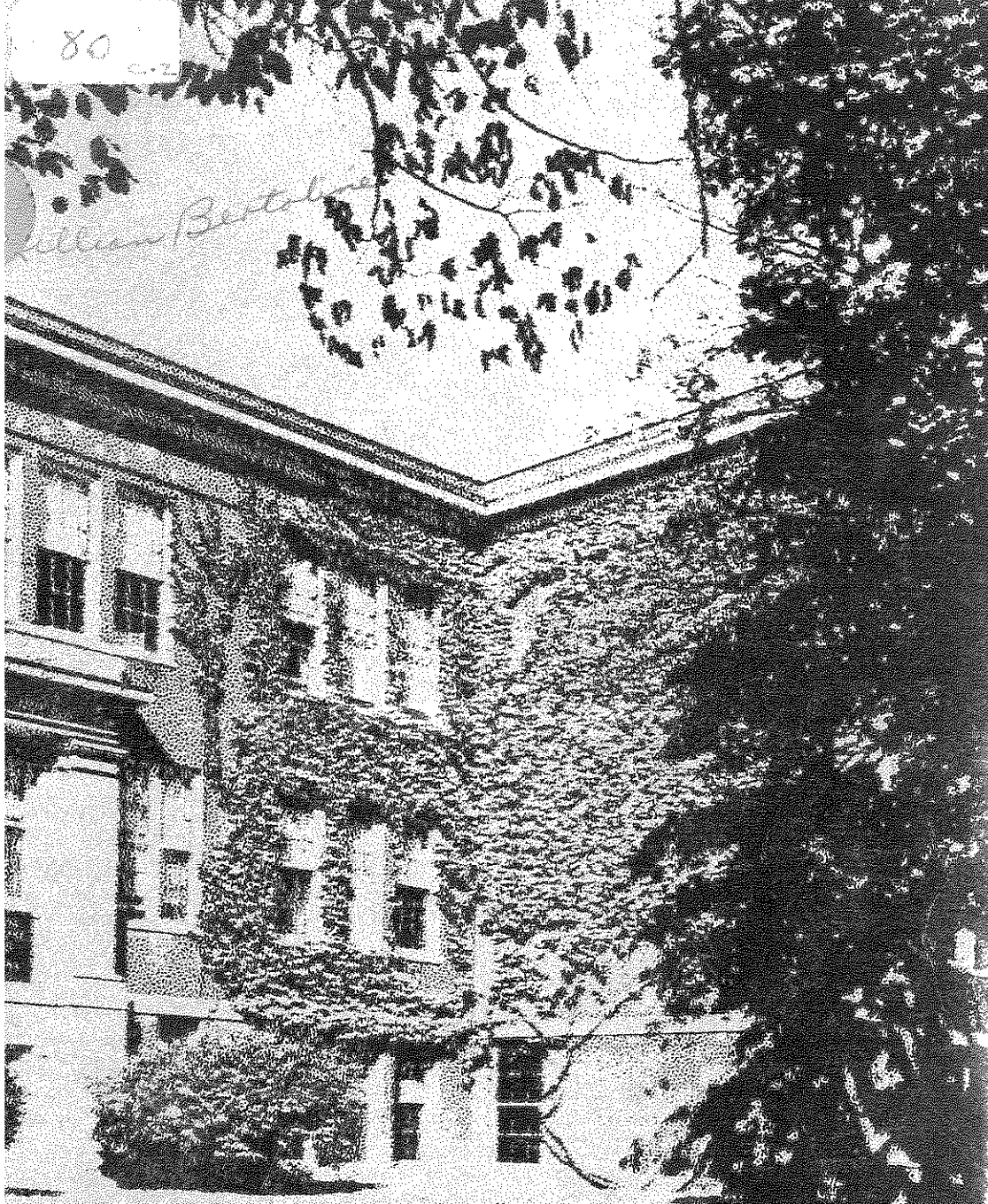


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5-2

*William Best*



**LANSING  
COMMUNITY COLLEGE  
1963/64**

**LANSING BOARD  
OF EDUCATION**

MR. VERNON EBERSOLE, *President*

\*MR. STEPHEN KRAS, *Vice President*

MRS. ALFRED NUSSDORFER, *Secretary*

\*MR. HAROLD A. MOORE, *Treasurer*

\*MRS. ROBERT GIBSON, JR.

\*MR. CLARENCE H. ROSA

MR. THOMAS C. WALSH

\*Community College Committee

DR. FORREST G. AVERILL, *Superintendent of Schools*

MR. PHILLIP J. GANNON, *Dean of the College*

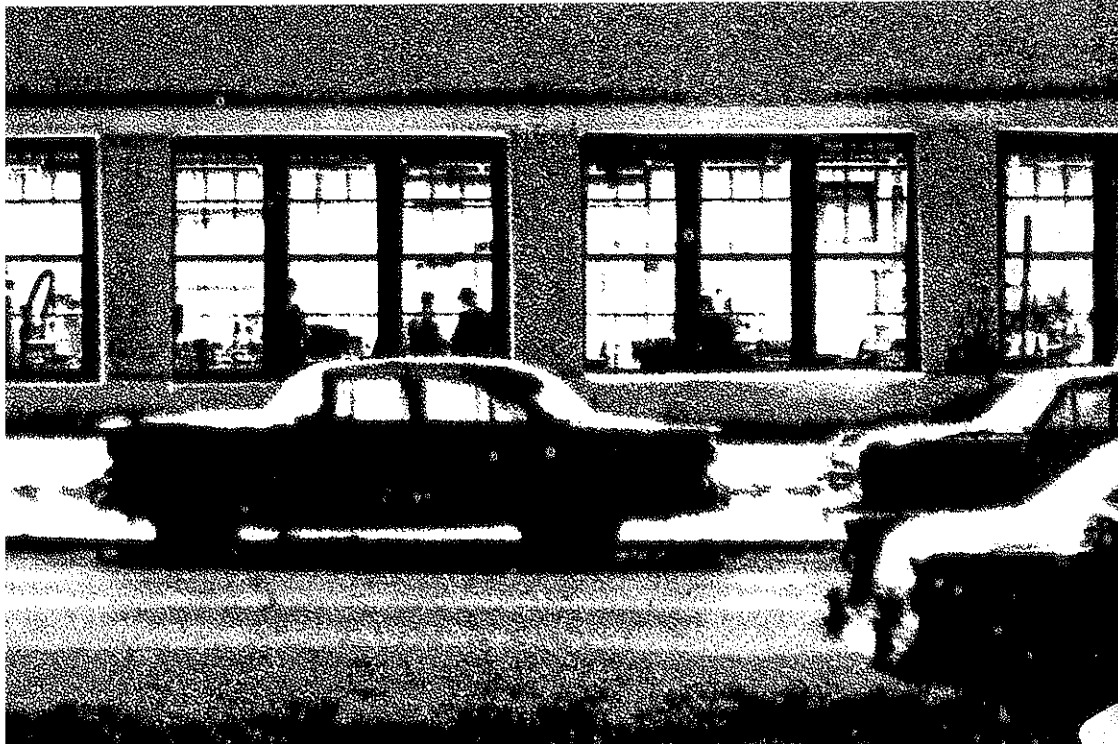


Professional Resource Center  
LANSING COMMUNITY COLLEGE

**1963/64**  
**LANSING**  
**COMMUNITY**  
**COLLEGE**

419 N. Capitol Ave.  
Lansing, Michigan  
Telephone 489-2471

Catalog Number 5



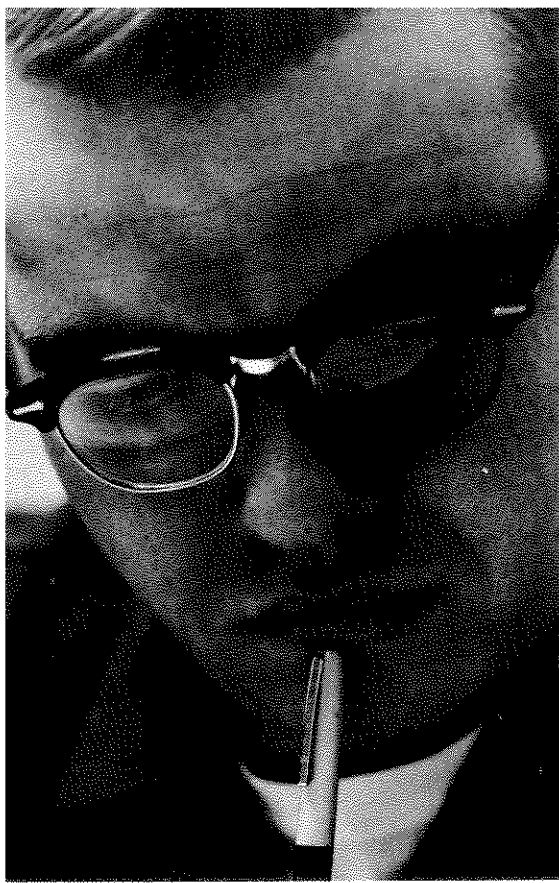
## PURPOSE AND PHILOSOPHY

The Lansing Board of Education, a publicly elected board which has jurisdiction over the Lansing Public Schools and the College, has stated that the purpose of the Lansing Community College is to fulfill four needs:

1. The need in this community for technical and semi-professional programs for students now employed or contemplating employment by government, industry, or business;
2. The need for programs parallel to those provided in the freshman and sophomore years in the arts and sciences and pre-professional fields at four-year, degree granting colleges and universities for those students who will transfer to such institutions;
3. The need for general education programs for those who require a year or two of additional work beyond high school;
4. The need for cultural programs for adults and general community service.

Lansing Community College has endeavored to carry out each of these objectives through comprehensive educational programs and services. It is fulfilling the first objective through programs in business, engineering technologies, the applied sciences, and health science; the second through arts and sciences; and the third through general education programs for all students, so that regardless of their ultimate academic goals they will have a common core of general education. In addition, the College provides general courses for part-time students who wish to pursue their individual interests. It provides community services for the greater Lansing area primarily through special course offerings developed in cooperation with advisory groups representing business, industry, labor and government. Faculty members and students, through their participation in local cultural activities sponsored by other community agencies, are directly involved as participants. The College makes available physical facilities to recognized community groups for this purpose.

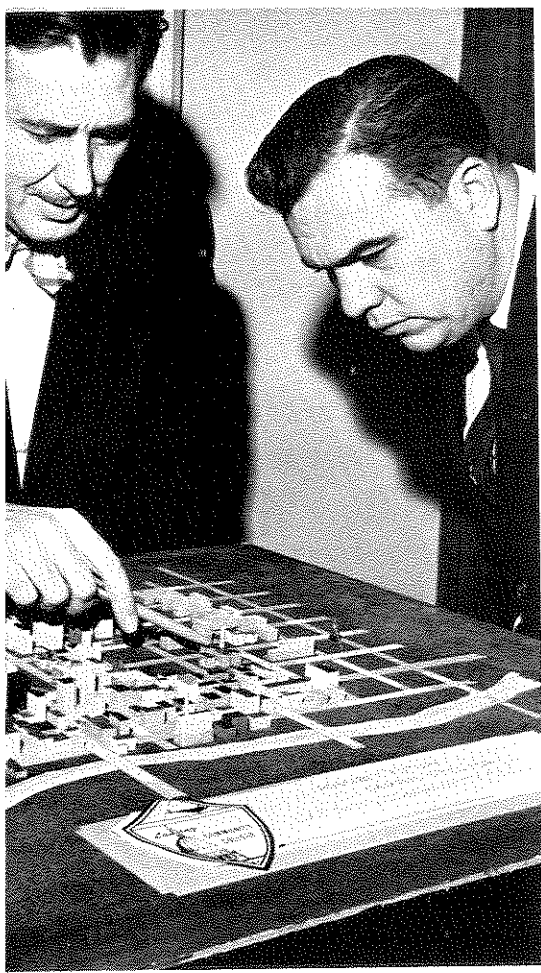
To use its facilities efficiently and meet the demands of business, industry, government, and the increasing number of students requesting an opportunity for higher education, the College offers its programs on a day and evening, six-day week, twelve-month basis. Because the College belongs to and is a part of the Lansing community, it is prepared, within the framework of its purpose, to design programs to meet new educational needs of the community.



It is not sufficient that this College be judicious in the selection of staff, comprehensive in its offerings and imaginative enough to develop time schedules which allow for full utilization of existing facilities. These are necessary, of course, but only contribute toward an environment within which the role of the College may be fulfilled.

The College staff, in concerning itself with fundamental questions regarding student and college responsibilities, has determined that:

1. The student will be aided in realizing his intellectual potential through an individualized approach to his education. Small classes and personal faculty guidance will aid the student in achieving this objective.
2. The student must be encouraged to bear responsibility for his educational goals and to pursue academic excellence to the limits of his ability.
3. The student and the institution, aware that the world is rapidly changing, culturally and technologically, must search together diligently for the truth concerning the heritage of this republic and its roots in western civilization and other cultures as they pertain to the dignity and freedom of man. This search should enhance the student's awareness of his responsibility as a citizen of his community, state, nation, and the world.
4. The student, whatever his selected program of study, must gain further insight into his values as these values relate to himself and his fellow man.



# LANSING COMMUNITY COLLEGE STAFF

Anderson, Raymond O. .... Counselor  
 B.S., University of Michigan  
 M.A., University of Michigan  
 Graduate Study, Western Michigan University, Michigan State University

Antico, John ..... English  
 B.A., Wayne State University  
 M.A., Wayne State University  
 Graduate Study, Michigan State University

Arganian, David ..... History  
 B.A., University of Wisconsin  
 M.A., University of Wisconsin  
 Graduate Study, Michigan State University

Bailey, Perry ..... Geography  
 A.B., Western Michigan University  
 M.A., Columbia University  
 Ph.D., Ohio State University

Balmer, Harold ..... Engineering Drawing  
 B.S., Western Michigan University  
 M.A., Michigan State University

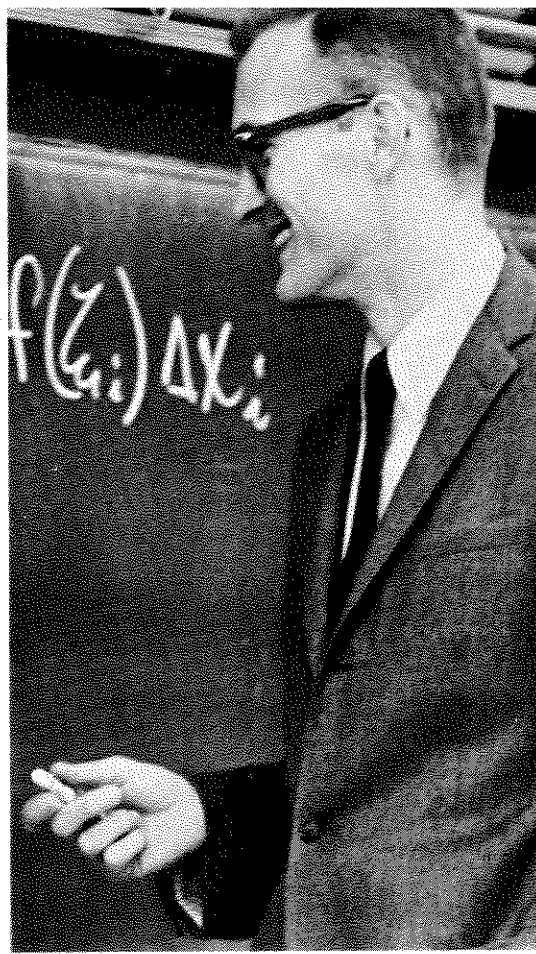
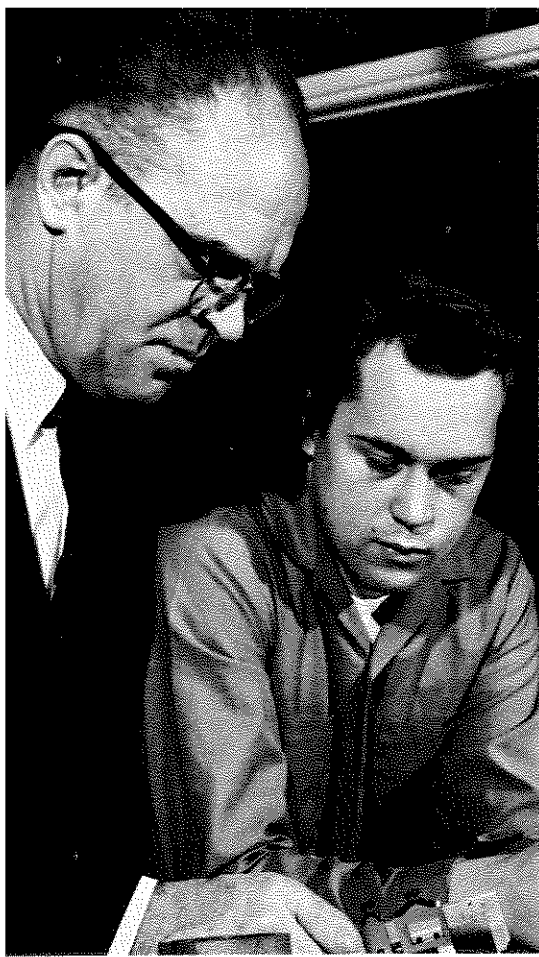
Banks, Walter R. .... Social Science  
 B.A., Rutgers University  
 M.A., Michigan State University  
 Graduate Study, Michigan State University

Benedict, Frank ..... Administrative Assistant  
 B.M., Michigan State University  
 M.A., University of Michigan  
 Graduate Study, Michigan State University

Bouterse, Gloria ..... Divisional Chairman,  
 Health Sciences  
 R.N., Edward W. Sparrow Hospital  
 B.A., Michigan State University

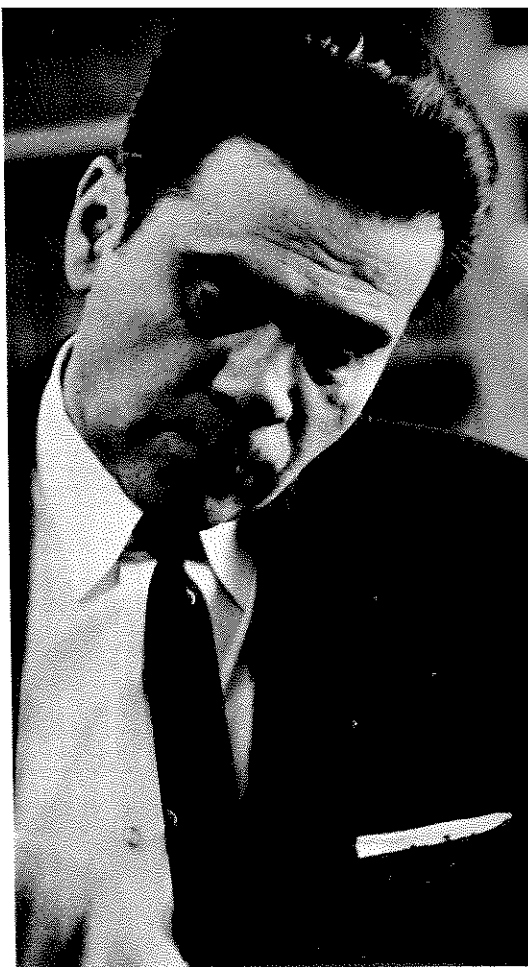
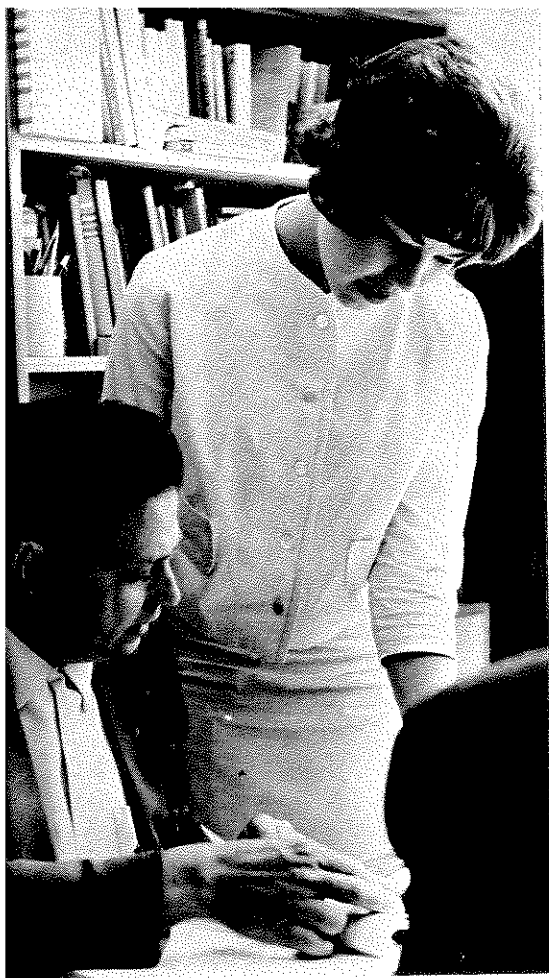
Bucklin, William ..... Social Science  
 B.S., Montana State College  
 M.A., Michigan State University  
 Graduate Study, Michigan State University

Campbell, Paul ..... Counselor  
 B.A., Tennessee Temple  
 M.A., Baylor University  
 Graduate Study, Michigan State University



- Clark, James .....History  
 B.A., Oberlin College  
 M.A., Harvard University  
 Graduate Study, Michigan State University  
 University of Michigan
- Elliston, Angela .....English  
 B.A., University of Illinois  
 M.A., University of Illinois
- Flory, Frank C. ....Mechanical Technology  
 B.S., Eastern Michigan University  
 M.A., University of Michigan  
 Graduate Study, Michigan State University
- Gannon, Philip J. ....Dean  
 B.A., Albion College  
 M.A., Michigan State University  
 Graduate Study, Duke University  
 Columbia University  
 Michigan State University
- Graf, Edwin .....Mechanical Technology  
 B.S., Michigan State University  
 M.A., Michigan State University  
 Graduate Study, Michigan State University

- Greenfield, Mary .....Divisional Chairman,  
 Business  
 B.A., Michigan State University  
 M.S., University of Michigan  
 Graduate Study, Michigan State University
- Hamelin, Ardath .....Nursing Arts,  
 Practical Nursing  
 R.N., Edward W. Sparrow Hospital
- Hinderleider, Arthur .....Apprentice Training  
 Bricklaying
- Hopkins, George .....Business  
 B.S., Kent State University  
 M.S., Western Michigan University
- Horiszny, John .....Transportation and  
 Traffic Management  
 Diploma – General Motors Institute  
 Additional Study, Michigan State University
- Hotchkiss, Ray .....Speech  
 B.A., Albion College  
 M.A., Michigan State University  
 J.D., Wayne University



Huggett, Floyd .....Natural Science  
 B.S., Western Michigan University  
 M.S., Michigan State University  
 Graduate Study, Michigan State University

Jacobs, Annette .....Speech  
 B.A., University of Wisconsin

Jaroske, Stanley .....Physics & Natural Science  
 B.S., Michigan State University

Johnson, Ivory .....Chemistry  
 B.S., Michigan State University  
 M.S., Michigan State University  
 Graduate Study, Michigan State University

Johnson, Ralph .....Civil Technology  
 B.S., Michigan State University  
 Registered Professional Engineer

Jones, J. Howard .....Mathematics  
 B.S., Illinois State Normal University  
 MAT, Michigan State University

Jones, V. H. ....English  
 B.A., University of Chicago  
 M.A., University of Chicago  
 Graduate Study, Michigan State University

Keith, John .....Counselor  
 B.A., G.B.S. College  
 M.A., Bowling Green State University  
 Graduate Study, Michigan State University

Kelly, Ruth P. ....Mathematics  
 B.A., Michigan State University  
 M.A., Michigan State University

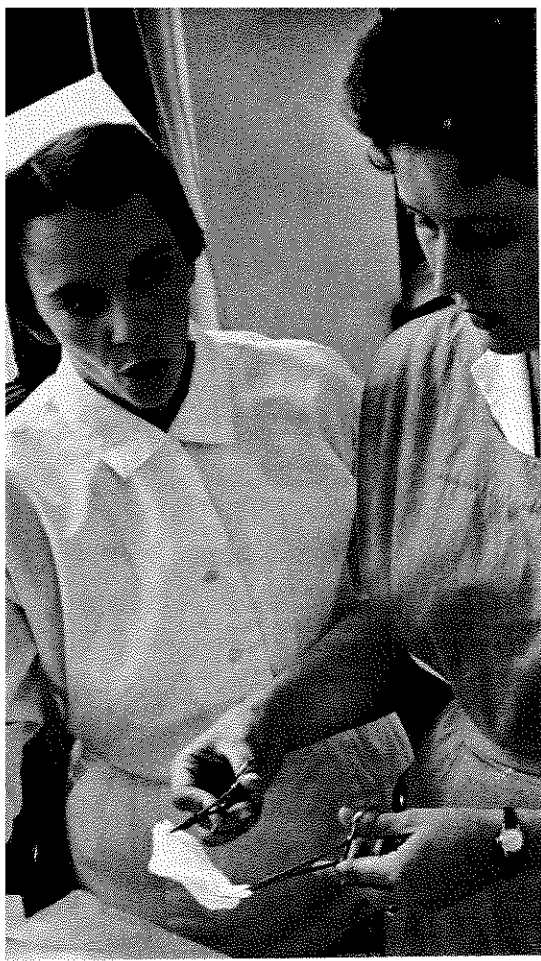
Kreider, Paul .....Counselor  
 B.A., Owosso College  
 M.A., Butler University  
 Graduate Study, Michigan State University

Lawton, David .....English & Foreign Language  
 B.A., Hiram College  
 M.A., Western Reserve University  
 Diploma in Advanced Graduate Studies,  
 Michigan State University

LeClear, Francis E. ....Electronics Technology  
 B.S., Michigan State University  
 Graduate Study, Michigan State University

Lehman, Fred .....Apprentice Training  
 Plumbing





Little, Edward .....English, and  
Foreign Languages  
B.A., Hiram College  
M.A., University of Michigan  
Graduate Study, Kent State University  
University of Montreal  
Syracuse University  
Michigan State University

Loomis, Tom .....Chemistry  
B.S., New Mexico State University  
Graduate Study, Michigan State University

Lubbers, Margery A. ....Practical Nursing  
R.N., B.S., Michigan State University

McClure, James ....Social Science  
B.A., Michigan State University  
M.A., Michigan State University

McDonald, Jack R. ....Natural Science  
B.S., Central Michigan University  
Graduate Study, Central Michigan University,  
Michigan State University

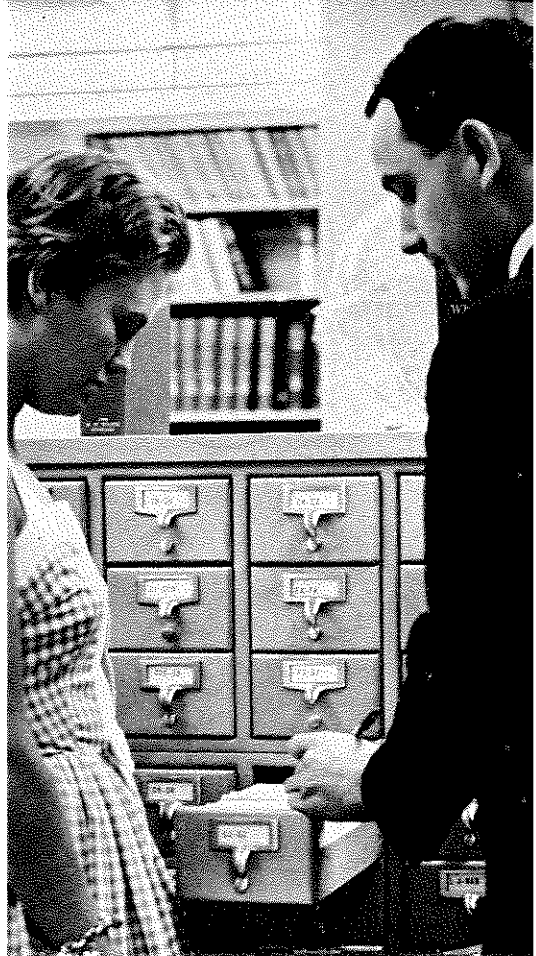
McKinstry, Douglas .....Engineering Drawing  
B.S., University of Illinois

MacClure, Thomas W. ....Divisional Chairman,  
Engineering Technologies and Applied  
Sciences  
B.S., Michigan State University  
Graduate Study, Michigan State University

Machtel, David .....Music  
B.M., University of Wisconsin  
M.A., University of Wisconsin  
Ed.D., Columbia University

Manion, John .....English  
B.A., Washington State University  
M.A., Washington State University  
Graduate Study, Michigan State University

Manley, Thomas R. ....Natural Science  
B.S., Wayne State University  
M.S., Wayne State University  
Graduate Study, Michigan State University



Matheny, Kenneth .....Divisional Chairman,  
 Arts & Sciences Division  
 A.B., Olivet Nazarene College  
 M.A., University of Kansas City  
 Graduate Study, Johannes Gutenberg Uni-  
 versity  
 Ph.D., Michigan State University

Mogis, Ruby .....Business  
 A.B., Walla Walla College, Washington  
 M.A., Michigan State University

Morley, Nancy .....Physical Education  
 B.S., Michigan State University

Mortimore, Elfriede .....Philosophy  
 B.A., Michigan State University  
 M.A., University of Chicago

Nevai, Janos .....Physical Education  
 B.A., Magyor Pestuevelesi Foiskola  
 M.A., Magyor Pestuevelesi Foiskola  
 Graduate Study, Michigan State University

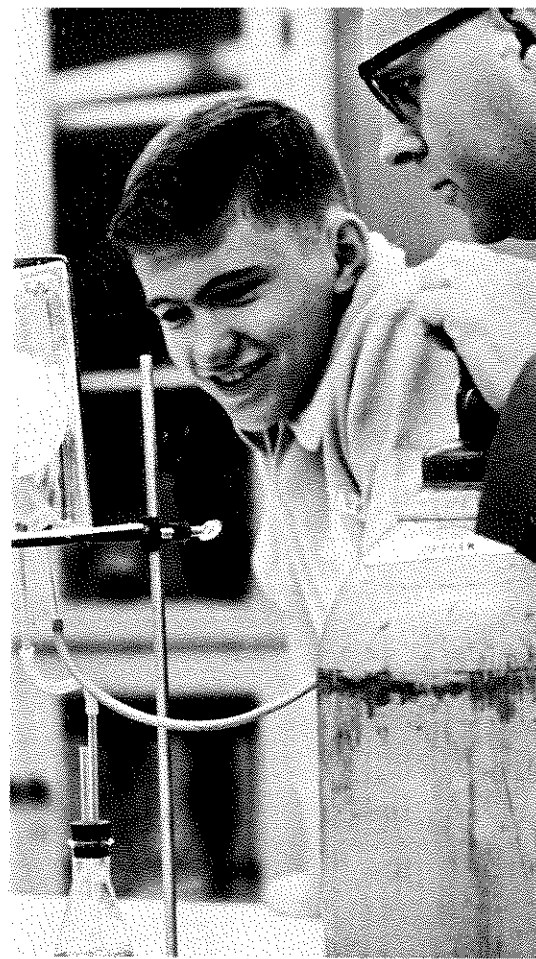
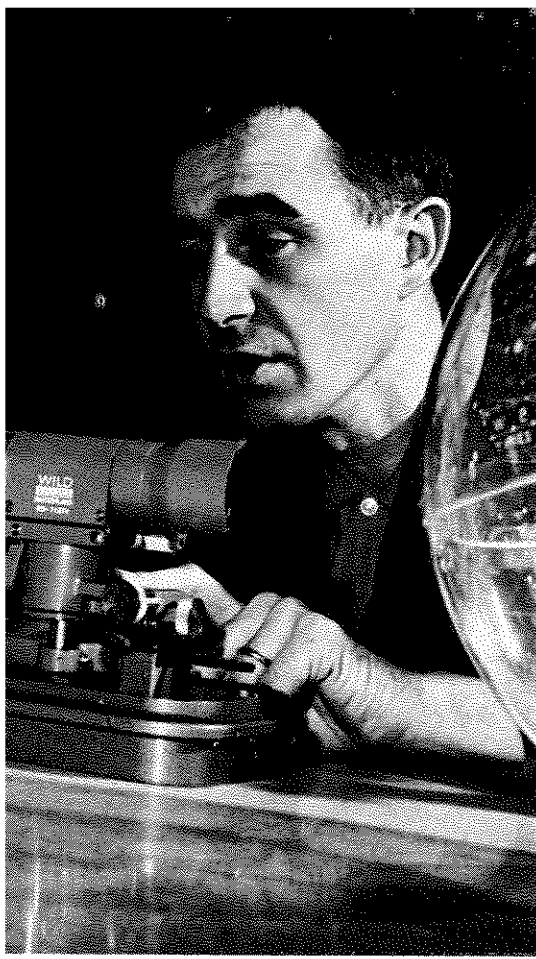
Oviatt, Carla B. ....Mathematics  
 B.S., South Dakota State College  
 Graduate Study, Michigan State University

