



1958-1959

Lansing
COMMUNITY COLLEGE

CATALOG NO. 2

1958-1959

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Lansing, Michigan

September, 1958

Lansing Board of Education

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Lansing Community College
419 N. Capitol Avenue
Lansing, Michigan

Telephone--IVanhoe 9-6581
Evenings IV 9-6583

CALENDAR
 For
 Day and Evening College

August 4 Monday-Math refresher course begins
 Six weeks (evening)

September 12 Friday-Math refresher course ends

Fall Term 1958

September 22-26 Monday through Friday-Final registration
 of students

September 29 Monday-Day and evening classes begin

October 31 Friday-Mid-term grades due

November 27-30 Thanksgiving recess

December 8-12 Monday through Friday-Final exams

December 12 Friday-Fall term closes

Winter Term 1959

January 5-7 Monday through Wednesday-Registration of
 students

January 8 Thursday-Day classes begin

January 12 Monday-Night classes begin

February 13 Friday-Mid-term grades due

March 23-27 Monday through Friday-Final exams

March 27 Friday-Winter term closes

Spring Term 1959

April 1-3 Wednesday through Friday-Registration of
 students

April 6 Monday-Classes begin

May 8 Friday-Mid-term grades due

June 15-19 Monday through Friday-Final exams

June 19 Friday-Spring term closes

Summer Term 1959

June 24-26	Wednesday through Friday-Registration of students
June 29	Monday-Classes begin
August 3-7	Monday through Friday-Final exams
August 7	Friday-Summer term closes

- Benedict, Frank-----Trade & Industrial Co-ordinator
 B.M., Michigan State University; M.A., University of Michigan;
 Additional graduate work: Michigan State University.
- Clark, Ruby-----Homemaking, Practical Nurses
 B.S., Michigan State University
- Mr. Clark*
 Coomes, Francis-----Political Science, Economics
 B.A., Michigan State University; M.A., Michigan State University;
 Additional graduate work: Michigan State University.
- Desai, Ram-----Political Science, Economics
 B.A., University of Bombay; M.A., Wayne University; M.A.,
 Michigan State University; Additional graduate work: Michigan
 State University.
- Flory, Frank-----Mechanical Technology
 B.S., Eastern Michigan College; M.A., University of Michigan;
 Additional Graduate work: Michigan State University.
- Gannon, Philip J.-----Dean
 B.A., Albion College; M.A., Michigan State University;
 Additional graduate work: Duke University, Columbia
 University, Michigan State University.
- Graf, Edwin-----Mechanical Technology
 B.S., Michigan State University; Additional graduate work:
 Michigan State University.
- Greenfield, Mary-----Business Training
 B.A., Michigan State University; M.S., University of Michigan
- Hamlin, Ardath-----Nursing Arts, Practical Nurses
 R.N., Edward W. Sparrow Hospital.
- Kelly, Ruth-----Mathematics
 B.A., Ferris Institute, Michigan State Normal, Michigan State
 University; Additional graduate work: Michigan State University.
- Kleiver, Jane-----Director, Practical Nurses
 R.N., Edward W. Sparrow Hospital.
- Lawton, David-----English
 B.A., Hiram College; M.A., Western Reserve University;
 Additional graduate work: Michigan State University.

