momentum, work and energy, the conservation laws of energy and momentum, rotational motion, static equilibrium, gravitation, and oscillations. Integrated special topics may include relativity, nuclear physics, and thermodynamics. (F, Sp, Su)

PHYS 216 Phys II:Electrom/Wave/Optic 5**Prerequisite:** PHYS 215 2.0 minimum and MATH 152 2.0 minimum

Second in a three-semester sequence of calculus-based physics courses for science and engineering students. Topics include electric and magnetic forces and fields, electromagnetic energy, currents and circuits, electromagnetic oscillations and waves, mechanical waves and sound, light waves, and physical and geometrical optics. (F, Sp, Su)

PHYS 225 Physics I Laboratory 1**Prerequisite:** (PHYS 201 2.0 minimum or Concurrently) or (PHYS 215 2.0 minimum or Concurrently) and Reading Level 5

Recommended: Experience with MS Excel or Equivalent Spreadsheet Software Laboratory course which complements Physics I. Experiments include investigations in mechanics and heat. The lab is intended to increase students' knowledge of natural and technological phenomena as they learn effective laboratory techniques for gathering and interpreting data, communicating their results, and designing and implementing individual and team projects. (F, Sp, Su)

PHYS 226 Physics II Laboratory 1**Prerequisite:** (PHYS 202 2.0 minimum or Concurrently) or (PHYS 216 2.0 minimum or Concurrently) and PHYS 225 2.0 minimum

Recommended: Experience with MS Excel or Equivalent Spreadsheet Software Laboratory course which complements Physics II. Experiments include investigations in electromagnetism, sound, and optics. The lab is intended to increase students' knowledge of natural and technological phenomena as they learn effective laboratory techniques for gathering and interpreting data, communicating their results, and designing and implementing individual and team projects. (F, Sp, Su)

POLS - POLITICAL SCIENCE**POLS 120 American Political System** 4**Prerequisite:** Reading Level 5 and Writing Level 4

An analysis of the American political system. Emphasis is given to the federal system, with special attention to American government at the national level. (F, Sp, Su)

POLS 121 State and Local Government 4**Prerequisite:** Reading Level 5 and Writing Level 4

A study of state and local governmental activities, their structures, functions, and methods of organizing resources and making policy. Consideration is given to the relationships between governmental units and the problems they confront, including relations between federal, state, and local government. (F, Sp, Su)

POLS 205 Government Internship 3**Prerequisite:** Department Approval

This course offers the student a chance to observe the actual workings of the political process by participating in it. Participation will provide students an exposure to public policy making and an opportunity to reflect on that process through course assignments. The program covers all levels of government, from city and township through the federal level. (F, Sp, Su)

POLS 206 Advanced Government Internship 3**Prerequisite:** Department Approval

This course offers the student a chance to observe the actual workings of the political process by participating in it. Participation will provide students an exposure to public policy making and an opportunity to reflect on that process through course assignments. The program covers all levels of government, from city and township through the federal level. (F, Sp, Su)

POLS 240 Introduction to Public Policy 3**Prerequisite:** Reading Level 5 and Writing Level 4

This course will provide an analysis of political and organizational processes which influence the formulation and implementation of public policy. Special attention will be given to the formulation, implementation, and evaluation of various selected public policies. Further, the course is intended to develop some skills for the evaluation and design of policies. (Sp)

POLS 250 Amer Pol Parties/Interest Grps 3**Prerequisite:** Reading Level 5 and Writing Level 4

Emphasizes the origins, structure, and functions of political parties, examines the American political system in terms of citizens' concerns about community and government, and serves as a guide to political action by the citizenry. Included is the role and function of interest groups in American politics. (F)

POLS 260 Comparative Political Systems 3**Prerequisite:** Reading Level 5 and Writing Level 6

An introduction to the institutions, processes, and policies of political systems throughout the world. The course will compare political cultures and behavior in the United States, the industrial nations of Europe and Asia, and the developing nations, with special emphasis on the themes of democracy, participation, and political change. (F)

POLS 270 International Relations 3**Prerequisite:** Reading Level 5 and Writing Level 4

A course in contemporary international relations, with emphasis on politics. Concepts, theories, and rudimentary methods are surveyed. The relationship between international politics and U.S. foreign and domestic policy is explored. (Sp)

POLS 295 Indep Study in Political Sci 1-4**Prerequisite:** Department Approval

Independent project involving research, reading, and experience in political science. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)

PSYC - PSYCHOLOGY**PSYC 175 Psych of Death:Prep for Living** 3**Prerequisite:** Reading Level 5 and Writing Level 4

Examines psychological theories, concepts, and research that pertain to the study of death and personal death awareness. Topics include cross-cultural and historical perspectives, health care systems, medical ethics, grief/loss issues, funerals and body disposition, legal and social issues, death in modern society, suicide, and beliefs about life after death. (Sp)

PSYC 200 Introduction to Psychology 4**Prerequisite:** Reading Level 5 and Writing Level 4

The basic orientation to the field of psychology, designed as a general survey and as preparation for advanced courses in the field. Topics include methods, nervous systems, sensation, perception, development, learning, motivation, emotion, cognition, personality, abnormality, therapy, and social behavior. (F, Sp, Su)

PSYC 202 Psychology of Personality 3**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4

Discussion of concepts of adjustment, conflict, mental processes, and behavior modification. Survey of leading theories of personality, emphasizing their implications for assessing and modifying normal personality. (F, Sp, Su)

PSYC 203 Social Psychology 3**Prerequisite:** (PSYC 200 1.0 minimum or SOCL 120 1.0 minimum) and Reading Level 5 and Writing Level 4

A theoretical and empirical approach to understanding individual social and group behavior. Examines the person and the social environment with a focus on attitudes, interpersonal behavior, and group processes. (F)

PSYC 204 Educational Psychology 3**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4

An investigation of the contribution of psychology to education. Emphasis will be placed upon aspects of child growth and development, motivation, learning, measurement, and group dynamics that affect the achievement of pupils in the classroom. (F, Sp, Su)

PSYC 205 Human Growth and Development 3**Prerequisite:** PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4

A study of the human life cycle from conception to death. Designed to investigate, describe, and explain changes in the physical, social, emotional, and cognitive areas that are a result of the continuous interaction of maturation and experience. (F, Sp, Su)

PSYC 209 Cognitive Psychology	3
Prerequisite: PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4 Cognitive psychology is the study of the human mind; its domain includes questions concerning how people perceive the world, remember information, use knowledge, understand language, learn, reason, and solve problems. (Sp)	
PSYC 210 Brain and Behavior	3
Prerequisite: (PSYC 200 1.0 minimum or BIOL 121 1.0 minimum or BIOL 127 1.0 minimum) and Reading Level 5 and Writing Level 4 Biological psychology is an integration of physiology, psychology, and several other related disciplines. The course provides an in-depth exploration of the brain and the relation between it and behavior. Specific topics include sensory processing, learning and memory, sleep and disorders, and disorders of depression and schizophrenia. (Sp)	
PSYC 221 Child Psychology	3
Prerequisite: PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4 Explores theories and principles of child development from conception to puberty. The course covers psychological, sociological, and biological aspects of maturation and development. (F, Sp, Su)	
PSYC 222 Adolescent Psychology	3
Prerequisite: PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4 Examines theoretical and empirical literature related to adolescence, emphasizing biological, psychological, and sociological aspects of maturation and development from puberty to young adulthood. (Sp)	
PSYC 240 Psychology of Human Sexuality	3
Prerequisite: Reading Level 5 and Writing Level 4 An exploration of psychological aspects of human sexuality, including research methods, response, identity, development, attraction and intimacy, communication, orientation, attitudes, diseases, and disorders. (Sp)	
PSYC 250 Abnormal Psychology	3
Prerequisite: PSYC 200 1.0 minimum and Reading Level 5 and Writing Level 4 A survey of the nature, development, diagnosis, and treatment of psychopathology viewed from a general-systems perspective (psychological, sociological, and biological). Major theories of causes, scientific research, and diagnostic and therapeutic techniques are studied with respect to various psychological disorders. (F, Sp)	
PSYC 295 Independ Study in Psychology	1-4
Prerequisite: Department Approval An independent project involving research, reading, and experience in psychology. The project, chosen by the student, must be approved in advance by the department chair, must be supervised by a member of the faculty, and must meet specific academic goals. (F, Sp, Su)	

PVAA - PROPERTY VALUATION AND ASSESSMENT ADMINISTRATION

PVAA 286 Applied Appraisal Concepts I	1
Prerequisite: None Recommended: Level 1 State Certification Field inspection and appraisal of residential, commercial and industrial properties. Emphasis is on potential appraisal problems utilizing the cost approach to value. (Su)	
PVAA 287 Applied Appraisal Concepts II	1
Prerequisite: None Recommended: Level 1 State Certification Field inspection and appraisal of commercial and industrial properties which emphasize potential appraisal problems using the cost approach to value. (Su)	
PVAA 288 Income Approach to Value I	2
Prerequisite: None Recommended: Level 1 State Certification This course introduces the advanced student to the appraisal concepts used in the appraisal of income-producing properties. (F)	
PVAA 289 Income Approach to Value II	2
Prerequisite: None Recommended: Level 1 State Certification Advanced study of the appraisal concepts utilized in the appraisal of income-producing properties. (Sp)	

QUAL - QUALITY ASSURANCE

QUAL 100 Intro Quality Assurance	3
Prerequisite: None This course explores the historical evolution of total quality management and introduces the concepts of continuous improvement and process systems. Current quality control theories from both service and manufacturing environments are examined. (F, Sp)	
QUAL 103 Probability/Stats Qual Assur	4
Prerequisite: None This course introduces the student to basic probability and statistics as related to quality assurance. Material covered includes probability concepts, average and standard deviation, discrete probability distributions, the normal distribution, the Central Limit Theorem, OC curves, and basic acceptance sampling concepts. The student will also be exposed to computer applications. (F, Sp)	
QUAL 104 Process Control Charting	3
Prerequisite: QUAL 103 1.5 minimum This course introduces the student to the theory, application, selection and interpretation of both variable and attribute control charts. A variety of manufacturing as well as service sector examples are used. (Sp)	
QUAL 107 Problem-Solving Techniques	3
Prerequisite: None This course introduces the student to various problem-solving tools and methods that can be used effectively for process or product improvement. A variety of both manufacturing and service applications will be examined. (F)	
QUAL 115 Metrology	4
Prerequisite: QUAL 103 1.5 minimum Introduces the student to the theory, use and application of conventional and digital precision instrumentation. Designed to fulfill the needs of quality assurance and skilled trades students requiring a foundation in metrology. (F)	
QUAL 121 Intro Statistical Process Cont	3
Prerequisite: None This course provides an introduction to statistical process control (SPC) philosophy and techniques. SPC is a means of controlling and improving processes through the use of data. Students will be introduced to the history of SPC, the Deming philosophy, process variation, techniques including control charts, and process improvement. (F, Sp)	
QUAL 124 Quality Service/Customer Satis	3
Prerequisite: None This course explores the meaning of reliable customer service and the effects of changing customer expectations. Topics include: quality concepts, terms and techniques as they apply to service quality, gaps between customer expectations and service performance, determining customer expectations, and measuring customer satisfaction. (F)	
QUAL 135 Measure/Gage Geom Tolerances	3
Prerequisite: QUAL 115 1.0 minimum Recommended: Knowledge and Prior Usage of Measuring Equipment This course is designed to develop skills in people who inspect end products using geometric tolerances. It is expected students will already understand how to use and care for standard measuring equipment. Inspection methods for geometric symbols start with sample drawings, selection of appropriate equipment, and step-by-step instructions for measuring the part. (Sp, Su)	
QUAL 200 Quality Improvement Teams	4
Prerequisite: None Covers problem-solving models and techniques for quality/productivity improvement, and the human factor related to quality. Emphasis includes interpersonal and communication skills related to quality assurance. Students use problem-solving methods and techniques, learn team member roles, and effective communication skills, and prepare and present projects to the class. (F)	
QUAL 203 Quality Planning/Systems Mgmt	4
Prerequisite: None Recommended: QUAL 100 or Work Experience in Quality This course focuses on developing, managing, and implementing quality assurance systems. Course material and assignments are designed to develop student skills in intracompany, vendor, and customer quality relationships including quality planning, quality manual and procedure development, communication, training for quality certification programs, and continuous improvement. (Sp)	

QUAL 205 Cost of Quality 3**Prerequisite:** None**Recommended:** Previous Course Work in Quality

Introduces the student to definitions and philosophy of quality costs through the interactions of typical accounting methods and the alignment of quality cost practices. Topics include basic financial concepts, trend analysis, problem areas, reducing costs, and planning. (Sp)

QUAL 209 Reliability 3**Prerequisite:** QUAL 103 1.5 minimum

This course introduces the student to definitions and characteristics of reliability. Topics covered include probability density function, reliability function, hazard/failure rate function, life characteristic curve, and reliability modeling for components and systems. (Sp)

QUAL 212 Applied Stats/Qual Assur 4**Prerequisite:** QUAL 103 1.5 minimum

This course covers the topics of hypothesis testing, confidence intervals, and sample size determination as applied to various distributions; such as the normal, student T, chi-squared and F Correlation, and regression. (F)

QUAL 215 Experimental Design in QA 4**Prerequisite:** QUAL 212 1.5 minimum

This course covers the concepts of analysis of variance and experimental design. Topics include one and two way ANOVA, various graphical and numerical tests for effects, determination and testing of residuals, and the use of mathematical models. (Sp)

QUAL 224 Supervisory Skills for Quality 3**Prerequisite:** None**Recommended:** Work Experience or Previous Quality Courses

This course will help students to develop skills for supervising personnel in a production environment consistent with current quality engineering principles. Topics include customer focus, employee selection and development, task analysis equipment and resource utilization, and continuous improvement of quality and productivity utilizing data and employee involvement. (F)

QUAL 239 Project Management 3**Prerequisite:** None**Recommended:** Work Experience or Previous Quality Courses

This course requires the student to utilize previous knowledge gained in the Quality Assurance curriculum to set up projects, gather data, analyze data, and reach appropriate conclusions and recommendations. Possible project areas may include control charts, hypothesis testing, regression analysis, and experimental design. (Sp)

QUAL 242 Quality Auditing 3**Prerequisite:** None**Recommended:** Understanding of ISO9000 or QS9000

This course is designed to develop quality auditing skills starting with required quality standards to plan quality audits, evaluate quality system documentation and practices, and write audit reports. (F, Sp)