Papesh, John .....Transportation and Traffic  
 Management  
 University of Washington  
 Michigan State University

Parks, Oral E. ....Social Science  
 B.A., Texas Technological College  
 M.A., Michigan State University  
 Graduate Study, Michigan State University

Pelkey, Don .....Librarian  
 B.A., Central Michigan University  
 M.A.L.S., University of Michigan

Platte, James .....English  
 B.A., Aquinas College  
 M.A., Michigan State University  
 Graduate Study, Michigan State University



Powers, Clarence .....Mathematics  
 B.S., Kansas State University  
 Graduate Study, Michigan State University

Reban, Milan .....Social Science  
 B.A., University of Miami  
 M.A., Vanderbilt University  
 Graduate Study, Michigan State University

Rice, Frank .....English  
 B.A., University of New Mexico  
 Graduate Study, Cornell University

Rinehart, Richard .....Assistant Dean  
 B.S., Michigan State University  
 M.S., University of Michigan  
 Graduate Study, Michigan State University  
 Registered Professional Engineer

Rodner, Kim .....Social Science,  
 B.A., Michigan State University  
 M.A., Michigan State University  
 Graduate Study, University of California  
 Ph.D., Michigan State University

Root, Roscoe .....Natural Science  
 B.S., Central Michigan University  
 M.S., University of Chicago

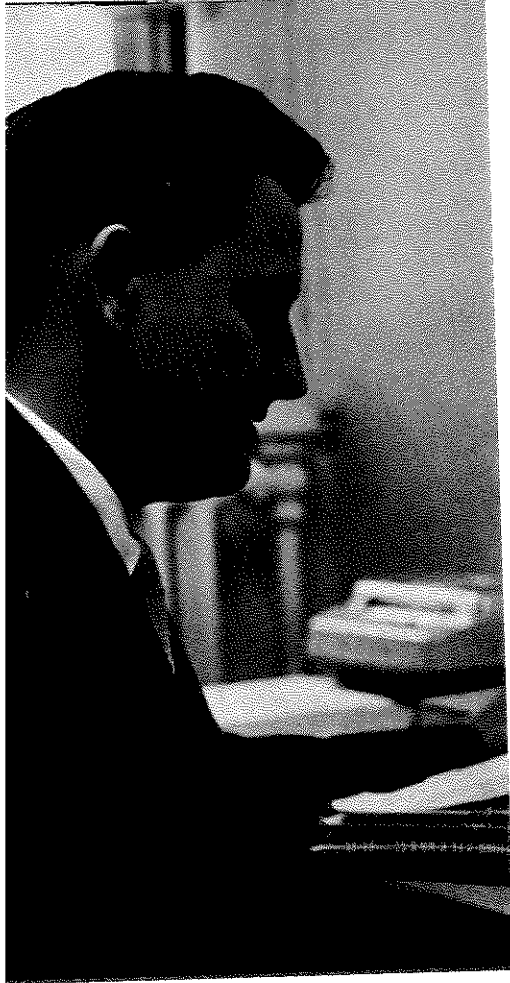
Rowe, Roger .....Electronics Technology  
 B.S., Michigan State University  
 Graduate Study, University of Michigan  
 Michigan State University

Schram, R. Hugh .....English  
 B.A., Eastern Michigan University  
 M.A., University of Texas  
 Graduate Study, University of Texas

Shong, Robert .....Mathematics  
 B.S., General Motors Institute

Smith, Carl .....Apprentice Training  
 Electrical  
 B.S., Michigan State University

Spencer, Armond E. ....Mathematics  
 B.S., Michigan State University  
 M.S., Michigan State University  
 Graduate Study, Michigan State University



Sproull, Kenneth H. ....Assistant Dean  
 B.S., Indiana University  
 M.A., Western Michigan University  
 Graduate Study, Michigan State University  
  
 Stolberg, Donald C. ....Physical Education  
 B.S., Western Michigan University  
 M.A., Michigan State University  
 Graduate Study, Michigan State University  
  
 Taylor, Ronald .....Natural Science  
 B.S., Michigan State University  
 M.S., Michigan State University  
 Graduate Study, Western Michigan  
 University, Michigan State University  
  
 Thomas, Nathan G. ....History  
 B.A., Andrews University  
 M.A., Ohio University  
 Graduate Study, Michigan State University  
  
 Toler, Ralph .....Business Training  
 B.B.A., University of Miami  
 M.B.A., University of Miami

VanCamp, Frank .....Electronics Technology  
 B.S., University of Michigan  
 Registered Professional Engineer  
  
 VandeBunt, Margaret J. ....Natural Science  
 B.A., Kalamazoo College  
 M.A., University of Chicago  
 Graduate Study, Teachers College—Colum-  
 bia University, Michigan State University  
  
 Walper, Harold .....Apprentice Coordinator  
 B.S., Eastern Michigan University  
 M.A., University of Michigan  
 Graduate Study, University of Michigan  
 University of Toledo  
  
 Warbach, Laura .....Practical Nursing  
 R.N., Cumberland Hospital School of  
 Nursing  
  
 Warnell, Wilbern .....Welding  
  
 Warner, Louis .....Business  
 B.S., Western Michigan University  
 M.A., Michigan State University



Watson, Claude .....Physics and Electronics  
Technology  
B.S., Michigan State University  
M.S., Michigan State University  
Graduate Study, Michigan State University

Williams, Mildred .....Business  
B.A., Michigan State University  
M.A., Michigan State University  
Graduate Study, Michigan State University

Worst, Harry .....Art  
Kendall School of Design  
American Academy of Arts

Yarger, Richard .....Natural Science  
B.S., Central Michigan University

Electronics Technician:  
Richard Gargett

Secretaries: Day and Evening  
Dean's Office  
Betty Clegg  
Phyllis Rich

Student Personnel Services  
Jane DeRose -- Bookkeeper  
Donna McCune  
Betty Neumann  
Carol Oding  
Joan Patton

Engineering Technologies and Applied  
Sciences  
Lillian Bertoline  
Erma Richardson

Health Sciences  
Lyla Cavanaugh

Library Staff  
Beatrice Huggett  
Gladys Shire  
Ruth Simmons

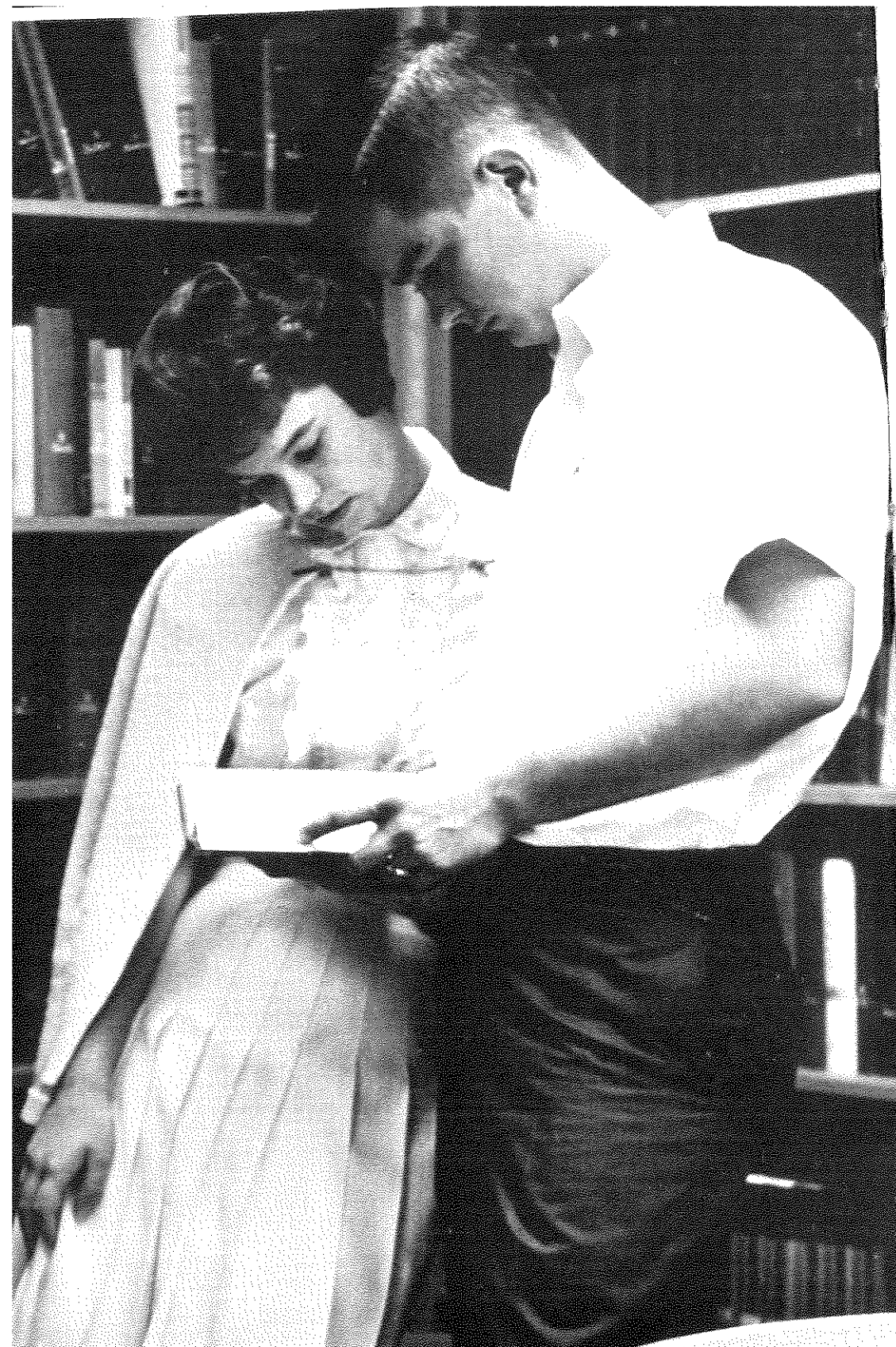


## **DIVISION OF ARTS AND SCIENCES**

The Arts and Sciences programs at Lansing Community College attempt to lead the student to an enlightened appreciation of his cultural heritage.







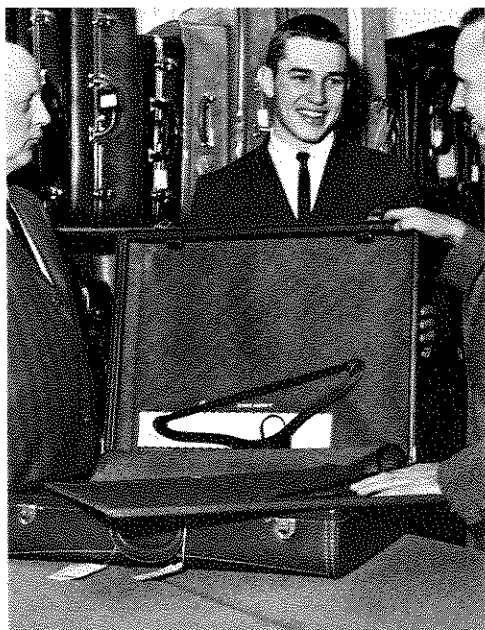


It is assumed that in order to properly understand Western Man in the twentieth century, he must examine how and what Western Man has thought in the past. In order to implement this objective, Lansing Community College offers a wide variety of freshmen and sophomore courses in the Arts and Sciences.

Study within the Arts and Sciences should result in a fundamental knowledge of the physical and cultural world and of the student's personal relationship to such a world. Such understanding should foster the development of a satisfying and meaningful philosophy of life.

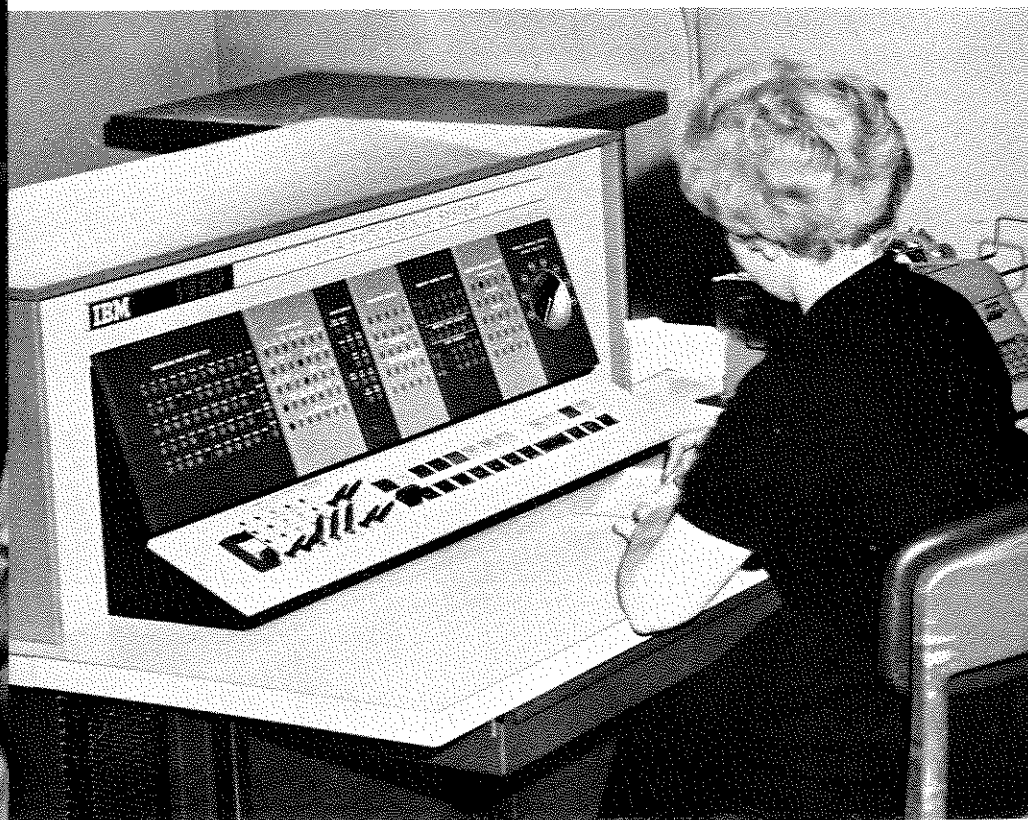
On a much more practical level, this program serves as sound foundation for such careers as teaching, law, engineering, science and homemaking. In fact, no better preparation than the arts and sciences programs can be obtained for transfer to a four-year college where one may specialize in a field of his interest.





## DIVISION OF BUSINESS

The Business Program at King Community College is a fine opportunity for training young men and women in many areas of business. It is designed to give the high school graduate sufficient skill to accept a position in the highly competitive world of business.



What is more, it is designed to give those who are employed and have some professional experience more advanced training and greater proficiency in order to insure them job-improvement.

So diverse are the business curricula that virtually any person bent on business advancement will find much to interest and benefit him.

Programs are designed to prepare students to enter positions in clerical work, marketing, office management, accounting, and secretarial work.

To give its students the best possible preparation for peak achievement in business, Lansing Community College offers a cooperative training program that enables students to acquire on-the-job training. Enrollees not only gain valuable and necessary work experience, but earn money for their work as well.

During the sophomore year, and after successful completion of basic courses, the student may elect Co-operative Training or Marketing Internship. This means that he will (1) be placed on a job for half days, (2) earn credits for satisfactory work performance and (3) earn money for the hours of work. To enroll in this program, he must achieve proficiency in at least one of these areas: stenography, typewriting, office machines, accounting, marketing.

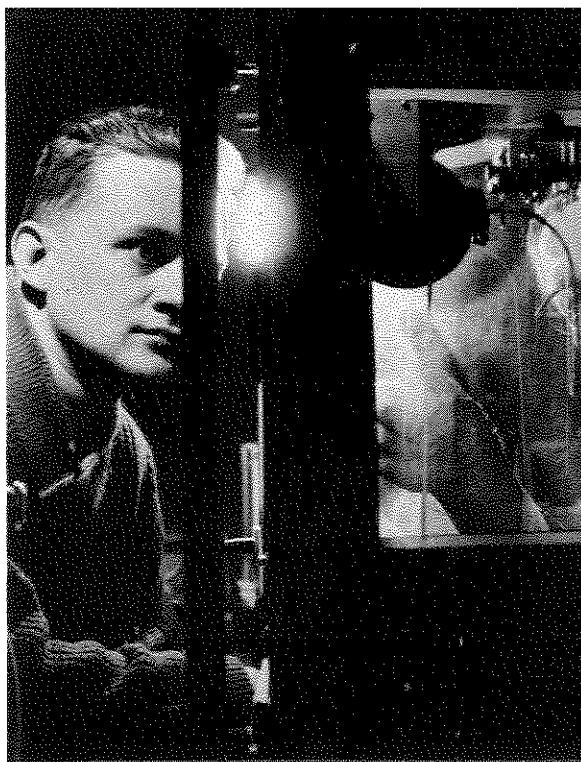
The Business Division will continue to exert every effort to help its qualified students enter a responsible position in the business world.



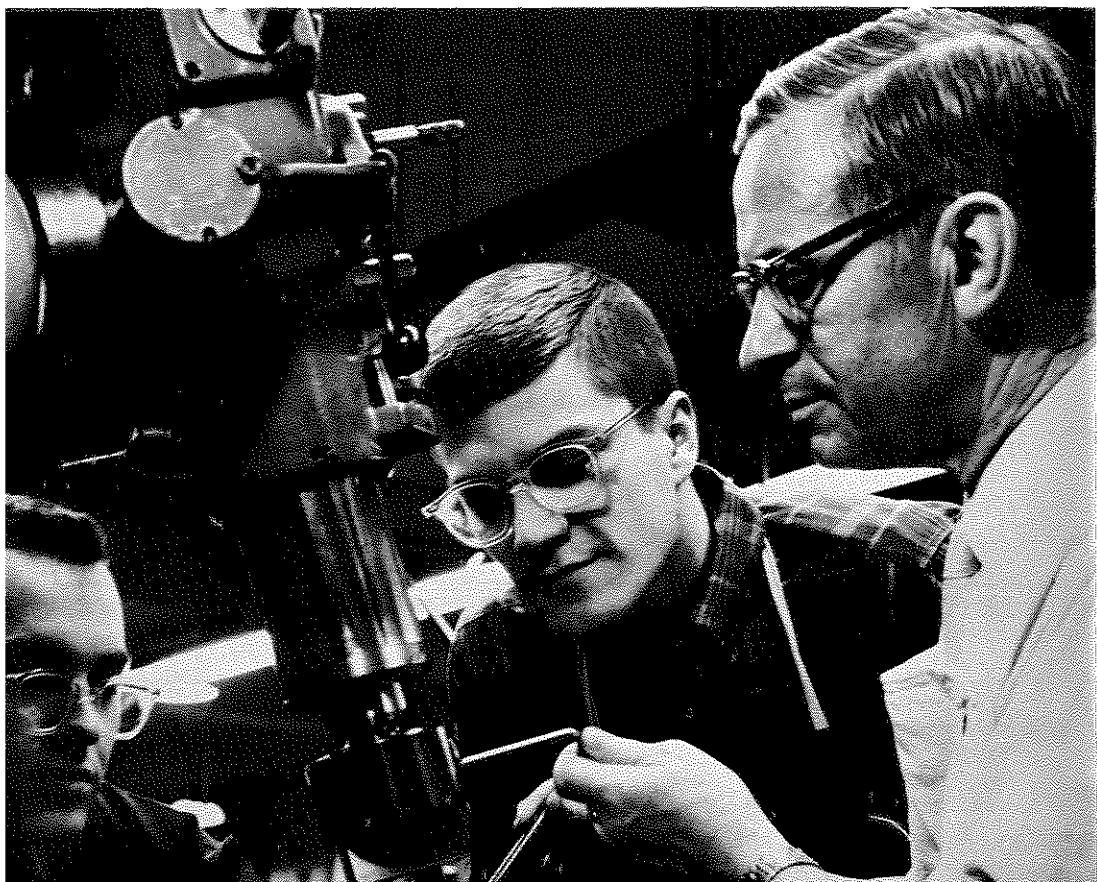


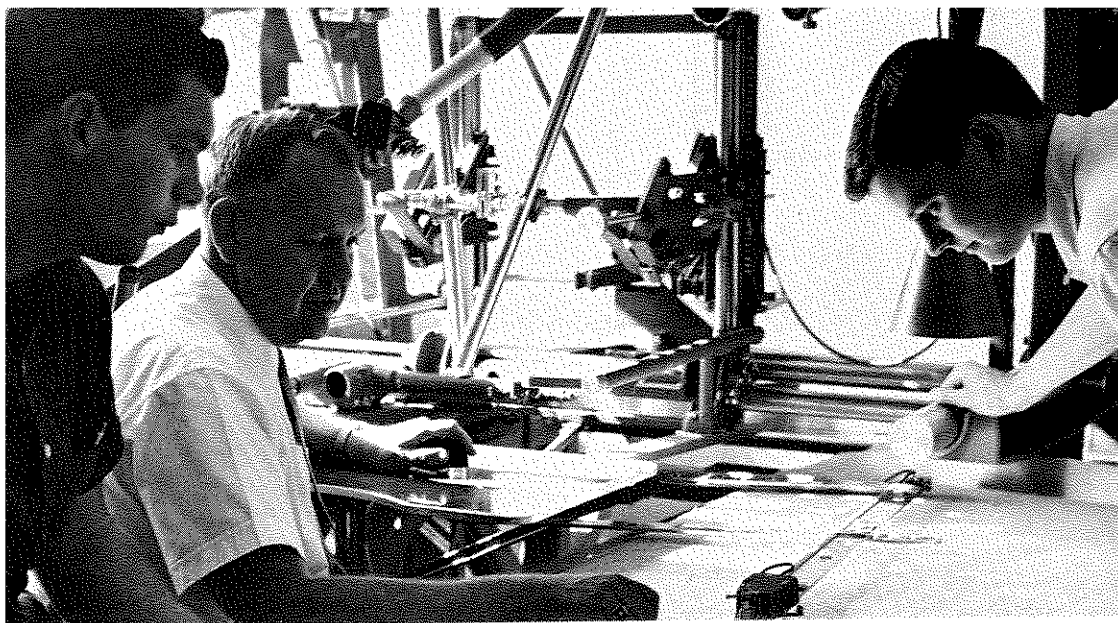
# DIVISION OF HEALTH SCIENCES

The Division of Health Sciences presents many opportunities for the student to prepare himself for a rewarding career in one of the rapidly expanding areas of health and medicine. Courses available vary in length from one year to several years beyond the Bachelor's Degree. Some of the courses are given in affiliation with local hospitals and other medical organizations; others may be completed here at the college; and still others require additional work at a university or professional school. Each one of the curriculums offered enables the student to enter an important area of public health where employment opportunities are good and the working conditions are attractive to those who are interested in serving the public in a professional manner.



**DIVISION OF  
ENGINEERING  
TECHNOLOGIES AND  
APPLIED SCIENCES**

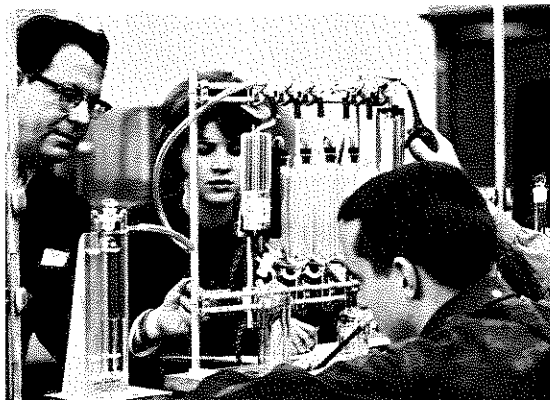




The increased mechanization of American industry, especially in the last ten years, has created a dire need for skilled technicians, young people who have extensive practical and technical training above the high school level, young people who fill the gap between skilled worker and graduate engineer. To meet this need Lansing Community College has developed five separate but equally intensive two-year technological programs: Chemical Technology, Civil Technology, Drafting Technology, Electrical Technology, and Mechanical Technology.

The technicians from each of these programs are concerned with "how to do it" and use their special knowledge to perform operations, make calculations and estimates, and prepare plans in their respective fields of study. They serve as laboratory assistants, draftsmen, testers, research technologists, engineering aides, and in a host of other capacities.

And once again in its technical programs, as in its Business program, Lansing Community College gives ample opportunity for cooperative training by allowing time for part-time employment that corresponds to and "practicalizes" classroom theory.



# COMMUNITY SERVICE

## A Function of the College

Community service education is the general descriptive heading which includes all courses of study that are not part of a standard curriculum leading to a degree or certificate. It includes all the classes that are complete in themselves without a necessary integration with other courses. Each course is primarily an end in itself and is not thought of as being a required course in some total program. Community service is a function of each of the instructional divisions of the college.

The purposes of these courses are varied and include study for job improvement, courses in avocational interests, and programs in general cultural areas and current events. In addition to these planned courses of study, the community service function is also served through cultural activities.

Students enrolling in these are of all ages and are often involved with the Community College through service, commercial, or industrial organizations.

A basic concept of community services stems from the philosophy of the Community College and its concern for the individual. The philosophy assumes that the best possible type and level of instruction will be offered and that there is a community need for such offerings.

The students taking only courses in this area are full-fledged students in the college and entitled to all of the benefits available to full-time students including the use of the library, counseling services, and participation in college sponsored activities.







## STUDENT PERSONNEL SERVICES

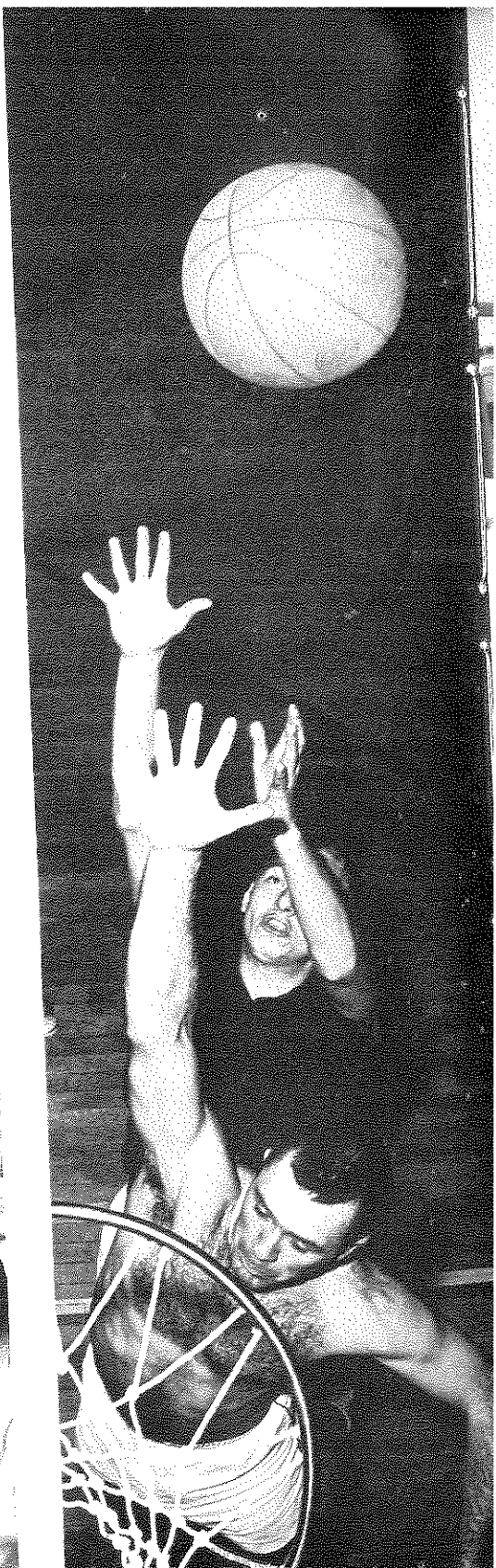
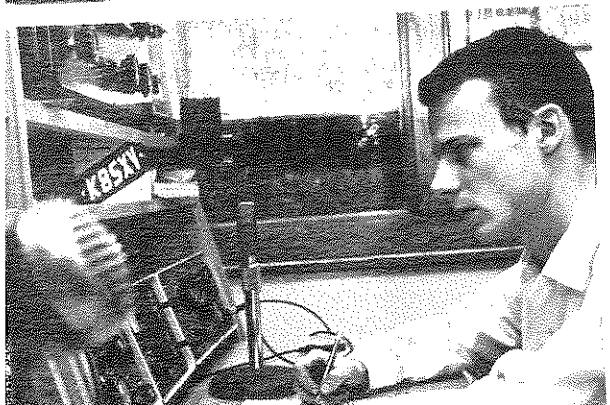
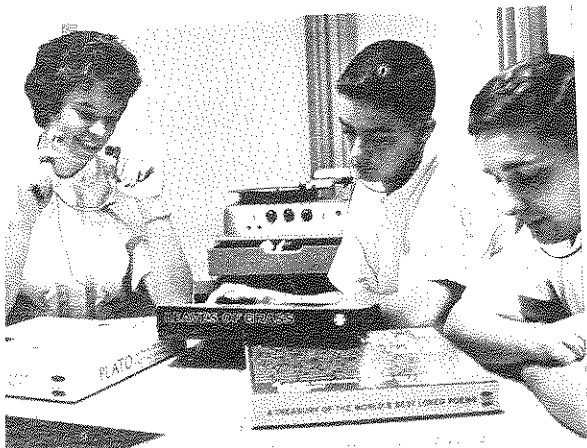


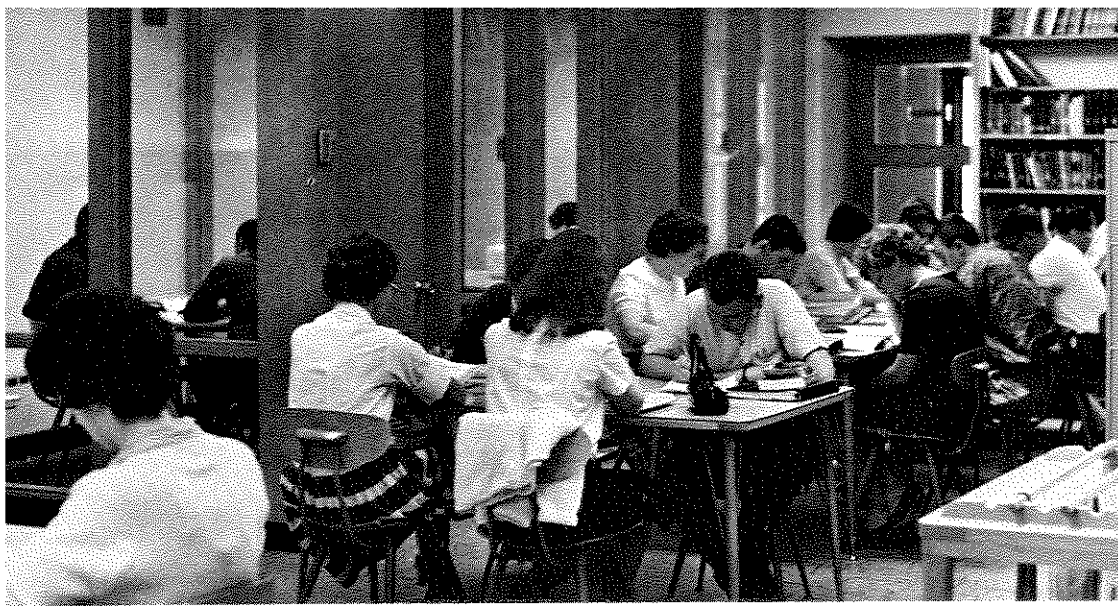
Student Personnel Services at Lansing Community College are supportive of the philosophy, purposes and goals of the College. In our concern with the individual and his progress towards these goals, an organized program of services and activities is provided to assist each student make full use of the educational program. The following practices have been developed to facilitate the accomplishment of the College goals.