- MacClure, Thomas-----Electrical Technology
 B.S., Michigan State University; Additional graduate work:
 Michigan State University.
- McCormick, Floy-----Mathematics
 B.A., University of Kansas; M.A., University of Kansas.
- Overhouse, John-----Civil Technology
 B.S., Michigan College of Mines and Technology; Additional
 graduate work: Case School of Applied Science, Western Reserve
 University, Michigan State University. Registered professional
 engineer.
- Shong, Robert-----Mathematics, Engineering Drawing
 B.S., General Motors Institute
- Stolberg, Donald-----Physical Education
 B.S., Western Michigan University; M.A., Michigan State
 University; Additional graduate work: Michigan State University.
- Warbach, Laura-----Nursing Arts, Practical Nurses
 R.N., Cumberland Hospital School of Nursing
- Watson, Claude-----Physics
 B.S., Michigan State University; M.S., Michigan State
 University; Additional graduate work: Michigan State University.
- Wilson, Harry-----Electrical Technology
 B.S., Western Michigan University; Additional graduate work:
 Michigan State University.
- Witcher, Elma-----Mathematics
 B.S., University of Virginia; M.A., Columbia University;
 Additional graduate work: John Hopkins University, American
 University.
- Wolff, Edward-----English
 Ph.B., University of Detroit; M.A., University of Detroit;
 Additional graduate work: Michigan State University.

Office Staff

- Cavanaugh, Lyla, L.P.N.-----Secretary
- Clegg, Betty-----Secretary
- Rich, Phyllis-----Secretary

BACKGROUND

The Lansing Community College has completed a successful first year of operation. Over five hundred persons have attended this college. Instrumental in making the first year a success has been the guidance from local representatives of industry, labor, business, and Michigan State University who served as advisors in directing the Lansing Community College program.

AIMS AND FUNCTIONS

The primary aim of the Lansing Community College is to provide educational opportunity of a college level not offered by any other college or university within commuting distance of Lansing. In addition the Community College is prepared to adjust its program to meet any new needs of the community.

With these aims in mind, the designers of the Lansing Community College determined its present curriculum.

FULL-TIME PROGRAM

To students desiring to attend college on a full-time basis, a day time program is being offered in Liberal Arts, Business Training, Electrical Technology, Civil Technology, and Mechanical Technology. The above curricula are two years in length, with an Associate Degree awarded on successful completion of the program.

PART-TIME PROGRAM

The Community College has a day and evening program. Students may enroll for courses offered by the college in its part-time program and should be able to complete requirements for a degree in four to five years while working at their present jobs.

The part-time program is specifically designed to aid the adult student in gaining the skills necessary for advancement beyond his present position.

APPLICATION PROCEDURE

In order to be eligible for admission to Lansing Community College, an applicant must provide evidence of satisfactory scholarship in former schools and either show evidence of high school graduation or take an entrance exam.

Fees:

Basic Tuition:

Students Who Live Within The Lansing School District:

Credit hour per quarter-----\$ 3.00

**Maximum charge per quarter-----\$50.00

Students Who Live Outside Of The Lansing School District:

Credit hour per quarter-----\$ 4.25

**Maximum charge per quarter-----\$65.00

Registration Fee:

(For first registration only)-----\$ 2.00

Audit Fee:

Per credit hour equivalent----- (City Residents)----\$ 3.00

(Non-Residents)-----\$ 4.25

Laboratory Fee:

There will be a material fee for each *laboratory
course in Liberal Arts, Civil Technology, Mechanical
Technology, and Electrical Technology-----\$ 2.00

Locker Fee:

(Per school year)-----\$ 1.00

Towel Fee:

(Each quarter)-----\$ 1.00

A STUDENT SHOULD PAY ALL HIS FEES BEFORE HE ATTENDS CLASSES

*Courses marked laboratory in catalog

**Any student carrying more than twelve credit hours per term will be
considered a full-time student.

REFUNDING FEES

Tuition will be refunded in accordance with the following policy:

Time from date of final registration	Percent of Registration fee to be refunded
One week or less-----	80%
From one to four weeks-----	50%
After four weeks-----	None

Veterans will receive refunds on all changes on a prorated basis throughout the school year in accordance with P.L. 550.