QUAL 251 Current Qual Assur Topics 1**Prerequisite:** QUAL 100 1.0 minimum

A study of specific topics affecting quality assurance practices. This course is designed to expose students to the latest theories and practices in the areas of customer requirements, problem solving, quality management, measurement, and statistics. Course format will include lectures, discussion, demonstration, and hands-on experiences. (F, Sp, Su)

QUAL 252 Current QA Topics II 2**Prerequisite:** QUAL 100 1.0 minimum

A study of specific topics affecting quality assurance practices. This course is designed to expose students to the latest theories and practices in the areas of customer requirements, problem solving, quality management, measurement, and statistics. Course format will include lectures, discussion, demonstration, and hands-on experiences. (F, Sp, Su)

READ - READING**READ 100 Reading Clinic IA** 4**Prerequisite:** Reading Level 1 and Writing Level 1

Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines tutoring with directed practice. For students whose reading skills range from pre-literate to basic literacy. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 101 Reading Clinic IIA 4**Prerequisite:** Reading Level 1 and Writing Level 1

Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 104 Reading Skills IA 4**Prerequisite:** Reading Level 1 and Writing Level 1

Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines tutoring with directed practice. For students whose reading skills range from pre-literate to basic literacy. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 105 Reading Skills IIA 4**Prerequisite:** Reading Level 1 and Writing Level 1

Designed to teach fundamental reading skills and also to improve confidence and self-esteem. Provides a personal program which combines tutoring with directed practice. For students who have some basic literacy skills. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 108 Individualized Reading A 4**Prerequisite:** Reading Level 3 and Writing Level 2

Designed for average readers, especially adults in the working community, who wish to improve their reading proficiency with one-to-one instruction and directed practice. Students concentrate on areas that need strengthening. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 109 Individualized Reading B 3**Prerequisite:** Reading Level 3 and Writing Level 2

Designed for average readers, especially adults in the working community who wish to improve their reading proficiency with one-to-one instruction and directed practice. Students concentrate on skill areas that need strengthening. Requires enrollment in READ 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

READ 111 Reading: Essential Strategies 4**Prerequisite:** Reading Level 3 and Writing Level 1

Designed to provide a transition from mastery of basic reading skills and individualized tutorial literacy instruction to a mainstream, classroom learning experience. Includes emphasis in reading for main ideas, vocabulary development, improving comprehension, drawing conclusions from implied meaning, and application of techniques to insure academic survival. (F, Sp, Su)

READ 114 Reading Skills 4**Prerequisite:** Reading Level 3 and Writing Level 2

Designed to increase basic comprehension skills, build vocabulary, and prepare students for college-level reading through the exploration of effective study techniques. (F, Sp, Su)

READ 116 Reading Comprehension 4**Prerequisite:** Reading Level 3 and Writing Level 4

Designed to extend beyond reading comprehension at the literal level, develop inferential ability and recognition of structure and expository patterns in reading, and increase reading rate for greater reading efficiency. Additionally, attention is given to vocabulary improvement, multiple purposes of reading, importance of flexibility in reading, and increased concentration. (F, Sp, Su)

READ 165 Critical Reading 2

Prerequisite: Reading Level 5 and Writing Level 4
 This course is designed to go beyond reading comprehension at the literal level and to develop in the individual the ability to grasp implied meanings and draw conclusions. The reader must also be able to perceive the structural and developmental pattern in written material and to judge rationally what he or she reads. (F, Sp, Su)

READ 175 Speed Reading - Adv Vocabulary 2

Prerequisite: Reading Level 5 and Writing Level 4
 Designed for the student of an average or better-than-average reading ability. Increases reading rate and comprehension for greater efficiency in studying and in general reading. Special attention is given to vocabulary improvement, the multiple purposes of reading, the importance of flexibility in reading, and increased concentration. (F, Sp, Su)

REAL - REAL ESTATE

REAL 271 Introduction to Real Estate 2

Prerequisite: None
 Overview of the real estate business. Emphasis on points of law and real estate principles useful to the beginning salesperson and/or potential buyer, seller, or investor. (F, Sp)

REAL 273 Real Estate Investment 3

Prerequisite: None
Recommended: REAL 271 or REAL 274
 Emphasis on investment analysis, financing, depreciation, capital gains, exchanging, and federal tax implications of real estate acquisitions, ownership, and disposal. (Sp)

REAL 274 Real Estate License Exam 3

Prerequisite: None
 Intense study in the fundamentals of real estate. Preparation for the State of Michigan License Examination, administered by the Applied Measurement Professionals (AMP). This class meets statutory requirements including four hours in fair housing. (F, Sp, Su)

REAL 275 Real Estate Financing 3

Prerequisite: None
 Significance and nature of mortgage lending, mortgage money markets, sources, types of mortgages, instruments, qualifying, the land contract and its use, administration of a mortgage loan, and a loan portfolio and methods of foreclosure. (F, Sp)

REAL 277 Property Management 3

Prerequisite: None
 Covers management and the market, marketing residential and commercial rental space, creating an organized management plan, tenant and landlord laws, rent collection, leases, tenant screening, fair-housing requirements, tenant-owner relations, accounting for investment properties, real estate as an investment, managing apartments, office space, retail stores, and special-purpose buildings. (F, Sp)

REAL 279 Residential Appraisal 3

Prerequisite: None
 This is a survey course on the appraisal of the single family residence. It is designed to expose the student to the basic economic, political, social, and environmental foundations upon which real estate valuation rests. The student will then encounter the processes by which freestanding, single family dwellings are valued. Students will also be acquainted with professional standards and ethics. (F)

REAL 280 Real Estate Law 3

Prerequisite: None
Recommended: REAL 271 or REAL 274
 Topics covered include: land and its elements, land titles, land interests, abstracts and title insurance, deeds, easements, liens, mortgages, land contracts, foreclosures and landlord-tenant relations, private land-use controls including restrictions, condominiums, and tax policies pertaining to real estate. (Sp)

RELG - RELIGION

RELG 211 World Religions I 4

Prerequisite: Reading Level 3 and Writing Level 6
 This course describes and analyzes the beliefs and practices of Hinduism, Jainism, Buddhism, Sikhism, Confucianism, and Taoism in cultural context, from their origins to the present. It examines their influence on literature and the arts, beliefs and values, socioeconomic and political systems, and science and technology in world civilizations. (F)

RELG 212 World Religions II 4

Prerequisite: Reading Level 3 and Writing Level 6
 This course describes and analyzes the beliefs and practices of Judaism, Christianity, Islam, and other Western religions in cultural context, from their origins to the present. It examines their influence on literature and the arts, beliefs and values, socioeconomic and political systems, and science and technology in world civilizations. (Sp, Su)

RELG 241 Old Testament Literature 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 This course surveys the content of Judaism's Bible, (Christianity's Old Testament) in its original Hebrew cultural and religious context, using some of the insights of modern critical scholarship. The origins and early development of the Hebrews and their religious beliefs and practices are examined. (F)

RELG 242 New Testament Literature 4

Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 This course surveys the content of Christianity's New Testament in its original Hebrew and Greco-Roman context, using some of the insights of modern critical scholarship. The origins and early development of Christianity and its religious beliefs and practices are examined. (Sp)

RELG 250 Religions of East Asia 4

Prerequisite: Reading Level 3 and Writing Level 6
 This course surveys the origins and development of East Asian religions. The religious beliefs and practices of Confucianism, Taoism, Buddhism (Mahayana and Tibetan), and Shinto are examined in terms of their vital role in the development of ancient and modern East Asian civilizations. (Sp)

SCIN - SCIENCE INDEPENDENT STUDY

SCIN 287 Internship in Science Technology 4

Prerequisite: CHEM 151 2.0 minimum and CHEM 161 2.0 minimum and Department Approval
 This course provides on-the-job training for an applied degree in science technology. Placement is made at an approved training site to earn credits for satisfactory work performance. This internship may be a paid or unpaid work experience. Students will apply knowledge and skills learned in academic courses to real world situations. (F, Sp, Su)

SCIS - SCIENCE SEMINARS

SCIS 297 Independent Study in Science 1-4

Prerequisite: Department Approval
 Special study in science topics such as geology, astronomy, physiology, chemistry, physics, ecology, zoology, or other natural sciences. The topic is chosen by the student, and the project is supervised by a member of the Science Department. Students meet with a supervising instructor by arrangement. (F, Sp, Su)

SDEV - STUDENT DEVELOPMENT

SDEV 103 Preventing Parent Burnout 1

Prerequisite: None
 This course is designed to facilitate an understanding of parent burnout and its impact on mental and physical functions. The class will address causes, stages and symptoms, family and relationship dynamics, and problem solving. The course will provide multiple skills and mechanisms to cope with stress and prevent parent burnout. (F, Sp, Su)

- SDEV 118 Stretching Your Dollars** 2
Prerequisite: None
Assistance is given in very basic money management, budget procedures, record keeping, wise shopping practices, low-cost entertainment and recreation, effective debt payment methods, and financial goal-setting and planning. Consumer awareness and problems in the marketplace will also be addressed. (F, Sp, Su)
- SDEV 121 Exploring Your Potential** 2
Prerequisite: None
This course is designed to help each person identify past and present achievements which suggest the presence of strengths and potential. The goal of this class is greater realization of one's potential through self-determination. (F, Sp)
- SDEV 123 Career Bridge** 2
Prerequisite: None
Career Bridge enhances a smooth transition to college course work through helping the student identify a career direction, learn techniques of study, and build confidence in the pursuit of his or her educational goal. Positive behavioral choices will also be taught, including time management, the elimination of self-defeating behaviors, and increased self-esteem. (F, Sp, Su)
- SDEV 124 Techniques of Study** 2
Prerequisite: None
Students examine their study habits and work toward practicing skills to enhance classroom performance. Classes include weekly lectures, discussions, and assignments. Skills covered include goal-setting, time management, notetaking, reading and memory strategies, library use, and taking exams. A valuable aid for beginning and advanced students. (F, Sp, Su)
- SDEV 125 Career Planning** 2
Prerequisite: None
Students learn a career planning process by identifying their interests, values, and skills through a variety of self-assessment exercises. Students will utilize available resources to research career options and participate in classroom discussions on topics relating to career decision-making. (F, Sp, Su)
- SDEV 126 Self-Defeating Behavior** 2
Prerequisite: None
Learning how self-defeating behaviors are started, maintained, and how they can be eliminated is the goal of the course. Behavior change is aimed at teaching people how to live life more fully and happily by identifying and cultivating life-giving behaviors. (F, Sp, Su)
- SDEV 129 Career Research** 1
Prerequisite: None
This accelerated course is designed for students who have already identified career options. The emphasis in this course is research of these options through self-assessment, participation in classroom discussion, and the development of a plan of action. (F, Sp, Su)
- SDEV 130 Job Search Skills** 1
Prerequisite: None
Skills and techniques in the job search process are taught. Course content covers filling out application, writing résumés and cover letters, interviews, and other techniques used in seeking employment. Group discussions focus upon personal attitude toward job hunting. (F, Sp, Su)
- SDEV 142 Assertiveness I** 2
Prerequisite: None
Assertive behavior is interpersonal behavior in which a person expresses her or her opinions, feelings, beliefs, wants, personal rights, and values in such a way that the rights of others are not violated. Techniques covered teach participants to identify and practice exercising interpersonal rights and assertive skills. (F, Sp, Su)
- SDEV 145 Organizing Time** 2
Prerequisite: None
The most effective and efficient use of time is learned through structured discussions, audiovisuals, written exercises, and readings dealing with goal-setting, getting organized, time and work analysis, procrastination, and other barriers to successful time and task management. (F, Sp, Su)
- SDEV 150 Divorce Adjustment** 1
Prerequisite: None
This course is designed for those who are experiencing or who have recently completed a divorce. The student-centered atmosphere is supportive and geared toward coping with and finding constructive alternatives to the emotional crisis of divorce. (F, Sp)
- SDEV 151 Divorce: Problem and Solutions** 3
Prerequisite: None
This course provides an introduction to strength-based solutions in resolving problems with divorce and separation. Topics include: Circuit, Probate and Family Courts; general knowledge of family law system; resources available to families, and best strategies for positive family outcomes when parents live apart. This is NOT a law course. (F, Sp, Su)
- SDEV 153 Men's Discussion Group** 1
Prerequisite: None
This course will explore the male mode of relating in relationships. The impact of societal cultural expectations of men will be examined and how these expectations affect men's work, communication with one another, and their families. (F, Sp, Su)
- SDEV 156 I'm OK/You're OK** 2
Prerequisite: None
This course shows the basic concepts related to transactional analysis and how these concepts can enrich our lives. Within each of us is a child, an adult, and a parent reacting to the world around us. Increased personal awareness about ourselves can help us to be more effective. (F, Sp, Su)
- SDEV 157 Single Parenting** 2
Prerequisite: None
This course includes such topics as communication, discipline, time-structuring, and the unique concerns of adults faced with the responsibilities of raising children in a single parent family. (F, Sp)
- SDEV 169 Women as Winners** 1
Prerequisite: None
This course is designed to offer participants new tools for insight, self-awareness, and understanding so that they can learn to set their own goals, emancipate themselves from the boundaries they have set for themselves, and, therefore, learn to become more authentic and self-actualizing. (F, Sp, Su)
- SDEV 171 Rational Living** 2
Prerequisite: None
Using the teachings of Rational Emotive Training, a variety of approaches will be used to provide students with insight into the sources of problems. Techniques are offered to avoid frustration when the world is not the way it "should" be and for overcoming difficult situations at school, home, and on the job. (F, Sp)
- SDEV 173 Breaking the Codependency Trap** 2
Prerequisite: None
Students will learn that codependency is an unhealthy way of relating to oneself and others. New techniques will be learned so that healthier relational choice can be made. Emphasis will be on the conviction that each person can grow and heal, and engage in conscious, committed, cooperative relationships. (F, Sp, Su)
- SDEV 190 Success Group** 1
Prerequisite: None
Designed to stress improvement of academic performance, the course provides mutual support and deals directly with the problems of underachievement. Students will learn to set and achieve short-term goals, identify motives and attitudes, and study behaviors that lead to success and those that are related to failure. (F, Sp)
- SDEV 192 Counseling for College Success** 2
Prerequisite: None
Designed to stress improvement of academic performance, the course provides mutual support and is solution-focused on setting and achieving short-term goals. Students learn to identify motives, attitudes, and behaviors that lead to success. Group interaction will enhance understanding. (F, Sp, Su)
- SDEV 195 Building Healthy Relationships** 2
Prerequisite: None
For those who wish to take a serious look at "what helps" and "what hurts" in building human relationships, insights can be applied to any type of relationship and will help participants focus on changes they can/need to make in building a healthier relational lifestyle. (F, Sp, Su)
- SDEV 202 Learn a New Way to Think** 2
Prerequisite: None
Sessions are designed to break traditional mind patterns to assist the change process. Students study a variety of thinking strategies and learn new creative thinking techniques. These include imagination, motivation, humor, forced relationships, visualization, and fantasy. This course is general in approach and not specific to any one academic discipline. (F, Sp)