- \* Informing new students.
- \* Advanced registration of students.
- \* Helping students make appropriate educational and vocational plans.
- \* Orienting new students.
- \* Helping students perform at optimal levels in courses.
- \* Record keeping.
- \* Providing scholarships and loans.
- \* Counseling.
- \* Helping students with personal problems.
- \* Helping students select and transfer to other institutions.
- \* Testing and test interpretation.
- \* Encouraging student activity.
- \* Conducting institutional research on student characteristics.
- \* Evaluating personnel practices.



# STUDENT ACTIVITIES





## **LIBRARY**

The Community College library provides the printed and recorded resources for the whole program of instruction. It has a rich and up-to-date collection of materials which represents the heritage of the world's civilizations and which represents the most recent advances in scholarship. The library, as an instrument of instruction, fosters an intellectual stimulation for both students and faculty, and encourages a life-long interest and appreciation for the great literature of mankind.

The Community College Library is housed in two separate areas of the College in the east wing of the third floor. The library is open both day and evening during all four quarters of the school year, and can accommodate 110 students for study and/or research.

The book collection consists of approximately 13,500 volumes selected by the faculty and library staff over the past 3½ years. The staff has attempted to build a quality collection which directly supports the offerings in the college programs. The library has books which present the literature of our common heritage (written in English and other languages), books that present diverse points-of-view on particular subjects, books that present the latest information in a given discipline, and books that challenge the intellectual mind. In addition to the book collection, the library subscribes to 122 general periodicals and academic journals, has a phonorecord collection of 298 albums, has two legal-size, five-drawer files containing reprints, monographs, broadsides, and pamphlets on a multitude of subjects, and receives seven newspapers.

Special features of the modern library's facilities and program are, the conference rooms for group study, the individual carrels for private study, the audio-visual center for listening and viewing of material which is pertinent to the curricula, the arrangement of shelving which promotes easy accessibility to titles in the collection, the nearness of the library to the classrooms and cafeteria, the individual guidance given to the student by the library staff, the co-operation received from the Lansing Public Library and the availability of its collection to college students, and the loaning-of-materials agreement with the State of Michigan Library.

# COLLEGE CALENDAR 1963-1964

June

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

July

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

Aug.

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Sept.

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Oct.

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Nov.

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Dec.

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Jan.

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Feb.

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Mar.

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Apr.

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May

SUN	MON	TUE	WED	THU	FRI	SAT
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

June

SUN	MON	TUE	WED	THU	FRI	SAT
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

July

SUN	MON	TUE	WED	THU	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Aug.

SUN	MON	TUE	WED	THU	FRI	SAT
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

### SUMMER TERM 1963

June 18	Schedule Changes
June 20	Classes Begin
June 26	Last day for adding classes
July 4-6	Independence Day Holiday
July 29	Mid-Term Grades Due
Aug. 31	Summer Term Closes
Sept. 3	Final Grades Due

### FALL TERM 1963

Sept. 16 - Sept. 20	Faculty and Committee Meetings
Sept. 18	Schedule Changes
Sept. 23	Classes Begin
Sept. 27	Last day for adding classes
Oct. 18	M.A.J.C. Meetings
Nov. 4	Mid-Term Grades Due
Nov. 28 - 30	Thanksgiving Recess
Nov. 18 - Dec. 6	Academic Advisor Conferences and Winter Term Registration
Dec. 18	Fall Term Closes
Dec. 20	Final Grades Due

### WINTER TERM 1964

Jan. 2	Schedule Changes
Jan. 6	Classes Begin
Jan. 10	Last day for adding classes
Feb. 10	Mid-Term Grades Due
Mar. 2 - 20	Academic Advisor Conferences and Spring Term Registration
Mar. 21	Winter Term Closes
Mar. 23	Final Grades Due

### SPRING TERM 1964

Mar. 26	Schedule Changes
Mar. 30	Classes Begin
April 3	Last day for adding classes
May 4	Mid-Term Grades Due
May 30	Memorial Day Holiday
May 18 - June 5	Academic Advisor Conferences -- Summer and Fall Term Registration
June 7	Commencement Exercises
June 13	Spring Term Closes
June 15	Final Grades Due

### SUMMER TERM 1964

June 20	Schedule Changes
June 22	Classes Begin
June 26	Last day for adding classes
July 4	Independence Day Holiday
July 27	Mid-Term Grades Due
Aug. 29	Summer Term Closes
Aug. 31	Final Grades Due

## COURSE AND DEPARTMENT CODES

AD	Architectural Drawing	HUM	Humanities
ANT	Anatomy	LE	Law Enforcement
ART	Art	LT	Library Technician
AST	Astronomy	MT	Mechanical Technology
BIO	Biology	MTH	Mathematics
BOT	Botany	MIC	Microbiology
BS	Biological Science	MUS	Music
BUS	Business	NS	Natural Science
CEM	Chemistry	PE	Physical Education
CT	Civil Technology	PHL	Philosophy
DPT	Data Processing Technology	PHY	Physics
EC	Economics	PLS	Political Science
ED	Engineering Drawing	PSL	Physiology
ENG	English	PSY	Psychology
ET	Electronics Technology	RUS	Russian
FRN	French	SOC	Sociology
FT	Food Technology	SPH	Speech
GEO	Geography	SPN	Spanish
GLG	Geology	SS	Social Science
GRM	German	ZOL	Zoology
HST	History		

## COURSE DESCRIPTIONS

### COURSE NUMBERS

001-099 and VT courses indicate offerings which are not designed to be used in meeting requirements for an associate degree or for transfer to another college.

100-299 Courses are those designed to meet the requirements for an associate degree at Lansing Community College or as freshman and sophomore transfer courses to another college or a university.

### COURSE LISTINGS

- I. Course number.
- II. Term credits earned with the number of class hours and laboratory hours within the parenthesis. Variable credit courses are so indicated.
- III. A brief description of the course also includes necessary Prerequisites. Prerequisites may be satisfied by the course or courses listed or by equivalent background. Questions concerning eligibility should be referred to the divisional or departmental office.

## BASIC COURSES

One of the major goals of the college is to provide each student with a common core of general education courses covering fundamental areas of knowledge. These courses, or their equivalents, are required of all baccalaureate degree students. Most are required in curricula leading to the associate degree.

A full-year sequence is offered in each of the following:

English Composition – Eng. 101, 102, 103 – 9 credits

Humanities (History of Western Civilization) – Hum. 201, 202, 203 – 12 credits

Natural Science – NS 101, 102, 103 – 12 credits

Social Science – SS 101, 102, 103 – 12 credits

# **DIVISION OF ARTS AND SCIENCES**

ASSOCIATE IN ARTS

ASSOCIATE IN SCIENCE

LAW ENFORCEMENT

LIBRARY TECHNICIAN

PRE-LAW

PRE-TEACHING, ELEMENTARY

PRE-TEACHING, SECONDARY

## ARTS AND SCIENCES

### SUGGESTED PROGRAMS OF STUDY

The pre-professional curriculums offered by the four divisions of the college parallel in content those offered by four-year institutions within the State of Michigan. They are planned to satisfy both general education requirements and the entrance requirements of the professional schools. A student who does not find a suggested program in the field of his choice should consult a counselor in the Student Personnel Services Office for assistance in choosing a proper sequence of courses.

Admissions requirements to professional programs vary among the schools, colleges and universities. Therefore, it is imperative that the student make an early decision on which institution he wishes to transfer to and then elect the courses which will allow him to meet the requirements of that institution.

#### Associate in Arts Degree

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	HUM 201	Western Civilization .....	4
NS	Natural Science .....	4		Electives .....	12
SS 101	Sociology .....	4			16
	Language, Geography or American History .....	3-4			
PSY 101	Orientation .....	1			
PE 101	Physical Education .....	1			
		16-17			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	HUM 202	Western Civilization .....	4
NS	Natural Science .....	4		Electives .....	12
SS 102	Economics .....	4			16
	Language, Geography or American History .....	3-4			
PE 102	Physical Education .....	1			
		15-16			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	HUM 203	Western Civilization .....	4
NS	Natural Science .....	4		Electives .....	12
SS 103	Political Science .....	4			16
	Language, Geography or American History .....	3-4			
PE 103	Physical Education .....	1			
		15-16			

The Associate in Arts Degree candidate is urged to consult his advisor for completion of his sophomore program. It is recommended that he elect a sequence of sophomore level courses in the Liberal Arts and complete the second year of a foreign language.



**Associate in Science Degree**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG	101	Composition .....			3
MTH	102	Intermediate Algebra .....			5
		Natural Science or Gen. Chem. or Biology .....			4-5
PSY	101	Orientation .....			1
PE	101	Physical Education .....			1
<hr/>					

14-15

Winter Term			Winter Term		
ENG	102	Composition .....			3
MTH	103	Trigonometry .....			5
		Natural Science or Gen. Chem. or Biology .....			4-5
PE	102	Physical Education .....			1
		Elective .....			3
<hr/>					

16-17

Spring Term			Spring Term		
ENG	103	Composition .....			3
MTH	201	College Algebra .....			5
		Natural Science or Gen. Chem. or Biology .....			4-5
PE	103	Physical Education .....			1
		Elective .....			3
<hr/>					

16-17

**Law Enforcement**

There is an ever-increasing demand for men and women who are trained for a career in law enforcement.

The college is working with an advisory committee in planning an associate degree program in this area which will allow the student to go directly into police work at the completion of the two-year course or to transfer into a baccalaureate degree program in police administration.

Information concerning the complete curriculum will be published in a separate brochure.

**Library Technician**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
LT	101	Intro. to Library .....			3
ENG	101	Composition .....			3
		Natural Science or Foreign Language .....			4
PE	101	Physical Education .....			1
PSY	101	Orientation .....			1
SS	101	Sociology .....			4
<hr/>					

16

Winter Term			Winter Term		
LT		Book Selection & Order Procedure ....			3
ENG	102	Composition .....			3
		Natural Science or Foreign Language .....			4
SS	102	Economics .....			4
PE	102	Physical Education .....			1
<hr/>					

15

LT	201	Technical Services .....			3
HUM	201	Western Civilization .....			4
BUS	210	Accounting I .....			4
		English Elective .....			4
<hr/>					

15

LT	202	Circulation, Maintenance, Prep. of Materials .....			3
HUM	202	Western Civilization .....			4
BUS	220	Office Management .....			3
		Elective .....			3
		English Elective .....			4
<hr/>					

17

ARTS AND SCIENCES

Spring Term			Spring Term		
LT	Reference	3	LT 205	Library Problems	2
ENG 103	Composition	3	SPH 104	Speech	3
BUS 107	Business Machines	3	BUS 204	Letter Writing	3
	Natural Science or		HUM 203	Western Civilization	4
	Foreign Language	4		English Elective	4
SS 103	Political Science	4	PE 103	Physical Education	1
		<hr/>			<hr/>
		17			17

Pre-Law

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition	3	PHL 201	Philosophy	3
HST 111	American History	3	EC 201	Economics	3
SS 101	Sociology	4	HUM 201	Western Civilization	4
	Foreign Language	4	NS	Natural Science	4
PSY 101	Orientation	1		Elective	3
PE 101	Physical Education	1			<hr/>
		<hr/>			17
		16			

Winter Term			Winter Term		
ENG 102	Composition	3	PHL 202	Philosophy	3
HST 112	American History	3	EC 202	Economics	3
SS 102	Economics	4	HUM 202	Western Civilization	4
	Foreign Language	4	NS	Natural Science	4
PE 102	Physical Education	1		Elective	3
		<hr/>			<hr/>
		15			17

Spring Term			Spring Term		
ENG 103	Composition	3	PHL 203	Philosophy	3
HST 113	American History	3	EC 203	Economics	3
SS 103	Political Science	4	HUM 203	Western Civilization	4
	Foreign Language	4	NS	Natural Science	4
PE 103	Physical Education	1		Elective	3
		<hr/>			<hr/>
		15			17

Recommended Electives:  
 Literature                      Psychology  
 Language                        Speech  
 Accounting                      Geography  
 Law & Society

Pre-Teaching

ELEMENTARY

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition	3	HUM 201	Western Civilization	4
SS 101	Sociology	4	ENG 230	The Structure of English	3
PSY 101	Orientation	1	PSY 201	Introduction to Psychology	4
NS	Natural Science	4		Electives	4
PE 101	Physical Education	1			<hr/>
GEO 101	Elements of Geography	3			15
		<hr/>			
		16			

Winter Term			Winter Term		
ENG 102	Composition	3	HUM 202	Western Civilization	4
SS 102	Economics	4	SPH 104	Speech	3
NS	Natural Science	4	PSY 204	Educational Psychology	3
GEO 102	World Reg. Geography	3		Electives	8
PE 102	Physical Education	1			<hr/>
		<hr/>			18
		15			

Spring Term			Spring Term			
ENG	103	Composition .....	3	HUM	203 Western Civilization .....	4
SS	103	Political Science .....	4	MTH	200 Found. of Arithmetic .....	4
NS		Natural Science .....	4		Electives .....	8
PE	103	Physical Education .....	1			
		Electives .....	4			16
			<hr/>			
			16			

**ELECTIVES**

Electives should be determined by one's major and minors (2) and may be selected from the following disciplines:

- |                  |                     |
|------------------|---------------------|
| Biology          | Languages (foreign) |
| Chemistry        | Mathematics         |
| Economics        | Music               |
| English Language | Philosophy          |
| Geography        | Physics             |
| Literature       | Psychology          |

**Pre-Teaching  
SECONDARY**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours	
ENG	101	Composition .....	3	HUM	201 Western Civilization .....	4
SS	101	Sociology .....	4	NS	Natural Science .....	4
PE	101	Physical Education .....	1	PSY	201 Introduction to Psychology .....	4
		Electives .....	8		Electives .....	4
			<hr/>			<hr/>
			16			16
<b>Winter Term</b>			<b>Winter Term</b>			
ENG	102	Composition .....	3	HUM	202 Western Civilization .....	4
SS	102	Sociology .....	4	NS	Natural Science .....	4
PE	102	Physical Education .....	1	PSY	204 Educational Psychology .....	3
		Electives .....	8		Electives .....	5
			<hr/>			<hr/>
			16			16
<b>Spring Term</b>			<b>Spring Term</b>			
ENG	103	Composition .....	3	HUM	203 Western Civilization .....	4
SS	103	Political Science .....	4	NS	Natural Science .....	4
PE	103	Physical Education .....	1		Electives .....	8
		Electives .....	8			
			<hr/>			<hr/>
			16			16

**ELECTIVES**

Electives should be determined by the requirements of the department of the four-year college where the student expects to transfer. He should be aware that many colleges or universities require a full year of a foreign language for graduation. The electives should be selected from the following disciplines:

- |                  |             |
|------------------|-------------|
| Biology          | Literature  |
| Chemistry        | Mathematics |
| Economics        | Music       |
| English Language | Philosophy  |
| Foreign Language | Physics     |
| Geography        | Psychology  |

**HIGH SCHOOL SCIENCE AND LANGUAGE HONORS INSTITUTE**

Each summer the Lansing Community College offers to outstanding high school juniors and seniors of the Lansing area an opportunity for advanced study in the languages, sciences and mathematics. For further information those students interested in this program should contact the College admissions officer or their high school principal.

**Instructional Aids Cooperative**

Lansing Community College will cooperate with the Lansing School System in selecting and training students who will assist in the use of instructional aids at certain secondary schools within the city.

The student will receive nominal pay from the local school system. In addition the student will have the rare opportunity to work closely with the educational process while still an undergraduate. The work will be viewed by the college as field experience and, consequently, the student will be rewarded with appropriate college credit.

**Foreign Travel Program**

The administration and faculty of the college have under serious consideration a credit-bearing foreign travel program within the arts and sciences. Modern (and relatively inexpensive) means of transportation have greatly reduced problems involved in visiting other countries.

The student will be required to undergo intensive study in preparation for the period of travel and will be obliged to demonstrate through examination the degree to which he has profited from the experience. Preparation, travel and evaluation combined are expected to extend over an entire term.

# **DIVISION OF BUSINESS**

ACCOUNTING

DATA PROCESSING

DISTRIBUTION

GENERAL BUSINESS

GENERAL CLERICAL

MANAGEMENT TRAINING

PRE-BUSINESS

SECRETARIAL SCIENCE

SECRETARIAL SCIENCE, LEGAL

TRANSPORTATION TRAFFIC  
MANAGEMENT

## BUSINESS

An Associate Degree in Business is granted to those students who successfully complete a specified curriculum. Students can also arrange for programs which will enable them to transfer credit to other colleges or universities. Qualified students interested in gaining new skills or acquiring greater proficiency may enroll on a part-time basis.

The areas of study offered by the Business Division include:

Accounting	Letter Writing
Business Mathematics	Management
Economic Geography	Marketing
Economics	Office Machines
Introduction to Business	Sales
Law & Society	Stenography
	Typewriting

During the sophomore year, and after he successfully meets the basic course requirements, the Business student can elect to take Cooperative Office Training, during which time he is given half-time employment; he earns credits for satisfactory work performance, and he earns money for his hours of work. To enroll in this course, the student must be proficient in at least one of the following areas: Stenography, Typewriting, Office Machines, Accounting, and Marketing.

During the sophomore year, after mastering basic shorthand, the Business student can, with diligent application, become proficient in legal and/or medical stenography.

## ACCOUNTING

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	BUS 210	Accounting I .....	4
ENG 101	Composition .....	3	BUS 215	Law & Society I .....	2
	Sociology or Natural Science .....	4	EC 201	Economics I .....	3
MTH 102	Algebra .....	5	HUM 201	Western Civilization .....	4
BUS 118	Introduction to Business .....	3		Elective .....	3
PE 101	Physical Education .....	1			16
		17			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	BUS 211	Accounting II .....	4
	Economics or Natural Science .....	4	BUS 216	Law & Society II .....	2
BUS 107	Business Machines .....	3	EC 203	Economics III .....	3
BUS 120	Sales I .....	3	BUS 220	Office Management I .....	3
	Elective .....	3	HUM 202	Western Civilization .....	4
PE 102	Physical Education .....	1			16
		17			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	BUS 212	Accounting III .....	4
	Political Science or Natural Science .....	4	BUS 217	Law & Society III .....	2
GEO 203	Economic Geography .....	3	EC 202	Economics III .....	3
	Elective .....	6	BUS 221	Office Management II .....	3
PE 103	Physical Education .....	1	HUM 203	Western Civilization .....	4
		17			16

**BUSINESS DATA PROCESSING**

The Business Data Processing curriculum is a business oriented program. Business applications of data processing equipment and systems are stressed. The program provides an understanding of the concepts, principles, and techniques of data processing. Although the IBM 1620 Data Processing System will be the principal system studied, the graduate will be able to adapt himself readily to other digital computers with a few weeks' access to the machines. A graduate will be a programmer with a reasonable mathematical competency, rather than a mathematician with a limited background in programming. He will, therefore, be immediately employable as a programmer or may apply the knowledge and experience gained here as education leading toward a four-year degree, pursuing further study in mathematics and the sciences.

Freshman		Credit	Sophomore		Fall Term	Credit
Year	Fall Term	Hours	Year			Hours
ENG 101	Composition .....	3	MTH 160	Statistics .....		5
MTH 151	Math for Technicians .....	5	DPT 201	Computer Programming I .....		6
BUS 107	Business Machines .....	3	BUS 210	Accounting I .....		4
BUS 118	Intro. to Business .....	3				—
PSY 101	Orientation .....	1				15
		15				
	<b>Winter Term</b>			<b>Winter Term</b>		
ENG 102	Composition .....	3	DPT 202	Computer Programming II .....		8
MTH 152	Math for Technicians .....	5	BUS 211	Accounting II .....		4
BUS 108	Business Machines .....	3	SS 103	Political Science .....		4
BUS 220	Office Management I .....	3				—
PE 102	Physical Education .....	1				16
		15				
	<b>Spring Term</b>			<b>Spring Term</b>		
MTH 155	Data Processing Math .....	5	DPT 203	Computer Programming III .....		6
ENG 204	Tech Report Writing .....	3	DPT 204	Adv. Computing and Programming Systems .....		5
BUS 221	Office Management II .....	3	DPT 205	Data Processing Field Project .....		2
DPT 100	Intro. to Program Systems .....	5	BUS 212	Accounting III .....		4
		16				—
						17

Today's technological advances and modern business methods require rapid and efficient processing of data and statistical problems concerning production, distribution and personnel which can be handled best by modern high speed data processing machines. This trend has created a demand for trained operators and technicians who have the background and experience necessary to program and operate this new equipment.

Lansing Community College will offer appropriate curricula and individual courses for students who are interested in securing positions in this area. The College will have a completely equipped Data Processing and Research Computer Center installed by July 1, 1963 which will include the following equipment:

Type	Model	Description
24	1	Card Punch
56	1	Verifier
83	1	Sorter
85	1	Collator
407	A-2	Accounting Machine
514	2	Reproducing Punch with Mark Sensing
557	1	Alphabetic Interpreter
1620	1	Central Processing Unit
1622	1	Card Read Punch

**DISTRIBUTIVE EDUCATION**

The Distributive Department at Lansing Community College offers organized programs in the fields of retail distribution, wholesaling, management and other activities related to the distribution of goods and services. The courses offered in this department are those that provide education and training to improve the skills, business knowledge, and judgment of those preparing for, or now engaged in, the rapidly growing area of distribution and marketing. The primary objective of this department is to train individuals to participate more efficiently in this area of business.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	BUS 210	Accounting I .....	4
	Social Science or Natural Science .....	4	BUS 215	Law & Society I .....	2
BUS 118	Introduction to Business .....	3	EC 201	Economics I .....	3
BUS 117	Business Mathematics .....	3	BUS 246	Distribution Internship Seminar..	3
PSY 101	Orientation .....	1	BUS 243	Distribution Internship .....	2
PE 101	Physical Education .....	1			14
		15			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	BUS 220	Office Management I .....	3
	Social Science or Natural Science .....	4	BUS 216	Law and Society II .....	2
BUS 130	Introduction to Distribution .....	3	EC 202	Economics II .....	3
BUS 107	Business Machines .....	3	BUS 247	Distribution Internship Seminar	3
	Business Elective .....	3	BUS 244	Distribution Internship .....	2
PE 102	Physical Education .....	1		Elective .....	3
		17			16
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	BUS 227	Personnel Management .....	3
	Social Science or Natural Science .....	4	EC 203	Economics III .....	3
BUS 131	Advertising .....	3	BUS 248	Distribution Internship Seminar..	3
BUS 120	Sales I .....	3	BUS 245	Distribution Internship .....	2
GEO 203	Economic Geography .....	3		Elective .....	3
PE 103	Physical Education .....	1			14
		17			

**GENERAL BUSINESS**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	HUM 201	Western Civilization .....	4
ENG 101	Composition .....	3	BUS 215	Law & Society I .....	2
	Sociology or Natural Science .....	4	BUS 210	Accounting I .....	4
BUS 118	Introduction to Business .....	3	EC 201	Economics .....	3
BUS 117	Business Mathematics .....	3		Psychology or Cooperative Training .....	2-4
PE 101	Physical Education .....	1			15-17
		15			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	HUM 202	Western Civilization .....	4
	Economics or Natural Science .....	4	BUS 216	Law & Society II .....	2
BUS 120	Sales I .....	3	BUS 211	Accounting II .....	4
BUS 102	Typewriting .....	3	BUS 220	Office Management I .....	3
BUS 107	Business Machines .....	3		Speech or Cooperative Training	2-3
PE 102	Physical Education .....	1			15-16
		17			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	HUM 203	Western Civilization .....	4
	Political Science or Natural Science .....	4	BUS 217	Law & Society III .....	2
GEO 203	Economic Geography .....	3	BUS 204	Letter Writing .....	3
BUS 103	Typewriting .....	3	BUS 221	Office Management II .....	3
BUS 108	Business Machines .....	3		Elective or Cooperative Training	2-3
PE 103	Physical Education .....	1			14-15
		17			



**GENERAL CLERICAL**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	HUM 201	Western Civilization .....	4
ENG 101	Composition .....	3	BUS 210	Accounting I .....	4
	Sociology or Natural Science .....	4	BUS 215	Law & Society I .....	2
BUS 118	Introduction to Business .....	3	BUS 109	Secretarial Machines .....	2
BUS 117	Business Mathematics .....	3		Psychology or Cooperative .....	
PE 101	Physical Education .....	1		Training .....	2-4
		<u>15</u>			<u>14-16</u>
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	HUM 202	Western Civilization .....	4
	Economics or Natural Science .....	4	ENG 104	Speech .....	3
BUS 120	Sales I .....	3	BUS 216	Law & Society II .....	2
BUS 107	Business Machines .....	3	BUS 220	Office Management I .....	3
BUS 102	Typewriting .....	3		Elective or .....	
PE 102	Physical Education .....	1		Cooperative Training .....	2-3
		<u>17</u>			<u>14-15</u>
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	HUM 203	Western Civilization .....	4
	Political Science or .....		BUS 204	Letter Writing .....	3
	Natural Science .....	4	BUS 217	Law & Society III .....	2
GEO 203	Economic Geography .....	3	BUS 203	Secretarial Training .....	3
BUS 108	Business Machines .....	3		Elective or .....	
BUS 103	Typewriting .....	3		Cooperative Training .....	2-3
PE 103	Physical Education .....	1			<u>14-15</u>
		<u>17</u>			

**Pre-Business**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	HUM 201	Western Civilization .....	4
ENG 101	Composition .....	3	NS	Natural Science .....	4
SS 101	Sociology .....	4	BUS 210	Accounting I .....	4
MTH 102	Inter. Algebra .....	5	EC 201	Economics .....	3
BUS 118	Intro. to Business .....	3		Electives .....	2
PE 101	Physical Education .....	1			<u>17</u>
		<u>17</u>			
	<b>Winter Term</b>			<b>Winter Term</b>	
PSY 201	Intro. to Psychology .....	4	HST 202	Western Civilization .....	4
ENG 102	Composition .....	3	NS	Natural Science .....	4
SS 102	Economics .....	4	BUS 211	Accounting II .....	4
MTH 103	Trigonometry .....	5	EC 202	Economics .....	3
PE 102	Physical Education .....	1		Electives .....	2
		<u>17</u>			<u>17</u>
	<b>Spring Term</b>			<b>Spring Term</b>	
SPH 104	Speech .....	3	HST 203	Western Civilization .....	4
ENG 103	Composition .....	3	NS	Natural Science .....	4
SS 103	Political Science .....	4	BUS 212	Accounting III .....	4
MTH 201	College Algebra .....	5	EC 203	Economics .....	3
PE 103	Physical Education .....	1		Electives .....	2
		<u>16</u>			<u>17</u>

**ELECTIVES**

- |                        |                     |
|------------------------|---------------------|
| Language               | Psychology          |
| Philosophy             | Speech              |
| Economic Geography     | Office Management I |
| Law & Society I and II |                     |

**SECRETARIAL SCIENCE**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	BUS 201	Transcription .....	4
ENG 101	Composition .....	3	BUS 210	Accounting I .....	4
SS 101	Sociology .....	4	HUM 201	Hist. of West. Civilization .....	4
BUS 104	Shorthand .....	4	BUS 215	Law & Society I .....	2
BUS 117	Business Mathematics .....	3		Psychology or Cooperative Trng. 2-4	
PE 101	Physical Education .....	1			16-18
		<u>16</u>			
<b>Winter Term</b>			<b>Winter Term</b>		
ENG 102	Composition .....	3	BUS 202	Shorthand Speed Building .....	4
SS 102	Economics .....	4	BUS 220	Office Management I .....	3
BUS 102	Typewriting .....	3	BUS 109	Secretarial Machines .....	2
BUS 105	Shorthand .....	4	HUM 202	Hist. of West. Civilization .....	4
BUS 107	Business Machines .....	3		Speech or Coop. Trng. .... 2-3	
PE 102	Physical Education .....	1			15-16
		<u>18</u>			
<b>Spring Term</b>			<b>Spring Term</b>		
ENG 103	Composition .....	3	BUS 203	Secretarial Training .....	3
SS 103	Political Science .....	4	BUS 204	Letter Writing .....	3
BUS 103	Typewriting .....	3	HUM 203	Hist. of West. Civilization .....	4
BUS 106	Shorthand .....	4	EC 203	Economic Geography .....	3
BUS 108	Business Machines .....	3		Elective or Cooperative Trng. .... 2-3	
PE 103	Physical Education .....	1			15-16
		<u>18</u>			

**SECRETARIAL SCIENCE LEGAL**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	BUS 201	Transcription .....	4
ENG 101	Composition .....	3	BUS 210	Accounting I .....	4
SS 101	Sociology .....	4	BUS 215	Law & Society I .....	2
BUS 104	Shorthand .....	4	PSY 201	Intro. to Psychology .....	4
BUS 117	Business Mathematics .....	3		Elective or Coop. Training .....	2-4
PE 101	Physical Education .....	1			16-18
		<u>16</u>			
<b>Winter Term</b>			<b>Winter Term</b>		
ENG 102	Composition .....	3	BUS 202	Shorthand Speed Building .....	4
SS 102	Economics .....	4	BUS 216	Law & Society II .....	2
BUS 102	Typewriting .....	3	BUS 205	Legal Shorthand I .....	2
BUS 105	Shorthand .....	4	BUS 109	Secretarial Machines .....	2
BUS 107	Business Machines .....	3		Elective .....	3
PE 102	Physical Education .....	1		Elective or Coop. Training .....	2-3
		<u>18</u>			15-16
<b>Spring Term</b>			<b>Spring Term</b>		
ENG 103	Composition .....	3	BUS 203	Secretarial Training .....	3
SS 103	Political Science .....	4	BUS 217	Law & Society III .....	2
BUS 103	Typewriting .....	3	BUS 206	Legal Shorthand II .....	2
BUS 106	Shorthand .....	4	BUS 204	Letter Writing .....	3
BUS 108	Business Machines .....	3		Elective .....	3
PE 103	Physical Education .....	1		Elective or Coop. Training .....	2-3
		<u>18</u>			15-16

### **EVENING COURSES IN TRANSPORTATION TRAFFIC MANAGEMENT**

Under the sponsorship of the Lansing Community College in cooperation with the Traffic Club of Lansing, a two-year, six-term course in Traffic and Transportation Management will be conducted at the Lansing Community College. Certificates of satisfactory completion will be issued by the College.

This course deals adequately with the theoretical, historical, and academic aspects of Traffic Management; analyzes practical problems and specific cases; and provides excellent technical training. In short, this course in two years imparts information which might take years to obtain in the normal course of working in an industrial traffic department or a carrier's general office.

One three-hour class period each week. Three hours credit.