REGISTRATION PROCEDURE

To become officially enrolled in the Lansing Community College a student must complete the following:

1. File with the Dean's office an application form which includes the personal history and the high school academic record of the student.
2. Request that official transcripts from any other college or university in which the student has been enrolled since his last attendance in high school be sent to the Dean's office.
3. Report for pre-registration at the time requested by the Dean's office. A new student will be assigned a pre-registration appointment. A returning or transferring student will be assigned his appointment as soon as all credentials are on file in the Dean's office. During this personal interview with a counselor in the field of his major interest, an overall plan for his college work will be discussed and a class schedule for the immediate quarter will be indicated on his pre-registration card.
4. Report on the day for final registration as indicated in the school calendar. At this time the student will pay his fees,

complete all registration blanks, and may if he wishes, purchase his books.

Credit will be given only for courses in which the student is officially registered.

LATE REGISTRATION

A student registering late will be required to make up the work he has missed. After the second week in any quarter a student is not permitted to enroll for a full-time class schedule. A part-time program may be started at any time during the first half of a quarter if approved by the Dean and the instructor of each course. A student registering late will be required to submit all credentials as listed above within one week of the day he enrolls. An additional \$1.00 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 the final examinations or receive grades or credit, may register as an auditor. Record will be kept of classes attended. Credit for such courses cannot be established at a later date.

CHANGE IN REGISTRATION

During the first two weeks of a quarter a student may make changes in his schedule by obtaining the proper form from the Dean's office. After the second week no courses can be added for credit. A student may withdraw from a course in the first half of a quarter without penalty. If he withdraws after that time and is passing in the course at the time of withdrawal, he will be considered to

have withdrawn without failure and a "W" will appear on his record. If he withdraws after that time and is failing in the course at the time of withdrawal, it will be regarded as a failure and an "E" will appear on his record.

WITHDRAWAL FROM COLLEGE

If a student finds it necessary to withdraw from college he should report to the Dean's office without delay and obtain the proper blank to make his withdrawal official.

HONORABLE DISMISSAL

A statement of "honorable dismissal" will be given to the student if at the time of withdrawal all his financial obligations to the college have been met and his status as to conduct, character and scholarship is such as to entitle him to continue in the college.

SCHOLASTIC REGULATIONS

CREDITS

The regular college year is divided into three terms of approxi- ^{one hour} mately twelve weeks each. In general, a class meets ~~once~~ each week for each credit earned; somewhat more time is required for courses with laboratory work. The usual load of 17 credit hours of courses will, then, mean about 25 or more hours of class attendance each week for one quarter. The average student can count on the necessity of about 25 additional hours a week for preparation of assignments. Carrying 17 credit hours each term plus 1 credit hour in physical education, the student will earn in two years the 92-110 credit hours required for graduation. Credit hours earned follow the course titles in this catalog.

Credit for certain courses may be obtained by a regularly enrolled student by satisfactorily passing a comprehensive examination (or series of examinations). The student shall not have been registered for the course in this or any other college. The fee is \$3.00 per credit hour.

TRANSFER OF CREDITS

Transfer courses will be accepted from accredited institutions. Each transfer will be evaluated by the Lansing Community College according to its own requirements.

A student may earn more than 92-110 credit hours at the Lansing Community College but the transfer value of any hours over the 110 must be determined by the institution to which the student is submitting his credentials for further college work.

An "Official Transcript" is one which is signed by the Dean, has the school seal placed over this signature, and gives the date of the "honorable dismissal" of the student from this college. A student expecting to transfer to a senior college 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 two official transcripts free of charge; for each additional transcript a fee of 50¢ is charged.

STUDENT CREDIT LOAD AND LIMITATIONS

The standard student load is 15-18 credits per term. Permission to carry class loads exceeding this will be dependent upon past attendance and scholarship records.

SYSTEM OF GRADES

The following system of symbols is used at the Lansing Community College to evaluate work accomplished by the student.

- A - A high degree of excellence shown in effort and intellectual achievement
- B - Strong effort and better than average achievement
- C - Average achievement
- D - Accomplishment of a minimum standard of achievement
- E - Failure
- I - Incomplete. This grade is 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 immediately consult his instructor regarding completion of the work. Incompletes must be removed before the closing date of the next term in which the student is enrolled or the grade will automatically become an "E".
- W - Withdrawal
- UW - Unofficial Withdrawal. This grade is given when a student neither attends a class nor officially withdraws from it.