- SDEV 204 Self-Defense and Women I** 1
Prerequisite: None
 This seminar is a combination of consciousness-raising and skill-building experiences intended to increase students' understanding, resources, and skills in sexual assault prevention and self-defense. Self-defense techniques taught in this seminar will focus on responses to unarmed attacks. (F, Sp, Su)
- SDEV 205 Self-Defense and Women II** 1
Prerequisite: SDEV 204 or Concurrently
 This seminar is both a review and expansion of the techniques and skills taught in Women and Self-Defense I (SDEV 204). Self-defense techniques taught in this class will focus on "ground defense," responses to armed attacks, multiple attackers, and special assaultive situations. (F, Sp, Su)
- SDEV 225 Parenting in the Millennium** 2
Prerequisite: None
 This course will help parents move from "unconscious" to "conscious" parenting, changing from a parental domination to a relationship-centered model. The influence of childhood on parenting style, impact of communication in child-rearing, and understanding the power of the child/parent relationship are included. (F, Sp)
- SDEV 237 Black Women's Awareness** 1
Prerequisite: None
 This class is an exploration of concerns and issues confronting the Black woman in America today. Students will have the opportunity to share their viewpoints and life experiences in response to such questions as: Who is the African-American woman? What are her needs? How can those needs be met? (F, Sp)
- SDEV 240 Empathy Training** 2
Prerequisite: None
 The student will learn how to use empathy as a technique to deal with emotions, values, and decision-making in the communication process. The skills will be taught in a small group emphasizing a supportive, experiential atmosphere. (F, Sp, Su)
- SDEV 245 Dealing with Stress** 1
Prerequisite: None
 This course is designed to promote awareness of how stress affects mental, emotional and physical health, and behavior. The goal is to help participants to achieve lifetime coping skills. Topics include personal stressors, mental and physical coping strategies, dietary influences, communication, job or role stress, and coping with loss. (F, Sp, Su)
- SDEV 271 Living Alone Creatively** 1
Prerequisite: None
 Designed for both single men and single women this course focus on creative and positive aspects of living alone (or with others). Information will be shared to increase self-awareness, develop skills, and create a support system to further the goal of living alone creatively. (F, Su)
- SIGN - SIGN LANGUAGE**
- SIGN 160 Orientation to Deafness** 2
Prerequisite: Reading Level 3 and Writing Level 4
 This course is designed to introduce the student to pathological and cultural perspectives on deafness, and the implications those perspectives have, for persons who are deaf. Topics will be explored through discussions, readings, audiovisual presentations, and guest lecturers. (F, Sp, Su)
- SIGN 161 American Sign Language I** 3
Prerequisite: None
Recommended: SIGN 160 2.0 minimum or Concurrently
 Designed for students who wish to develop basic knowledge of American Sign Language vocabulary and grammar. There is also emphasis in the use of pantomime to explore nonverbal communication and its function within ASL. (F, Sp, Su)
- SIGN 162 American Sign Language II** 3
Prerequisite: None
Recommended: SIGN 161 2.0 minimum
 Designed to increase students' knowledge and use of American Sign Language vocabulary and grammar, as well as to focus on specific grammatical elements for more in-depth analysis and practice. (F, Sp, Su)

- SIGN 163 American Sign Language III** 3
Prerequisite: None
Recommended: SIGN 162 2.0 minimum
 Designed to provide additional vocabulary and synthesis of grammatical elements of American Sign Language through expressive and receptive use of conversational sign language. (F, Sp, Su)
- SIGN 164 American Sign Language IV** 3
Prerequisite: SIGN 163 2.0 minimum
 This course is intended to build conceptual understanding and use of American Sign Language. Students will develop American Sign Language skills by interpreting in ASL paragraphs which are presented in English context. (F)
- SIGN 166 Fingerspelling** 2
Prerequisite: None
Recommended: SIGN 162 2.0 minimum or Concurrently
 Provides the student with concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)
- SIGN 167 Beginning Sign to Voice** 3
Prerequisite: None
Recommended: SIGN 162 2.0 minimum
 Designed to increase the student's receptive skills in conversational sign language focusing on comprehension of the various manual communication systems utilized by deaf persons. Sign-to-voice techniques and practice will be introduced through use of prepared videotapes. (F, Su)
- SIGN 168 Expressive Manual Commun** 2
Prerequisite: SIGN 162 2.0 minimum
 This course focuses on synthesizing grammatical elements of American Sign Language and using them in an expressive mode. It creates awareness of conversational behaviors used by the deaf community and provides practice of those behaviors in classroom and other settings. (Su)
- SIGN 170 Creative Arts Signing** 2
Prerequisite: SIGN 162 2.0 minimum
 This class explores uses, considerations, and techniques for signing elements of the creative arts including poetry, storytelling, and song. (Su)
- SIGN 176 Advanced Fingerspelling** 2
Prerequisite: SIGN 166 2.0 minimum
 Provides the student with advanced concentrated instruction and practice in both expressive and receptive fingerspelling skills. (F, Sp, Su)
- SIGN 250 Deaf Culture and History** 3
Prerequisite: SIGN 163 2.0 minimum
 This course looks closely at the unique experiences of those in the deaf community. Examines the history of the deaf community in America and the sociology of the hearing-impaired (both deaf and the hard-of-hearing). (Sp)
- SIGN 260 Linguistic Principles of ASL** 3
Prerequisite: SIGN 163 2.0 minimum
 An overview of the linguistic organization of ASL, including a linguistic perspective on how ASL is learned and how it is (and is not) influenced by English. Topics relevant to interpreting, such as language variation and translation, will be emphasized. (F)
- SIGN 261 Principles of Interpreting** 3
Prerequisite: ITP Screening
 Surveys basic interpreting through lecture, role-playing, and classroom discussion. Introduces the ethics of interpreting, roles, and responsibilities of the interpreter. Examines the role and necessary skills of the interpreter in various settings: educational, mental health, vocational rehabilitation, legal, religious, phone, television, medical, deaf, blind, and minimal language skills. (F)
- SIGN 262 Mock Quality Assurance (QA)** 3
Prerequisite: SIGN 261 2.5 minimum
 This course is designed to provide students with simulated testing interpreter/transliterating settings using interactive videotapes of hearing and deaf individuals with the purpose of developing skills necessary for interpreter evaluation. (Su)

SIGN 263 Intermediate Sign to Voice 3**Prerequisite:** SIGN 164 2.5 minimum

This course is designed to develop and refine necessary basic skills and fluency in receptive sign language and for voicing all levels of communication of deaf individuals. Techniques taught include interpreter task analysis, listening, attending, internal message formulation, vocabulary search, and monitoring output. (Sp)

SIGN 264 Advanced Sign to Voice 3**Prerequisite:** SIGN 263 2.5 minimum

This course is an advanced class in skill development and fluency in voicing for all communication levels of deaf persons. Techniques taught are voice projection, breathing and relaxation, analysis of sign information, anticipation and prediction, closure, modality switching, correction, image search, de'calage, and pacing. (F)

SIGN 265 Adv interpreting/Transliterate 3**Prerequisite:** SIGN 262 2.5 minimum

This course is designed to continue the development of skills necessary for interpreter evaluation/qualification. Students will be provided with simulated testing situations using interactive videotapes of hearing/deaf individuals requiring students to interpret/transliterate. (F)

SIGN 267 Sign Internship I 3**Prerequisite:** SIGN 261 2.5 minimum

Combines student transliterated lectures and supervised placement in various interpreting settings to allow directed observation and application of practical interpreting skills. Students will spend a total of 32 clock hours in their placement setting. (Sp)

SIGN 268 Sign Internship II 3**Prerequisite:** SIGN 267 2.5 minimum

Combines student interpreted lectures and supervised placement in various interpreting settings to allow directed observation and application of practical interpreting skills. Students will spend a total of 32 clock hours in their placement setting. (Su)

SOCL - SOCIOLOGY**SOCL 120 Introduction to Sociology 4****Prerequisite:** Reading Level 5

A survey of major theoretical perspectives, concepts, and methods of sociology. Emphasis is given to societal origins, evolution, and organization; culture; socialization; stratification; social institutions; and social change. (F, Sp, Su)

SOCL 185 The Africans 2**Prerequisite:** Reading Level 5 and Writing Level 6

A survey of the cultural, social, political, and economic importance of Africa in the modern world. The course will include the television series, "The Africans." (Sp)

SOCL 196 Japan Adventure Orientation 1**Prerequisite:** None

This course is designed specifically for the Japan Adventure participants in order to offer them information on the background, nature, activities, and related rules and regulations of the Japan Adventure Program. (F)

SOCL 254 Marriage and Family 3**Prerequisite:** (SOCL 120 1.0 minimum or PSYC 200 1.0 minimum) and Reading Level 5 and Writing Level 6

A study of the changes in society over the past century in terms of their dramatic impact on sexual relationships, marriage, and family life. Topics will include sex and gender roles, sexual behavior, values, psychological needs, divorce, and parenting. (F)

SOCL 255 Contemporary Social Problems 3**Prerequisite:** SOCL 120 1.0 minimum and Reading Level 5 and Writing Level 6

Consideration of current social problems, such as family stability, environmental decline, educational decline, health care, public and private indebtedness, racism, poverty, crime, and/or urbanization, from a framework of sociological theory and recent empirical studies. (Sp)

SOCL 260 Minority Groups 3**Prerequisite:** SOCL 120 1.0 minimum and Reading Level 5 and Writing Level 6

An introduction to the culture and contemporary life styles of American minorities. Emphasis is placed on basic sociological and anthropological concepts with respect to selected minority groups, particularly the African American, Mexican American, Native American, and Asian American. (F)

SOCL 295 Independent Study in Sociology 1-4**Prerequisite:** Department Approval

Independent project involving research, reading, and experience in sociology and/or anthropology. The project, chosen by the student, must be approved by the department chair and be supervised by a faculty member. The project must meet specific academic goals. (F, Sp, Su)

SOWK - SOCIAL WORK**SOWK 101 Introduction to Social Work 3****Prerequisite:** Reading Level 3 and Writing Level 4

This course introduces the principles of social work practice. Emphasis is on social work careers, description of methods, skills and standards of practice, definitions of the helping roles, survey of helping agencies and institutions, and overview of social issues and client needs relative to social work practice. (F, Sp, Su)

SOWK 203 Social Work Interviewing 3**Prerequisite:** HUSE 100 2.5 minimum or SOWK 101 2.0 minimum

This course examines the purposes and basic concepts of the interview relationship with emphasis on the helping interview. It provides instruction in the techniques of interviewing with an opportunity to engage in practice interviews, including videotaping and feedback. (F, Sp)

SOWK 205 Social Welfare 3**Prerequisite:** SOWK 101 2.0 minimum or HUSE 100 2.5 minimum

This course introduces the definition and concept of social welfare, its history, programs, attitudes, values, and philosophy. It emphasizes the development of private and public services, changing patterns of services, the evolving changes in the Social Security Act and community action, with attention to current issues in social welfare policy. (Sp)

SPAN - SPANISH**SPAN 115 Conversational Spanish I 3****Prerequisite:** None

First course of a two-semester sequence in conversational Spanish. Designed for persons who have no knowledge of Spanish and who wish to develop basic conversational skills in the language. Course emphasizes pronunciation of Spanish sounds, practical vocabulary, culture, and essential grammar for communication. Class taught largely in Spanish. (F, Sp, Su)

SPAN 116 Conversational Spanish II 3**Prerequisite:** None**Recommended:** SPAN 115 or Equivalent

Second course of a two-semester sequence in conversational Spanish. Designed for persons who have some knowledge of the language and wish to continue developing basic conversational skills. Course emphasizes practical vocabulary, some aspects of Hispanic cultures, and essential grammar for communication. Class taught largely in Spanish. (F, Sp, Su)

SPAN 121 Elementary Spanish I 4**Prerequisite:** None

First course of a two-semester sequence in elementary Spanish. Designed for persons with no knowledge of Spanish who wish to develop basic language skills. Elementary practice in listening comprehension, speaking, reading, and writing. Provides useful information about the Spanish-speaking world. Class taught largely in Spanish. (F, Sp, Su)

SPAN 122 Elementary Spanish II 4**Prerequisite:** SPAN 121 1.5 minimum

Second course of a two-semester sequence in elementary Spanish. Introduces more complex structures while developing a foundation in the essentials of the language. Emphasizes practice in listening comprehension, speaking, reading, and writing. Provides useful information about the Spanish-speaking world. Class taught largely in Spanish. (Sp)

SPAN 201 Intermediate Spanish I 4**Prerequisite:** SPAN 122 1.5 minimum

First course of a two-semester sequence in intermediate Spanish. Begins with intermediate review of grammar, intensive vocabulary building, listening comprehension, and writing compositions. Encourages conversation by introducing discussions about the cultures of the Spanish-speaking world. Class taught entirely in Spanish. (F)

SPAN 202 Intermediate Spanish II

4

Prerequisite: SPAN 201 1.5 minimum

Second course of a two-semester sequence in intermediate Spanish. Continues an intermediate review of grammar, intensifies vocabulary building, strengthens listening comprehension and composition-writing, and improves oral fluency through intense discussions on the cultures of the Spanish-speaking world. Class taught entirely in Spanish. (Sp)

SPCH - SPEECH COMMUNICATION

SPCH 110 Oral Communic in the Workplace

3

Prerequisite: Reading Level 5 and Writing Level 6

Introduction to oral communication skills in business and technology. Students will learn to interact effectively in diverse workplace situations. Activities include participating in interviews, managing group dynamics, orienting employees, giving planned presentations, and using current technology to enhance business communication. (F, Sp, Su)