# **DIVISION OF HEALTH SCIENCES**

DENTAL HYGIENE  
FOOD SERVICE TECHNOLOGY  
MEDICAL SECRETARY  
MEDICAL TECHNOLOGY  
OCCUPATIONAL THERAPY  
PRACTICAL NURSING  
PRE-DENTISTRY  
PRE-MEDICAL  
PRE-MORTUARY SCIENCE  
PRE-NURSING  
PRE-OPTOMETRY  
PRE-PHARMACY  
PRE- PHYSICAL THERAPY  
PRE-VETERINARY SCIENCE

X-RAY TECHNICIAN

## HEALTH SCIENCES

### Suggested Programs of Study

These programs of study are intended to guide the student in his selection of courses at the College. Ample opportunity will be allowed for individualized programs to fit the specific requirements of the senior college or university of the student's choice when the course work involved requires study beyond that offered here. Every student planning to transfer to a four-year institution should be familiar with the requirements of the school to which he plans to transfer.

### DENTAL HYGIENE

Students interested in transfer to the University of Michigan in this curriculum must satisfy the distribution requirements of the College of Literature, Science and Arts before being admitted to the School of Dentistry. The applicant who has not completed one year of high school chemistry must take one year in college. Typing and bookkeeping are not required prior to acceptance, but it is suggested that all students acquire these skills either in high school or during the summer term. It is required that the candidate have some experience as an assistant before acceptance by most Schools of Dentistry. Course offered in Michigan at the University of Detroit and the University of Michigan.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	PSY 201	Introduction to Psychology .....	4
BIO 201	Zoology .....	4		Foreign Language .....	3
	Foreign Language .....	4	ENG 201	Literature .....	3
SS 101	Sociology .....	4	CEM 111	Chemistry (Inorganic) .....	5
PSY 101	Orientation .....	1			15
PE 101	Physical Education .....	1			
		17			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	ENG 202	Literature .....	3
BIO 202	Zoology .....	4	CEM 112	(Inorganic) .....	5
	Foreign Language .....	4		Foreign Language .....	3
SS 102	Economics .....	4	SPH 104	Speech Fundamentals .....	3
PE 102	Physical Education .....	1		Elective .....	3
		16			17
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	ENG 203	Literature .....	3
BIO 203	Botany .....	4	CEM 113	Qualitative Analysis .....	5
SS 103	Political Science .....	4		Foreign Language .....	3
	Foreign Language .....	4	PSY 203	Human Relations .....	3
PE 103	Physical Education .....	1			14
		16			

### FOOD SERVICE TECHNOLOGY

Food Service Technology is a two-year program designed to train students for responsible positions in the food service field. Types of positions available to graduates will include: cafeteria and restaurant managers, school lunch managers sales representatives, food production supervisors, and food service accountants.

Information concerning the complete curriculum will be published in a separate brochure.

**MEDICAL SECRETARY**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY	101 Orientation .....	1	BUS	201 Transcription .....	4
ENG	101 Composition .....	3	BUS	215 Law & Society .....	2
NS	Natural Science .....	4	BUS	210 Accounting I .....	4
BUS	104 Shorthand .....	4	PSY	201 Psychology .....	4
BUS	117 Business Mathematics .....	3		Elective or Cooperative Trng. ...	2-4
PE	101 Physical Education .....	1			<hr/> 16-18
		16			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG	102 Composition .....	3	BUS	202 Shorthand, Speed Building .....	4
NS	Natural Science .....	4	BUS	216 Law & Society .....	2
BUS	102 Typewriting .....	3	BUS	207 Medical Shorthand I .....	2
BUS	105 Shorthand .....	4	BUS	109 Secretarial Machines .....	2
BUS	107 Business Machines .....	3		Elective .....	3
PE	102 Physical Education .....	1		Elective or Coop. Training .....	2-3
		18			<hr/> 15-16
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG	103 Composition .....	3	BUS	203 Secretarial Training .....	3
NS	Natural Science .....	4	BUS	204 Letter Writing .....	3
BUS	103 Typewriting .....	3	BUS	208 Medical Shorthand II .....	2
BUS	106 Shorthand .....	4	SPH	104 Speech .....	3
BUS	108 Business Machines .....	3		Elective .....	3
PE	103 Physical Education .....	1		Elective or Coop. Training .....	2-3
		18			<hr/> 16-17

**MEDICAL TECHNOLOGY**

Students in this area may elect a 4- or 5-year program. Medical Technology graduates are prepared for positions in health departments, medical laboratories, and in commercial or research laboratories. Following graduation, students will spend an internship of 12 months in an approved hospital laboratory. This internship is a requirement to qualify for the Registry of Medical Technology. Courses available in Michigan at University of Detroit, Michigan State University, Mercy College, University of Michigan and Wayne State University.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG	101 Composition .....	3	SS	101 Sociology .....	4
CEM	111 Chemistry (Inorganic) .....	5	HUM	201 Western Civilization .....	4
MTH	103 Trigonometry .....	5	BIO	201 Zoology .....	4
PE	101 Physical Education .....	1	PHY	201 Physics .....	4
PSY	101 Orientation .....	1			<hr/> 16
		15			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG	102 Composition .....	3	SS	102 Economics .....	4
CEM	112 Chemistry (Inorganic) .....	5	HUM	202 Western Civilization .....	4
MTH	201 College Algebra .....	5	BIO	202 Zoology .....	4
PE	102 Physical Education .....	1	PHY	202 Physics .....	4
	Elective .....	2			<hr/> 16
		16			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG	103 Composition .....	3		Elective .....	4
CEM	113 Qualitative Analysis .....	5	HUM	203 Western Civilization .....	4
PE	103 Physical Education .....	1	PSY	201 Introduction to Psychology .....	4
SS	103 Political Science .....	4	PHY	203 Physics .....	4
	Elective .....	2			<hr/> 16
		15			

**OCCUPATIONAL THERAPY**

Students who plan to follow this curriculum should consult the catalogs of Eastern Michigan University, Wayne State University, or Western Michigan University for detailed information concerning course requirements. The specific nature of some of the course work in the second year makes it impossible for a student to complete all of his sophomore year at Lansing Community College.

Freshman Year	Fall Term	Credit Hours	Freshman Year	Winter Term	Credit Hours
ENG 101	Composition .....	3	ENG 102	Composition .....	3
BIO 201	Zoology .....	4	BIO 202	Zoology .....	4
SS 101	Sociology .....	4	SS 102	Economics .....	4
PSY 101	Orientation .....	1	PE 102	Physical Education .....	1
PE 101	Physical Education .....	1	NS 102	Chem-Physics .....	4
SPH 104	Speech Fundamentals .....	3			<u>16</u>
		<u>16</u>			

Freshman Year	Spring Term	Credit Hours
ENG 103	Composition .....	3
BIO 203	Botany .....	4
SS 103	Political Science .....	4
NS 103	Astronomy-Geology .....	4
PE 103	Physical Education .....	1
		<u>16</u>

**PRACTICAL NURSING**

Lansing Community College is one of the eighteen schools in the state of Michigan sanctioned by the Michigan Board of Nursing to prepare men and women for careers in Practical Nursing.

This is a one-year program designed to give the student four months of classroom and laboratory instruction followed by eight months of clinical work in affiliated hospitals. Students are paid \$3.50 per day during the last eight months while they are on hospital affiliation.

New classes begin in March and September of each year and are offered on a full-time basis only.

**EXPENSES:**

Application Fee .....	\$ 5.00
Tuition .....	100.00
Uniform .....	26.00
Books .....	20.00
Activity .....	15.00
	<u>\$166.00</u>

Students receive graduate pins and Certificates of Achievement upon their satisfactory completion of the program and are eligible to write the State Board Examination for Practical Nurse licensure. For more complete and detailed information, write or telephone for the Practical Nursing brochure, Admissions Office, Lansing Community College, 419 N. Capitol, Lansing, Michigan. Telephone 489-2471.



**Pre-Dentistry**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY	101 Orientation .....	1	HUM	201 Western Civilization .....	4
ENG	101 Composition .....	3	CEM	201 Organic Chemistry .....	5
BIO	201 Zoology .....	4	PHY	201 Physics .....	4
SS	101 Sociology .....	4		Elective .....	3
CEM	111 Inorganic Chemistry .....	5			<u>16</u>
PE	101 Physical Education .....	1			
		<u>18</u>			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG	102 Composition .....	3	HUM	202 Western Civilization .....	4
BIO	202 Zoology .....	4	CEM	202 Organic Chemistry .....	5
SS	102 Economics .....	4	PSY	202 Physics .....	4
CEM	112 Inorganic Chemistry .....	5		Elective .....	3
PE	102 Physical Education .....	1			<u>16</u>
		<u>17</u>			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG	103 Composition .....	3	HUM	203 Western Civilization .....	4
BIO	203 Botany .....	4	CEM	221 Quantitative Analysis .....	5
SS	103 Political Science .....	4	PHY	203 Physics .....	4
CEM	113 Qualitative Analysis .....	5		Elective .....	3
PE	103 Physical Education .....	1			<u>16</u>
		<u>17</u>			

**Pre-Medical**

Medical school applicants must present at least 90 semester hours of credit. Two-thirds of these, or 60 term hours, may be taken in the Community College.

Pre-medical students should be familiar with the requirements of the medical school of their choice and adjust their programs of study accordingly — in consultation with their advisers. The University of Michigan School of Medicine, for example, requires facility with a foreign language.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY	101 Orientation .....	1	PHY	201 Physics .....	4
ENG	101 Composition .....	3	CEM	201 Organic Chemistry .....	5
SS	101 Sociology .....	4	HUM	201 Western Civilization .....	4
BIO	201 Zoology .....	4		Foreign Language or	
CEM	111 General Chemistry .....	5		Mathematics .....	4-5
PE	101 Physical Education .....	1			<u>17-18</u>
		<u>18</u>			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG	102 Composition .....	3	PHY	202 Physics .....	4
SS	102 Economics .....	4	CEM	202 Organic Chemistry .....	5
BIO	202 Zoology .....	4	HUM	202 Western Civilization .....	4
CEM	112 General Chemistry .....	5		Language or Math. ....	4-5
PE	102 Physical Education .....	1			<u>17-18</u>
		<u>17</u>			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG	103 Composition .....	3	PHY	203 Physics .....	4
SS	103 Political Science .....	4	CEM	221 Quantitative Analysis .....	5
BIO	203 Botany .....	4	HUM	203 Western Civilization .....	4
CEM	113 Qualitative Analysis .....	5		Language or Math. ....	4-5
PE	103 Physical Education .....	1			<u>17-18</u>
		<u>17</u>			

**Pre-Mortuary Science**

The Michigan State Board of Mortuary Science requires that a licensed mortician must:

1. Complete 90 term hours of instruction at a recognized community college, four-year college or university.
2. Graduate from a nine-month course at an approved college of mortuary science.
3. Complete one year of resident training under the supervision of a licensed mortician.
4. Be 21 years of age, a resident of Michigan, a citizen of the United States, and of good moral character.

The program of studies listed below meets the requirements of item No. 1 above.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
PSY 101	Orientation .....	1	PHL 201	Philosophy .....	3
SS 101	Sociology .....	4	BUS 117	Business Mathematics .....	3
ENG 101	Composition .....	3	PSY 201	Psychology .....	4
NS	Natural Science .....	4	CEM 111	Inorganic Chemistry .....	5
ANT 201	Anatomy-Physiology .....	4			<hr/>
PE 101	Physical Education .....	1			15
		<hr/>			
		17			
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	PHL 202	Philosophy .....	3
SS 102	Economics .....	4	PSY 202	Psychology of Personality .....	3
NS	Natural Science .....	4	CEM 112	Inorganic Chemistry .....	5
ANT 202	Anatomy-Physiology .....	4		Electives .....	5
PE 102	Physical Education .....	1			<hr/>
		<hr/>			16
		16			
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	PHL 203	Philosophy .....	3
SS 103	Political Science .....	4	ENG 104	Speech .....	3
NS	Natural Science .....	4	PSY 203	Human Relations .....	3
MIC 203	Microbiology .....	4	CEM 113	Qualitative Analysis .....	5
PE 103	Physical Education .....	1		Elective .....	2
		<hr/>			<hr/>
		16			16

**Pre-Nursing****For Students Planning to Transfer to the University of Michigan**

Nursing students enrolled in clinical courses in the University Hospital during the third and fourth years receive a stipend of \$100.00 at the end of each month in recognition of the contribution of nursing students to the care of patients in the University Hospital. This arrangement begins with the second summer session and is exclusive of planned vacation periods and experience away from the medical center.

A student may be admitted to The University of Michigan School of Nursing upon successful completion of 3 terms of study, 45 term hours of credit, and will enter the University at the beginning of the first summer session.

Freshman Year	Fall Term	Credit Hours	Freshman Year	Winter Term	Credit Hours
PSY 101	Orientation .....	1	ENG 102	Composition .....	3
ENG 101	Composition .....	3	CEM 112	Inorganic Chemistry .....	5
CEM 111	Inorganic Chemistry .....	5	SS 102	Economics .....	4
SS 101	Sociology .....	4	PSY 202	Psychology of Personality .....	3
PSY 201	Psychology .....	4	PE 102	Physical Education .....	1
PE 101	Physical Education .....	1			
		<hr/>			<hr/>
		18			16

Freshman Year	Spring Term	Credit Hours
ENG 103	Composition .....	3
CEM 113	Qualitative Analysis .....	5
SS 103	Political Science .....	4
PSY 203	Human Relations .....	3
PE 103	Physical Education .....	1
		<hr/>
		16

**Pre-Nursing**

For Students Planning to Transfer to Wayne State University

Students at Lansing Community College who wish to enter the College of Nursing, Wayne State University, may transfer the following courses. All students should contact a counselor at Wayne State University College of Nursing as early as possible, and must do so before completing a year of study.

Freshman Year	Fall Term	Credit Hours	Freshman Year	Winter Term	Credit Hours
ENG 101	Composition .....	3	ENG 102	Composition .....	3
CEM 111	Inorganic Chemistry .....	5	CEM 112	Inorganic Chemistry .....	5
SS 101	Sociology .....	4	SS 102	Economics .....	4
PSY 201	Intro. to Psychology .....	4		Social Science Elective .....	4
PSY 101	Orientation .....	1	PE 102	Physical Education .....	1
PE 101	Physical Education .....	1			
		<hr/>			<hr/>
		18			17

Freshman Year	Spring Term	Credit Hours
ENG 103	Composition .....	3
CEM 113	Qualitative Analysis .....	5
SS 103	Political Science .....	4
	Electives .....	4
PE 103	Physical Education .....	1
		<hr/>
		17

**Pre-Nursing**

For Students Planning to Transfer to Michigan State University

Students at Lansing Community College intending to enter the Michigan State University School of Nursing should consult a counselor there during the freshman year.

Freshman Year	Fall Term	Credit Hours	Freshman Year	Winter Term	Credit Hours
ENG 101	Composition .....	3	ENG 102	Composition .....	3
CEM 111	Inorganic Chemistry .....	5	CEM 112	Inorganic Chemistry .....	5
SS 101	Sociology .....	4	SS 102	Economics .....	4
NS	Natural Science .....	4	NS	Natural Science .....	4
PSY 101	Orientation .....	1	PE 102	Physical Education .....	1
PE 101	Physical Education .....	1			
		<hr/>			<hr/>
		18			17

Freshman Year	Spring Term	Credit Hours
ENG 102	Composition .....	3
CEM 113	Qualitative Analysis .....	5
SS 103	Political Science .....	4
NS	Natural Science .....	4
PE 103	Physical Education .....	1
		<hr/>
		17

**PRE-OPTOMETRY**

A degree in optometry now requires five years of study. Some colleges require one year of general education and four years of specialized training. Others require two years of general education and three years of specialized training.

Students may take either the one or two years of general education at Lansing Community College. The curriculum selected here will depend upon the requirements of the college from which the student expects to earn his degree in Optometry.

**Pre-Pharmacy**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	CEM 201	Organic Chemistry .....	5
BIO 201	Zoology .....	4	PHY 201	Physics .....	4
CEM 111	Inorganic Chemistry .....	5	EC 201	Economics .....	3
PE 101	Physical Education .....	1		Elective .....	4
PSY 101	Orientation .....	1			
SS 101	Sociology .....	4			
		<hr/>			<hr/>
		18			16
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	CEM 202	Organic Chemistry .....	5
BIO 202	Zoology .....	4	PHY 202	Physics .....	4
CEM 112	Inorganic Chemistry .....	5	EC 202	Economics .....	3
PE 102	Physical Education .....	1		Elective .....	4
MTH 102	Intermediate Algebra .....	5			
		<hr/>			<hr/>
		18			16
	<b>Spring Term</b>			<b>Spring Term</b>	
ENG 103	Composition .....	3	CEM 221	Qualitative Analysis .....	5
BIO 203	Botany .....	4	PHY 203	Physics .....	4
CEM 113	Qualitative Analysis .....	5	EC 203	Economics .....	3
PE 103	Physical Education .....	1	SS 103	Political Science .....	4
MTH 103	Trigonometry .....	5			
		<hr/>			<hr/>
		18			16

**Pre-Physical Therapy**

This curriculum is designed for the student who wishes to transfer to the College of Literature, Science and Arts at the University of Michigan. Requirements are quite detailed and the student should consult the catalog of the Literary College for further information.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	SS 101	Sociology .....	4
CEM 111	Inorganic Chemistry .....	5	CEM 201	Organic Chemistry .....	5
BIO 201	Zoology .....	4	PSY 201	Intro. to Psychology .....	4
	Foreign Language .....	4	MTH 102	Intermediate Algebra .....	5
PE 101	Physical Education .....	1			
PSY 101	Orientation .....	1			
		<hr/>			<hr/>
		18			18
	<b>Winter Term</b>			<b>Winter Term</b>	
ENG 102	Composition .....	3	SS 102	Economics .....	4
CEM 112	Inorganic Chemistry .....	5	CEM 202	Organic Chemistry .....	5
BIO 202	Zoology .....	4	MTH 103	Trigonometry .....	5
	Foreign Language .....	4		Elective .....	3
PE 101	Physical Education .....	1			
		<hr/>			<hr/>
		17			17

Spring Term		Spring Term		
ENG 103	Composition .....	3	SS 103 Political Science .....	4
CEM 113	Qualitative Analysis .....	5	CEM 203 Quantitative Analysis .....	5
BIO 203	Botany .....	4	MTH 201 College Algebra .....	5
	Foreign Language .....	4	PSY 203 Human Relations .....	3
PE 103	Physical Education .....	1		
		<hr/>		<hr/>
		17		17

**Pre-Veterinary Science**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
ENG 101	Composition .....	3	HUM 201	Western Civilization .....	4
SS 101	Sociology .....	4	CEM 201	Organic Chemistry .....	5
CEM 111	Inorganic Chemistry .....	5	PHY 201	Physics .....	4
NS	Natural Science .....	4	BIO 201	Zoology .....	4
PE 101	Physical Education .....	1			
PSY 101	Orientation .....	1			
		<hr/>			<hr/>
		18			17

Winter Term		Winter Term			
ENG 102	Composition .....	3	HUM 202	Western Civilization .....	4
CEM 112	Inorganic Chemistry .....	5	CEM 202	Organic Chemistry .....	5
NS	Natural Science .....	4	PHY 202	Physics .....	4
PE 102	Physical Education .....	1	BIO 202	Zoology .....	4
MTH 201	College Algebra .....	5			
		<hr/>			<hr/>
		18			17

Spring Term		Spring Term			
ENG 103	Composition .....	3	HUM 203	Western Civilization .....	4
CEM 113	Qualitative Analysis .....	5	PHY 203	Physics .....	4
NS	Natural Science .....	4	SS 102	Economics .....	4
SS 103	Political Science .....	4		Electives .....	3
PE 103	Physical Education .....	1			
		<hr/>			<hr/>
		17			15

**PROFESSIONAL NURSING**

**Affiliated Nursing Program:**

Advances in medical and social sciences have so broadened the field of nursing that the graduate nurse now finds it necessary to plan to include an increasing amount of general education courses to her pre-professional curriculum. The National League of Nursing recommends courses in the areas of English, social and natural sciences, and mathematics.

The nursing program at the Mercy School of Nursing requires attendance at the College for the following courses:

English 101, 102, 103 .....	9	Social Science .....	4
Anatomy 201, 202 .....	8	Psychology 101 .....	1
Microbiology 203 .....	4		1
Physiological Chemistry 106-107-108 .....	9		
		Term Hours .....	<hr/>
			35

Students wishing to enter this program must apply to the director of the School of Nursing at the Saint Lawrence Hospital, Lansing, Michigan.

**X-RAY TECHNICIAN  
Affiliated Program**

This 24-month course is given in cooperation with the Edward W. Sparrow Hospital. Students selected by the hospital will be enrolled at the College for appropriate class work.

The curriculum follows that recommended by the American Society of X-ray Technicians and students who complete the program are eligible for examination by the American Registry of X-ray Technicians. Students wishing to enter this program must apply to Dr. W. D. Cheney, M.D., Radiologist at the Edward W. Sparrow Hospital, Lansing, Michigan.

# **DIVISION OF ENGINEERING TECHNOLOGIES AND APPLIED SCIENCES**

CHEMICAL TECHNOLOGY  
CIVIL TECHNOLOGY  
COMPUTER TECHNOLOGY  
DRAFTING TECHNOLOGY  
ELECTRONICS TECHNOLOGY  
MECHANICAL TECHNOLOGY  
PRE-ENGINEERING

APPRENTICE TRAINING  
RETRAINING PROGRAMS  
VOCATIONAL-TECHNICAL

# ENGINEERING TECHNOLOGIES AND PRE-ENGINEERING

## ENGINEERING TECHNOLOGY DIVISION

The Community College Technology Division serves two broad purposes. One is to train technicians and two-year graduates, the other is to provide a myriad of incidental training functions in the community, including cooperative training, refresher courses, retraining and specialized technical courses. The faculty in this division will maintain continuous contact with industry and the engineering profession to keep the instruction pertinent and current.

The technician is a person who has concentrated information in a specialized technical field with emphasis on the non-theoretical or applied aspects. He could be working as an assistant, to an engineer, or could be practicing a specialized technical operation without direct supervision.

It is not a fundamental purpose of the technology division to prepare students to go into baccalaureate degree engineering colleges. The services and courses of the technology division may, however, be used for this purpose if applicable. The courses and instruction will all be on a college level requiring an ability on the part of the student in college English, college mathematics, and a mature general education. It is recognized that any technician might go on to an engineering degree in the future.

## CHEMICAL TECHNOLOGY

Chemical technicians are employed in industrial and research laboratories. These technicians carry out a large part of the actual laboratory work in the discovery, development, and refinement of new products and processes. This program of study provides the graduate with adequate background, knowledge, and skill for immediate employment and also leads toward a bachelor's degree in chemistry or chemical engineering.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Mathematics for Technicians	5	ENG 101	Composition	3
CEM 111	General Chemistry (Inorganic)	5	CEM 201	Organic Chemistry	5
ET 101	D.C. Theory & Application	4	PHY 200	Physics for Technicians	4
PSY 101	Orientation	1	MTH 160	Statistics	5
PE 101	Physical Education	1			18
		16		<b>Winter Term</b>	
	<b>Winter Term</b>		ENG 102	Composition	3
MTH 152	Mathematics for Technicians	5	CEM 202	Organic Chemistry	5
CEM 112	General Chemistry (Inorganic)	5	CEM 222	Instrumental Methods	3
ET 102	A.C. Theory & Application	6	SS 103	Political Science	4
PE 102	Physical Education	1			15
		17		<b>Spring Term</b>	
	<b>Spring Term</b>		ENG 103	Composition	3
MTH 153	Mathematics for Technicians	5	CEM 203	Organic Chemistry	5
CEM 113	Qualitative Analysis	5	CEM 221	Quantitative Analysis	4
ET 103	Electronics I	4	ET 214	Laboratory Measurements	3
CEM 223	Chemical Literature	2	PE 103	Physical Education	1
		16			16



**CHEMICAL TECHNOLOGY COOPERATIVE  
AND  
PRE-ENGINEERING — CHEMICAL**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 201	College Algebra .....	5	MTH 215	Analytic Geometry and Calculus III .....	5
ENG 101	Composition .....	3	CEM 201	Organic Chemistry .....	5
CEM 111	Gen. Chemistry (Inorganic) .....	5	PHY 211	Physics .....	4
	Elective .....	4	SS 101	Sociology .....	4
PSY 101	Orientation .....	1			18
		18			
	<b>Winter Term</b>			<b>Winter Term</b>	
MTH 213	Analytic Geometry and Calculus I .....	5	MTH 216	Analytic Geometry and Calculus IV .....	5
ENG 102	Composition .....	3	CEM 202	Organic Chemistry .....	5
CEM 112	Gen. Chemistry (Inorganic) .....	5	PHY 212	Physics .....	4
	Elective .....	4	SS 102	Economics .....	4
PE 102	Physical Education .....	1			18
		18			
	<b>Spring Term</b>			<b>Spring Term</b>	
MTH 214	Analytic Geometry and Calculus II .....	5	CEM 203	Organic Chemistry .....	5
ENG 103	Composition .....	3	PHY 213	Physics .....	4
CEM 113	Qualitative Analysis .....	5	SS 103	Political Science .....	4
	Elective .....	4	PE 203	Physical Education .....	1
PE 103	Physical Education .....	1		Elective .....	3
		18			17
		18			
	<b>Summer</b>				
	Cooperative Program with Industry				

A scholarship and a co-op program are available at the Community College with the Dow Chemical Company in Chemical Technology. Other companies also employ Chemical Technicians. These technicians work in a laboratory assisting in the development and refinement of new products and processes. This program of study fits the graduate for immediate employment and also leads directly toward a degree in chemistry or chemical engineering.

## CIVIL TECHNOLOGY

The education of Civil Technicians at Lansing Community College is planned to most efficiently produce a graduate who will be effective and will be in demand in the field of Civil Engineering. It is hoped that the student in the College will have an opportunity for some work experience related to the studies. He or she may be in the Michigan State Highway Department Co-op program, working for the Department at 6 month intervals; or may be working at some other arranged program. The College studies will develop a basic understanding of the arts and sciences needed, and will begin the attainment of some necessary skills: mental such as computation, and manual such as drafting or surveying. It is left to the work experience to further develop skills and improve speed and efficiency. After graduation the Technician will be encouraged to continue education into some specialty within Civil Engineering.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH	103 Trigonometry .....	5	PHY	201 Physics I (Mechanics & Heat)....	4
ED	101 Engineering Drawing I .....	3	CT	203 Soil Testing & Classification .....	3
CT	101 Construction Methods .....	2	CT	214 Geodetic Surveying .....	4
CT	102 Construction Materials .....	4	MTH	160 Statistics .....	5
CT	103 Construction Costs .....	2			<hr/>
PE	101 Physical Education (Optional) ..	(1)			16
PSY	101 Orientation .....	1			<hr/>
		17		Winter Term	
	Winter Term		CT	202 Highway Technology .....	4
ENG	101 Composition .....	3	PHY	202 Physics II (Electricity, Magnetism, & Wave Motion) .....	4
ED	102 Engineering Drawing .....	3	CT	204 Strength of Materials .....	3
MTH	201 College Algebra .....	5	CT	213 Advanced Surveying .....	4
CT	205 Hydrology .....	3			<hr/>
CT	201 Construction Contracts .....	3			15
		17		Spring Term	
	Spring Term		ENG	103 Composition .....	3
CT	111 Elementary Surveying .....	5	PHY	203 Physics III (Optics & Modern Physics) .....	4
CT	212 Route Surveying .....	4	CT	207 Structural Technology .....	4
ED	103 Descriptive Geometry .....	3	CT	206 Project Laboratory .....	2-3
ENG	102 Composition .....	3	SS	103 Political Science .....	4
		15			<hr/>
					17-18

**CIVIL TECHNOLOGY COOPERATIVE**

1st Year	Fall Term	Credit Hours	2nd Year	Fall Term	Credit Hours
The students will be working on co-op and will not be in school this term.			The students will be working on co-op and will not be in school this term.		
Winter Term			Winter Term		
MTH 103	*Trigonometry (OR)	5	ENG 101	Composition	3
VT 204	*Plane Trig (Shop)	(3)	MTH 160	Statistics	5
ED 101	Engineering Drawing I	3	CT 201	Construction Contracts	3
CT 101	Construction Methods	2	CT 205	Hydrology	3
CT 102	Construction Materials	4	CT 213	Advanced Surveying	4
CT 103	Constructon Costs	2			18
PE 101	Physical Education (Optional)	(1)	Spring Term		
PSY 101	Orientation	1	ED 103	Descriptive Geometry	3
		17	ENG 102	Composition	3
Spring Term			PHY 201	Physics I	4
ED 102	Engineering Drawing	3	CT 203	Soil Testing & Classification	3
MTH 201	*College Algebra (OR)	5		Electives	3-5
MTH 102	*Intermediate Algebra	(5)			16
CT 111	Elementary Surveying	5			
CT 212	Route Surveying	4			
		17			
			3rd Year		
			Fall Term		
			Credit Hours		
			CT 214	Geodetic Surveying	4
			CT 202	Highway Technology	4
			CT 204	Strength of Materials	3
			PHY 202	Physics II	4
					15
			Winter Term		
			ENG 103	Composition	3
			PHY 203	Physics III	4
			CT 207	Structural Technology	4
			CT 206	Project Lab	2
			SS 103	Political Science	4
					17

**Graduation at the End of Winter Term**

**COMPUTER TECHNOLOGY**

Computer Technicians are in demand in many diversified fields. Lansing Community College has undertaken the development of a series of two year Computer Technology curricula to help meet the increasing need in these areas for qualified personnel in this community and throughout the country. The Business Data Processing curriculum built around the IBM 1620 Data Processing System is the first of this series.

\*Students with sufficient math preparation will take Math 103 and 201 for possible future transfer, other students will take VT 204 and Math 102.

**DRAFTING TECHNOLOGY**

A two-year program designed, with the use of specific options, to train drafting technicians for employment within the fields of: Architecture and Construction, Electricity and Electronics, and other related industrial fields which require the services of adequately trained draftsmen.

**DRAFTING TECHNOLOGY  
ARCHITECTURAL AND CONSTRUCTION**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Mathematics for Technicians	5	PHY 200	Physics for Technicians	4
ED 101	Engineering Drawing	3	ENG 101	Composition	3
CT 101	Construction Methods	2	AD 210	Architectural Drawing	3
CT 102	Construction Materials	4	CT 201	Construction Contracts	3
CT 103	Construction Cost	2	MT 101	Manufacturing Processes	3
PSY 101	Orientation	1			
		<u>17</u>			<u>16</u>
	<b>Winter Term</b>			<b>Winter Term</b>	
MTH 153	Mathematics for Technicians	5	ENG 102	Composition	3
ED 102	Engineering Drawing	3	AD 211	Architectural Drawing	6
ART 101	Seminar for Artists and Painters	2	MT 201	Machine Methods & Costs	3
	Elective	3-4	CT 207	Structural Technology	3
SPH 104	Speech	3			
		<u>16-17</u>			<u>15</u>
	<b>Spring Term</b>			<b>Spring Term</b>	
MTH 153	Mathematics for Technicians	5	ENG 103	Composition	3
ED 103	Descriptive Geometry	3	AD 212	Architectural Drawing	6
AD 105	Pictorial Illustration	3	SS 103	Political Science	4
AD 110	Architectural Drawing I	3		Elective	3
	Elective	2-3			
		<u>16-17</u>			<u>16</u>

**DRAFTING TECHNOLOGY  
ELECTRICAL AND ELECTRONICS  
WITH COMMUNICATIONS OPTION**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Math for Technicians	5	ENG 101	Composition	3
ED 101	Engineering Drawing	3	ED 205	Elect. and Elect. Drawing	3
ET 101	D.C. Theory and Applications	4	ET 202	Electronics II	4
MT 101	Manufacturing Processes	3	PHY 200	Physics for Tech.	4
PSY 101	Orientation	1	PE 101	Physical Education	1
		<u>16</u>			<u>15</u>
	<b>Winter Term</b>			<b>Winter Term</b>	
MTH 152	Math for Technicians	5	ENG 102	Composition	3
ED 102	Engineering Drawing	3	ET 204	Electronics III	3
ET 102	A.C. Theory and Applications	6		Approved Elective (Electronics)	3-4
PE 102	Physical Education	1	ED 218	Elect. & Elect. Drawing	6
		<u>15</u>			<u>16-17</u>
	<b>Spring Term</b>			<b>Spring Term</b>	
MTH 153	Math for Technicians	5	ENG 103	Composition	3
ED 103	Descriptive Geometry	3	SS 103	Political Science	4
ET 103	Electronics I	4	ET 205	Electronics IV	5
ET 207	Transistor Theory & Circuitry	4	ER 219	Elect. & Elect. Drawing	6
		<u>16</u>			<u>18</u>

**DRAFTING TECHNOLOGY  
ELECTRICAL AND ELECTRONICS  
WITH INDUSTRIAL OPTION**

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Math for Technicians .....	5	ENG 101	Composition .....	3
ED 101	Engineering Drawing .....	3	ED 205	Elect. & Elect. Drawing .....	3
ET 101	D.C. Theory .....	4	ET 201	Automation I (Motors & Motor Control) .....	4
MT 101	Manufacturing Processes .....	3	PHY 200	Physics for Technicians .....	4
PSY 101	Orientation .....	1	PE 101	Physical Education .....	1
		16			15
	Winter Term			Winter Term	
MTH 152	Math for Technicians .....	5	ENG 102	Composition .....	3
ED 102	Engineering Drawing .....	3	ET 203	Automation II (Synchros & Servomechanisms)....	4
ET 102	A.C. Theory .....	6		Approved Elective (Electronics)..	4
PE 102	Physical Education .....	1	ED 218	Elect. & Elect. Drawing .....	6
		15			17
	Spring Term			Spring Term	
MTH 153	Math for Technicians .....	5	ENG 103	Composition .....	3
ED 103	Descriptive Geometry .....	3	SS 103	Political Science .....	4
ET 103	Electronics I .....	4		Approved Elective (Electronics)..	4
ET 207	Transistor Theory & Circuitry ....	4	ED 219	Elect. & Elect. Drawing .....	6
		16			17

**ELECTRONICS TECHNOLOGY**

Electronics Technicians are employed in many fields, especially in those industries considered necessary for national defense. Many are found in research and development laboratories engaged in experimental, analytical, or testing work on types of equipment necessitating a broad knowledge of electrical and electronic phenomena. The Electronics Technician requires specialized training and education in the application of electronic theory. He should be familiar with the purpose and many uses of vacuum tubes, transistors, transducers and other components of electronic circuits. He repairs and maintains complex electronic equipment such as digital and analog computers, servomechanisms, photoelectric controls, automatic guidance equipment, and devices used in automation. He may be called upon to test precision electronic equipment such as airborne control and navigation equipment (avionics), machine tool controls, and radar. He may design wired and printed circuitry to meet prescribed specifications, using "breadboard" techniques and modifying circuits to obtain desired performance.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Mathematics for Technicians .....	5	PHY 200	Physics for Technicians .....	4
ET 101	D.C. Theory & Applications .....	4	ET 201	Automation I (Industrial Electronics) .....	4
MT 101	Manufacturing Processes .....	3	ET 202	Electronics II (Receivers) .....	4
ENG 101	Composition .....	3	ET 213	Transmitter Theory and Circuitry ..	4
PSY 101	Orientation .....	1			
		16			16

## ELECTRONICS TECHNOLOGY

Winter Term		Winter Term	
MTH 152	Mathematics for Technicians .....	5	
ET 102	A.C. Theory & Applications .....	6	
ENG 102	Composition .....	3	
PE 102	Physical Education .....	1	
		<hr/>	
		15	
Spring Term		Spring Term	
MTH 153	Mathematics for Technicians .....	5	
ET 103	Electronics I (Vacuum Tube Theory & Circuitry) .....	4	
ET 207	Transistor Theory & Circuitry ....	4	
SS 103	Political Science .....	4	
		<hr/>	
		17	
ET 203	Automation II (Industrial Electronics) .....	4	
ET 204	Electronics III (Computer Theory & Circuitry) .....	4	
ET 208	Communications I (2nd Class Radiotelephone License Prep.) ....	3	
ET 212	Electronics V (Radar and Micro- wave Principles) .....	4	
		<hr/>	
		15	
Spring Term		Spring Term	
ENG 204	Technical Report Writing .....	3	
ET 205	Electronics IV (Television Receivers) .....	5	
ET 209	Communications II (1st Class Radiotelephone License Prep.) ....	3	
ET 210	Printed Circuits .....	2	
ET 211	Testing Methods and Procedures .....	3	
		<hr/>	
		16	
		Optional Elective: ET 206 Project Laboratory	

## MECHANICAL TECHNOLOGY

It has long been evident that machines will be one of the most important factors in our future economy. History records many sequences such as the horse, the steam locomotive, the automobile, the aircraft, and now the missile. Men with a full understanding of machinery will never be idle because the need for machines is expanding everywhere. Automation prescribes machines that operate themselves, but automation does not and will not displace the man who designs, who builds, or who repairs the machines. The need for mechanical technicians exists in every industry: steel mills, wood processing, construction, transportation, communications, chemical, food, clothing, medical, and almost all other divisions of our economy.

## Descriptions of Typical Positions

## MACHINE DESIGNER

An expert who translates his or someone else's ideas into mechanical drawings and who has a thorough knowledge of mechanisms, materials, and the latest developments in industrial processes.

## COST ESTIMATOR

A person who has not only a complete knowledge of manufacturing processes in general, but also a thorough working knowledge of the machines and processes in his own plant so that he can accurately figure the manufacturing cost of any component from a drawing.

Freshman Year	Fall Term	Credit Hours	Sophomore Year	Fall Term	Credit Hours
MTH 151	Mathematics for Technicians .....	5	PHY 200	Physics for Technicians .....	4
MT 101	Manufacturing Processes .....	3	ED 104	Jigs and Fixtures .....	3
ED 101	Engineering Drawing .....	3	MT 209	Machine Design I .....	4
ENG 101	Composition .....	3	ET 260	Industrial Electricity .....	3
PSY 101	Orientation .....	1	MT 201	Machines Methods & Costs .....	3
		<hr/>			<hr/>
		15			17

Winter Term		
MTH	152	Mathematics for Technicians ..... 5
MT	102	Manufacturing Processes ..... 3
ED	102	Engineering Drawing ..... 3
ENG	102	Composition ..... 3
PE	102	Physical Education ..... 1
		15
Spring Term		
MTH	153	Mathematics for Technicians ..... 5
MT	103	Manufacturing Processes ..... 2
ED	103	Descriptive Geometry ..... 3
SS	103	Political Science ..... 4
PE	103	Physical Education ..... 1
		15

Winter Term		
CHM	110	Industrial Chemistry ..... 3
ET	261	Industrial Electricity ..... 3
MT	203	Industrial Management ..... 3
MT	207	Automation Mechanics I ..... 3
MT	210	Machine Design II ..... 4
		16
Spring Term		
ENG	103	Composition ..... 3
MT	204	Metallurgy ..... 3
MT	208	Automation Mechanics II ..... 3
MT	211	Machine Design III ..... 3
ED	202	Die Design ..... 3
		15

**PRE-ENGINEERING**

Freshman Year	Fall Term	Credit Hours
MTH	201	College Algebra ..... 5
ENG	101	Composition ..... 3
CEM	111	Gen. Chemistry (Inorganic) ..... 5
		Elective ..... 4
PSY	101	Orientation ..... 1
		18
Winter Term		
MTH	213	Analytic Geometry and Calculus I ..... 5
ENG	102	Composition ..... 3
CEM	112	Gen. Chemistry (Inorganic) ..... 5
		Elective ..... 4
PE	102	Physical Education ..... 1
		18
Spring Term		
MTH	214	Analytic Geometry and Calculus II ..... 5
ENG	103	Composition ..... 3
CEM	113	Qualitative Analysis ..... 5
		Elective ..... 4
PE	103	Physical Education ..... 1
		18

Sophomore Year	Fall Term	Credit Hours
MTH	215	Analytic Geometry and Calculus III ..... 5
PHY	211	Physics ..... 4
ED	101	Engineering Drawing ..... 3
SS	101	Sociology ..... 4
PE	101	Physical Education ..... 1
		17
Winter Term		
MTH	216	Analytic Geometry and Calculus IV ..... 5
PHY	212	Physics ..... 4
ED	102	Engineering Drawing ..... 3
SS	102	Economics ..... 4
		16
Spring Term		
MTH	160	Statistics ..... 5
PHY	213	Physics ..... 4
ED	103	Descriptive Geometry ..... 3
SS	103	Political Science ..... 4
		16

**CO-OPERATIVE EDUCATION****at the University of Michigan Dearborn Center**

Co-operative education is one of the unique characteristics of the Dearborn Center. In essence, it consists of a carefully controlled and integrated plan for combining classroom work with actual experience in business or industry. The student alternates semesters of attendance on the campus with periods of employment at the selected "work assignment."

The Dearborn Center operates the year around with three full semesters each calendar year, registration dates being in September, February, and June. A minimum of three semesters of work assignments, alternated with a minimum of four semesters of classroom work is required for graduation.

One of the greatest assets of the co-operative program is the wealth of appropriate and rewarding work assignments available in the area. The employers have expressed their enthusiastic support of the co-operative program. Student-work assignments in industry are carefully selected from the wide variety of available opportunities in order to yield the greatest educational value.

While the co-op student in engineering is on the work-assignment semester, he will be well compensated by his employer. This compensation recognizes the caliber of the student, his permanent employment potentialities, and the high requirements of the associated classroom program. Consequently, the student's earnings could well make him totally self-supporting.

The student applying for admission at the third year must present 93 term-credit hours including the following courses:

Subject	Term Hours
English Composition .....	12
Engineering Drawing .....	9
Mathematics (Including Analytic Geometry and Calculus) .....	24
Physics .....	15
Chemistry (General and Inorganic) .....	12
Engineering Mechanics (Statics) .....	4.5
Economics .....	9
Chemical-Metallurgical Engineering and Mechanical Engineering (Engineering Materials and Processes) .....	7.5
Total Credit Hours .....	93



# APPLIED SCIENCES

## APPRENTICE TRAINING

The college is anxious to assist employers and apprentices in their training needs in the skilled trades.

Today's industrial worker must have the ability to adjust to changes in production techniques which are taking place and which, undoubtedly, will continue to take place for a long time to come.

Many of the key men in today's industry started as apprentices. Apprentice training offers opportunities to learn a skilled craft or trade while the individual works at the trade for wages and takes related instruction to learn more about the job.

Upon completion of his training program, the apprentice is awarded the status of journeyman which signifies that he is then a skilled craftsman or tradesman.

The Apprentice Training Department is operated by the Lansing Community College in cooperation with labor and management as part of a joint program consisting of:

1. Practical training in a specific skilled trade, and
2. Related training provided at the college for the trade.

The trades currently participating in the joint program are as follows:

Bricklaying	Electrical (Municipal)
Carpentry	Machinist
Die Making	Plumbing
Die Sinking	Sheet Metal
Electrical Construction	Tool Making

The school program is not designed to give complete trade training but is supplemental to the training on the job. Therefore, anyone desiring trade training must be employed as an apprentice before entering class. The college does not provide apprentice placement service, nor does it exercise control over selection of apprentices.

### Qualifications

To qualify for an apprenticeship in any of the skilled trades, a young man must have mechanical aptitude and ability. To be successful he must have perseverance, ambition, and initiative. Most trades require high school graduation as a prerequisite; a few do not. In general, age limits are 18 and 25, although exceptions are sometimes made. School records, test results, and personal interviews are used by most committees to determine the qualifications of the applicant. The successful applicant must be in good health, mentally alert, and genuinely interested in the training.

### **Becoming An Apprentice**

Applications for apprenticeship may be secured from a joint apprentice committee member or from the apprentice coordinator in the College office. No common procedure can be outlined here since each trade differs in its selection and placement procedure. An applicant must reside within the jurisdictional area of the joint apprenticeship committee of the trade for which he is making application.

### **Time Required To Complete Training**

The time required to complete training varies from three to eight years, depending on the trade. There is no speed-up of apprentice training, although credit is sometimes granted by the joint apprentice committee for previous experience. The apprentice attends classes at the College for a minimum of four hours a week during the period of his apprenticeship. He obtains on-the-job training during the standard work week.

### **Earnings**

Apprentices are paid by their employer for their time in school directly or through an adjustment in hourly pay rate as established by industry. The apprentice wage scale is graduated in accordance with training status and represents a specific percentage of the journeyman wage rate.

### **Apprenticeship Agreement**

Each apprentice enters into an agreement with the joint apprenticeship committee or its agent to observe the apprenticeship rules and regulations. It then becomes a function of the joint apprenticeship committee or its agent to enforce these rules. It is also the function of the joint apprenticeship committee to review any problems that may arise relative to the apprentice's training program and to endeavor to keep him employed during the term of his apprenticeship. The apprenticeship agreement is registered with the State Board of Control for Vocational Education and with the Federal Committee on Apprenticeship (U.S. Department of Labor). A copy of the registered agreement is required by the Veterans Administration for all veterans who apply for the training benefits.

### **Entering the School**

Applicants approved for apprentice training are assigned a day to report to the College by either the joint apprenticeship committee or the employer. On inquiry at the apprentice coordinator's office, they are referred to the instructor for the trade.

### **VETERANS**

Veterans who are eligible for training benefits under existing laws for veterans' readjustment (PL895, or PL500) should consult the apprentice co-ordinator at the Technical Division office about benefits in apprenticeship training and the application procedure to be followed for obtaining such benefits.

### **APPRENTICE INSTRUCTORS**

Hinderleider, Arthur .....	Bricklaying
Koelzer, Philip .....	Sheet Metal
Lehman Fred .....	Plumbing
Smith, Carl .....	Electrical
Warnell, Wilbern .....	Welding

## RETRAINING PROGRAMS

Lansing Community College conducts retraining programs under the Manpower Development and Training Act of 1962. This Federal Act Provides for vocational training for unemployed and underemployed persons. Training under the Act is designed to provide workers with new skills where needed, to upgrade their present skills, and meet the job needs of workers displaced by automation and technological change, geographic relocation of industry, and shifts in market demands. In the majority of cases, job openings must be available or anticipated in the area before training courses are established. Persons to be trained must have reasonable expectation of employment in such openings or must give reasonable assurance of their willingness to accept employment outside their area of residence.

**Machine Operator:** A course in industrial machine tool operation and set-up designed to give the student the basic trade theory and principles governing machine shop operations in the basic machine tools, namely: measuring instruments, bench work, drill press, lathes, milling machine, shaper and grinders. Related training in Mathematics for Machine Operators and Blue Print Reading for Machine Operators as well as Employer-Employee Relations is also included.

**Welder, Combination (Entry):** This course includes general information concerning safety, welding terms, material used and the operation and adjustment of various types of welding machines. In actual welding techniques the student obtains instruction and practice to the point of acceptable industrial proficiency in arc welding, oxy-acetylene welding, heliarc welding, and certain types of semi-automatic welding machines.

Related training is conducted in Blue Print Reading for Welders, Structural Proportioning, Strength of Junctures, properties of Metals and Testing, Electricity for Welders, Machine Operations for Welders, Mathematics for Welders and Employer-Employee Relations.

Retraining programs offered change from time to time, consistent with community needs. Interested persons should contact either the Technical Division office of the College or Michigan Employment Security Commission, Branch Office, for further information.

## **VOCATIONAL - TECHNICAL**

### **(Related Instruction Classes for Industrial Workers)**

One of the most important functions of a community college is that of service to local business and industry and to the men and women who are employed by these firms. Every effort will be made to offer instruction which will allow the industrial worker to upgrade himself through classroom work and laboratory experience related to his present job requirements and anticipated technological changes.

The College stands ready to work with any plant or local union on educational programs ranging from single session meetings to courses requiring several hundred hours for completion.

Technological changes in manufacturing processes have occurred with increasing rapidity during the past few years, and there is every indication that the rate of change will increase. The College, in cooperation with the industrial firms in the Lansing area, has scheduled courses for the man working in industry who wants to improve his understanding of the more technical aspects of the skilled trades.

All classes in this program are scheduled in pairs to allow men on any shift or combination of shifts to attend without interruption. Parallel classes are held morning and evening in these programs.

# **COURSE DESCRIPTIONS**

ARTS AND SCIENCES

BUSINESS

HEALTH SCIENCES

ENGINEERING TECHNOLOGIES  
AND APPLIED SCIENCES

## **ARTS AND SCIENCES**

The curriculum offers two years of college study in the humanities and sciences which prepare the student for transfer to a senior college or university as well as offer additional training in developing a personal philosophy of life. The strength and purposes of this curriculum, along with the other curricula in the Community College, are that it allows the student to evaluate the heritage of recorded ideas and actions of societies both past and present through his own reading and under the guidance of his instructors.

The Community College student who desires to transfer to another college or university should study the requirements for course work demanded by that institution. Advisors will help each student analyze the courses he must take to make certain that his work will be fully transferable to the institution of his choice. It is possible for the student to receive credit applicable to programs in most areas of academic endeavor.

## **LIBERAL ARTS**

### **ART**

#### **ART 101 Drawing I 2(0-6)**

Basic drawing with water color and oils. Occasional lectures and demonstrations by guest artists. Work preparatory to the fine or commercial art fields.

#### **ART 102 Drawing II 2(0-6)**

A continuation of Art 101.

#### **ART 103 Painting I 2(0-6)**

Basic painting with watercolor and oils. Occasional lectures and demonstration by guest artists. Work preparatory to the fine or commercial art fields. Occasional lectures or demonstrations by guests artists.

#### **ART 201 Painting II 2(0-6)**

Advanced development in fundamental painting. New techniques and artistic license explored in water color and oils. Work preparatory to the fine or commercial art fields. Occasional lectures and demonstrations by guests artists.

#### **ART 202 Painting III 2(0-6)**

A continuation of Art 201.

#### **ART 203 Drawing III 2(0-6)**

Advanced development in fundamental drawing. New techniques and artistic license explored in water color and oils.

### **ENGLISH**

**ENGLISH REQUIREMENTS.** All entering students will be required to take an entrance examination in English. Students who fail to make a satisfactory score on the examination will be expected to take Remedial English in the summer term as a prerequisite to entrance into the standard freshman English course.

**ENG 011 Remedial English 0(3-0)**

A course designed for students who fail to make a satisfactory score on the English placement test. Concerned with sentence structure, vocabulary building, selected readings, and expository writing. Offered summer term only.

**ENG 101 Composition 3(3-0)**

The first of a series of three consecutive reading and writing courses designed to develop the student's reading and to teach him to think and write clearly and cogently. Careful analysis of integrated specimens of professional writing; an introduction to the use of a library and to the fundamentals of preparing and writing the college research paper; the writing of one student essay a week. Prerequisite: a satisfactory score on the English Placement test.

**ENG 102 Composition 3(3-0)**

A continuation of English 101. Special attention is given to the careful reading of works in prose fiction, especially the short story, upon which the writing of weekly essays is based; the writing of one student essay each week. Prerequisite: English 101.

**ENG 103 Composition 3(3-0)**

A continuation of ENG 102, with special attention devoted to the study of argumentation principles and research processes. The term's work will focus on the preparation and composition of an argumentative research paper of 2500-3000 words. Prerequisite: English 101 and 102.

**ENG 201 Introduction to Literature 3(3-0)**

The first in a series of three consecutive courses designed to teach the student to understand and appreciate the form and content of the literary essay, fiction (excluding the novel), drama, and poetry. He will be asked to read some of the most representative selections of world literature and to write critical and analytical papers. The first term will be devoted to the literary essay and prose fiction, excluding the novel. Prerequisite: ENG 101, 102, and 103.

**ENG 202 Introduction to Literature 3(3-0)**

A continuation of ENG 201, devoted largely to drama. Prerequisite: ENG 101, 102, 103.

**ENG 203 Introduction to Literature 3(3-0)**

A continuation of ENG 202, devoted to poetry. Prerequisite: ENG 101, 102, and 103.

**ENG 204 Technical Report Writing 3(3-0)**

This course is designed to deal with the special problems of the business, industrial, and professional reports generally required of the modern businessman and technically trained person. The emphasis will be on the general principles of writing all technically oriented reports instead of teaching the requirements of specific and limited reports such as lab and other formalized reports. As far as is practicable, the student will be asked to write reports in conjunction with his technical courses or actual job experience. Prerequisite: English 101, 102, and 103.

**ENG 207 Introduction to Journalism 2(2-2)**

A course designed to introduce the student to newspaper writing, its style, structure, and problems. Topics to be studied include the following: A Comparison of News and Literary Writing, The Journalist, The Canons of Journalism and Press Criticism, The News Operation, The Style Sheet and Headline Schedule, Uses of Language, Clear Writing, Basic News Structure, Writing the Lead, Writing the Head. Prerequisites: English 101, 102, and 103 or the approval of the department.

**ENG 208 Introduction to Journalism 2(2-2)**

A continuation of English 207. Topics to be studied include the following: Making News Fit Space, Rewriting, Human Interest in the News, Kinds of News (society, sports, disaster, etc.), News of Speeches and Meetings, Interviews, News Conferences, Using the Pica Rule, Pictures and Cutlines, Using the Copyreading Symbols, Proofreading, Editing. Prerequisite: English 207 or the approval of the department.

**ENG 209 Introduction to Journalism 2(2-2)**

A continuation of English 208. Topics to be studied include the following: Writing Feature Stories, Writing Editorials, Writing Reviews, Newspaper Advertising, Make-up, Typography, Printing Machines and Processes, Ethical Problems, Legal Problems. Prerequisite: English 208 or the approval of the department.

**ENG 210 The 19th Century American Novel 3(3-0)**

The emphasis in this course is on the intensive reading of some of the major 19th century American novels from James Fenimore Cooper to Theodore Dreiser and Jack London. The general orientation is on the historical development of the novel form in America and on the novelists' response to and interpretation of the American scene from Colonial times to 1900. In addition to the reading of seven to ten novels, critical and analytical papers are required. Prerequisite: English 101, 102, and 103.

**ENG 211 The 19th Century European Novel 3(3-0)**

An intensive study of some of the major 19th century European novels with attention given to their reflection of and influence upon the European scene and their contribution to the development of the genre. The works of such authors as Dostoevski, Tolstoi, Flaubert, Balzac, and Stendahl will be read. Writing assignments are required, in addition to scheduled examinations. Prerequisite: ENG 101, 102, and 103.

**ENG 212 The 20th Century American Novel 3(3-0)**

An intensive study of some of the major American novels of this century and of the environments (general or specific) which influenced their writing. The works of such authors as Anderson, Hemingway, Faulkner, Salinger, and Steinbeck will be read. Writing assignments are required in addition to scheduled examinations. Prerequisite: English 101, 102, and 103.

**ENG 213 The 20th Century European Novel 3(3-0)**

An intensive study of some of the major 20th century European novels with attention given to their reflection of and influence upon the European scene and their contribution to the development of the genre. The works of such authors as Conrad, Kafka, Joyce, Camus, and Silone will be read. Writing assignments are required, in addition to scheduled examinations. Prerequisite: ENG 101, 102 and 103.



**ENG 220 Play Production 3(3-0)**

A course designed to teach the student the theoretical principles and practical problems of producing a play for an audience. Lecture-discussion sessions are focused on four major units of study: (1) script analysis, (2) problems of directing, (3) stagecraft, and (4) producing the play. Student activities include study and discussion of text materials, stagecraft projects coordinated with L.C.C. productions, direction of ten-minute scenes from plays, and preparation of a complete prompt book.

**ENG 230 The Structure of English 3(3-0)**

An introduction to the structure of English. This course presents English syntax from the viewpoint of structural linguistics. Basically, the course is concerned with sentence types, their arrangements and functions. Prerequisite: ENG 101, 102, and 103.

**ENG 231 The Structure of English 3(3-0)**

A course dealing with English phonology — phonetics and phonemics — and morphology — the structural formation of “words” and their formal classification. Prerequisite: ENG 230.

**ENG 232 The Structure of English 3(3-0)**

A course which treats in a general way the modern development of linguistic science. Prerequisite: ENG 231.

**SPEECH****SPH 104 Fundamentals of Speech 3(3-0)**

The introduction of the fundamentals of public speaking. Emphasis is placed upon the development of clear articulation, pleasing vocal quality, adequate loudness and projection, a varied and expressive voice and correct habits of pronunciation.

**SPH 105 Public Speaking 3(3-0)**

Voice and Articulation: A course designed to instruct the student in the principles of effective voice production and precise diction. Application of these principles will be utilized in the interpretation of written materials, improvisations, and an introduction into dramatic techniques. Prerequisite: Speech 104.

**SPH 201 Public Speaking 3(3-0)**

An advanced speech course. Addresses for different occasions are considered; emphasis is placed on adjusting the approach to the specific audience. Careful attention is given to effective organization and delivery. Prerequisite: Speech 104.

**SPH 202 Discussion and Debate 3(3-0)**

A study of principles and methods of group discussion and debate in their various forms. Practice is given in applying these principles to a consideration of questions of current interest and importance. This course is offered in conjunction with the annual discussion and debate tournaments. Prerequisite: Speech 206.

**MATHEMATICS**

The college will admit students who have deficiencies in mathematics. One year each of high school algebra and geometry are, however, essential for certain college courses. These deficiencies may be removed in college, but the time spent may require the student to attend an extra term or more to complete requirements for graduation.

**MTH 011 - 012 Beginning Algebra Laboratory 0(0-5)**

A combined course in elementary algebra using programmed learning materials. Designed to meet college entrance requirements or to provide necessary review and up-grading of previous preparation in mathematics. Each student progresses at his own rate and completes course on an individual basis. May re-register as needed. Eight hours (Algebra) non-transfer credit.

**MTH 013 Geometry 0(4-0)**

An elementary course of plane geometry with some of the concepts also related to 3-dimensional figures. Included in the course are nature of proof and mensuration principles and formulas. Prerequisite: One unit of high school algebra or Mth 011 and 012. Four hours non-transfer credit.

**MTH 102 Intermediate Algebra 5(5-0)**

A course in linear and quadratic equations, systems of equations with graphs; factor and remainder theorems, and synthetic division; exponents, radicals, logarithms, and imaginary numbers; ratio proportion, and variation. Prerequisite: One entrance unit in high school algebra and one entrance unit in geometry or Math. 011, 012, 013.

**MTH 103 Trigonometry 5(5-0)**

A course in trigonometric functions, radian measure, graphs of trigonometric functions; fundamental identities, trigonometric formulae, simple trigonometric equations, logarithms, solution of plane triangles, inverse functions. Prerequisite: Math. 102 or equivalent.

**MTH 151 Mathematics for Technicians I 5(5-0)**

A course designed specifically for the technician, stressing the applied aspects of topics considered. These include a brief review of algebra and geometry; linear equations of one or more unknowns; algebraic fractions; exponents, roots and radicals; quadratic equations; roots of algebraic equations; determinants; word problems; solving formulas for any unknown; ratio, proportion, and variation; logarithms; introduction to slide rule. Prerequisite: One year each of high school algebra and geometry. Concurrent with E.T. 101.

**MTH 152 Mathematics for Technicians II 5(5-0)**

A continuation of Math. 151 including a study of trigonometry; vectors, representation of positive and negative quantities, angular motion in the four quadrants; vector algebra, graphic trigonometric solutions, averages of sine and sine squared waves; complex notation; conversion of complex to polar forms; the "j" operator, Eulers equation and Demoivre's theorem; trigonometric identities and equations, mathematical addition of sine waves, harmonically related sine waves, analysis of curves and Lissajous figures. Prerequisites: Math. 151. Concurrent with E.T. 102.

**MTH 153 Mathematics for Technicians III 5(5-0)**

A continuation of Math. 152 including the study of graphical methods of problem solution relating to slope and rate of slope change; the derivative graphically determined; maxima and minima, inflection points, and areas graphically determined. Basic calculus consisting of a study of limits, derivations, integrations; trigonometric, logarithmic, exponential, and hyperbolic functions; mathematical series. Prerequisite: Math. 152. Concurrent with E.T. 103.

**MTH 155 Data Processing Mathematics 5(5-0)**

The language of business has numerical bases. This course provides the necessary foundation in numerical concepts for the introductory study of accounting and machine processes. The principles presented in this course will be applied, and therefore reinforced, in the Computer Programming and in the Statistics courses. Includes topics in Logic, Boolean Algebra, iterative processes, binary and other number systems, determinants and matrices, methods of numerical computation and classification of errors. Prerequisite: Mth 151 and 152.

**MTH 160 Statistics 5(5-0)**

The objectives of this course are to acquaint the student with the theory of probability applications to statistical theory. The student will gain an understanding of the kinds of regularity that exist among random fluctuations. He will gain experience in associating and using mathematical models to interpret physical phenomenon and predict, with reasonable certainty, the outcomes of experiments related to practical business problems. There will be practical experiences in the statistical solution to business problems through the use of computers. Methods of organizing and presenting data with intelligent interpretations of statistics is emphasized throughout the course. Prerequisite: Mth 201, or Mth 155.

**MTH 200 Arithmetical Foundations 4(4-0)**

A course with the combined purpose of developing understanding and skills in the arithmetical processes; includes a historical background of mathematics and presents some of the newer concepts in arithmetic. Designed especially for pre-teaching students but also open to others. No prerequisite.

**MTH 201 College Algebra 5(5-0)**

A course which attempts to instill in the student an appreciation of algebra as a logical subject. Topics in the course include, the real number system, the function concept, order axioms, the complex plane and a detailed discussion of determinants. Prerequisite: Mth 102 and 103 or equivalent.

**MTH 202 Analytic Geometry 5(5-0)**

A course designed to teach principles of rectangular and polar coordinates: lines, circles, conic sections, loci; translation and rotation of axes; transcendental curves and parametric equations. This course along with the calculus sequence Math. 203, 204, 205 is designed primarily for mathematic majors. Prerequisite: Math. 201.

**MTH 213 Analytic Geometry and Calculus I 5(5-0)**

A unified course dealing with plane curves and loci parametric equations, and differentiations of algebraic functions. Prerequisite: Mth 103 and 201.

**MTH 214 Analytic Geometry and Calculus II 5(5-0)**

A continuation of Mth 213 introducing; integration transcendental functions, polar coordinates. Prerequisite: Mth 213.

**MTH 215 Analytic Geometry and Calculus III 5(5-0)**

A continuation of Mth 214. New topics include infinite series, solid analytic geometry, improper integrals. Prerequisite: Mth 214.

**MTH 216 Analytic Geometry and Calculus IV 5(5-0)**

A continuation of Mth 215 including functions of several variables, partial differentiation, multiple integration. Prerequisite: Mth 215.

**MTH 219 Differential Equations 4(4-0)**

A course dealing with the solution of ordinary differential equations; series solutions; Bessel and Legendre equations with applications. Prerequisite: Math. 205 or Math. 215.

**MTH 299 Modern Math. Seminar 2 to 4 (variable credit)**

Sets, logic, and axiomatic theory with emphasis on newer concepts in mathematics. Prerequisite: Math. 201 and departmental approval. Class hours arranged.

**FOREIGN LANGUAGE REQUIREMENTS**

Students enrolling in a foreign language course must complete three terms of college work to receive credit.

Advanced placement may be arranged for those students who have satisfactorily completed one or more years of a language in high school. Proficiency tests will be given when there is a question concerning the student's level of accomplishment. Students who have completed one year may enroll in the second term of the elementary course and those who have completed two years may enroll in the first term of the second year course.

Students who have had three or more years of one language in high school should consult with a language department instructor concerning his status.