SPCH 120 Dynamics of Communication

3

Prerequisite: Reading Level 5 and Writing Level 6

Introduction to the theory and practice of speaking and listening effectively in interpersonal, group, and public communication situations. The course utilizes readings, lectures, discussions, learning activities, and oral and written assignments to help students both understand the communication process and become more skillful interpersonal, group (team), and public communicators. (F, Sp, Su)

SPCH 130 Fundamental of Public Speaking

3

Prerequisite: Reading Level 5 and Writing Level 4

Helps beginning speakers develop the skills and confidence needed to speak effectively to audiences in public situations. Through a carefully planned series of speaking assignments, students learn the proper techniques for researching, developing, organizing, outlining, and delivering effective informative and persuasive speeches. (F, Sp, Su)

SPCH 140 Interpersonal Communication

3

Prerequisite: None

Introduction to fundamental principles and skills of interpersonal communication. Students investigate techniques for interacting effectively in family, intercultural, and male/female relationships. Class discussions, learning activities, and assignments assist students in examining the impact of their communication on others and in developing effective interpersonal skills. (F, Sp, Su)

SPCH 260 Nonverbal Communication

3

Prerequisite: None

Introduction to the ways people communicate without words. Students investigate nonverbal communication theory and research and learn the messages that gestures, facial expressions, vocal cues, physical appearance, clothing, touch, distance, and time convey in American and foreign cultures. Students' nonverbal communication skills are enhanced through assignments and in-class learning activities. (F)

SPCH 270 Mass Communication

3

Prerequisite: Reading Level 5 and Writing Level 6

Introduction to broadcast, film, and print media and their impact on the individual and society. Students investigate theory and research on topics including values the media convey, media stereotypes, violence, news, advertising, and the role of media in political campaigns. Assignments and observational projects help students become enlightened media consumers. (Sp)

SPCH 280 Intercultural Communication

3

Prerequisite: None

Introduction to the theory and practice of successful intercultural communication. Students will investigate how communication is affected by such factors as: dimensions of cultures, cultural values, world views, relationships, and social institutions. Readings, guest speakers, discussions, learning activities, and assignments will help students become ethical and skillful intercultural communicators. (Sp)

SPCH 295 Independent Study in Speech

1-4

Prerequisite: Department Approval

Individual projects in speech communication. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)

SPEL - SPELLING DEVELOPMENT

SPEL 109 Spelling Development I

0-3

Prerequisite: Reading Level 3 and Writing Level 1

Focuses on basic spelling problems and principles progressing from elementary three-letter words through words frequently used but commonly misspelled. Prepares students for Spelling Development II. (F)

SPEL 110 Spelling Development II

3

Prerequisite: Reading Level 3 and Writing Level 2

Advances from intermediate to college level. Covers words frequently misspelled and misused in general college work and practical adult life situations. Includes meaning, pronunciation, and the most useful spelling principles plus their exceptions. (Sp)

SPEL 165 Business Spelling

2

Prerequisite: Reading Level 3 and Writing Level 2

Covers sophisticated and specialized college-level words frequently misspelled and misused in business. Includes general spelling principles and their exceptions, unusual and unexpected spellings in the context of dictation, pronunciation, proof-reading, and correct usage. (F, Sp)

STAT - STATISTICS

STAT 170 Introduction to Statistics

3

Prerequisite: (MATH 121 2.0 minimum or Math Level 8) and Reading Level 5 and Writing Level 4**Recommended:** Knowledge of Windows Software

This is a survey course in statistics for students in social science, psychology, education, and other nonbusiness disciplines. Topics studied include descriptive statistics, probability, random variables, normal distribution, t distribution, chi-square distribution, F distribution, confidence intervals, hypotheses testing, correlation, and linear regression. In addition, students will solve applied problems by completing required computer assignments using a statistical software package. (F, Sp, Su)

STAT 215 Intro to Probability and Stats

4

Prerequisite: (MATH 122 2.0 minimum or MATH 126 2.0 minimum or MATH 130 2.0 minimum or MATH 141 2.0 minimum) and Reading Level 5 and Writing Level 4**Recommended:** Knowledge of Windows Software

This is a first course in probability and statistics with emphasis on business applications. Topics studied include descriptive statistics, laws of probability, random variables, normal distribution, t distribution, chi-square distribution, F distribution, confidence intervals, hypothesis testing, correlation, and linear regression. In addition, students will solve applied problems by completing required computer assignments using a statistical software package. (F, Sp, Su)

STEC - STAGE TECHNOLOGY

STEC 100 Intro to Stage Tech Industry

2

Prerequisite: Department Approval

This course is an introduction to the stage technology industry for apprentices in the Michigan Stage Technician Apprenticeship Program. It presents the history and current status of the various segments of the industry and introduces basic skills, terminology, safety-concerns, and legal issues designed to prepare the apprentice for on-the-job training. (Su)

STEC 120 Stage Lighting and Electricity

3

Prerequisite: None

The beginning studies in basic electricity and lighting as they relate to the stage. The student will learn fundamentals of electricity, metering, dimming circuits, physics of light and optics, instrumentation, reading of a plot, and various schedules. The student will then apply them in a theater setting. The student will then apply them in a theater setting. (F)

STEC 130 Audio/Visual Technology

3

Prerequisite: None

An introduction to audio/visual equipment, principles, and practices used in the stage technology industry with an emphasis on convention and trade show settings. Sound amplification, lighting control systems, simple video camera operation, and various projection devices will be included. (Sp)

STEC 140 Theatrical Make-Up/Wardrobe 3
Prerequisite: None
 This course provides students with a working knowledge of the basic principles of makeup application, wardrobe maintenance, and working procedures in a production environment. Students are prepared to provide basic makeup and wardrobe services for live performing arts, including the theatrical play productions, dance productions, musicals, and operas. This course will also serve as an enrichment resource for community theater and area schools. (F)

SURG - SURGICAL TECHNOLOGY

SURG 100 Fundamental Surgical Tech 3
Prerequisite: Admission to Surgical Technology Program
Co-requisite Courses: SURG 101 and SURG 121 and SURG 122
 Introduction to role and function of the surgical technologist as a member of the surgical team. Lectures present all skills, procedures, and protocol necessary to participate in the operating room. (F)

SURG 101 The Surgical Patient 2
Prerequisite: Admission to Surgical Technology Program
Co-requisite Courses: SURG 100 and SURG 121 and SURG 122
 Lectures will present the protocol and procedures directly affecting the care and safety of the patient. This includes the ethical, legal, and moral responsibilities of the technologist, the concepts of patient care, and preoperative routines. (F)

SURG 103 Surgical Asepsis 2
Prerequisite: ANAT 145 2.5 minimum
 This course defines and describes pathogenic microorganisms and the causes and prevention of infection in the hospital. The student will be introduced to sterilization, disinfection, and other methods of controlling microbial growth. The process of wound healing is discussed. (F)

SURG 104 Operative Procedures 6
Prerequisite: AHCC 106 2.5 minimum and AHCC 110 2.5 minimum and SURG 100 2.5 minimum and SURG 101 2.5 minimum and SURG 103 2.5 minimum and SURG 122 2.5 minimum
Co-requisite Courses: SURG 123 and SURG 124
 Lectures will present indications for surgery, patient preparation, special equipment and supplies, purpose and expected outcome, and possible complications. (Sp)

SURG 121 Applied Surg Techniques I 1
Prerequisite: Admission to Surgical Technology Program
Co-requisite Courses: SURG 100 and SURG 101
 First clinical session at an assigned hospital. Application of theory in the use of surgical supplies and equipment before scrubbing in actual procedures. (F)

SURG 122 Applied Surg Techniques II 3
Prerequisite: SURG 121 2.5 minimum or Concurrently
Co-requisite Courses: SURG 100 and SURG 101
 Clinical session at hospital. Students' first experience of application of theory and clinical skills in actual surgical procedures. (F)

SURG 123 Applied Surg Techniques III 5
Prerequisite: SURG 122 2.5 minimum
Co-requisite Course: SURG 104
 Clinical session at hospital. Continued application of theory and clinical skills in advanced surgical procedures. (Sp)

SURG 124 Applied Surg Techniques IV 2
Prerequisite: SURG 123 2.5 minimum or Concurrently
Co-requisite Course: SURG 104
 Clinical session at hospital. Application of theory and clinical skills in advanced surgical procedures and surgical specialty areas. (Sp)

TDTP - TRUCK DRIVER TRAINING PROGRAM

TDTP 110 Truck Driver Training I 3
Prerequisite: Department Approval and Department of Transportation Physical
 This is the initial course in a sequence of three. This course is intended to prepare the student to pass the State of Michigan CDL written exam, review D.O.T. rules and proper driver's log book reporting. Some vehicle orientation is included. (F, Sp, Su)

TDTP 111 Truck Driver Training II 3
Prerequisite: Department Approval and Department of Transportation Physical
 This is the second course in a sequence of three. Students will operate the vehicles on the driving range and local roads, developing the skills necessary to interact with highway traffic. (F, Sp, Su)

TDTP 112 Truck Driver Training III 3
Prerequisite: Department Approval and Department of Transportation Physical
 This is the final course in the Truck Driver Training Program. The students will complete range driving and backing, do local highway driving, and complete an extensive road trip. The CDL third-party exam will be administered during this course. (F, Sp, Su)

TECH - TECHNOLOGY GENERAL

TECH 164 Boat Building 2
Prerequisite: None
 The students learn to build a boat with materials and processes using wood and modern adhesives and coatings in a manner suitable for work in a small shop. Subjects covered include boat design, alternate construction methods, materials required, and laying out the hull. (F, Sp, Su)

THEA - THEATER

THEA 091 Study Per Ws: Ply Per MS Stdnts 5
Prerequisite: None
 Students will perform an entire production of a chosen script. Focus in the workshop will be on basic acting skills, script analysis, script scoring, rehearsal techniques and strategies, and production skills. (Su)

THEA 110 Introduction to Theatre 3
Prerequisite: Reading Level 5
 Introduction to Theatre includes definition and analysis of theatrical art, incorporating script analysis, theatre history, the relationship between theatre and the culture from which it comes, and the roles of theatre practitioners. (F, Sp, Su)

THEA 111 Stagecraft I 2
Prerequisite: Department Approval
Recommended: Knowledge of Basic Math and Measurement
 Introduction to the techniques of stage craft for the performing arts: the basic fundamentals involved in tool usage and safety, stage lighting, lighting plot interpretation, and understanding of the organization of backstage production. (F, Sp, Su)

THEA 116 Scene Design I 3
Prerequisite: THEA 111 2.0 minimum or Concurrently
 Introduction to the elements of design and how they relate to performance. Introduction to color theory as it relates to paint, light, and fabric. Techniques of rendering, translation of a picture to three-dimensionality, spatial relationships, and development of a design concept also covered. (Sp)

THEA 120 Introduction to Acting 2
Prerequisite: None
 Explores various acting techniques and introduces the beginning student to the skills necessary to maintain a sustained dramatic performance. Theatre games and improvisation exercises to overcome stage fright and to develop concentration and listening skills are heavily emphasized. Students present final short scene. (F, Sp, Su)

THEA 131 Studio Theatre Performance I 1
Prerequisite: Theatre Studio Interview
Restriction: Theatre Majors
Co-requisite Courses: THEA 141 and THEA 171
 Course includes rehearsal, performance, and evaluation of a contemporary script. Focus is on an understanding and implementation of skills acquired in THEA 141 and the relationships experienced between actor and director. (F, Sp)

THEA 132 Studio Theatre Performance II 1
Prerequisite: THEA 131 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 142 and THEA 172
 Course includes rehearsal, performance, and evaluation of verse script or scenes from Shakespeare or the classical Greeks. Focus on application of skills acquired in THEA 142, and on relationship between actor and director. Majors only. (Sp, Su)