**FRN 101, 102, 103 Elementary French 4(5-1)**

A three-term sequence of elementary French designed to teach pronunciation, vocabulary, conversation, and reading from graded texts. Emphasis is given to the oral-aural approach, but the development of the skills of understanding, speaking, reading and writing is given equal importance. Practice in mastery of the sound system, the linguistic patterns, and the grammatical structure of the language is afforded by a coordinated schedule of language laboratory sessions (using tapes of native speakers) and class recitations. Five one-hour class periods each week, plus additional work in the language laboratory. Prerequisite: for French 102, French 101; for French 103, French 102. Direct admission to 102 and 103 only under special conditions. Twelve hours needed for transfer. Offered according to demand.

**FRN 201, 202, 203 Intermediate French 3(3-0)**

A three-term sequence of intermediate French involving systematic review of syntactic patterns, conversation, and extensive reading of modern texts. Increasing emphasis is placed upon the oral and written use of the language, as well as the cultural background of the French land and people. Prerequisite: French 101, 102, and 103; for French 202, French 201, etc. Completion of the elementary sequence and this sequence will fulfill the basic language requirements for liberal arts and associated curricula. Offered according to demand.

**GRM 101, 102, 103 Elementary German 4(5-1)**

A three-term sequence of elementary German designed to teach pronunciation vocabulary, conversation, and reading from graded texts. Emphasis is given to the oral-aural approach, but the development of the skills of understanding, speaking, reading, and writing is given equal importance. Practice in mastery of the sound system, the linguistic patterns, and the grammatical structure of the language is afforded by a coordinated schedule of language laboratory sessions (using tapes of native speakers) and class recitations. Five one-hour class periods each week, plus additional work in the language laboratory. Prerequisite: for German 102, German 101; for German 103, German 102. Direct admission to 102 and 103 only under special conditions. Twelve hours needed for transfer. Offered according to demand.

**GRM 201, 202, 203 Intermediate German 3(3-0)**

A three-term sequence of intermediate German involving systematic review of syntactic patterns, conversation, and extensive reading of modern texts. Increasing emphasis is placed upon the oral and written use of the language, as well as the cultural background of the German land and people. Prerequisite: German 101, 102, and 103; for German 202, German 201, etc. Completion of the elementary sequence and this sequence will fulfill the basic language requirements for liberal arts and associated curricula. Offered according to demand.

**RUS 101, 102, 103 Elementary Russian 4(5-1)**

A three-term sequence of elementary Russian designed to teach pronunciation, vocabulary, conversation, and reading from graded texts. Emphasis is given to the oral-aural approach, but the development of the skills of understanding, speaking, reading, and writing is given equal importance. Practice in mastery of the sound system, the linguistic patterns, and the grammatical structure of the language is afforded by a coordinated schedule of language laboratory sessions (using tapes of native speakers) and class recitations. Five one-hour class periods each week, plus additional work in the language laboratory. Prerequisite: for Russian 102, Russian, 101; for Russian 103, Russian 102. Direct admission to 102 and 103 only under special conditions. Twelve hours needed for transfer. Offered according to demand.

**RUS 201, 202, 203 Intermediate Russian 3(3-0)**

A three-term sequence of intermediate Russian involving systematic review of syntactic patterns, conversation, and extensive reading of modern texts. Increasing emphasis is placed upon the oral and written use of the language, as well as the cultural background of the Russian land and people. Prerequisite: Russian 101, 102, and 103; for Russian 202, Russian 201, etc. Completion of the elementary sequence and this sequence will fulfill the basic language requirements for liberal arts and associated curricula. Offered according to demand.

**SPN 101, 102, 103 Elementary Spanish 4(5-1)**

A three-term sequence of elementary Spanish designed to teach pronunciation, vocabulary, conversation, and reading from graded texts. Emphasis is given to the oral-aural approach, but the development of the skills of understanding, speaking, reading, and writing is given equal importance. Practice in mastery of the sound system, the linguistic patterns, and the grammatical structure of the language is afforded by a coordinated schedule of language laboratory sessions (using tapes of native speakers) and class recitations. Five one-hour class periods each week, plus additional work in the language laboratory. Prerequisite: for Spanish 102, Spanish 101; for Spanish 103, Spanish 102. Direct admission to 102 and 103 only under special conditions. Twelve hours needed for transfer. Offered each year according to demand.

**SPN 201, 202, 203 Intermediate Spanish 3(3-0)**

A three-term sequence of intermediate Spanish involving systematic review of syntactic patterns, conversation, and extensive reading of modern texts. Increasing emphasis is placed upon the oral and written use of the language, as well as the cultural background of the Spanish land and people. Prerequisite: Spanish 101, 102, and 103; for Spanish 202, Spanish 201, etc. Completion of the elementary sequence and this sequence will fulfill the basic language requirements for liberal arts and associated curricula. Offered each year according to demand.

**LIBRARY TECHNOLOGY****LT 101 Introduction to Library, and Use of the Library 3(2-3)**

A general course in the use of the library, including general background and philosophy of library service, especially public libraries. Students to receive instruction and practice in the use of the card catalog, Readers' Guide, encyclopedias, dictionaries and general reference works. Students to receive practice in the shelving of books so that the arrangement of books on the shelves is understood.

**LT 102 Book Selection and Order Procedure 3(3-0)**

Principles of book selection with emphasis on the sources of guidance in book selection, the evaluation of these sources which include book review, book lists, trade bibliographies, publishers' annotations, etc. The policy and practice of buying books and techniques of ordering and accessioning with an introduction to elementary budget techniques and simple financial records.

**LT 103 Reference 3(3-0)**

Study of general encyclopedias, special reference works, year books, dictionaries, and other basic sources used in reference work. An expanded course going beyond course I and including practice in the preparation of simple bibliographies, emphasizing correct form.

**LT 201 Technical Services 3(2-3)**

Study of the Dewey Decimal Classification system with problems and practice in simple classification. The purpose is to give an understanding of the classification numbers, not to make classifiers of the students. Study of the principles of dictionary cataloging, using, perhaps, *Simple Library Cataloging*, by Susan Grey Akers. Practice in dictionary cataloging plus practice in assigning subject headings. Emphasis to be placed on working under direction and on typing

catalog cards from prepared copy with work on modifying printed cards. Practice in filing in the various library catalogs — dictionary catalog, authority file and shelf list.

**LT 202 Circulation, Maintenance, Preparation of Materials 3(3-0)**

Mechanical preparation, physical arrangement, circulation and maintenance of books, periodicals, pamphlets and other library materials. Study of various systems of circulating library materials. Study of the acquisition of periodicals and pamphlets, records, picture collections, etc. Study of inventory methods, reasons for inventory, and records to be kept.

**LT 205 Library Problems 2(2-0)**

Seminar type course designed to integrate the technical course work of the preceding quarters. Special problems are assigned for investigation and reporting. Group discussion of common problems.

### **MUSIC**

**MUS 101, 102, 103, 201, 202, 203 Choir (The Lansingers) 1(0-3)**

A class for both men and women the activities of which are designed to interest the greatest number of students by stressing the joys and pleasures of singing together at concerts and on informal occasions. Three one-hour class periods each week. One hour credit.

**MUS 104, 105, 106, 204, 205, 206 Glee Club — Men 1(0-2)**

This course is offered basically for those who love to sing. It is designed for the study, expression, and performance of the finest in glee club music. No previous experience is necessary, as the course integrates the needed musical and vocal knowledge in its rehearsals.

**MUS 114, 115, 116, 214, 215, 216 Glee Club — Women 1(0-2)**

Course description same as Glee Club — Men.

**MUS 120, 121, 122 Tudor Singers 1(0-2)**

The Tudor Singers are a select group of musically and vocally talented students who are interested in singing Madrigal Music of the 14th through the 18th centuries. Enrollment is accepted by invitation only. Members must also be enrolled in the Lansingers.

**MUS 130, 131, 132, 230, 231, 232 Class Voice 2(2-0)**

This course will provide class instruction for those interested in the principles of voice production and technique as applied to solo singing and choral tone. No previous vocal training required.

### **MEN'S PHYSICAL EDUCATION**

Knowledge of human physiology and psychology in its relation to exercise and relaxation is the basic foundation of the physical education course. Physical fitness as it applies to adult members of society is stressed in the form of circuit training.

Instruction in certain individual activities will be offered as an added elective feature of the course. Some of these activities are badminton, weight training, gymnastics, golf, judo and wrestling.

Class participation requires attendance in an hour of co-educational lecture plus an additional hour arranged each week. (1 hour credit)

**PE 101 1(1-1)**

Lectures on muscle and cardiovascular physiology. Circuit Training.

**PE 102 1(1-1)**

Lecture on nutrition and heart disease. Circuit Training.

**PE 103 1(1-1)**

Lecture on the nervous system and its adverse effect on internal equilibrium. Circuit Training.

**PE 201 1(1-1)**

Seminar on muscle and cardiovascular physiology. Individual Conditioning.

**PE 202 1(1-1)**

Seminar on nutrition and heart disease. Individual Conditioning.

**PE 203 1(1-1)**

Seminar on the nervous system and its adverse effect on internal equilibrium. Individual Conditioning.

**WOMEN'S PHYSICAL EDUCATION****PE 101 1(1-1)**

Lectures on muscle and cardiovascular physiology. Physical fitness and sports skill instruction.

**PE 102 1(1-1)**

Lecture on nutrition and heart disease. Physical fitness and sports skill instruction.

**PE 103 1(1-1)**

Lectures on the nervous system and its adverse effect on internal equilibrium. Physical fitness and sports skill instruction.

**PE 201 1(1-1)**

Seminar on muscle physiology. Physical fitness and sports skill instruction.

**PE 202 1(1-1)**

Seminar on nutrition and heart disease. Physical fitness and sports skill instruction.

**PE 203 1(1-1)**

Seminar on the nervous system and its adverse effect on internal equilibrium. Physical fitness and sports skill instruction.

**SCIENCES****NATURAL SCIENCE (Basic)**

Natural Science 101, 102, 103 are not sequential and may be taken in any order.

**NS 101 Natural Science (Botany-Zoology) 4(2-4)**

One of three courses designed to give the student a basic understanding of some of the scientific principles related to both animate and inanimate objects of the world. Deals with origins and interrelationships of living organisms.



**NS 102 Natural Science (Chemistry-Physics) 4(2-4)**

A course that deals with fundamental laws, theories, and principles of chemistry. Considers such topics as: atomic and molecular theory, periodic system, laws of chemical combinations, gas laws, etc. Deals also with some modern day applications of electronics, mechanics, heat, sound, and light.

**NS 103 Natural Science (Astronomy-Geology) 4(2-4)**

A course that deals with the physical world, the story of rocks and minerals and how man's ideas about the universe have developed. Considers among other things: the sun and its family, radioactivity, and interpretation of the rock record and the earth's geological history.

**BIOLOGICAL SCIENCES****ANT 201 Anatomy and Physiology I 4(2-4)**

A course devoted to the study of the machinery of the human body, designed for students continuing in biology or related applied fields such as nursing and mortuary science. Divides the work into two terms, the first of which is a prerequisite to Anatomy and Physiology 202. Covers the skeletal, muscular, nervous, special sensory and circulatory systems.

**ANT 202 Anatomy and Physiology II 4(2-4)**

A course designed to include study of the following systems: respiratory, digestive, excretory, endocrine, and reproductive. Stresses the physiology of each system as much as time will permit. Prerequisite: Anatomy and Physiology 201.

**MIC 203 Microbiology 4(2-4)**

A course designed as an introduction to medical bacteriology, with emphasis on the most important communicable disease agents. A study of yeasts, fungi, and protozoa of medical importance, and also of culture media, isolation of pure culture, staining methods, practical sterilization, and the collection and handling of specimens.

**BIO 201 Zoology I 4(2-4)**

The first of two courses designed to survey the field of Zoology and serve as a foundation for advanced courses. Includes a study of the cell and protoplasm, unicellular organisms, and the animal groups in the order of advancing complexity.

**BIO 202 Zoology II 4(2-4)**

A continuation of Zoology 201 covering the higher animal groups. Deals principally with echinoderms and chordates with emphasis on vertebrate animals. Includes principles of anatomy, physiology, taxonomy, ecology and evolution. Prerequisite: Biology 201.

**BIO 203 Botany 4(2-4)**

A course designed to explain the plant kingdom. Deals with general structure and physiology of plants, from simplest to most advanced forms. Special attention given to the seed plants and their ecology and value to man.

**PHYSICAL SCIENCES****AST 201 Astronomy 4(3-0)**

A course designed to acquaint the student with the physical universe in which he lives and of which he is a part, using the descriptive rather than the mathematical approach. A survey of the solar system including the motions of the earth and other bodies, study of planets, comets, meteors, and the sun. A study of the stellar system including double stars, motions of the stars, variable stars, the Milky Way and other galaxies, together with an introduction to the methods employed by astronomers in gathering information. Prerequisite: Natural Science 102 and 103 or permission of the instructor.

**CHEMISTRY****CEM 106 Physiological Chemistry I 3(2-2)**

The first of a series of three courses designed specifically for students of nursing and may not ordinarily serve as prerequisites for more advanced courses in chemistry. Constitutes a short but concise review of the principles of General Chemistry, including atomic and molecular structure, the periodic nature of the elements, the laws of chemical combination, the kinds and states of matter, and descriptive inorganic chemistry. Prerequisite: A course in high school chemistry.

**CEM 107 Physiological Chemistry II 3(2-2)**

A continuation of Chemistry 106. A concise course in introductory organic chemistry, both aliphatic and aromatic, with special emphasis on representative substances and their relation to life processes, lipids, carbohydrates and proteins. Prerequisite: Chemistry 106.

**CEM 108 Physiological Chemistry III 3(2-2)**

A continuation of Chemistry 106 and 107 designed to integrate the study of the chemistry of the processes of life in health and in disease with the general study of physiology. Covers the chemistry of enzymes, hormones, and vitamins, the chemistry of digestion and metabolism, and the chemistry of the blood and urine, together with the alterations in bodily chemistry as the result of certain diseases and pathological conditions. Prerequisite: Chemistry 107.

**CEM 110 Industrial Chemistry (Inorganic) 4(4-0)**

A basic course in general chemistry designed for the technician as a prerequisite for Metallurgy MT 204. Topics include atomic and molecular theory, bonding, properties of the elements. Also discussed are oxidation-reduction reactions, kinetic-molecular theory, phase diagrams, solutions and electrochemistry. Open only to technology students.

**CEM 111 General Chemistry (Inorganic) 5(2-6)**

The first of a series of three courses designed to give a comprehensive introduction to general college chemistry for those students who plan to enter the fields of engineering or the physical sciences. Covers atomic and molecular structure, the periodic classification of the elements, the kinds and states of matter, the laws of gases and solutions, the descriptive chemistry of Groups I, II, VI, VII of the elements, and the noble gases.

**CEM 112 General Chemistry (Inorganic) 5(2-6)**

A continuation of Chemistry 111. Includes study of oxidation-reduction, hydrolysis, chemical equilibrium, nuclear chemistry, the descriptive chemistry of

Groups III, IV, V of the elements, and the two series of the Rare Earths. Prerequisite: Chemistry 111.

**CEM 113 Qualitative Analysis 5(2-6)**

A continuation of the general principles of chemistry introduced in Chem. 111 and Chemistry 112, with emphasis on the systematic separation and identification of the principal cations and anions, the application of the principles of the ionization theory of mass action, and chemical equilibrium and the laws of solubility to qualitative analysis. Prerequisites: Chemistry 111 and 112.

**CEM 201 Organic Chemistry I 5(2-6)**

The first of two courses that constitute an introduction to the chemistry of the carbon compounds and cover the fundamental principles and reactions of organic chemistry. Covers the aliphatic hydrocarbons and their derivatives, the simple alcohols, ethers, aldehydes, ketones, acids, esters, carbohydrates, and organic nitrogen compounds. Prerequisite: Chemistry 111 and 112.

**CEM 202 Organic Chemistry II 5(2-6)**

A continuation of Chemistry 201. Takes up the heterocyclic and aromatic hydrocarbons and their derivatives and the kinetics of organic chemical reactions. Prerequisite: Chemistry 201.

**CEM 203 Organic Chemistry 5(2-6)**

Continuation of Chemistry 202.

**CEM 221 Quantitative Analysis 5(1-9)**

Principally a laboratory course designed to give the student manipulative ability, a thorough knowledge of the chemical and stoichiometric principles involved in analytical procedures of volumetric and gravimetric analysis. Prerequisite: Chemistry 111 through 113.

## **GEOLOGY**

**GLG 201 Physical Geology 4(3-2)**

An introductory course giving the fundamentals of physical geology, erosion, volcanic action, basic terminology of geology, and identification of basic rocks and minerals will be covered. Also integrated tectonic coordination will be covered. Several field trips will be taken.

**GLG 202 Historical Geology 4(2-2)**

An introductory course covering the fundamentals of historical geology, evolution, correlation, and sequential rock history will be covered, including glaciation. Methods and techniques of correlation will be integrated into the evolutionary history of the earth. A field trip will be included.

**GLG 204 Gems and Ores**

Identification of gems and ore-minerals, their associations in common rocks and their economics. Extensive laboratory work, including visual identification, blowpipe analysis, use of refractometer, polariscope, dichroscope, mineral lights and other, including lapidary. Primarily for "rock-hounds", prospectors and jewelers.

**PHYSICS****PHY 200 Physics for Technicians 4(5-0)**

The over-all purpose of this course is to provide a foundation in physics which will be invaluable to the technical student. Topics will be developed with special emphasis on the requirements of the technical student. Prerequisite: Math. 153 or Math. 103.

**PHY 201 Physics (Mechanics and Heat) 4(4-2)**

The first of a series of three courses designed to give the student an understanding of the fundamental principles of physics. Considers the principles of mechanics, (the laws of motion and equilibrium and their relation to work, energy, power, etc.) as they are applied principally to solids and fluids. Also covers principles of Heat and Thermodynamics and their relationship to the operation of engines. Prerequisite: Trigonometry or approval of department.

**PHY 202 Physics (Electricity, Magnetism and Wave Motion) 4(4-2)**

A course designed to investigate the fundamental electrostatic and electromagnetic properties, to explain the electrical nature of matter, and to present the basic relationships underlying their engineering applications. Considers also the properties of waves and their application to sound. Prerequisite: Physics 201 or approval of department.

**PHY 203 Physics (Optics and Modern Physics) 4(4-2)**

A course designed to study wave properties in the area of geometric and physical optics which include the phenomena of mirrors, lenses and optical instruments, interference and diffraction. Includes a study of the modern physical notions of the theory of relativity, and atomic and nuclear physics. Examines atomic structure and the way atoms combine to give the properties associated with specific solids, liquids and gases. Emphasizes the study of crystal structure, particularly transistors, radioactivity, and nuclear reactions. Prerequisite: Physics 202 or approval of department.

**PHY 211 Physics (Mechanics and Heat) 4(4-2)**

A course designed to teach the static and dynamic behavior of solids and fluids, using calculus to derive relationships. The first of a series of three courses designed for science and engineering majors. Prerequisite: Calculus I or its equivalent.

**PHY 212 Physics (Electricity, Magnetism, and Sound) 4(4-2)**

A course designed to teach the basic principles of electricity and sound. Similar to 202 but uses Calculus extensively. Prerequisite: Physics 211.

**PHY 213 (Optics and Modern Physics) 4(4-2)**

A course designed to teach the principles of geometric and physical optics as well as developments in modern physics such as atomic and nuclear phenomena, relativity, solid state physics, quantum physics phenomena. Prerequisite: Physics 212.

**SOCIAL SCIENCES****SS 101 Sociology 4(4-0)**

A survey of major concepts and methods of sociology and anthropology. Attention given to selective aspects of culture, socialization, social stratification,

associations, primary groups, collective behavior, population-ecology, and cultural history.

**SS 102 Economics 4(4-0)**

A basic course dealing with economic institutions in their social context. A study of the social situation of capitalism, its genesis and development. Gives historical treatment of major economic thinkers to provide background for understanding of modern economic institutions.

**SS 103 Political Science 4(4-0)**

A basic course dealing with political institutions in their social context. A study of the social situation of modern nation-state systems in cross-cultural perspective to provide understanding of modern political systems. Emphasizes political sociology to draw attention to the nature of democracy and the problems which affect democratic institutions.

**SS 102, 103 Basic Social Science Honors Section 3(3-0)**

Winter and Spring Terms of each year will contain one section of Basic Social Sciences conducted as an honors course. The material will be the same as that covered in ordinary sections but at an advanced level and in seminar fashion. Students may take the honors section by invitation only and will be notified well in advance of registration.

**SS 270 Introduction to Anthropology 3(3-0)**

A survey of the fields, methods, and findings of the science of man. Primary attention will be given to the evolution of man as a physical animal and the evolution of culture as man's distinctive development. Some notice will be taken of the traditional fields of anthropology and, as time permits, of selected aspects of culture once physical and cultural evolution have been completed.

## ECONOMICS

**EC 201 Principles of Economics I 3(3-0)**

The first of three courses designed to provide the student with an introduction to economics, that he may develop an understanding of economic principles. Concentrates on vital economic problems; individual and family income; personal finance; national income and product; the economic role of government; labor and industrial relations; saving, consumption, and investment, and theory of income determinants. Prerequisite: Sophomore standing or departmental approval.

**EC 202 Principles of Economics II 3(-0)**

A continuation of Economics 201, concerned with: prices and money, the banking system, monetary policy, fiscal policy, price determination, speculation and risk, the theory of consumption and demand, equilibrium of the firm and imperfect competition. Prerequisite: SS 201.

**EC 203 Principles of Economics III 3(3-0)**

A continuation of the principles of economics concerning theory of production and marginal products; rent, wages; collective bargaining; interest and capital; profits and incentives; international trade; technology; war and defense; problems of economic growth and development; and alternative economic systems. Prerequisite: SS 202.

**GEOGRAPHY****GEO 101 Elements of Geography 3(3-0)**

A course dealing with analysis of the physical forces (physiography, climate, soils, natural vegetation, natural resources, etc.) of the human environment and their relationships to man's occupancy and activities on the face of the earth. A broad, world, geographic principles course.

**GEO 201 World Regional Geography 3(3-0)**

A course designed as an introduction to the human and natural resources of the world with major emphasis on their distribution in the various regions on the surface of the earth.

**GEO 202 Geography of North America 3(3-0)**

A course dealing with the study of the human and physical resources of North America, Central America, and the Panama Canal Zone, emphasizing the peculiar characteristics of the various regions.

**GEO 203 Economic Geography 3(3-0)**

Geographic distribution and production of agricultural commodities, raw materials for industry, and the localization of industries throughout the world. Some emphasis is placed on trade of raw materials and finished industrial products among nations.

**HISTORY****HST 104 Recent European History 3(3-0)**

A course designed for the study of contemporary European history in its world setting, especially stressing the most recent political, military, and diplomatic events of international significance. Summer only.

**HST 111 American History I 3(3-0)**

The first of a series of three courses designed for the study of the growth and development of the United States. The first term's work will trace the extension of European civilization to America, severance of European ties and the beginning of American nationalism.

**HST 112 American History II 3(3-0)**

A continuation of History 111. The term's work will deal with the strengthening of United States nationalism, slavery and Manifest Destiny, the preservation of the Union, and the rise of agrarian and urban conflicts. Prerequisites: History 111 or approval of department.

**HST 113 American History III 3(3-0)**

A continuation of History 112. The term's work will deal with the United States as a world power, the experiment with imperialism, the progressive era, world conflict, the growing regulation of domestic economy, and the global war. Prerequisite: History 111 and 112 or approval of department.

**HST 201 Western Civilization I (Humanities) 4(4-0)**

The first of a series of three courses designed for the study of the cultural foundations of Western man. Traces the political, economic, legal, religious, philosophic, and artistic patterns of the Mesopotamian, Egyptian, Hellenic, and Roman civilizations. Surveys the Christian foundations, Byzantine and Saracenic influences, and early feudal culture of medieval Europe.

**HST 202 Western Civilization II (Humanities) 4(4-0)**

A continuation of History 201, dealing with the history of Europe from the late medieval period, through the Renaissance and Reformation, through the Napoleonic era. Concerned primarily with the development of ideas and ideals, the commercial and intellectual revolutions of early modern times, the effects of absolutism upon modern man, and the beginnings of modern forces in economics, philosophy, literature, and art. Prerequisite: History 201 or approval of department.

**HST 203 Western Civilization III (Humanities) 4(4-0)**

A continuation of History 202, dealing specifically with the modern and contemporary developments in the civilization of Western man; the effects of democracy, nationalism, and industrialism upon his culture; the World Wars; and the contemporary culture in relation to science, philosophy, literature, art, and music. Prerequisite: History 202 or approval of department.

**PHILOSOPHY****PHL 201 Survey of Western Philosophy I 3(3-0)**

The first of a series of three courses dealing with the philosophies of Western Man. Surveys major problems and historical periods in western philosophy. Designed around integrated readings in problem areas of philosophy and their relation to the historical contexts in which they occur. Emphasizes the philosophies of Greece and Rome.

**PHL 202 Survey of Western Philosophy II 3(3-0)**

A continuation of Philosophy 201. Devotes special attention to the philosophies of the Medieval, Renaissance, and Early Modern Periods. Prerequisite: Philosophy 201.

**PHL 203 Survey of Western Philosophy III 3(3-0)**

A continuation of Philosophy 202. Devotes special attention to the philosophies of the 18th, 19th, and 20th centuries. Prerequisite: Philosophy 202.

**POLITICAL SCIENCE****SS 220 Juvenile Delinquency and Youth Behavior 3(3-0)**

Early attention will be given to the problems of defining juvenile delinquency and a survey of its present status in major industrial nations. The main concentration of the course will be on theories which attempt to account for juvenile delinquency and the evidence supporting such theories. Brief attention will be given to control and correction as a concluding topic.

**SS 250 American Government: Problems in Democracy 3(3-0)**

Analysis of the American political system, with the emphasis on the federal system, with special attention to the policy making process. Survey of contemporary problems in American Democracy. Prerequisite: SS 103.

**SS 260 Introduction to Comparative Government 3(3-0)**

Political institutions of modern government, with emphasis on United Kingdom, France, and the USSR. Dynamics of political behavior in these and other societies including the newly emerging nations. Prerequisite: SS 103.

**SS 271 International Relations 3(3-0)**

Contemporary international relation and politics. Survey of the relevant concepts and theories. Exploration of the relationships between international politics, foreign policy and domestic policy with emphasis on the United States. Pre-requisite: SS 103.

**PSYCHOLOGY****PSY 101 Orientation 1(1-0)**

Psychology 101 is a course designed to orient the full-time freshman student to his new college environment. The first part of the course deals with the philosophy of the College, its aims and purposes and its human and physical resources in terms of facilities and personnel. Another portion of the course is devoted to student citizenship, college policies, procedures and expectations. The use of the library, the Advisor-Advisee system, advanced enrollment and Student Personnel Services are discussed in terms of service to the student. Study skills and educational planning are taken up in the last half of the course. Correct study habits and skills are discussed and illustrated to aid the student with any difficulties he may have encountered. Finally, students are given assistance in determining realistic vocational and educational goals. The student then plans a complete educational program to meet his needs.

**PSY 201 Introduction to Psychology 4(4-0)**

A course designed to give the student a general understanding of the science of psychology. Treats such topics as intelligence, motivation, emotions, sensation, perception, learning, and group processes. Emphasizes the relation between psychology and life.

**PSY 202 Psychology of Personality 3(3-0)**

A course designed to provide the student with an explicit concept of healthy personality. Attention given to the recognized theories of personality. Investigates the origin and modification of behavior in order that the student may understand the application of principles of mental hygiene. Prerequisite: Psychology 201 or approval of department.

**PSY 203 Psychology of Human Relations 3(3-0)**

A course designed to give the student an understanding of the influence of social interaction upon the development of personality. Emphasizes the impact of culture upon personal social adjustment. Treats also of principles which can be applied to make the group process of learning or problem-solving more efficient. Analyzes the collective aspects of human behavior. Prerequisite: Psychology 201 or approval of department.

**PSY 204 Educational Psychology 3(3-0)**

A course designed to investigate the contribution of psychology to the field of education. It is concerned with child growth and development, learning, measurement, and mental hygiene. An attempt is made to allow observations of practical teaching situations. Prerequisite: Psychology 201.





## BUSINESS

### BUS 020 Smaller Business Management

A survey of the functions of planning, organizing, and controlling oriented to the problems of smaller business organizations; a review of the major problems in marketing, finance, taxation, law, personnel relations, and economics applied to the smaller business. One three-hour class period each week. Three hours non-transfer credit.

### BUS 021 Smaller Business Management Functions and Problems

A study of specific problems and functions in the operation of smaller business. One or more of the major problems surveyed in BUS 020 may be the basis for the course. Prerequisite: BUS 020 or equivalent. One three-hour class period each week. Three hours non-transfer credit.

### BUS 101 Typewriting I 3(0-3)

An introduction to and mastery of the keyboard to build accuracy and speed.\*

### BUS 102 Typewriting II 3(0-4)

A continuation of Typewriting I. Improves speed, accuracy and manipulation. Covers typing of business letters, reports and tabulations. Prerequisite: Bus. 101.

### BUS 103 Advanced Typewriting III 3(0-4)

A continuation of Typewriting II. Improves secretarial skill and efficiency. Prerequisite: BUS 102.

### BUS 104 Beginning Shorthand 4(4-1)

A course designed to teach the basic principles of shorthand and build an elementary vocabulary.

### BUS 104a Beginning Shorthand 2(2-0)

A course designed to teach the basic principles of shorthand and build an elementary vocabulary.  
(Evening College only.)

### BUS 104b Continuation of 104a 2(2-0)

(Evening College only.)

### BUS 105 Intermediate Shorthand II 4(4-1)

A course that completes theory begun in Bus. 104. Develops speed and accuracy in reading from plates, and in limited dictation. Prerequisite: Bus. 104.

### BUS 105a Intermediate Shorthand 2(2-0)

A course that completes theory begun in Bus. 104b. Develops dictation. Prerequisite: BUS 104 or 104a and 104b. (Evening College only.)

### BUS 105b Continuation of 105a 2(2-0) (Evening College only.)

### BUS 106 Advanced Shorthand III 4(4-1)

A continuation of Bus. 105. Develops high speed in dictation. Prerequisite: BUS 105 or 105a and 105b.

**BUS 107 Business Machines 3(3-3)**

A course designed to teach the basic operations and manipulations of calculating machines. Includes the study of the operation of the ten-key, key-driven, rotary calculators and the Burrough's Sensimatic. This is a course intended to provide a foundation for future detailed study of data processing systems. Prerequisite: Bus. 117.

**BUS 108 Business Machines 3(3-3)**

A continuation of Bus. 107. Develops speed through practice. This course includes the concept of the development of computer systems. Prerequisite: Bus. 107.

**BUS 109 Secretarial Machines 2(2-2)**

A course designed to teach the operation and manipulation of the stencil and fluid duplicating processes. Includes study of machine transcription and filing procedure.

**BUS 117 Business Mathematics 3(3-0)**

A course designed to develop skill and accuracy in mathematics. Includes study of decimals, fractions, aliquot parts, percentages, discounts, inventory, payroll, interest.

**BUS 118 Introduction to Business 3(3-0)**

A survey of business activities, covering principles, problems and practices related to our economic framework. Includes topics such as organization, production, marketing, personnel administration, finance, accounting, business law, and economics.

**BUS 120 Sales I 3(3-0)**

A course designed to familiarize the student with the fundamentals of sales. Deals with such topics as consumer buying habits, the salesman's job, the sales transaction, retail store methods, housekeeping, inventory, use of sales media, product demonstration techniques, and customer service problems.

**BUS 121 Sales II (Retail Sales) 3(3-0)**

A continuation of Bus. 120. Deals with the principles of salesmanship, with selling, and with the practices of successful salesmen. Includes demonstration of most effective sales practices by successful salesmen. Prerequisite: Bus. 120 or its equivalent.

**BUS 130 Introduction to Distribution (Marketing) 3(3-0)**

The problems and policies of manufacturers, wholesalers, and retailers in the marketing of goods and services are studied. Channels of marketing, customer relation, functions of sales departments and price policies are included.

**BUS 131 Advertising 3(3-0)**

Presents the methods and techniques in modern advertising, giving information to do the entire advertising job. Copy writing, selection of media and how the advertiser can approach his problems most effectively are included.

**BUS 201 Transcription 4(4-0)**

A course designed to teach how to type mailable transcripts from shorthand notes. Prerequisite: Bus. 106.

**BUS 202 Shorthand Speed Building 4(4-1)**

A continuation of Bus. 201. Attention given to specialized vocabulary and high speed writing. Prerequisite: Bus. 201.

**BUS 203 Secretarial Training 3(3-0)**

A course designed to teach students to develop a pleasant, sincere, effective personality. Includes a study of office practice procedures.

**BUS 204 Letter Writing 3(3-0)**

A course designed to develop effective correspondence techniques. Prerequisite: English 103.

**BUS 205 Legal Shorthand I (2(2-1)**

A course designed to develop skill in writing and transcribing the numerous words and phrases commonly recurring in the spoken and written language of the law. Prerequisite: Bus. 106.

**BUS 206 Legal Shorthand II 2(2-1)**

A course designed to assist the law stenographer to become more proficient in the use of legal shorthand. Prerequisite: Bus. 205.

**BUS 207 Medical Shorthand I 2(2-1)**

A course designed to develop skill in writing and transcribing the many words and phrases recurring in the spoken and written language of medicine. Prerequisite: Bus. 106.

**BUS 208 Medical Shorthand II 2(2-1)**

A course designed to assist the medical stenographer to become more proficient in the use of medical shorthand. Prerequisite: Bus. 207.

**BUS 210 Accounting I 4(4-0)**

A course designed to explain the basic principles of accounting by means of the balance sheet and income statement approach. Deals with such topics as: accounting for merchandise, adjustments to accounts, business documents and procedure, and negotiable instruments. Introduction of the concept of the use of data processing machines in performing accounting functions. Prerequisite: Sophomore standing or department approval.

**BUS 211 Accounting II 4(4-0)**

A continuation of Bus. 210 involving the study of controlling accounts, subsidiary ledgers, special journals, the voucher system, and accounting for partnerships and corporations. Accounting services are shown as they contribute to the recognition and solution of a management problem. Prerequisite: Bus. 210.

**BUS 212 Accounting III 4(4-0)**

A continuation of 211 involving the study of income and valuation determination and analysis and comparison of financial statements. Deals also with accounting principles and their relation to mercantile businesses and manufacturing companies with an over-view of IDP controls. Prerequisite: Bus. 211.

**BUS 215 Law and Society I 2(2-0)**

A course designed to provide an introduction to the fundamental principles of our law. The student is given a clear understanding of our legal system, its place in society, and its importance to businessmen. Course contents include a study of the nature and source of law, a study of courts, and court procedures, legal reasoning, crimes and torts; introduction to contracts, offer and acceptance, reality of consent and capacity of parties, consideration and illegality. Prerequisite: Sophomore standing or departmental approval.

**BUS 216 Law and Society II 2(2-0)**

The continuation of Bus. 215. Course contents include Statute of Frauds, rights of third persons, performance and remedies to complete the study of contracts. The law of agency includes the creation of relation and authority, relation of principal and third person, relation of agent to third persons and relation of principal and agent. Prerequisite: BUS 215.

**BUS 217 Law and Society III 2(2-0)**

The continuation of Bus. 216. Nature and law of sales includes transfer of property in goods, warranties, performance and remedies for breach. The law of negotiable instruments includes an introduction, requirements for negotiability, negotiation and holder in due course, liability of parties, various negotiable and quasi-negotiable instruments, and the 1962 Michigan Uniform Commercial Code. Prerequisite: Bus. 215 and 216.

**BUS 240, 241, 242 Cooperative Training 2(0-arranged)**

During the sophomore year, and after successful completion of basic courses, the student may elect Cooperative Training. This means that he will (1) be placed on a job for half days, (2) earn credits for satisfactory work performance and (3) earn money for the hours of work. To enroll in this program, he must achieve proficiency in at least one of these areas: stenography, typewriting, office machines, accounting, marketing.

**BUS 243, 244, 245 Distribution Internship 2(0-arranged)**

During the sophomore year, and after successful completion of the basic courses, the student may elect Distributive Internship. This course allows the student (1) to be placed in an approved training situation for half days (2) earn credits for satisfactory work performance (3) earn wages for the hours of work. The student must show proficiency in the area of distribution before enrolling in this course.

**BUS 246, 247, 248 Distribution Internship Seminar 3(3-0)**

A course designed for those students taking Distribution Internship. Work progress and problems directly related to the individual work activities are discussed and research projects are assigned.

### **BUSINESS MANAGEMENT**

In cooperation with professional and trade associations and in consultation with university and government offices, Lansing Community College provides management and supervisory training for college credit or for audit attendance in evening and Saturday programs. Some of these courses are open to anyone who is interested and other courses are restricted to qualified and experienced persons. Some courses are conducted for specific employers or groups of employers. Special brochures describing the various management programs are available at the college office.

#### **BUS 220 Office Management I 3(3-0)**

The first of a series of three courses dealing with the principles of office management. Includes study of office organization and layout; work flow, procedures, standards; personnel and supervision procedures; equipment; centralized services; automation trends.

#### **BUS 221 Office Management II 3(3-0)**

A continuation of Bus. 220 explaining office management practices. Deals with automation and trends in the use of integrated data processing; analysis of actual operating and management problems. Includes field study and visits to office establishments in the area; the uses of special equipment and procedures in specific office situations. Prerequisite: Bus. 220.

#### **BUS 222 Office Management III 3(3-0)**

A continuation of Bus. 220 and Bus. 221. Deals with the nature of problems, principles, and techniques of office supervision, work improvement, and with the relationship of work, work performance, productivity, and pay to employee relations and morale. Includes training problems and procedures pertinent to personnel from employee selection to employee retirement. Prerequisite: Bus. 220, 221, or equivalent.

#### **BUS 223 Office Management Seminar 3(3-0)**

A study of current practices in office management. Limited to a specific practice or area each year. Prerequisites: Bus. 220, 221, 222 or equivalent.

### **BUSINESS MANAGEMENT**

The following courses, business 225 through 228, are primarily for adult and employed persons following programs different from freshman-sophomore programs. In addition to these courses, persons interested in completed degree requirements are urged to take basic business and general education courses listed in the course descriptions and to follow a curriculum pattern recommended by the Business division.

#### **BUS 225 Principles of Business Management 3(3-0)**

A study of (a) the field of management in terms of the concept of scientific management, and the qualifications of executives; (b) principles of the planning, organizing, and controlling functions, including the relationship of decision-making to the work of the organization; (c) relationship of the management of people, communications, morale, and motivation to the leadership concept of management.

**BUS 226 Business Management Skills 3(3-0)**

A study of the skills of management necessary to perform the functions of management and in the relationships in business. Skills included are listening, question-asking, speeded reading, creative and critical thinking, speaking, writing, coaching, counseling, interviewing, and discussion. Special emphasis is given to the problems of personal planning necessary to acquire the skills. Prerequisites: BUS 225 or equivalent.

**BUS 227 Personnel Management 3(3-0)**

A survey of the principles, problems, and practices of modern business, government, and other organizations involved in the handling of employees from the recruiting stages through the post-retirement stage. Emphasis will be stressed on the use of the appropriate practices in keeping with the type and size of organization. Prerequisite: BUS 118, or equivalent.

**BUS 228 Management Training for Supervisors 3(3-0)**

Management principles oriented to the supervisory levels of responsibilities in business, government, and other activities. Emphasis is placed on the management functions of planning, organizing, directing, coordinating, and controlling; on the relationship of policies and procedures; and on the responsibilities of supervisory persons for work performance, employee development and evaluation, and leadership of workers.

**DPT 100 Introduction to Programming Systems 5(4-2)**

A course designed to familiarize the student with the purpose and function of the various types of programming systems and to make him aware that programming systems are as important as the machines themselves.

**DPT 201 Computer Programming I 6(5-3)**

Basic Computing Machines provided the concepts and, therefore, the foundation for the detail study of data processing machines. In this course the student will engage in discussions of functions and capabilities of a specific data processing machine and will be presented with a portion of the tools and raw material necessary for becoming a programmer. Prerequisite: BUS 107 Business Machines.

**DPT 202 Computer Programming II 8(6-4)**

Computer Programming II is a continuation of Computer Programming I. The student will perform programming drills, exercises, and case studies which will serve to bridge the gap from the academic to the real world of data processing. The four-hour laboratory session each week will further reinforce basic principles by providing practical applications. Prerequisite: DPT 201 Computer Programming I.

**DPT 203 Computer Programming III 6(5-3)**

This is a continuation of the Computer II course. The principles presented in the Fall and Winter terms will be employed repeatedly in Computer Programming III. Programming the tape data processing system will be taught during this term as well as the fundamentals of random access programming. Prerequisite: DPT 202 Computer Programming II.

**DPT 204 Advanced Computing and Programming Systems 5(4-4)**

The objective of the course is to provide the student with sufficient knowledge of programming systems concepts so that he may easily master any specific system with a minimum of instruction. Furthermore, he will be qualified to analyze, evaluate, and make minor modifications to such systems. Individual phases of certain selected systems are treated in detail in order that the student may learn advanced programming and logic decision techniques as applied in sophisticated systems. The course is so designed that the student may gain an insight into the various functions of advanced programming systems and the manner in which they perform their tasks without learning the actual programming language of the various systems. Prerequisites: BUS 107 Business Machines and DPT 100 Introduction to Programming Systems.

**DPT 205 Data Processing Field Project 2(0-4)**

Individual assignments in a carefully selected local data processing installation for a one week period will be obtained during the sixth term. The evaluation of the student's performance during this period will be a cooperative effort engaged in by local installation management and the Technical Education Staff. The primary purpose of this session is to give the student an over-view of practical data processing. Prerequisite: Final term, Sophomore status.

## HEALTH SCIENCES

### PRACTICAL NURSING

This one-year program is a continuous, full-time course, offered twice a year, beginning in March and in September, to a limited number of selected students.

It is divided into two general areas: The pre-clinical period of 16 weeks at Lansing Community College, and the clinical period of 33 weeks at the affiliating hospitals. The pre-clinical period establishes the foundation of scientific knowledge, on which clinical nursing is based. Each student is required to take all of the courses listed. These are offered in a sequence designed to develop the skills and knowledge necessary to function as a practical nurse.

#### Nutrition

A course designed to acquaint the student with the normal, basic nutritional needs of the individual, and how these needs can be met. The student will also learn the scientific principles on which modification of the diet during illness is based.

#### Community Health

A discussion of the public and volunteer agencies of the community; their relationship to the health field, and how they function to prevent and control disease and promote community health.

#### Vocational Relations

A discussion of the history of nursing; the legal responsibilities of nursing; and the social structure and relationships of nursing.



**Growth and Development**

A survey course which deals with the principles of normal physical and emotional growth, development and change, beginning with the newborn and spanning a lifetime.

**Body Structure and Function**

A course designed to enable the student to develop an adequate working knowledge of the normal structure and function of the human body; the terminology necessary to communicate with other health team members, and a realization of the complex relationship between body function and disease.

**Nursing Arts**

A beginning course which will enable the student to develop a core of skills and knowledge of nursing arts, with which to meet the nursing needs of the individual patient.

**Psychology** – Same as Psychology 101

**Clinical Nursing (Given during hospital affiliations)**

A sequence of courses, divided into several major areas: medical, surgical, pediatrics, obstetrical and rehabilitative nursing. In each area, an attempt is made to develop the necessary special skills relating to its particular patient needs. It is in these courses that the student develops the ability to apply the scientific principles of nursing, and related subjects, to make the necessary judgments for meeting the nursing needs of the individual patient.

## **ENGINEERING TECHNOLOGIES**

### **CIVIL TECHNOLOGY**

**CT 101 Construction Methods 2(2-0)**

A course designed for the study of techniques and equipment used in constructing highway structures, pipelines, and buildings. Also undertakes the study of earth-moving projects.

**CT 102 Construction Materials 4(2-4)**

A course dealing with determination of the properties of concretes, asphalts, aggregates, steel, wood, clay products, and miscellaneous construction materials. Teaches methods of sampling and testing these materials. Includes discussion of the application of this knowledge to proper design procedures.

**CT 103 Construction Costs 2(2-0)**

A course designed to familiarize the student with general methods of preparing material take-offs and labor estimates, and applying current unit costs to estimate construction costs. Provides for the itemizing and discussion of indirect costs and discussion of methods for predicting the trend of future costs. Teaches the student to recognize and evaluate hidden costs. Prerequisite: C.T. 101, C.T. 102.

**CT 201 Construction Contracts 3(3-0)**

Preparation of specifications, requests for quotations, bid analysis, proposals and contracts, and change orders. Fundamentals of law in engineering, liability, and workmen's compensation. Prerequisites: CT 103.

**CT 202 Highway Technology 4(2-6)**

A course designed to cover: plan and profile drawings, highway planning, financing, organization, geometrical design, traffic studies, structural design of pavements, mass diagrams, earthwork computations and costs. Also includes discussion of trends in mass transportation. Prerequisites: C.T. 203, C.T. 205, C.T. 212.

**CT 203 Soil Testing & Classification 3(2-3)**

A course designed to teach the testing and classification of soils: A.S.T.M., A.A.S.H.O. and pedological systems. Also includes discussion of elementary geologic principles as they are related to soils. Prerequisite: C.T. 101, C.T. 102. Recommended requirement: Math 201.

**CT 204 Strength of Materials 3(2-3)**

A course dealing with the study of: beams, shear and moment diagrams; stress, strain, creep, fatigue, yield; equilibrium-reactions, free body analyses; combined stresses; deflections; shear, flexure, compression, tension, and horizontal shear stresses. Prerequisite: C.T. 102, Phys. 201. Recommended requirement: Math. 103.

**CT 205 Hydrology 3(2-3)**

A course dealing with the analysis of run-off and the study of designs of devices to control it. Includes a discussion of drainage and culverts, stream flow, open channel flow, Bernoulli's Theorem, rainfall, storm-water studies, ground water, and water tables. No prerequisite. Recommended requirement: Math. 201.

**CT 206 Project Lab (Variable credit)**

A course which affords the student the opportunity to undertake and complete an independent study or project under the supervision of the staff. Prerequisite: Graduation term.

**CT 207 Structural Technology 4(2-6)**

A course designed to cover plans of sight and structure for bridges, steel detailing, concrete detailing, elementary theory of reinforced concrete, elementary analysis of structural steel, costs and economics of structures, types of bridges and building frames, connections, riveting and bolting details and truss analysis. Prerequisites: C.T. 204, Math. 201.

**CT 111 Elementary Plane Surveying 5(2-6)**

An introductory course in surveying which includes the study of terminology, the use of tape, level, transit measurement of distances, angles and elevations; analysis and use of verniers; and the study of the public land system, traverses and topographic surveys and mapping. Prerequisite: Math. 103.

**CT 212 Route Surveying 4(2-4)**

A course devoted to the study of profiles, horizontal curves, vertical curves, surveying and computations, superelevation, spirals, and compound and reversed curve. Prerequisite C.T. 111.

**CT 213 Advanced Surveying 4(3-2)**

A course devoted to the study of the theory of modern and advanced surveying methods: photogrammetry, ground and aerial; astronomy: stellar and solar observations and calculations; and precise surveying principles. Prerequisite: Math 201, C.T. 212.

**CT 214 Geodetic Surveying 4(2-4)**

A course dealing with the study of precise first and second order measuring methods, base lines, level circuits, triangulation, barometric leveling, least squares, the theory of probable errors, three wire leveling, the use of tilting levels, and theodolites. Prerequisite: C.T. 213.

**DRAFTING TECHNOLOGIES****AD 101 Residential Planning 3(2-4)**

This course is for persons who desire to learn home design. Topics include construction details as well as architectural style and planning concepts. Some reading of blueprints and training in drawing house plans are skills to be developed by the student.

**AD 110 Architectural Drawing 3(0-6)**

The first in a series of architectural drawing courses designed to serve the basic needs of individuals presently employed or wishing to find employment as architectural draftsmen, estimators, salesmen, or other allied fields of employment within the construction industry. Course deals primarily with the graphic representation of construction details, materials, and practices in residential construction. Some emphasis of building codes and government specifications are included. Prerequisites: ED 101, ED 102, ED 103. For drafting technology majors; others, approval of department.

**AD 210 Architectural Drawing 3(0-6)**

A continuation of AD 110 with primary emphasis placed upon commercial and industrial construction. Course covers both low rise and highrise buildings. Prerequisite: AD 110 for drafting technology majors; others, approval of department.

**AD 211 Architectural Drawing 6(0-12)**

The first of a series of two seminar courses designed to allow the student, with the guidance of the instructor, to exemplify his present skills and knowledge as they pertain to the construction industry. The student would, during this term, select an architectural project, design same, render design drawings, select proper materials, and prepare preliminary working drawings in accordance with the needs of a mythical customer and as dictated by local building codes. Prerequisite: AD 210.

**AD 212 Architectural Drawing 6(0-12)**

The conclusion of 211 where the student prepares final working drawings and completes a set of specifications covering the project designed in 211. The final result of 211 and 212 should be a well prepared resume of the student's architectural drafting abilities and his general knowledge of the construction industry.

**ED 101 Engineering Drawing 3(0-6)**

A basic course in drafting designed to cover beginning work in the engineering and technical fields. Enables the student to develop skill in the use of drawing instruments and gain a thorough understanding of orthographic projection, sketching, auxiliary views, and sections. Introduces principles of dimensioning and techniques of lettering.

**ED 102 Engineering Drawing 3(0-6)**

A continuation of E.D. 101 in which further work is given in the principles of dimensioning. Emphasizes practice in perspectives to help students develop skill in technical sketching. Includes development and detailing of assembly drawings. Prerequisite: E.D. 101.

**ED 102c Engineering Drawing (Civil) 3(0-6)**

A course offering further study in pictorial drawing and practice in the techniques of transferring field survey notes on to paper, to include Traverse Plotting, Contour Plotting and the preparation of profiles; also included is study in structural drawing and engineering graphics. Prerequisite: E.D. 101.

**ED 103 Descriptive Geometry 3(0-6)**

A basic course in the science of graphic representation and solution of space problems through the practice of fundamental principles of advanced orthographic projection. Covers the following topics: points, lines, and planes; primary and successive auxiliary views; parallelism; perpendicularity; concurrent vectors; developments and intersections; pictorial projections; shades and shadows. Makes a study of Civil, Electrical, and Mechanical engineering problems. Prerequisite: E.D. 102.

**ED 104 Jig and Fixture Design 3(0-6)**

A course which presents the structure of fixtures to hold work being machined or welded. Prerequisite: E.D. 101, E.D. 102, and M.T. 101.

**ED 202 Die Design 3(0-6)**

A course intended to teach the student to design the many types of sheet metal dies used in industry. Prerequisites: E.D. 101, E.D. 102, E.D. 103, and M.T. 101.

**ED 203 Advanced Jig & Fixture Design 3(0-6)**

A continuation of ED 104 providing the student with the opportunity to design fixtures more complex in nature, and in accordance with the practices of various industries. Prerequisite: ED 104; MT 102; and ET 260.

**ED 204 Advanced Die Design 3(0-6)**

An advanced course in die design further acquainting the student with various types of dies used in casting, forming, forging and extruding operations. Course places emphasis on advantages and disadvantages of the various die operations including reactions of certain materials to the various operations. Prerequisite: ED 202.

**ED 205 Electrical and Electronics Drawing 3(0-6)**

A course designed to acquaint the student with the drawing and reading of electrical and electronic circuit diagrams. Includes the study of the use of tubes, transistors and technical manuals, catalogs, and periodical technical literature. Attention given to pictorial drawings, connection diagrams, block diagrams, logic diagrams and schematics, using the latest symbology and practice, and using material based on A.S.A., I.R.E. and Mil-Stds. Includes study of circuit tracing and sketching. Prerequisite: E.D. 101.

**ED 218 Electrical & Electronics Drawing 6(0-12)**

The first of a series of two seminar courses allowing the student majoring in Electrical and Electronics Drafting Technology to select a project that will, at the completion of the second term, constitute a resume of his drafting skills and his general knowledge of the specific field. A project shall be chosen, designed, technical material gathered, and preliminary drawings shall be drawn during this course. Prerequisite: Satisfactory completion of first term, second year curriculum.

**ED 219 Electrical & Electronics Drawing 6(0-12)**

A concluding course, of a two part seminar, allowing the student to complete a resume exhibiting his drafting skills and his general knowledge of his selected field. Course shall involve refinement of design, technical data, detail drawings, and assembly drawings. Prerequisite: ED 218.

**ELECTRONICS TECHNOLOGY****ET 101 D.C. Theory and Applications 4(2-4)**

An introduction to electrical technology through a study of direct current and the application of its basic laws. Applies Ohm's and Kirchhoff's laws in the analysis of series and parallel circuits, network theorems, electric power unit and batteries; and investigates problems of both electrical and electronic circuits. Concurrent with Math. 151.

**ET 102 A.C. Theory and Applications 6(4-4)**

An introduction to the study of alternating current and the basic concepts of magnetic phenomena. Deals with sine wave voltages and currents, reactance, impedance, and A.C. circuits in series, parallel and series parallel. Including the use of the V.O.M., the V.T.V.M., oscilloscope, the capacity checker, and signal generators in the analysis of circuits. Prerequisite: E.T. 101. Concurrent with Math. 152.

**ET 103 Electronics I (Vacuum Tube Theory and Circuitry) 4(2-4)**

An introduction to basic electronics, concerned with the study of various types of vacuum tubes and their use in rectifiers, oscillators and amplifiers. Prerequisite: E.T. 102. Concurrent with Math. 153.

**ET 201 Automation I (Motors and Motor Control) 4(3-3)**

Construction, testing, and measurement of D.C. and A.C. control circuits, the analysis of both electrical and electronic methods of motor control, and the regulation and control of motor speed by the application of the amplitude and phase shift methods. Emphasizes the use of the oscilloscope as a servicing instrument. Prerequisite: E.T. 103.

**ET 202 Electronics II (A.M. and F.M. Receivers) 4(3-3)**

A course designed to familiarize the student technician with A.M. and F.M. receivers and amplitude modulation and frequency modulation phenomena. Provides for the construction and analysis of circuits and familiarization with servicing procedures. Prerequisite: E.T. 103.

**ET 203 Automation II (Synchros and Servomechanisms) 4(3-3)**

A further study of the principles and operation of electronic, electrical, and magnetic circuits and devices used in automatic control systems. Includes the study, construction, and testing of circuits, using saturable core reactors, magnetic amplifiers, peaking transformers, synchros, and servomechanisms. Principles of numerical and static control introduced. Prerequisite: E.T. 201.

**ET 204 Electronics III (Computer Circuitry) 4(3-3)**

A course emphasizing the use of semiconductor devices in digital computer circuitry. Includes the study of pulse phenomena, basic computer circuits, computer binary arithmetic, calculation circuits, storage systems, and computer maintenance. Prerequisite: E.T. 207.

**ET 205 Electronics IV (Television) 5(3-4)**

An introduction to the study of television receivers. Includes the study of television receiver fundamentals, video detectors and amplifiers, synchronization circuits, vertical and horizontal sweep systems, picture tube control circuits, and color television circuitry. Stresses servicing procedures in the laboratory. Prerequisite: E.T. 202 and E.T. 204.

**ET 206 Project Laboratory (Variable credit)**

A course in which the student selects a project compatible with his chosen field of work. Encourages the student, under the guidance of the instructor and through research, to design, construct, and test an electric or electronic device. Prerequisite: E.T. 204.

**ET 207 Transistor Theory and Circuitry 4(3-3)**

A course dealing with the electron theory of matter as it applies to semiconductors. Provides for the construction and study of typical transistor circuits, which include rectifiers, oscillators, and amplifiers. Prerequisite: E.T. 103.

**ET 208 Communications I (2nd Class Radiotelephone License Requirements) 3(3-0)**

A course covering the preparation for Radiotelephone 3rd and 2nd class operator license, based on the Federal Communications Commission study guide. Prerequisites: E.T. 201 and E.T. 202 or approval of department.

**ET 209 Communications II (1st Class Radiotelephone License Requirements) 3(3-0)**

A course based on the material contained in Element IV (Advanced Radio Telephone) of the Federal Communications Commission study guide providing the necessary training to obtain a 1st class radio telephone license. Prerequisite: E.T. 208 or 2nd class radio telephone license.

**ET 210 Printed Circuits 2(1-2)**

A course designed to provide training in the development and etching of printed circuits and study of the etched foil, silk screen, and photographic processes. Prerequisites: E.T. 103, E.T. 204 and E.T. 207 or approval of department.

**ET 211 Testing Methods and Practices 3(2-2)**

A course designed to teach the methods necessary to obtain the required degree of accuracy in electrical and electronic measurements. Includes the study of the design and operation of the various measuring devices and instruments used. Prerequisite: E.T. 103.

**ET 212 Electronics V (Radar and Microwave Principles) 4(3-3)**

An introduction to basic radar systems. Includes a study of klystron, magnetron and traveling wave tubes, Transmit-Receive switches, radar indicators, echo box and characteristics of microwaves. Prerequisites: E.T. 202, E.T. 204 or concurrently, E.T. 207.

**ET 213 Transmitter Theory and Circuitry 4(3-3)**

A course dealing with continuous wave and amplitude modulated transmitter theory and circuitry. Various types of transmitters are constructed and studied in the laboratory. Prerequisite: E.T. 103.

**ET 214 Laboratory Measurements 3(2-2)**

A course designed to provide the student with a basic working knowledge of the fundamentals of electronic measuring devices used in chemical analysis and in research. Typical laboratory instrumentation devices are studied in detail and many are constructed in the laboratory. Prerequisite: E.T. 103.

**ET 220, 221, and 222 International Morse Code 1(0-2½)**

A course in which the principles of International Morse Code transmission, reception and speed building are taught. The course may be continued under the course numbers indicated in successive terms.

**ET 260 Industrial Electricity 3(2-1)**

A course designed to cover electrical control systems employed on industrial machinery. It will include a discussion of basic direct and alternating current theory and application and a study of typical industrial control circuitry and devices.

**ET 261 Industrial Electricity 3(2-1)**

A continuation of ET 260 with emphasis on circuit diagram reading, sequencing and maintenance of industrial electrical controls.

**MECHANICAL TECHNOLOGY****MT 101 Manufacturing Processes (Machine Tools & Sheet Metal) 3(2-4)**

A course designed to teach the operation of machine tools: lathe, shaper, milling machine, radial drill and grinders. Includes discussion of sheet metal and plastics forming methods.

**MT 102 Manufacturing Processes (Welding and Foundry) 3(2-4)**

A continuation of M.T. 101 designed to teach all types of gas and arc welding on both AC and DC machines. Includes study of patternmaking, sand molding, melting of metals, and pouring castings.

**MT 103 Manufacturing Processes 2(1-3)**

A continuation of 102. Course content varies to suit the individual need of the student. Prerequisite: M.T. 102.

**MT 201 Machine Methods and Cost (Applied Time and Motion Study) 3(2-4)**

A course designed to teach elemental costs in machine work. Demonstrates the effect on cost of various alterations in method. Includes study of time and motion as they are employed in actual shop situations. Investigates methods of eliminating idle machine time in production cycles. Prerequisite: M.T. 101.

**MT 203 Industrial Management (Processing, plant layout, investment program) 3(2-4)**

A course that features a lecture section in management problems. Employs the use of machine laboratory. Includes actual processing and cost analysis of an assembly item of production and develops the results to meet a proposed production schedule from which a determination of manufacturing facilities is made. Includes the designing of a plant for optimum production and investment economy under simulated realistic circumstances. Prerequisite: M.T. 102 and M.T. 201.

**MT 204 Metallurgy 3(2-2)**

A study of the crystalline state of metals; the phase diagram theory of alloys; the process of iron and steel manufacture; the iron-carbon diagram; the lever principle, the heat treatment of steel, hardness tests, microscopic study of grain structure under the metallograph. Prerequisite: M.T. 101, and Chem. 110.

**MT 207 Automation Mechanics I (Fluid Mechanics, Servo Principles) 3(3-0)**

A course designed to teach the elements of hydraulics, fluid power, the pitot tube, Bernoulli's theorem, viscosity, Reynold's number. Includes study of the servo-mechanical principles available for exploitation in hydraulic systems; combination of air, electric, and hydraulic controls. Prerequisite: Phys. 200.

**MT 208 Automation Mechanics II (Labor Saving and Feed Back Devices) 3(3-0)**

A course intended to teach economic implications and ultimate use of labor-saving machinery; mathematical and structural study of dies, power processes, production turning, boring, transfer machines. Investigates solution of cost problems in production by the use of fixtures, dials, and devices auxiliary to machines that enable unit operations to be combined into continuous automatic production. Examines some mechanical structures and applications of the feed-back principle used in machinery to replace manual operation. Prerequisite: Math. 153, E.D. 102, M.T. 102, M.T. 207.

**MT 209 Machine Design I (Kinematics, Linkages and Machine Elements) 3(3-3)**

A course involving the study of movement direction, velocity and acceleration in linkages, cams and gears. Requires students to complete a set of drawing plates. Employs machine laboratory to help construct models and to study existing mechanisms. Endeavors to develop ability to analyze and comprehend the interaction of parts in ingenious mechanisms. Prerequisite: M.T. 102, Math. 103.



**MT 210 Machine Design II (Strength of Materials) 4(4-1)**

A course designed to teach principles of stress and strain, equilibrium of forces, center of gravity, moment of inertia, section modulus; tension, compression, shear bending, torsion, combined stress, and Mohr's circle. Includes the drawing of diagrams of shear, bending, and deflection in beams. Considers factors of safety, column formulas and fatigue stresses. Prerequisites: Math. 153, Phys. 200.

**MT 211 Machine Design III (Design origination, Strength, Rigidity, Functional Worth) 3(3-0)**

A course analyzing, by the use of principles involved in statics, dynamics, kinematics, and strength of materials, the shafts, gear, bearings, and structural parts of a machine unit like an overhead traveling crane or a hydraulic lift truck. Emphasizes practice on selection of parts of proper size to meet safety factors. Prerequisite: M.T. 209, M.T. 210.

**VOCATIONAL - TECHNICAL****VT 099 Sheet Metal I 3\*(1-2½)**

A course which includes mathematics and pattern drafting related to sheet metal. Also covers straight line, parallel line, radial line and triangulation pattern development. Shop work includes the layout of fittings with hand and machine tools. Current techniques of fabrication are emphasized.

**VT 100 Sheet Metal II 3\*(1-2½)**

A continuation of Sheet Metal I with more advanced problems. Prerequisite: VT 099 or permission of instructor.

**VT 101 Blue Print Reading for Plumbers 3\*(0-4)**

Covers orthographic projection, linear and angular measurement and the reading of prints whose three views are given in the three principal planes of projection. Examples apply to the plumbing trades.

**VT 102 Welding for Plumbers I 4\*(0-6)**

Students who enter this class should be Journeymen Plumbers or Steamfitters. Apprentices to the plumbing or fitting trades will be admitted when the degree of training they have achieved meets the approval of the Joint Apprenticeship Committee on Plumbing.

Training will begin with a review of welding fundamentals and proceed rapidly into the more advanced skills according to the need of the individual student. Particular skills in welding of all kinds of pipe including stainless steel by the Heliarc method will be taught. \$10.00 laboratory fee.

**VT 103 Welding for Plumbers II 4\*(0-6)**

A continuation of VT 102. Prerequisite: VT 102. \$10.00 laboratory fee.