- THEA 141 Acting I - Contemporary** 2.5
Prerequisite: Theatre Studio Interview
Restriction: Theatre Majors
Co-requisite Courses: THEA 131 and THEA 171
 Fundamentals of acting, including improvisational techniques; mask work; the physical, vocal, and internal development of character; analysis and scoring by beats of a contemporary script. Majors only. (F, Sp)
- THEA 142 Acting II - Classics** 2.5
Prerequisite: THEA 141 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 132 and THEA 172
 Fundamentals of acting in heightened context. Students will pursue improvisational work, mask work, and scoring. Students will develop an understanding of the power of language through verse scansion and the physical, vocal, and internal development of characters from classical literature. Majors only. (Sp, Su)
- THEA 171 Dramatic Form and Function I** 3
Prerequisite: Theatre Studio Interview
Restriction: Theatre Majors
Co-requisite Courses: THEA 131 and THEA 141
 An analysis of modern contemporary classics of the theatre. The student will read and analyze a minimum of eight contemporary scripts from Ibsen to Shepard. The student will develop a comprehensive production concept for one of these scripts. (F, Sp)
- THEA 172 Dramatic Form and Function II** 3
Prerequisite: THEA 171 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 132 and THEA 142
 Dramatic Form and Function II focuses on the writings of Shakespeare and the classical Greeks. The student will read a minimum of eight classical scripts, analyze them using Aristotelian analysis, and research one script in terms of production styles through history. (Sp, Su)
- THEA 181 Improvisation** 2.5
Prerequisite: THEA 142 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 233 and THEA 251 and THEA 261
 By using the improvisational techniques of mask work and developmental exercises, this course will train the student in long-term, in-depth character development. (F)
- THEA 210 Theatre History** 4
Prerequisite: Reading Level 5 and Writing Level 6
Recommended: THEA 110
 Examination of the history of drama from primitive times to the present, introducing the overall pattern of theatre history with emphasis on European and American development. Required for all majors. (F)
- THEA 223 Directed Study** 1-3
Prerequisite: Department Approval
 Course for advanced students working under the guidance of faculty on special projects outside the scope of standard classroom instruction. (F, Sp, Su)
- THEA 224 Special Subjects in Theatre** 1-4
Prerequisite: Department Approval
 Seminar: Special Subjects in Theater is offered each summer and allows students to take a variety of short-term courses in various theater techniques. The seminar will offer either state-of-the-art techniques or an opportunity to work with professionals. Seminars may include: stage combat, playwriting, new techniques in acting. (Su)
- THEA 233 Studio Theatre Performance III** 1
Prerequisite: THEA 132 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 181 and THEA 251 and THEA 261
 Studio Theatre Performance III provides rehearsal and performance opportunities in oral interpretation and/or readers theatre presentations. Usually offered in eight-week format. Second-year theatre majors only. (F)
- THEA 234 Studio Theatre Performance IV** 1
Prerequisite: Studio Theatre Performance 4 Audition
 Studio Theatre Performance IV provides rehearsal and performance opportunities during a four-week format on an outdoor stage. Students will develop one character and work on physical and vocal projection for large spaces. Limited to individuals who have been selected as cast members in Turner House Festival Productions. (Su)
- THEA 235 Studio Theatre Performance V** 2
Prerequisite: THEA 233 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 241 and THEA 271 and THEA 281
 Studio Theatre Performance V provides the second-year theatre major an opportunity to explore a specific theatrical period or style in both rehearsal and performance. (F, Sp)
- THEA 237 Theatre Special Projects** 1-2
Prerequisite: Department Approval
 Student will be given the opportunity to direct, design, perform, or produce productions for College functions on the main stage or comparable space. Limited to individuals who have been selected as cast members or technical or design staff in a scheduled LCC performance. (F)
- THEA 238 Theatre Company** 2
Prerequisite: Theatre Application Process
 Students will be given the opportunity to direct, design, produce, or perform in College-supported outdoor theatrical events in the amphitheatre or a comparable space. Students will also participate in company class, in which new ideas in acting training will be presented. (Su)
- THEA 241 Acting III: Creating Theatre** 2.5
Prerequisite: THEA 142 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 235 and THEA 271 and THEA 281
 Explores acting techniques and styles of different historical periods and/or cultures. Student will survey a cross-section of acting styles and periods then focus on in-depth exploration of particular period or style. Class limited to second-year majors. In-depth area of study selected by instructor. (Sp)
- THEA 251 Stage Voice for the Actor** 3
Prerequisite: THEA 142 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 181 and THEA 233 and THEA 261
 Course will cover strategies in vocal production and variety; will focus on exercises to develop vocal flexibility from Lessac, Linklater, and/or Berry techniques; and will experience vocal techniques which lead to greater emotional awareness and responsiveness. For second-year theater majors. (F)
- THEA 261 Movement for the Actor** 2
Prerequisite: THEA 142 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 181 and THEA 233 and THEA 251
 Course will cover strategies developing student's physical endurance, reflect, flexibility, and grace. Students will learn the human inner experience in the sphere of human silence. Students may explore movement to music, mime, and/or dance styles and techniques from world cultures. For second-year theatre majors. (F)
- THEA 271 Dramatic Form and Function III** 3
Prerequisite: THEA 172 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 235 and THEA 241 and THEA 281
 Student will study a particular topic through different theatrical forms, plays, and historical periods. The class culminates in each student's selection of a topic and completion of research into the theatrical response to that topic. For second-year theater majors. (Sp)
- THEA 281 Advanced Improvisation II** 1
Prerequisite: THEA 181 2.0 minimum
Restriction: Theatre Majors
Co-requisite Courses: THEA 235 and THEA 241 and THEA 271
 Students will edit and polish scripts and performances. Students may also work improvisationally with local student groups to develop spontaneity, creativity, and cooperation. (Sp)
- THEA 283 Audition Workshop** 1
Prerequisite: THEA 142 2.0 minimum
Restriction: Theatre Majors
 An intense workshop in which participants prepare and polish audition materials suited for a professional audition or audition for advance training. Course usually taught by guest actors, agents, or teachers from larger theatrical or film markets. (Sp)

THEA 285 Stage Makeup 2
Prerequisite: None
 A course in the application of stage makeup to develop a character and to assist the actor in sustaining the character in performance. Emphasizes skills in the use of different kinds of makeup, hairstyling, and appearance changes. (Sp)

THEA 295 Acting Styles I 2
Prerequisite: Theatre Acting Styles Audition
 An elective course for advanced students, this course will give the student an opportunity to explore theatrical styles from musical theater to the Greeks. Style is selected by instructor previous to given semester. Usually offered in eight-week format. (F)

THEA 296 Acting Styles Performance 2
Prerequisite: Theatre Acting Styles Performance Audition
 Students choose to rehearse and perform an in-class presentation of skills developed in THEA 295. Usually offered in eight-week format. (Sp)

TRVL – TOURISM: AIRLINE AND TRAVEL AGENCY OPERATIONS

TRVL 100 Intro to Travel Agency Ops 3
Prerequisite: Reading Level 3
 An introduction to the career opportunities in travel agency, airline, and tour escorting operations. This class is designed to provide an overview of the travel industry—past, present, and anticipated future. (F, Sp, Su)

TRVL 110 Travel Agen Ticket Dom/Intn'l 3
Prerequisite: None
Recommended: TRVL 100
 The fundamentals of air scheduling, reading, and correctly using domestic and international air tariffs, and calculating the correct fares for air itineraries. Learning correct procedures for issuing accountable and non-accountable tickets. (F, Sp, Su)

TRVL 120 North American Travel I 3
Prerequisite: None
 History and development of the 50 U.S. states, Canada, and Mexico with specific location and identification projects. Major points of tourism interest will be discussed along with climate, ethnic influences, distances, and time zones. (F, Sp)

TRVL 125 Foreign Country Travel II 3
Prerequisite: None
 The history and development of Central America, South America, and the Caribbean with specific location and identification projects. These will include countries, capitals, principal cities, rivers, lakes, and mountains. Major points of tourist interest will be discussed along with climate, distances and time zones, passports, visas, and other entry requirements. (F, Sp, Su)

TRVL 130 Foreign Country Travel III 3
Prerequisite: None
 A study of history and development of the Middle East and Europe, with specific location and identification projects. Major points of tourist interest will be discussed along with climate, distances and time zones, passports and visas, and other entry requirements. (F, Sp, Su)

TRVL 131 Foreign Country Travel IV 3
Prerequisite: None
 A study of history and development of Africa, Asia, and the Pacific with specific location and identification projects. Major points of tourist interest will be discussed along with climate, distance, and time zones. Passports, visas, and other entry requirements will be covered. (F, Sp)

TRVL 135 Airline/Airport Operations 3
Prerequisite: None
 An introduction of tasks performed by airline and airport personnel along with the basic structure and functions of an airport and the airline carriers. Topics to be discussed include ticket counter operation, the gate area, cargo handling and loading, aircraft weight and balance, and various principles of aeronautics. (F, Su)

TRVL 140 Computer Reservation Training 3
Prerequisite: None
Recommended: TRVL 100 and Typing 30 wpm
 This is the first of a three-course sequence in instruction and use of the American Airlines SABRE airline reservation system. This course is designed to give the student the basic skills required for making airline computer reservations and use of SABREWORKS to create correspondence relating to the travel industry. (F, Sp, Su)

TRVL 145 Intro Cruise Sales/Ground Tran 3
Prerequisite: None
 An analysis of cruise, railroads, car rentals, and bus transportation, including how to sell the above. Other information will include costs, selling techniques, and how to select the best transportation for your client using current profiles and listings and reference materials for domestic and international destinations. (Sp, Su)

TRVL 146 Seminar at Sea 2
Prerequisite: None
 A course designed to develop a basic understanding of cruise lines and their ships. Students will be able to gain firsthand knowledge of cruise lines and pier/dock facilities and also have dialogue with cruise ship staff members and observe daily cruise activities. (Sp)

TRVL 150 Tourism/Travel Operations 3
Prerequisite: None
Recommended: TRVL 100
 An introduction to the principles of tourism, practices, and philosophies that offers a practical and realistic education in the business of tourism. (F, Sp)

TRVL 170 Open/Oper/Fran A Travel Agency 3
Prerequisite: None
Recommended: TRVL 100 and TRVL 110 and TRVL 140
 The description and explanation of the procedures involved in starting a new travel agency or acquiring an existing agency. The advantages and disadvantages of co-ops, consortiums, and franchising will also be discussed. This course will provide insight into travel agency operations from a management perspective. (F, Sp)

TRVL 180 Your Career/Flight Attendant 3
Prerequisite: None
Recommended: TRVL 135 and TRVL 150
 To provide information and practical knowledge of a career as a flight attendant via lectures, discussion, films, and demonstrations both in the classroom and on an aircraft. Information on the duties and responsibilities of the pilot and flight crew will be discussed. (F, Sp)

TRVL 190 Internship and Seminar 3
Prerequisite: None
Recommended: TRVL 100 and TRVL 150
 Available to students who have completed or are approaching 200 hours of work experience in tourism or travel agency operations. A term project is required. (Sp, Su)

TRVL 200 Profit Trvl Sale/Mktg/Counsel 3
Prerequisite: None
Recommended: TRVL 100 and TRVL 150
 An introduction to methods and techniques used in the modern travel agency covering the marketing environment, identifying consumer needs, and examining the product, price, and promotion. To accomplish the above, the art of negotiations, role-playing, telephone etiquette, and human relations skills will be included in the course content. (F, Sp, Su)

TRVL 210 Group Travel/Escorting Ops 4
Prerequisite: None
Recommended: (TRVL 145 and/or TRVL 220) and TRVL 150
 An overview of group tours and tour escorting operations, and policies and procedures required by most tour companies. Content includes how to locate groups, how to organize group travel, how to assemble the group tour package, and how to be an effective tour leader. (F, Sp)

TRVL 230 Travel/Tourism Law, Cur Events 3
Prerequisite: None
Recommended: TRVL 100 and TRVL 150
 A travel law course for travel agents and their personnel, as well as individuals interested in travel agency operations. The class creates an awareness of the responsibilities and rights which the law imposes upon and grants to the travel agent. The course will also discuss the consequences caused by failure in those responsibilities. (F, Sp)

TRVL 250 Advanced Computer Ticketing 3

Prerequisite: TRVL 140 1.0 minimum
Recommended: TRVL 110

The course will begin with review of materials learned in TRVL 140 and progress to pricing and ticketing, followed by fare construction, fare rules, car, and hotel reservations. SABREvision, the hotel display with pictures and maps, will be utilized, and further uses of SABREworks will be taught. (F, Sp, Su)

TRVL 251 Sabre Windows Conversion/Revi 1

Prerequisite: TRVL 250 1.0 minimum

This course is designed for the previously trained SABRE student to convert and/or review their knowledge and skills of SABRE to SABRE WITH WINDOWS. This course begins with a review of materials and progresses to hands-on training using Windows applications to create reservations. (F, Sp, Su)

TRVL 255 Advanced Sabre Training 3

Prerequisite: TRVL 250 1.0 minimum

A course designed to give extended use of the American Airlines SABRE computer. Skills will be taught in the expanded capabilities of the computer in use of international reservations and ticketing, tour bookings, fare storing, and destination information. Skills taught in the use of SABREworks, using spreadsheets and databases. (F, Sp, Su)

TRVL 260 Travel Agency Accounting 2

Prerequisite: None

A course designed to explain and describe basic travel agency accounting concepts. Approximately one-half of the course will be dedicated to the compilation and interpretation of financial statements. The other half of the course will discuss how accounting systems should be constructed for the travel agency business. (F, Su)

VCBL - VOCABULARY IMPROVEMENT

VCBL 109 Vocabulary Improvement 2

Prerequisite: Reading Level 5 and Writing Level 4

Knowledge of and extensive practice with word parts (roots, prefixes, and suffixes) are used to develop skills in building vocabulary. Emphasis given to correct oral and written usage, dictionary skills, and mastery of troublesome words. (F, Sp)

WELD - WELDING TECHNOLOGY

WELD 100 Combination Welding 4

Prerequisite: None

This is a beginning theory and practice course which will introduce the safe operations and applications of oxyacetylene welding, cutting, brazing, and shielded metal arc welding. Practice will consist of these methods of joining steel in the horizontal, flat, and vertical positions. Destructive testing will also be provided. (F, Sp, Su)

WELD 101 Advanced ARC Welding 4

Prerequisite: WELD 100 1.5 minimum

Students will develop the skills necessary to produce quality multiple pass fillet and groove welds on steel plates. Conventional and low hydrogen electrodes are used in preparation of passing performance tests in all positions. Destructive testing methods, weld profiles and welding symbols as related to arc welding are introduced. (F, Sp, Su)

WELD 110 Gas Metal ARC Welding 4

Prerequisite: WELD 100 1.5 minimum

Provides technical understanding and applications of gas metal arc welding and flux cored arc welding. Fundamentals, safety, equipment adjustments, metal transfers, and shielding gases will be covered. Develops manual skill in all positions on different thicknesses and types of metals, including basic programming of an automated robot cell. (F, Sp, Su)

WELD 111 Gas Tungsten ARC Welding 4

Prerequisite: WELD 100 1.5 minimum

Students will develop the skills, principles, and applications of gas tungsten arc welding and plasma arc welding. Welds will be done on different thicknesses of ferrous and non-ferrous metals in all positions. Proper material cleaning, fit up, and safety are also introduced. (F, Sp, Su)

WELD 120 Struct Fabrication/Inspec 4

Prerequisite: WELD 101 1.5 minimum

Introduction to steel fabrication in accordance with the American Welding Society Structural Welding Code D1.1 applications and requirements. The student will be introduced to the numerous destructive and nondestructive methods of welding inspections. Satisfactory completion of this course will assist the student in passing a welding certification test. (F, Sp)

WELD 125 Struct Blueprint Reading Weld 2

Prerequisite: MATH 050 1.0 minimum or Math Level 4

Blueprint and welding symbols are the universal language of the welding industry. It is developed for students, apprentices, technicians, and others who must develop the ability to read and accurately interpret blueprints. Teaches awareness of the advancement in metallurgy, welding processes, consumables, and strict code enforcement used in industry today. (F)

WELD 191 Welding Project Lab 1

Prerequisite: Department Approval

An opportunity for students to expand upon welding skills in maintenance welding, production welding, resistance welding, and/or tool and die welding, depending on the direction the student would like to take his or her welding skills. Actual projects must be discussed and agreed upon by both the instructor and the student. (Sp)

WELD 201 Tool and Die Welding 4

Prerequisite: WELD 101 1.5 minimum and WELD 111 1.5 minimum

Theory and practice methods involved in welding various alloyed metals, preheating and postheating of metals, recognition of materials, alloying elements and their effects. The proper usage of air, oil, and water hardening steels will also be covered. (F, Sp)

WELD 205 Pipe Welding 4

Prerequisite: WELD 101 1.5 minimum

Theory, cutting, fit up, and practice on different sizes of pipe using shielded metal arc welding. Varied weld and base metal testing methods are used to the strict code requirements. Focus on low hydrogen type electrodes in groove and fillet welds in the 2G, 5G, and 6G positions. (F)