**VT 104 Welding for Plumbers III 4\*(0-6)**

A continuation of VT 103. Prerequisite: VT 103. \$10.00 laboratory fee.

**VT 105 General Welding I 4\*(0-6)**

Fundamentals of arc welding. Safety precautions essential in welding. Basic skills in use of welding equipment. Flat and Vee-bead downhand welding. \$5.00 laboratory fee.

\*Non-transfer credit.

**VT 106 General Welding II 4\*(0-6)**

Fundamentals of Oxyacetylene welding and cutting. Safety precautions in use of equipment. Flat and Vee-bead downhand welding. Use of cutting torch and introduction to brazing. Prerequisite: VT 105. \$5.00 laboratory fee.

**VT 107 General Welding III 4\*(0-6)**

The meaning of welding symbols, vertical and overhead welding on various kinds of steel and shapes. Use of carbon arc. Prerequisite: VT 105. \$5.00 laboratory fee.

**VT 110 Advanced Welding I 4\*(0-6)**

Specialized instruction on various types of welding jobs such as structural steel, sheet metal, steel pipe, tool steel welding. Introduction to heliarc. Welds made in all positions. Prerequisite: VT 107. \$10.00 laboratory fee.

**VT 111 Advanced Welding II 4\*(0-6)**

Specialized welding by use of oxyacetylene on steel pipe, aluminum, sheet metal, cast iron, brazing, silver soldering, free hand and machine flame cutting welds in all positions. Prerequisite: VT 110. \$10.00 laboratory fee.

**VT 112 Advanced Welding III 4\*(0-6)**

Techniques of welding by the inert gas shielded arc process on a variety of work shapes in all positions. Instruction will be given on mild steel, stainless steel, aluminum and certain alloys. Prerequisite: VT 110. \$10.00 laboratory fee.

**†VT 114 Blue Print Reading for Machine Operators 4\*(2-8)**

In this course the student will study orthographic projection. He will be able to convert the 2 and 3 view drawings into single 3 dimensional drawings.

Through the use of Blue-print reading, work books, he will prove that he can see the relationship between views. The various abbreviations, symbols, and terminology of the many branches of the metal working trade will be studied throughout the work books. The student will also become familiar with proper decimal dimensioning and tolerances having to do with various classes of fits.

**VT 115 Blue Print Reading I 3\*(0-4)**

Covers orthographic projection, linear and angular measurement and the reading of prints whose three views are given in the three principal planes of projection.

**VT 116 Blue Print Reading II 3\*(0-4)**

Covers the application of orthographic projection principles in more detailed blueprints than above.

**†VT 117 Blue Print Reading for Welders 3(0-5)**

The course consists of instruction in free hand sketching and simple orthographic projection techniques. Instruction will be given on the preparation of an assembly drawing to include the bill of materials and extracting information found on such a set of drawings. Particular attention is given to the interpretation of welded joint specifications with a third of this course devoted to practice in interpreting the average type shop blue print.

†Special course. MDTA only.

\*Non-transfer credit.

**VT 118 Die Design Blue Print Reading 3°(0-4)**

Die designers customarily use specialized techniques in making drawings of dies. This course is intended to acquaint the student with these techniques and is accomplished by interpreting many drawings, some of which are actual drawings from which dies have been produced.

**†VT 120 Structural Proportioning 2°(2-0)**

Included in the course are methods of testing tensile strength of metals, a concept of simple stress in structural members to include the calculation of stresses and strengths for various types of fastenings, including welded joints. Also covered is a basic concept of bending and loading of structural pieces and rigging techniques required for holding components in position while being welded. This course will be closely coordinated with the course in Blue Print Reading as pertains to extracting material properties information from the blue print.

**VT 122 Template and Model Checking 3°(0-4)**

Mathematics relative to sine bar and height gage will be reviewed. Function of templates and models in die construction will be explored. Methods of determining and dimensioning warped surfaces, change in angle of reference, and manner of use, testing and inspection will be examined.

**VT 123 Die Construction I 3°(0-4)**

The reasons why dies are made the way they are will be the subject of this course. Theory of cutting, forming and drawing sheet metal and the limitations on accuracy or finish to be expected will be explored. The design and operation of various presses, toggles, secondary actions, air cushions and so on will be examined. Various types of die construction will be covered. Prerequisite: VT 118 or equivalent.

**VT 124 Die Construction II 3°(0-4)**

This course is a continuation of VT 123. Auxiliary equipment to dies such as lifters, loaders, unloaders, kickers, stackers, hoppers, dial feeds and checking equipment will be covered. Repair and maintenance of dies will be considered, and how dies should be built to make maintenance possible and provide long die life. Probable weak points in actual dies will be discussed and an attempt will be made to have the student locate wear and maintenance problems from the drawing of the die and consider methods of combating these problems. Prerequisite: VT 123.

**†VT 125 Industrial Welding 10°(10-10)**

This course includes general information concerning safety, welding terms, material used and the operation and adjustment of various types of welding machines. In actual welding techniques the student obtains instruction and practice to the point of acceptable industrial proficiency in arc welding, oxy-acetylene welding, and heliarc welding. In addition he learns to operate certain types of semi-automatic welding machines.

†Special course. MDTA only.

\*Non-transfer credit.

†VT 130a Employer-Employee Relations, Counseling, Evaluation and Recitation (Welder, Entry Course) 1\*(2-0)

The course covers twenty hours devoted to employee-employer relations, including ten guest speakers, from labor and industry on the subject of job qualifications, selection, application and interviews. The remaining thirty hours is spent in interviewing and counseling each student a minimum of twice each term and giving special tutoring in any of the subject fields in which a student may be having difficulties.

VT 130b Employer-Employee Relations 1\*(2-0)

Includes a study of job qualifications and selection practices, techniques of applying and the interview. Emphasis is also given to what the employer has a right to expect from the employee and vice versa.

Each student will prepare a resume of his qualifications and fill in a job application blank.

†VT 130 Employer-Employee Relations, Counseling, Evaluation and Recitation (Machine-Operator Course) 4\*(2-8)

The course covers twenty hours devoted to employee-employer relations, including ten guest speakers from labor and industry, on the subject of job qualifications, selection, application and interviews. The remaining seventy hours is spent in interviewing and counseling each student a minimum of twice each period and giving special tutoring in any of the subject fields in which a student may be having difficulties.

†VT 140 Properties of Metals and Testing 5\*(5-0)

Course will include an examination of various metals and metal forms to include a study of temperature effect in welding and tempering of metals with particular emphasis on the hardening of steel. Considerable time will be spent in the preparation of samples and examination of the crystal structure of welds and weld deficiencies. Over half of the course will be spent in actual practice in testing, using the metallograph, and Rockwell and Brinnell testing machines. This course will be closely tied in with the course on Structural Proportioning and Strength of Junctures.

†VT 150 Electricity for Welders 2\*(3-0)

In order to have a basic understanding of electric welding the student must have a fundamental knowledge of what electrical current is, what causes it to flow, the units of electrical measurement and their relation to each other, and be able to solve simple series and parallel circuit problems. The student must also be made aware of the various electrical ratings of welding machines, components thereof, and circuits supplying power to them as well as the protection which must be provided to prevent overload. Other points to be discussed will be control circuits, the ignition tube control circuit, comparison of AC and DC, rectifiers as applied to welding, the motor generator set, the welding duty cycle, and high frequency welding equipment.

VT 201 Shop Mathematics I (Arithmetic) 3\*(4-0)

A review of basic arithmetic operations including addition, subtraction, multiplication and division of whole numbers, fractions and decimals.

VT 202 Shop Mathematics II (Algebra) 3\*(4-0)

Applications of algebraic equations to shop work.

†Special course. MDTA only.

\*Non-transfer credit.

**VT 203 Shop Mathematics III (Geometry) 3\*(4-0)**

Application of geometric functions to the solution of practical shop problems. Introduction to trigonometry.

**VT 204 Plane Trigonometry Applications 3(4-0)**

A course designed to build a thorough understanding of trigonometric solutions of right and oblique triangles with the use of logarithms. Emphasis is placed on analysis of industrial problems utilizing trigonometric solutions. Prerequisites: Math. 013 or two units of high school geometry.

**VT 205 Advanced Trigonometry Applications 3(4-0)**

A continuation of V.T. 204 providing broad experience in the solution of problems taken directly from industry. Prerequisite: V.T. 204 or Math. 103.

**VT 206 Solid Geometry and Compound Angles 3(4-0)**

A combination of solid geometry and advanced trigonometry enabling the student to solve setup problems involving angles and tilted work.

**†VT 210 Industrial Mathematics for Machine Operators 5\*(5-0)**

This course consists of a review of addition, subtraction, multiplication, and division of whole numbers, fractions and decimal fractions. Also covered is the Geometry concerned with the calculations of areas and volumes of regular shapes found in machining. Trigonometry taught deals with calculations of angles and angular speeds concerned with setting machine tools and gear fabrication. Finally, throughout the course, algebra is introduced as an aid to the solution of formulas and setting up word problems and manipulating the resulting equation to arrive at a solution. Instruction will be closely coordinated with other courses to assure that mathematics taught will precede requirements in those courses.

**†VT 215 Applied Mathematics for Welders 4\*(4-0)**

The course consists of a review of addition, subtraction, multiplication and division of whole numbers, fractions, and decimal fractions. Also covered is the geometry of areas and volumes as applies to material density and the strength, size and type of welds. Algebra taught includes the use of formulas and word problems and manipulation of resulting equations to arrive at a solution. Instruction will be closely coordinated with other courses to assure that math taught will precede requirements in those courses.

**VT 220 Machinery Handbook I 3\*(4-0)**

Designed to familiarize the student with the effective utilization of information contained in the handbook.

**VT 221 Machinery Handbook II 3\*(4-0)**

A continuation of VT 220.

**VT 224 Die Design Handbook I 3\*(4-0)**

A course designed to cover the effective utilization of information contained in the handbook.

**VT 225 Die Design Handbook II 3\*(4-0)**

A continuation of VT 224.

**VT 226 Die Design Handbook III 3\*(4-0)**

A continuation of VT 225.

†Special course. MDTA only.

\*Non-transfer credit.

**VT 234 Metallurgical Testing of Welds I 4\*(0-6)**

Welding of low carbon steel in various ways and testing of all welds to determine the quality and characteristics of the weld metal. Study of internal strains, cracking, shrinkage and warping, and the reasons therefore. Prerequisite: MT 204 Metallurgy; VT 111 and VT 112 Welding. \$15.00 laboratory fee.

**VT 235 Metallurgical Testing of Welds II 4\*(0-6)**

Welding of various metals and brazing by oxyacetylene gas and the testing of all welds for quality. Sections of welds will be polished and examined under the Metallograph. Reasons for defects in welds to be explored. Prerequisite: MT 204 Metallurgy and VT 111 and VT 112 Welding. \$15.00 laboratory fee.

**VT 236 Metallurgical Testing of Welds III 4\*(0-6)**

Shielded arc welds are to be made and tested for quality and defects. Welds will be examined under the metallograph. Problem of intergranular corrosion to be explored. Prerequisite: VT 234. \$15.00 laboratory fee.

**VT 240 Welding for Certification I 4\*(0-6)**

This course is designed to give the student intensified practice in all types of welding for those who wish to pass certification tests according to the A.S.M.E. codes for welding. Students desiring only to attain an equivalent level of competence may also take the course. Course I covers General Arc Welding. Prerequisite: VT 235, VT 236. \$15.00 laboratory fee.

**VT 241 Welding for Certification II 4\*(0-6)**

This course is a continuation of VT 240 and covers acetylene welds. Prerequisite: VT 240. \$15.00 laboratory fee.

**VT 242 Welding for Certification III 4\*(0-6)**

This course is a continuation of VT 241 and covers Heliarc welds. Prerequisite: VT 241. \$15.00 laboratory fee.

**†VT 250 Industrial Machine Operation and Set-up 10\*(5-10)**

Industrial Machine Tool Operation and Set-up is designed to give the student the basic trade theory and principles governing machine shop operations in the basic machine tools, namely, measuring instruments, bench work, drill press, lathes, milling machine, shaper work and grinding.

**†VT 251 Machine Operation for Welders 2\*(0-3)**

A course dealing with the use of various types of measuring instruments and the operation of simple machines. Bench operations such as filing and chisel work will be covered. The types of machines considered are the band and reciprocating power hack saw, drill press, arbor press, and lathe.

**COURSE DESCRIPTIONS — J.A.C. APPRENTICESHIPS****VT 400 Apprentice — Bricklaying**

For apprentice bricklayers on registered programs with the Lansing Bricklaying and Stonemasonry Joint Apprenticeship Committee. Includes manipulative practices, related theory, mathematics, estimating, blue print reading and drawing.

†Special course. MDTA only.

\*Non-transfer credit.

**VT 401 Apprentice – Carpentry**

For apprentice carpenters on registered programs with the Lansing Carpentry Joint Apprenticeship Committee. Covers free hand sketching and drawing, blueprint reading, mathematics, use of steel square, estimating and layout, building codes, safety practices, manipulative practices and applied science. Includes light and heavy construction practices.

**VT 402 Apprentice – Electrical**

Open to electrical apprentices indentured to the Lansing Electrical Joint Apprenticeship Committee. Covers blueprint reading and drawing, electrical theory, laboratory work, electrical code and mathematics.

**VT 404 Apprentice – Plumbing**

For apprentice plumbers and pipefitters indentured to the Lansing Joint Plumbing and Pipefitting Apprenticeship and Training Committee. Includes mathematics, manipulative practices, theory, blue print reading and drawing, job analysis, physics and other science, and supplementary courses from the regular college offerings approved by the J.A.C.

**VT 405 Apprentice – Sheet Metal**

Open to apprentices indentured to the Lansing Sheet Metal Joint Apprenticeship Committee. Covers manipulative practices, layout, mathematics and drafting.

# **GENERAL INFORMATION**



### APPLICATION

Lansing Community College accepts applicants from the Greater Lansing area. This area includes communities lying within approximately a 25-mile radius of the College.

Applications may be obtained from the College admissions office or from high schools in the College service area.

Prospective applicants are urged to contact the admissions office and to submit a preliminary or final transcript of their high school work as early as possible to insure time for testing, counseling, and pre-enrollment. High school graduates should submit final transcripts when they apply for admission and high school seniors should make arrangements to forward a final transcript to the college immediately after graduation.

Applications received after August 1, will be placed on a waiting list. Applicants will be admitted only as the enrollment permits.

### COLLEGE ENTRANCE PROGRAM

The College Entrance Program has been developed as a means of helping students prepare for college level work. It is a remedial program offered during Fall, Winter and Spring terms for the applicant whose high school record, test results and personal interview indicate that he lacks the necessary background to do successful work in some areas important to progress toward his chosen field.

These remedial classes are held four nights each week at Sexton High School. They are offered by the Adult Education Department in cooperation with the college. Students who successfully complete one term of this remedial work will be allowed to enroll in college level courses for the following term.

### REGISTRATION PROCEDURE

To become officially enrolled at Lansing Community College, a student must complete the following:

1. File directly with the admission office an application for admission which requires a personal statement, and a \$5.00 application fee.
2. Present the personal and scholastic record-form to his high school principal, completed and forwarded on to the college.
3. Request that official transcripts from any other college or university which he has been enrolled since his last attendance in high school be sent to the admissions office.
4. Report for placement testing at the time requested by the admissions office. Upon the completion of testing he will be given an appointment with a counselor, who will discuss his educational and vocational goals, and assist in planning an appropriate educational program.

Special, guest and transfer students, who have been accepted for admission, should enroll when notified by the admissions office.

Lansing Community College does not have mass registration or a registration day. The college has a policy of advanced registration, which

covers a three-week period prior to a given term. These periods are indicated in the school calendar. Students should make every effort to enroll early during this registration period.

### **LATE REGISTRATION**

A student registering late will be required to make up the work he has missed. After the first week in any quarter, he is not permitted to enroll for a full-time class schedule. A student registering late will be required to submit all the credentials listed above prior to the day he enrolls. An additional \$5.00 is charged those students who register after the official registration period.

### **AUDITING A COURSE**

A student who desires to attend classes regularly, but does not wish to take final examinations or receive grades or credit, may register as an auditor. A record will be kept of classes attended. Credit for such courses cannot be established at a later date. An auditor in a class cannot change his status to that of a credit student in that class. Neither can a credit student in a class change his status to that of an auditor in that class.

### **CHANGE IN REGISTRATION**

During the first week of a term, a student may make changes in his schedule by obtaining the proper form from the College office. After the first week, he may add no courses for credit.

A student may withdraw from a course before the end of the fourth week without academic penalty. If he withdraws after that time and is passing in the course at the time of withdrawal, a "W" will appear on his record. If he withdraws after that time and is failing in the course at the time of withdrawal, an "E" will appear on his record.

### **WITHDRAWAL FROM COLLEGE**

If a student finds it necessary to withdraw from college, he must report to the College office without delay and fill out a form to make his withdrawal official. Then a statement of "official withdrawal" will be given him if at the time of withdrawal all his financial obligations to the college have been met and his conduct and scholarship are such as to entitle him to continue in the college.

### **CREDITS**

The regular college year is divided into four terms of approximately 11 weeks. In general, a class meets one hour each week for each credit earned: somewhat more time is required for courses with laboratory work. To the student taking laboratory work, the usual load of 16 credit hours of courses will, then, mean about 20 or more hours of class attendance each week. Carrying 16 credit hours each term plus one credit hour in physical education, the student will earn in two years the 92-96 hours required for graduation and a maximum of 96 hours transferrable to a four-year institution. The credit hour value of each course is given in the section of this catalog devoted to "Courses and Course Descriptions."

**CREDIT BY EXAMINATION**

A regularly enrolled student may obtain credit for certain courses at the discretion of the department chairman and faculty advisor by passing a comprehensive examination (or series of examinations). The fee is \$3.50 per credit hour. The student must make application for such examination at the registrar's office.

**TRANSFER OF CREDITS**

Credit will be given for courses transferred from accredited institutions. The credit value of each of these courses will be determined by Lansing Community College. Official transcripts of a Lansing Community College student's record will be mailed to another institution at the request of the student. An "Official Transcript" is one which is signed by the Registrar, has the school seal placed over his signature, and gives the date of graduation or official withdrawal of the student from the College. A student expecting to transfer to a 4-year institution is advised to examine carefully the current catalog of the particular college he expects to enter and to follow as closely as possible its particular recommendations for programs of study.

Each student is furnished one free official transcript; for each additional transcript a fee of \$1.00 is charged.

**STUDENT CREDIT LOAD AND LIMITATIONS**

A full-time student schedule is 12 term hours or more. Permission to carry class schedules exceeding the normal load will depend on the student's academic record.

**SYSTEM OF GRADES**

The following system of symbols is used at Lansing Community College to evaluate work of the student.

- A — A grade given to indicate distinct superiority in course work.
- B — A grade given to indicate better than average achievement but lacking clear superiority.
- C — A grade given to indicate average achievement.
- D — A grade given to indicate below average achievement.
- E — A grade given to indicate insufficient achievement to pass.
- I — Incomplete. A grade given only when, for good cause, the student has been unable to complete the work at the end of the term. A student receiving this grade should consult his instructor immediately regarding completion of the work. Grades of "I" must be removed before the closing date of the next term, or the grade will automatically become an "E".
- W — A grade given to indicate withdrawal passing from a course. A grade of "W" is given to any student who withdraws officially from a class any time up to and including the last day of the fourth week of the term. A student withdrawing officially from a class after the end of the fourth week will be given a grade of "W" or "E" depending on the quality of his work at the time of withdrawal.
- S — Audit.

Grade point averages are determined on the following basis:

A - 4, B - 3, C - 2, D - 1, E - 0, W - 0, S - 0.

Thus a student who earned 5 hours of A, 5 hours of B, and 5 hours of C would have a total of 45 points for 15 hours, a grade point average of 3.00.

### **PROBATION**

Any student whose grade point average for any term falls below 2.0 will be placed on probation for the following term and should request special counseling before he re-enrolls. If his grade-point average falls below 2.0 for a second consecutive term, he will be placed on strict probation for the following term. The student on strict probation may not carry courses exceeding 12 hours of credit. Should his grade point-average fall below 2.0 for a third consecutive term, he will be asked to leave the College and may not apply for re-admission for at least one year. When and if he does so, he must apply in writing and have a personal interview with the Director of Admissions. No student on either probation or strict probation is allowed to participate in extra-curricular College activities.

### **TERM GRADE REPORTS**

An academic report will be issued approximately one week after the close of each term. A mid-term progress report will be mailed to the student during the sixth week of the term. The grade report will be withheld if the student does not have all credentials on file in the College office, or if he has not fulfilled all financial obligations to the College.

### **EXAMINATIONS**

Examinations are held regularly during the term. Students are required to take examinations at the appointed time and place in order to receive credit for a course. An examination taken at any other time than that officially scheduled is a "special examination," and the student must make the necessary arrangements with his instructor to have it administered. A student may make application to the Assistant Dean in charge of Student Service for permission to take a special examination after the close of a term and if such permission is granted, he will be charged a \$5.00 fee.

### **ATTENDANCE**

A student is expected to attend all sessions of each course in which he is enrolled. Failure to do so may result in a lower grade. Absence in no way relieves the student from the responsibility of completing all the work of the course to the satisfaction of the instructor in charge. Absences will be excused when incurred by reason of a student's participation in field trips and other trips arranged by the college, provided such trips have been previously arranged by the instructor through the Dean's office. The instructor whose course requires absences of students from classes will file in the College office a list of the names of the students involved at least 48 hours in advance of their absence.

### GRADUATION REQUIREMENTS

To graduate from Lansing Community College a student must:

1. Complete a two-year course of study adapted to his needs, interests, and capacities, and conform to a plan acceptable to the college. The course of study should: (a) be suitable for transfer to admit the student to the level of upper-division work in a four-year college of his choice; or (b) form a program of study to be completed at the end of two years in the Community College.
2. Maintain a minimum grade point average of 2.0.
3. Earn toward graduation at least 30 credits in attendance at the Lansing Community College.
4. File with the Registrar's office a petition for graduation before January 15, preceding June Graduation.
5. Satisfy all general and specific requirements of Lansing Community College which pertain to him, including the fulfillment of all financial obligations.
6. Be in attendance at the commencement exercise of his class unless a petition of absence is approved by the Dean.
7. Have the approval of the faculty and The Board of Education.

### DEGREES

Associate degrees are granted to all who meet graduation requirements. Degrees will be granted only once each year. Any student completing the requirements during the Fall or Winter terms will be able to apply for graduation during the term in which his work is completed. All degrees will then be granted in June of that school year. Those students who maintain a 3.75 grade point average will be graduated Summa Cum Laude; those who maintain a 3.50 grade point average will be graduated Magna Cum Laude; those with a 3.25, Cum Laude.

### STUDENT PERSONNEL SERVICES

Many specialized services are available to students at Lansing Community College. These services include various types of counseling, pre-enrollment, registration, orientation, testing, educational and occupational information, advisory services, educational planning, coordination of transfer programs, the handling of veteran affairs, and loans and scholarships.

#### Counseling Services

Student Personnel Services extend to the student professional assistance on such matters as curriculum choice, educational program planning, occupational choice and planning, and matters which threaten to interfere with the educational progress of the student.

#### Pre-enrollment Counseling Services

After a student has been admitted to the college and before he enrolls he is given the opportunity to discuss, with a counselor, the educational program which he will pursue. At this time he has the opportunity to discuss his entrance examination, the curriculum in which he will be enrolling, and his schedule for his first term.

**Orientation**

The College desires to make the student feel that he is an integral part of the institution and to acquaint him with the philosophy, facilities, and procedures unique to the college.

During the student's first term here, he enrolls for a course called "Orientation" in which an attempt is made to help the student become familiar with his educational program, the procedures used at Lansing Community College, and effective study skills and habits.

**Testing Services**

It is often helpful for the student making educational or occupational choices and plans to take certain tests. The counselors in Student Personnel Services will administer and interpret these tests, and offer counseling to the student desiring such services.

**Occupational-Educational Information**

Student Personnel Services maintains a file of educational-occupational information available to all students at the College. Purpose of this service is to assist students in making appropriate educational-occupational choices and plans.

**Advisory Service**

Student Personnel Services coordinates the advisor-advisee system in the College. This office has the responsibility of assigning students to academic advisors. A summary of the student's record, his academic report, and his tentative educational program are forwarded to the advisor. This enables a student to receive advice from a faculty member in his own stated area of specialization at the time he enrolls each term.

**Advisory Services to Clubs and Organizations**

Student Personnel Services staff members are available as consultants to groups which desire to form clubs or organizations within the college or to existing clubs and organizations.

**Student Employment Assistance**

Student Personnel Services assists those students who find it necessary to work while attending college to find part-time employment. A bulletin board in Student Personnel Services lists available jobs.

**Scholarships**

An increasing number of scholarships are available to students enrolled in the College. The student may receive information and make application for these scholarships through Student Personnel Services.

Community Junior College Scholarships are available to graduates of Lansing Community College. These scholarships are available to most of Michigan's state colleges and universities. Information and application forms for these scholarships may also be obtained through Student Personnel Services.

The student who needs financial assistance while attending the College may wish to borrow from one of the Lansing Community College loan funds. Information and application forms for these loans may be obtained through Student Personnel Services.

**Placement**

A student graduating from Lansing Community College and wishing to become employed may receive assistance through Student Personnel Services or the instructors in the area of his specialization. Lansing Community College is anxious to maintain its record of placing those graduates who desire employment.

**Veteran's Affairs**

Veterans and War Orphans enrolled at Lansing Community College are eligible for benefits under Public Law 550 and 634. Monthly certifications of training are signed in Student Personnel Services area and other veteran's affairs are conducted through this office.

**SCHOLARSHIPS FOR LANSING COMMUNITY COLLEGE GRADUATES****Michigan State Board of Education Scholarships**

These scholarships are available to those entering teacher training at Central Michigan University, Eastern Michigan University, Western Michigan University and Northern Michigan College. They are awarded on the basis of scholarship, U.S. citizenship, high moral conduct, need, and with the recommendation of Lansing Community College Student Financial Committee. They cover payment of tuition for one year and are renewable if the student maintains a satisfactory record.

**University of Michigan Public Junior College Scholarships**

These scholarships are awarded on the basis of scholarship, U.S. citizenship, high moral conduct, and need, and with the recommendation of the Lansing Community College Student Financial Aids Committee. They cover payment of tuition and fees for one year and are renewable if the student maintains a satisfactory record.

**Michigan State University Public Junior College Scholarships**

These scholarships are awarded on the basis of scholarship, U.S. citizenship, high moral conduct, and need, and with the recommendation of the Lansing Community College Student Financial Aids Committee. They cover payment of tuition and fees for one year and are renewable if the student maintains a satisfactory record.

**Michigan College of Mining and Technology  
Public Junior College Scholarship**

This scholarship is awarded on the basis of scholarship, U.S. citizenship, high moral conduct, and need, and with the recommendation of the Lansing Community College Student Financial Aids Committee. It covers payment of tuition for one year.

**Alma College Community-Junior College Scholarships**

These scholarships are awarded on the basis of scholarship, U.S. citizenship, high moral conduct, need, and with the recommendation of the Lansing Community College Student Financial Aids Committee.

### **Other Scholarships for Community College Graduates**

Many other universities and four-year colleges award scholarships to junior college graduates.

Students interested in any of the above scholarships should inquire at Student Personnel Services.

### **GRANTS FOR STUDENTS ATTENDING LANSING COMMUNITY COLLEGE**

Educational grants are awarded each term on the basis of need, good citizenship, high moral conduct, and satisfactory scholarship. They cover part-payment of tuition and are renewable if the student maintains a satisfactory record. Students interested should inquire at the College office, Room 216.

### **FEDERAL GOVERNMENT LOAN FOR STUDENTS**

The National Defense Education Act provides for the creation, at American colleges and universities, of loan funds from which needy students may borrow on reasonable terms to help complete their higher education.

The law requires that the borrower: 1. be a full-time student (12 or more term-hours); 2. be in need of the amount of his loan to pursue his courses of study; 3. be capable of maintaining good academic standing in his chosen course of study.

Special consideration is given to applicants who express a desire to teach in public elementary or secondary schools and applicants who show promise in science, mathematics, engineering, or modern foreign language.

Lansing Community College students who qualify for loans under these specified provisions should inquire for application through Student Personnel Services

### **THE DWIGHT AND ELEANOR RICH LOAN FUND**

This fund, established upon the retirement of Dr. Dwight H. Rich from the superintendency of the Lansing Public Schools in June 1962 provides needy students loans on reasonable terms to help complete their higher education.

The student wishing to borrow from this fund must be a full-time student, be in need of the amount of his loan to pursue his course of study, and be capable of maintaining good academic standing in his chosen course of study.

Applications for this loan are made through Student Personnel Services.

### **ALVIN M. BENTLEY FOUNDATION JUNIOR COLLEGE SCHOLARSHIPS**

The foundation established by Mr. Alvin M. Bentley makes available a \$375.00 scholarship to one outstanding graduating senior, who is admissible to the college and who has financial need.

Application for this scholarship should be made through Student Personnel Services.



### **LANSING BUSINESS AND PROFESSIONAL WOMEN'S TUITION SCHOLARSHIP FUND**

The Lansing Business and Professional Women's organization makes available a tuition scholarship to an older woman who has a definite need to establish or re-establish herself in business or a profession.

Application for this scholarship should be made through Student Personnel Services.

### **AMERICAN BUSINESS WOMEN'S ASSOCIATION** White Pine Chapter, Lansing Tuition Scholarship

The American Business Women's Association, White Pine Chapter, Lansing makes available a tuition scholarship for a girl interested in becoming a member of the teaching profession.

Application of this scholarship should be made through Student Personnel Services.

### **COMMUNITY COLLEGE JOURNALISM SCHOLARSHIP**

Lansing Community College is offering a scholarship for 1963-64 to an outstanding high-school graduate who has excelled in journalism class or has been editor of his high-school newspaper or yearbook.

The scholarship is available only to a freshman and will permit the student to attend Lansing Community College for three terms at one-half the regular tuition fee. The recipient of the scholarship will be appointed assistant editor of the college newspaper, the *Lookout*.

Interested students should write a letter of application to the journalism instructor, stating their qualifications and their interest in journalism or English. They should include in their letter also the names and addresses of three persons who would recommend them.

The student who is selected as editor will receive a full tuition scholarship.

### **HOUSING**

The Lansing Community College maintains no housing units for students, but it does cooperate in making available a list of suitable living quarters. The College will assist students by maintaining a list of housing.

### **CONDUCT**

Inasmuch as students attending the Lansing Community College are considered mature adults, it is assumed that the need for well-defined rules of conduct is not required. The student should remember that attendance at the College is a privilege which can be revoked at any time by the Dean of the College.

**FEES AND TUITION**

Note: Tuition and fees may change due to Board action. Costs listed below are those in effect at the date of publication. All tuition and fees are to be paid at the time of registration.

**Fees:**

Application fee:	
A non-refundable fee for all new and entering students.....	\$5.00
Registration fee:	
Guests, special and readmitted students .....	\$2.00
Student activity fee:	
12 or more credits .....	\$2.00
7-11 credits .....	\$1.00
Locker fee .....	\$1.00
Towel fee .....	\$2.00

**Tuition:**

Residents: (Students living within the Lansing School District)	
Per credit hour .....	\$3.50
Non Residents: (Students living outside of the Lansing School District)	
.....	\$5.00

**REFUNDING FEES**

Tuition will be refunded in accordance with the following policy:

A student who withdraws officially within one week of final registration will be refunded 80% of his tuition.

A student who withdraws officially between the end of the first week and the end of the fourth week after final registration will be refunded 50% of his tuition.

A student who withdraws after the end of the fourth week after final registration is not refunded any of his tuition.

Veterans will receive refunds on all changes on a prorated basis throughout the school year in accordance with P.L. 550.

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