WELD 210 Aircraft Welding 2

Prerequisite: Department Approval

Presents welding applications and methods used in repairs and inspection of aircraft structures in accordance with approved aviation maintenance techniques. (F, Sp)

WRIT - WRITING

WRIT 101 Writing Laboratory I 1

Prerequisite: Reading Level 1 and Writing Level 1 and Department Approval

Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 102 Writing Laboratory II 2

Prerequisite: Reading Level 1 and Writing Level 1 and Department Approval

Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 103 Writing Laboratory III 3

Prerequisite: Reading Level 1 and Writing Level 1

Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRIT 104 Writing Laboratory IV 4

Prerequisite: Reading Level 1 and Writing Level 1

Designed to teach fundamental writing skills and improve confidence and self-esteem. Provides a personal program combining one-to-one tutoring with directed practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

<p>WRIT 110 Confidence in Writing 4 Prerequisite: Reading Level 3 and Writing Level 2 Recommended: Minimal Typing Skills Desirable Designed to help students understand the writing process, reduce writing anxiety, and develop basic writing skills. Emphasizes planning, composing, and revising strategies for experiential writing. Provides frequent writing practice in a supportive workshop environment. Students who earn exit competency in this will have a writing skill level of 4. (F, Sp, Su)</p> <p>WRIT 111 Writing Preparation I 2 Prerequisite: Reading Level 3 and Writing Level 2 Recommended: Minimal Typing Skills Desirable Prepares students for Writing Preparation II by teaching students to see themselves as writers, to take responsibility for developing their writing and editing skills, and to use language skills interactively to support their writing projects. The classroom offers a supportive workshop environment; the lab offers individualized tutorial assistance with editing skills. (F, Sp, Su)</p> <p>WRIT 114 Business English 3 Prerequisite: Reading Level 3 and Writing Level 4 This course is designed to review all parts of grammar, punctuation, and sentence structure. There will be special emphasis on usage of rules covering proper usage of punctuation, capitalization, possessives, number usage, plurals, and mechanics for written business communication. Business English is required for machine transcription and business communication. (F, Sp, Su)</p> <p>WRIT 117 Writing Preparation II 4 Prerequisite: Reading Level 3 and Writing Level 4 Recommended: Minimal Typing Skills Desirable Designed to help students improve their writing in preparation for transfer-level academic courses. Students who earn exit competency in this course will have a writing skill level of 6. (F, Sp, Su)</p> <p>WRIT 118 Personal Writing 3 Prerequisite: None Explores the various forms of personal writing (diaries, journals, letters, personal narratives, and autobiography) through written exercises and selected readings. The student's observations and life experiences are the focus of written assignments. Emphasizes language, style, and tone appropriate to the different forms of personal writing. (F, Sp)</p> <p>WRIT 119 Writing Skills Review 1 Prerequisite: Reading Level 5 and Writing Level 6 Designed to help WRIT 121-122 composition students, and others, improve their basic sentence and mechanics skills by providing intensive writing and editing practice in a workshop setting. (F, Sp, Su)</p> <p>WRIT 121 Composition I 4 Prerequisite: Reading Level 5 and Writing Level 6 The study and practice of expository and argumentative discourse to help students write more effectively. Emphasizes writing process, critical thinking, content development, organization, and style. Students will select their best work for their portfolio, which will be externally assessed. Some sections use computers. Others are offered over Internet or interactive television. (F, Sp, Su)</p> <p>WRIT 122 Composition II 4 Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 8) Builds upon the writing skills developed in WRIT 121 to help students write argumentative essays which use logical support and appropriate documentation. Emphasizes research techniques and use of sources, and the development, structure, and style of the research paper. Some sections use word processing and networked computer classrooms. (F, Sp, Su)</p> <p>WRIT 124 Technical Writing 3 Prerequisite: Reading Level 5 and Writing Level 6 Recommended: Computer and/or Keyboarding Experience A college-level course in the study and practice of technical writing in a variety of formats for select audiences. Covers writing business letters, short reports and memos, formal reports, instructions and definitions, and job application letters and résumés. Students learn basic research techniques. Students will work individually and collaboratively. (F, Sp, Su)</p>	<p>WRIT 127 Business Communications 3 Prerequisite: Reading Level 5 and Writing Level 6 Recommended: Computer and/or Keyboarding Experience College-level study of the theory and practice of business communication in a variety of forms, with emphasis on letters, memoranda and written reports, including research-based reports. Also covers job applications and résumés, collaborative oral reports, and employment interviews. (F, Sp, Su)</p> <p>WRIT 128 Business Report Writing 3 Prerequisite: Reading Level 5 and Writing Level 6 This course defines the wide range of reports required in the business world. It emphasizes conducting research, using primary and secondary sources, and writing both informal and formal business reports and proposals. An oral presentation is also required. (F, Sp)</p> <p>WRIT 131 Honors Composition I 4 Prerequisite: Reading Level 5 and Writing Level 7 Covers the same material as WRIT 121 but with additional work to challenge the superior writer. (F, Sp)</p> <p>WRIT 132 Honors Composition II 4 Prerequisite: WRIT 121 3.5 minimum or WRIT 131 3.5 minimum Builds upon the writing skills developed in WRIT 121 to help students write argumentative essays which use logical support and appropriate documentation. Emphasizes research techniques and use of sources, and the development, structure, and style of the research paper. Some sections use word processing and networked computer classrooms. (F, Sp)</p> <p>WRIT 195 Writing User Documentation 3 Prerequisite: None Designed for data processing students and professionals. Teaches students to write effective documentation for users of computer systems. Focuses on writing step-by-step procedures explaining the responsibilities and activities of users. Emphasizes the clear, precise communication necessary for successful system operation and smooth work flow. (F, Sp)</p> <p>WRIT 252 Prose Style 3 Prerequisite: None An advanced study of non-fictional prose writing. Extensive directed practice helps experienced writers make their own writing clear, precise, direct, and graceful. Workshop sessions include a study of the expectations and choices in various types of writing, and of the relationships among purpose, structure, words, sentences, grammar, punctuation, and style. (Sp)</p> <p>WRIT 269 Reviewing the Arts 3 Prerequisite: None Develops criteria for evaluating the visual and performing arts, music, and literature. Sharpens the student's skills as a reviewer of the arts through reading, writing, and viewing mass media presentations, exhibits, and performances on- and off-campus. Concepts of form, content, style, and medium of expression will be introduced. (Sp)</p> <p>WRIT 281 Writing for Publication 3 Prerequisite: None Recommended: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum Study of freelance writing and marketing, with focus on nonfiction. Students review a variety of effective writing techniques, study marketing information for their particular fields such as analyses of potential publishers and query letters, and discuss their writing in a workshop setting. Students prepare manuscripts for submission to editors. Word processing available. (F)</p> <p>WRIT 282 Forum for Authors 3 Prerequisite: WRIT 281 2.0 minimum An advanced course in freelance writing for authors working on manuscripts. Students meet in a workshop setting to refine ideas, critique writing, solve problems, and develop material for submission to periodical or book editors. Includes advanced study of effective writing techniques and market information. Occasional speakers. Word processing available. (Sp)</p> <p>WRIT 285 Creative Writing I 3 Prerequisite: None Recommended: WRIT 121 WRIT 285 is designed to help students develop expressive abilities in writing poetry and short stories. Emphasizes narrative modes of the short story, traditional meter, and free verse forms of poetry. Includes models from students and masters in both fiction and poetry. (F, Sp)</p>
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WRIT 286 Creative Writing II

3

Prerequisite: WRIT 281 2.0 minimum or WRIT 285 2.0 minimum
Emphasizes improving the ability to write effective poems, short stories, and novellas. Students select their own subjects and receive immediate responses through group discussion. (F)

WRIT 287 Writing Workshop

3

Prerequisite: Department Approval
Examines language and style as the most critical choices a creative writer makes in directing the reader's perception of and response to the work. Develops the writer's ability to control tone and style. Manuscripts will be reproduced and discussed in a workshop setting. (Sp)

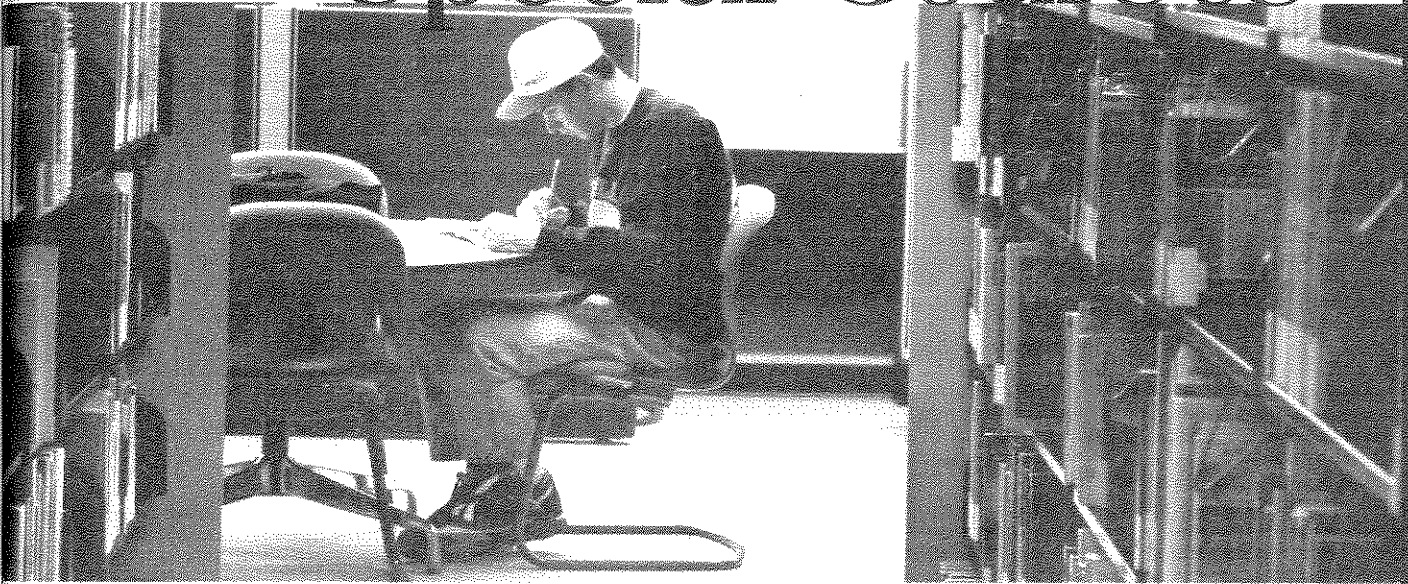
WRIT 295 Independent Study in Writ

1-4

Prerequisite: Department Approval
Individual projects in writing or journalism. Students will spend at least two hours a week for each credit in independent study. (F, Sp, Su)

LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

Special Courses



Special Courses



The following courses are generally not offered for enrollment by individual students. These courses are designed in cooperation with various organizations such as businesses, governmental agencies, school districts, labor organizations, or other groups to meet their special needs.

DESCRIPTIONS

- CHEM 115 Environmental issues of Japan** 3
Prerequisite: None
 The course will include a discussion of several global environmental problems as they relate to Japan. Specific topics include air pollution, water pollution, solid waste management, the ozone layer, the greenhouse effect, nuclear energy, and disposal of radioactive wastes. (Su)
- COOP 271 Cooperative Education MDOT I** 3
Prerequisite: Department Approval
Restriction: Civil Technology Majors
 Provides first-year civil technology students with practical work experience in their career field. The student works for the Michigan Department of Transportation (MDOT) in jobs related to highway and bridge construction as well as attending in-class instruction. Enrollment is restricted to MDOT Civil Technology cooperative education students. (Su)
- COOP 272 Cooperative Education MDOT II** 3
Prerequisite: Department Approval
Restriction: Civil Technology Majors
 Provides second-year civil technology students with practical work experience in their career field. The student works for the Michigan Department of Transportation (MDOT) in jobs related to highway and bridge construction, as well as attending in-class instruction. Enrollment is restricted to MDOT Civil Technology cooperative education students. (F, Su)
- FIRE 290 Fire Officer Seminars** .25-1
Prerequisite: None
 This seminar consists of 18 individual weekend seminars leading to certification as Fire Officer I, II, III. These courses are presented by the National Fire Academy through the auspices of the Michigan Fire Fighter's Training Council. (F, Sp)
- FIRE 293 High Angle Rescue** 3
Prerequisite: None
 A hands-on seminar for fire department members who desire to participate in high angle rescue operations. Equipment is provided for the class. (F, Sp, Su)
- FIRE 294 Tactical and Heavy Rescue Op** 4
Prerequisite: None
 Tactical rescue encompasses low angle trench and confined space rescue elements. This seminar is hands-on. Adherence to safety requirements is stressed. (F, Sp, Su)
- FIRE 298 Confined Space Rescue** 1
Prerequisite: None
 The Confined Space Rescue emphasizes practical techniques and considerations when effecting rescue from vessels, sewers, tanks, and other confined areas. This seminar is hands-on. Adherence to safety requirements is stressed. (F, Sp, Su)
- HMFS 170 Menu Design and Layout** 3
Prerequisite: None
Recommended: HMFS 101 and HMFS 131 and HMFS 135
 Design a menu using the principles acquired in this hands-on class. Topics include a brief history of the food service industry, and issues related to the menu such as pricing, development, presentation analysis, and accuracy. Semester project required. (F)
- HMFS 177 Intro Hotel and Food Serv Ops** 1
Prerequisite: None
 An introduction to the hotel-motel-food service industry, its management departments, and responsibilities. Designed specifically for Japan Adventure/ Horizon students. (F, Sp, Su)
- HMFS 180 Japan Adventure Internship** 2
Prerequisite: None
 Attend morning meeting each working day. Perform work duties as assigned by the student supervisor(s) and the host company. (F, Sp, Su)

- HMFS 181 Japan Adventure Internship** 2
Prerequisite: None
 Attend morning meeting each working day. Perform work duties as assigned by the student supervisor(s) and the host company. (F, Sp, Su)
- HMFS 183 Practicum in Japanese Culture** 2
Prerequisite: None
 Introducing the principles and philosophy of Japanese calligraphy and the use of abacus and understanding of various types of Japanese traditional dresses. Practical training in calligraphy and abacus. (F, Sp, Su)
- HMFS 185 Practicum in Japanese Culture** 3
Prerequisite: None
 Introducing the principles and philosophy of Japanese calligraphy and the use of abacus and understanding of various types of Japanese traditional dresses. Practical training in calligraphy and abacus. (F, Sp, Su)
- HUMS 125 Japan: Past and Present** 3
Prerequisite: WRIT 121 2.0 minimum or WRIT 131 2.0 minimum or (Reading Level 5 and Writing Level 6)
 This course traces the development of Japan's tradition with strong emphasis on history, religion, and literature. Further, this course demonstrates that modern Japan can best be understood in light of its distinctive traditions. (Sp)
- POLS 280 Politics & Government of Japan** 3
Prerequisite: None
 An introduction to the Japanese governmental structures and political process, with emphasis on the unique characteristics of Japanese political culture, Japanese style of decision-making, and Japanese concepts of democracy. (F, Sp)
- RDGR 101 Personal Reading I** 1
Prerequisite: Reading Level 1 and Writing Level 1
 May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)
- RDGR 102 Personal Reading II** 2
Prerequisite: Reading Level 1 and Writing Level 1
 May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)
- RDGR 103 Personal Reading III** 3
Prerequisite: Reading Level 1 and Writing Level 1
 May be taken concurrently with other reading courses to provide extra instruction and practice. One-to-one instruction. Requires enrollment in READ 005 (lab). (May repeat for credit three times.) (F, Sp, Su)
- SDEV 110 Leadership Development** 3
Prerequisite: None
 Provides an opportunity to develop leadership skills through study, observation, and application. Assists students in increasing their understanding of themselves, and the theories and techniques of leadership. Specific skills include: understanding your personal philosophy, visioning, logic and creativity in decision-making, servant leadership, ethics, building trust, empowering others, resolving conflict, leaders as changemakers, leading with goals, time management, and situational leadership. (F)
- SDEV 111 Leadership Development II** 2
Prerequisite: SDEV 110 2.0 minimum
 Provides an opportunity to further develop and apply leadership skills introduced in the previous course. Students will learn and apply skills related to conference planning, implementation, and evaluation. Students will serve on Lansing Community College committees and volunteer in community organizations. (Sp)
- SDEV 112 Leadership Development III** 2
Prerequisite: SDEV 111 2.0 minimum
 Provides an opportunity to apply leadership skills introduced in SDEV 110 and learn skills related to program review and evaluation. Students will evaluate the first year of the leadership program, conference, and application process and make recommendations. Students will also serve on Lansing Community College committees and volunteer in community agencies. (F)

SDEV 113 Leadership Development IV 2**Prerequisite:** SDEV 112 2.0 minimum

Provides an opportunity to apply leadership skills introduced in SDEV 110/SDEV 112 and learn skills related to candidate screening and selection. Students will select first-year leadership program participants and evaluate the second year of the program. Students will serve on Lansing Community College committees and volunteer in community agencies. (F, Sp)

SOCL 280 Intro to Japanese Culture 3**Prerequisite:** None

An introduction to contemporary Japan in its cultural context. Emphasis is on the unique features of the Japanese way of life in terms of Japanese values, social system, and cultural background. (F, Sp)

WRTR 101 Writing Practice I 1**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval

May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRTR 102 Writing Practice II 2**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval

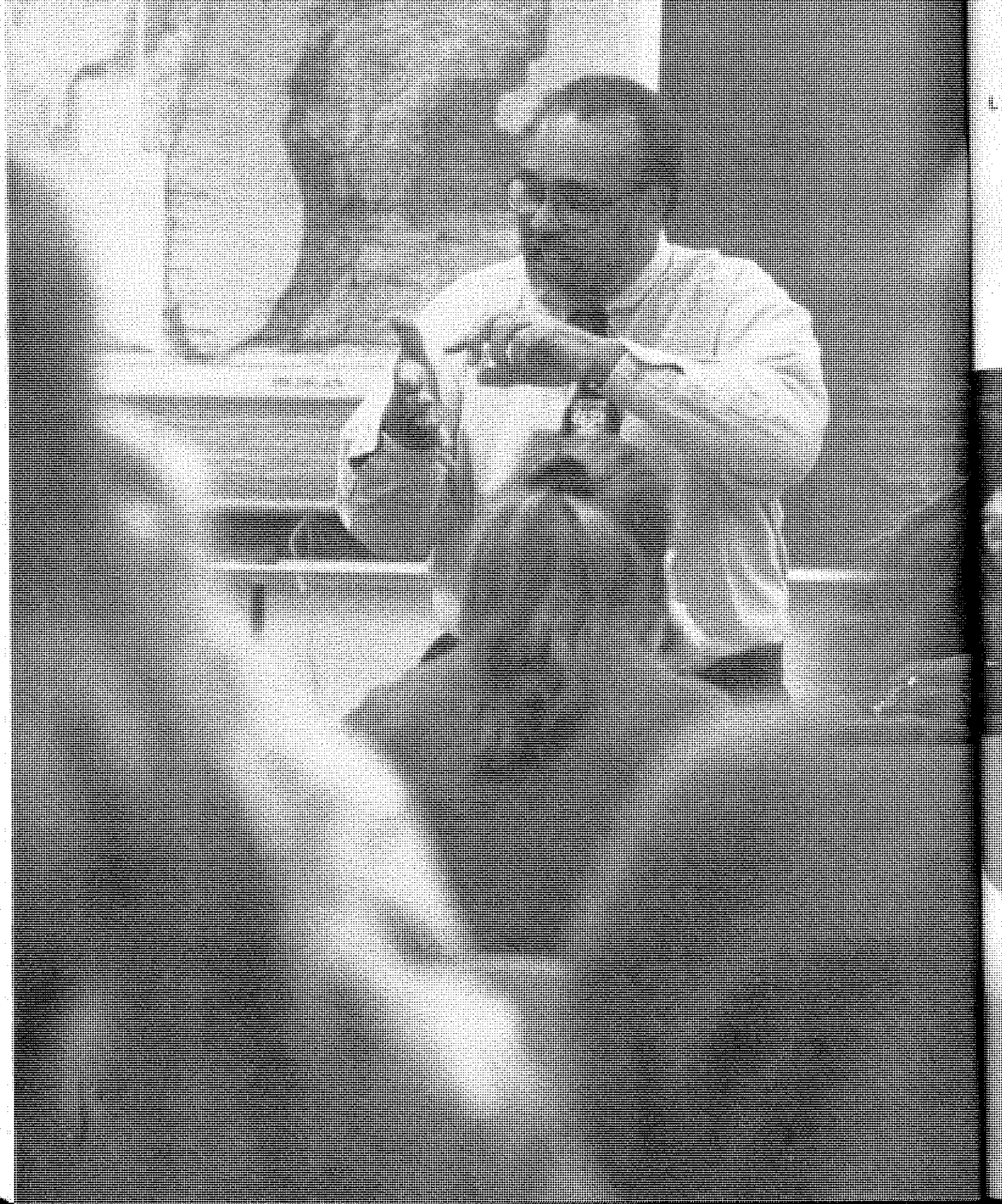
May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRTR 103 Writing Practice III 3**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval

May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)

WRTR 104 Writing Practice IV 4**Prerequisite:** Reading Level 1 and Writing Level 1 and Department Approval

May be taken concurrently with other writing courses to provide extra individualized instruction and practice. Requires enrollment in WRIT 005, which arranges times for laboratory attendance. (May repeat for credit three times.) (F, Sp, Su)



LANSING COMMUNITY COLLEGE 1999-2000 CATALOG

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and Staff

Faculty and Staff

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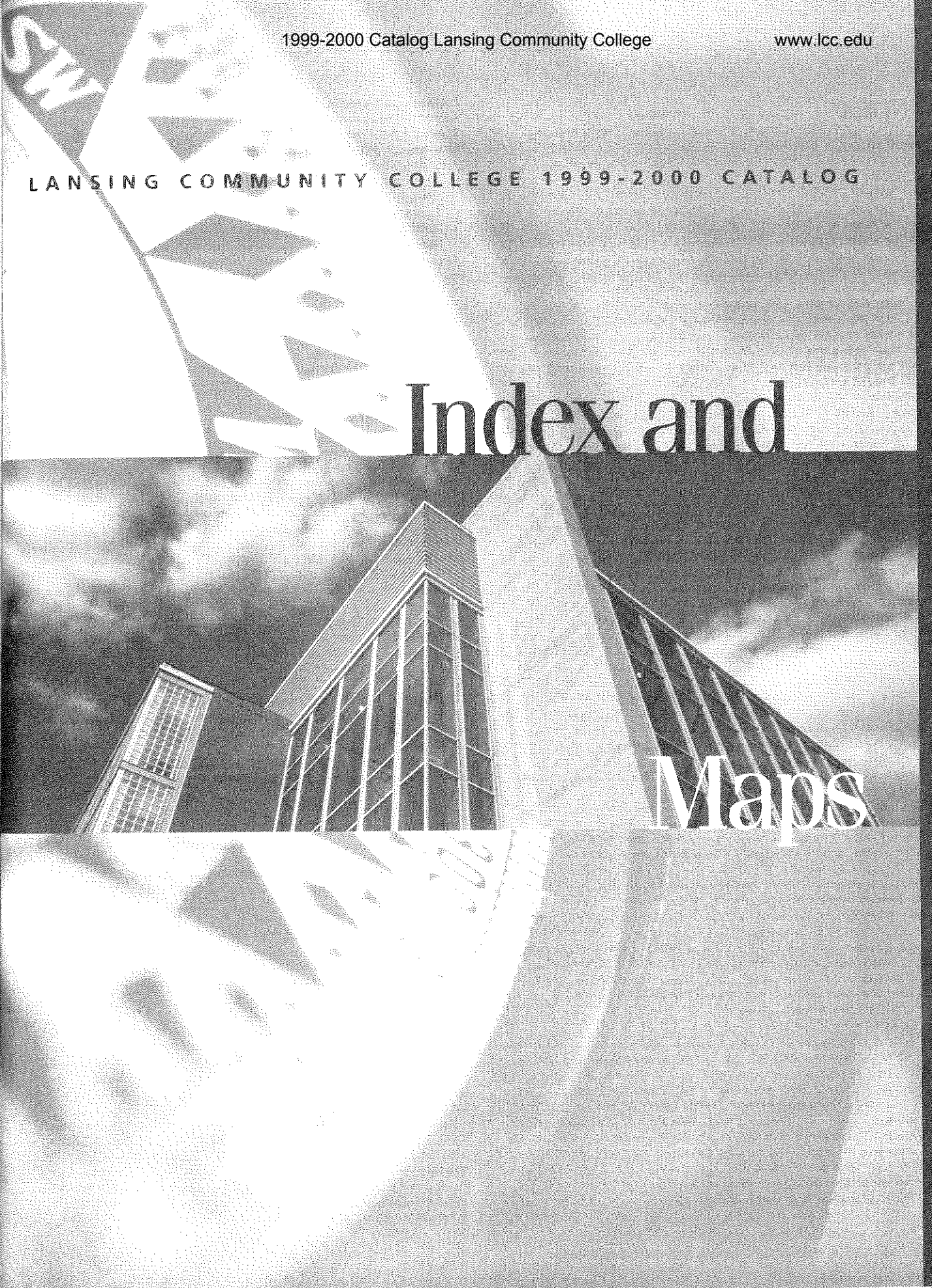
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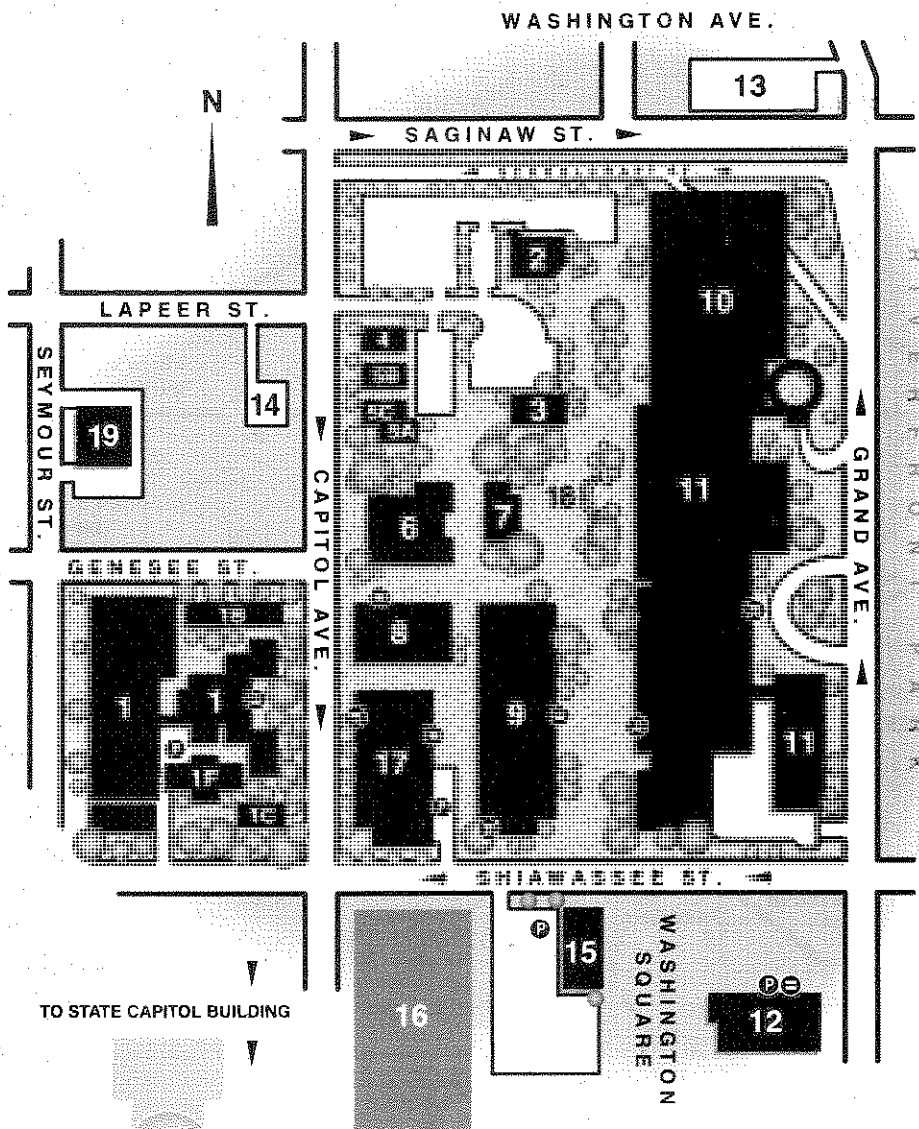
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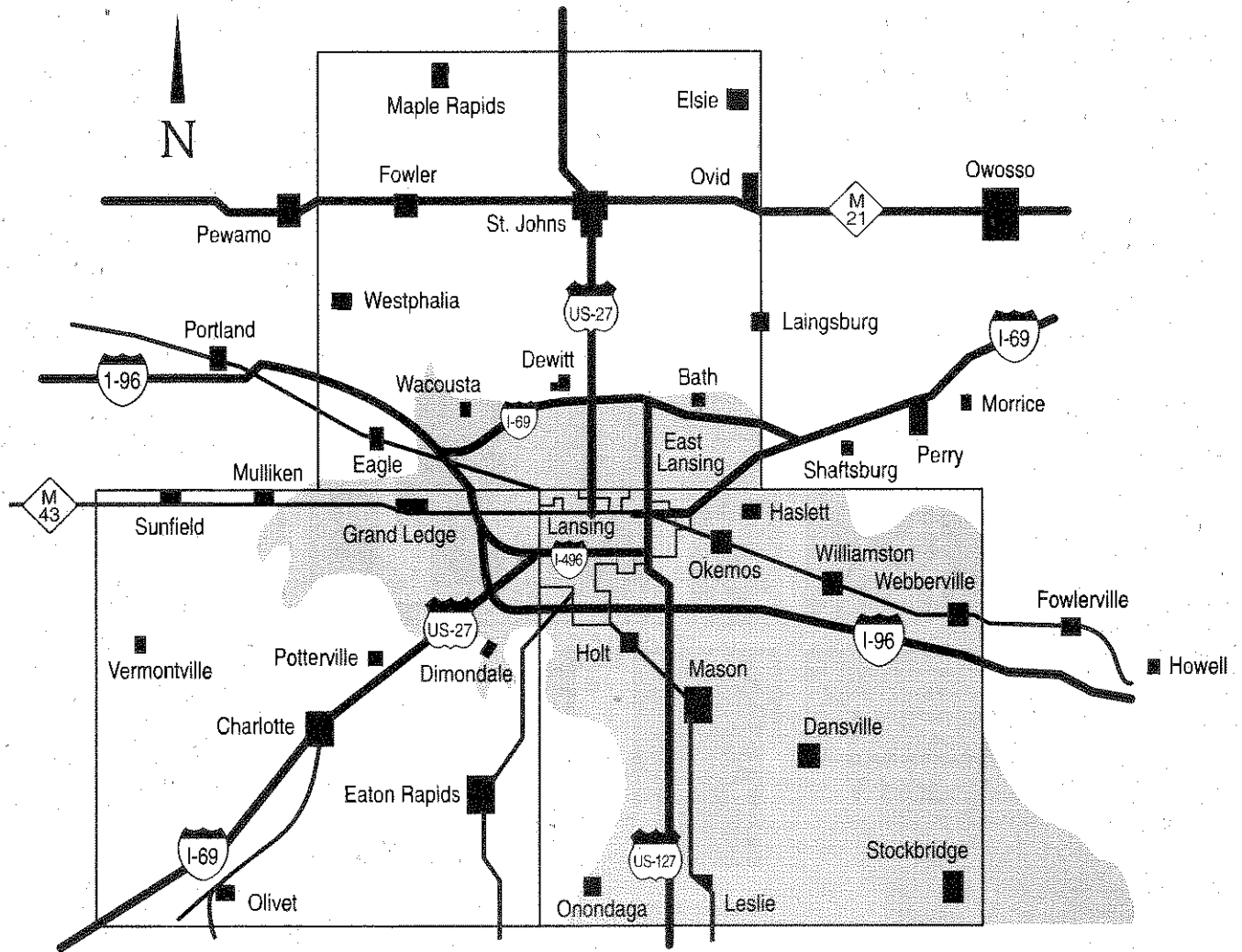
Campus Map



- 1B. Office Unit B (OUB)
- 1C. Office Unit C (OUC)
- 1F. Office Unit F (OUF)
- 1. Old Central (OC)
- 2. Photography Center (PC)
- 3. Administration (ADM)
- 4. North House (NH)
- 5. Hermann Conference Center Complex (HCC)
- 5A. Hermann Conference Center
- 5B. Rogers-Carrier House
- 5C. LCC Board Room
- 6. Dart Auditorium (DRT)
- 7. Turner House (TH)
- 8. Student Personnel Services (SPS)
- 9. Arts and Sciences (A&S)
- 10. LCC Parking Ramp (Quick Card and Cash)
- 11. Gannon Vocational-Technical Center (GVT)
- 12. Academic and Office Facility (AOF)
- 13. Student Employee Parking Lot (Student Employee Parking Card Only)
- 14. Parking Lot (Quick Card Only)
- 15. Continental Building (CB)
- 16. City Parking Ramp (Quick Card and Cash)
- 17. Technology and Learning Center (TLC)
- 18. LCC Outside Amphitheater
- 19. Business & Community Institute (BCI)

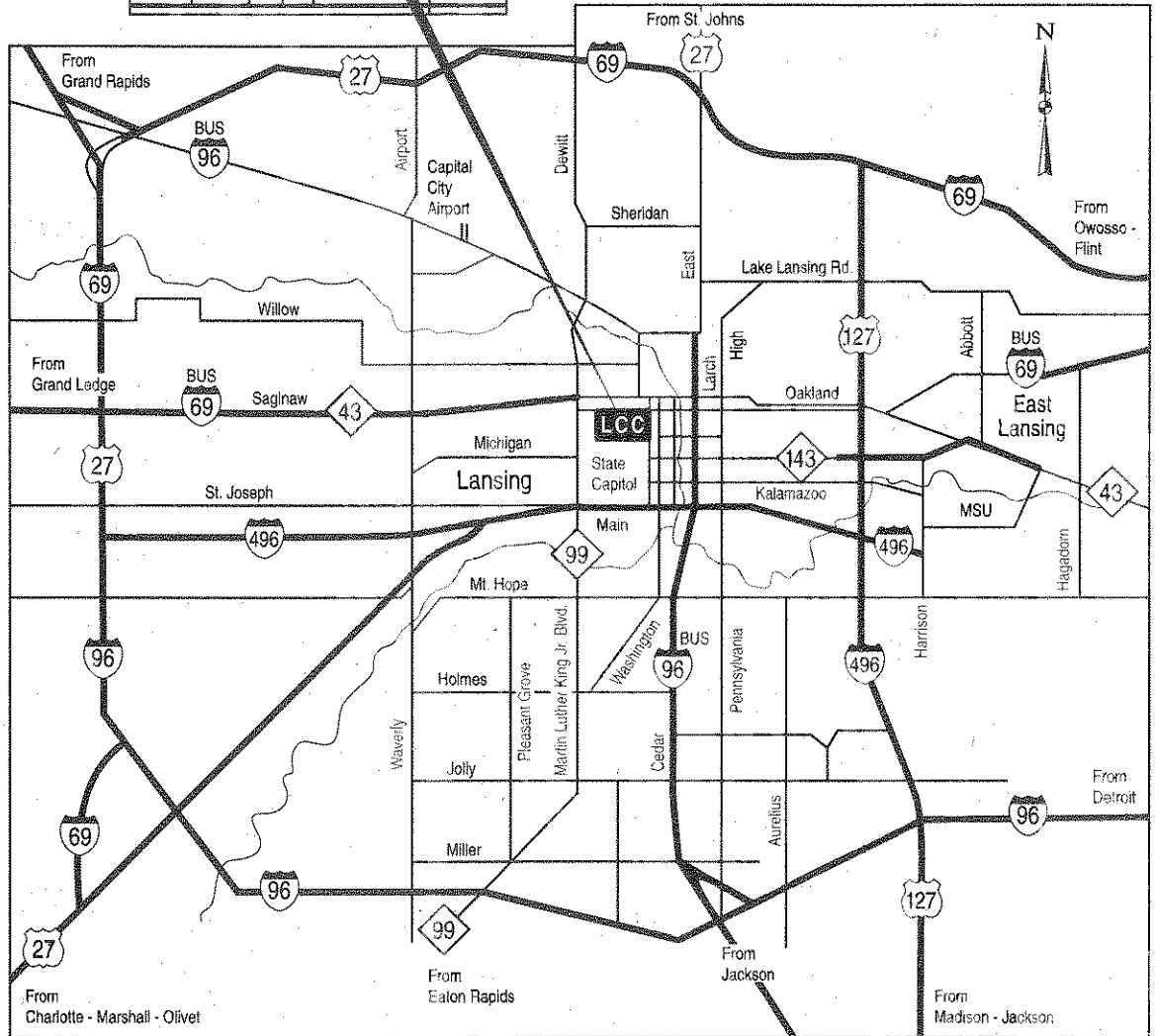
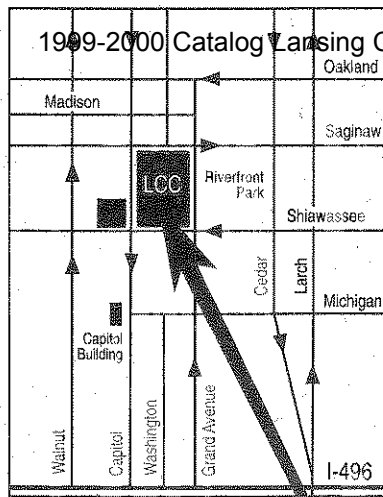
- ⊕ Handicapper Entrances with Electronic Doors (Push-button electronic door at 2nd floor entrance of GVT from parking ramp)
- ⊙ Handicapper Parking (parking on 2nd floor of Parking Ramp and other marked spaces)

Service Area Map



The following School Districts constitute the LCC Resident District

Lansing Area Map



Visitors to Lansing Community College

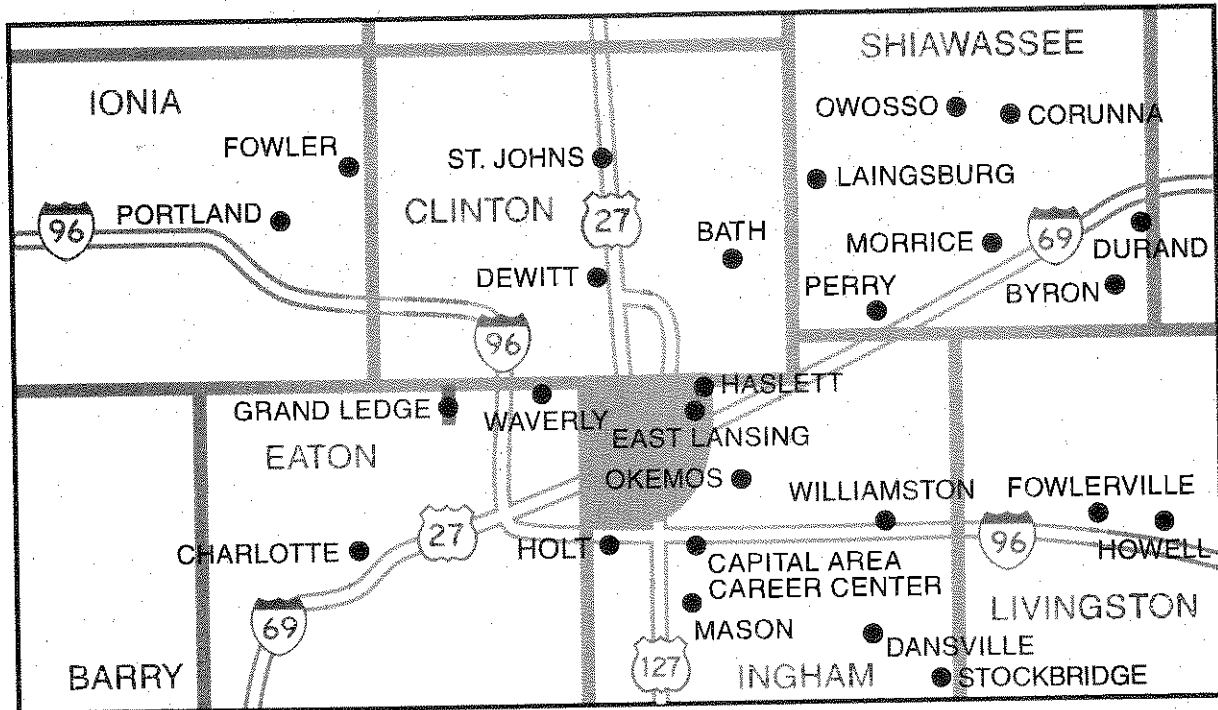
The LCC Visitor Parking Area is located in the AutoCenter Courtyard in the 400 block of Grand Avenue

Entering the Lot

1. Traveling north on Grand Avenue, the AutoCenter Courtyard is located just past the intersection of Grand Avenue and Shiawassee Street.
2. Visitor parking is located along the south wall of the Courtyard (on your left as you drive in). All visitor spaces are posted with signs.
3. Attach your visitor parking permit (using the sticky tape) to the left rear window (not the side window) so the permit is visible from the rear of the car.
4. Throw away your visitor parking permit (after the expiration date) when use is completed.

Learning Center Locations

Extension and Community Education



● LCC classes are held at local schools in partnership with Community Education Offices in these locations.

For more information call the Extension and Community Education Office at (517) 483-1860

CHARLOTTE
Charlotte High School

DANSVILLE
Dansville High School

DEWITT
DeWitt High School

EAST LANSING
Bailey Community Center
East Lansing High School

FDWLER
Fowler High School

FOWLerville
Fowlerville High School

GRAND LEDGE
Grand Ledge High School
Grand Ledge Sawdon

HASLETT
Haslett High School

HOLT
Holt Computer Center
Holt High School
Holt Horizon School
Holt Junior High School

HOWELL
Livingston County Center
Howell High School

LANSING
Cristo Rey Community Center
Crown Boxing Center
E.W. Sparrow Hospital
Lansing Catholic Central
Lansing School District
Michigan Capital Medical Center
Black Child and Family Institute

MASON
Capital Area Career Center
Heartwood School
Mason High School

OKEMOS
Okemos Community
Education Center
Nokomis Center

OWOSSO
Owosso High School

PORTLAND
Portland High School

SHIAWASSEE COUNTY
Byron High School
Corunna High School
Durand High School
Laingsburg High School
Morrice High School
Perry High School
Shiawassee RESD

ST. JOHNS
Rodney B. Wilson School
St. Johns High School

STOCKBRIDGE
Stockbridge High School

WAVERLY
Waverly High School
Waverly Middle School

WILLIAMSTON
Williamston High School