For the purpose of further evaluation, as in determining an average grade, the following point values are assigned:

A - 4, B - 3, C - 2, D - 1, E - 0, I - 0, W - 0, UW - 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.

SCHOLARSHIP

Any student whose grade point average for any term falls below 1.5 will have special counseling before he re-enrolls. Two consecutive terms of grade point below 1.5 will place the student on probation. If the student's grade point continues below 1.5 after he has been placed on probation, he shall have eliminated himself from enrolling for the next term.

After one term has elapsed he may apply for re-admission. His application must be in writing and he must have a personal interview with the Dean of the college.

TERM GRADE REPORTS

A grade report will be issued approximately one week after the last day of final examinations each term. This report may be obtained only by the student to whom it belongs. If unable to call for it, the student should leave a self-addressed envelope in the Dean's office and the report will be mailed directly to him. The grade report will be withheld if the student does not have all credentials on file in the Dean's office, or if any financial obligation toward the college has not been fulfilled.

arent these mailed out?

EXAMINATIONS

Final examinations are held regularly at the end of each term. Students are required to take the final examination at the appointed time and place in order to receive credit in a course. An examination taken at any other time than that officially scheduled is a "special examination" and the student must make application through the Dean's office for it to be administered. A fee of \$1.50 per examination is charged for special examinations.

Do we hold to this?

REPEATING A COURSE

A student may repeat a course in which he has received a failing or low passing grade and in such case the grade received the second time will appear on the student's permanent record and shall be used in computing his cumulative grade point average.

ATTENDANCE

A student is expected to attend all sessions of each class in which he is enrolled. Failure to do so may result in a lower grade.

Absence or tardiness because of serious illness or unavoidable circumstances may be excused if the instructor in charge of the course is completely satisfied as to the cause. Being excused for an 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 work requires absences of students from classes will file in the Dean's office a list of the names of the students involved at least 48 hours before the activity.

GRADUATION REQUIREMENTS

To graduate from the Lansing Community College a student must:

1. Complete a two-year balanced course of study adapted to his needs, interests, and capacities, and conform to a plan acceptable to the college. The course of study should be (a) suitable

for transfer to admit the student to about the level of upper-division work in a four-year college of his choice, or should (b) form a complete program of study to be terminated at the end of two years in the Community College.

2. Of credits earned toward graduation at least 15 must be earned at this college; if fewer than 25 are earned here, not fewer than 10 of them must be in the last quarter of attendance.

3. File with the Dean a petition for graduation before final registration for the last term.

4. Satisfy all general and specific requirements of the Lansing Community College which pertain to him, including the fulfillment of all financial obligations.

5. Be in attendance upon the Commencement exercise of his class unless a petition of absence, properly made by him to the Dean, is approved.

DEGREE

The degree of Associate in Sciences is 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 his work is completed. All degrees will then be granted in June of that school year.

*what about
lib. art
students?*

STUDENT SERVICES

COUNSELING

Lansing Community College endeavors to make available to each student during his college career the most modern aids to a wise vocational choice, improvement of work and study habits, and the development of an efficient and wholesome personality. Every

instructor assumes responsibility of counseling along with the special counseling by professionally trained counselors.

Each student is assigned an educational advisor to assist him in preparing an educational plan, and to register him each quarter.

After the student has started his class schedule, there is available to him at all times a program of guidance which calls into service the resources of all faculty personnel and a special testing division.

Students are encouraged at all times to seek counsel, not only in the face of specific problems, but also in an effort to discern, through the aid of friendly faculty assistance, ways of constantly improving the skills required for effective living.

HOUSING

The Lansing Community College maintains no housing units for students but it does cooperate in making available suitable living quarters. The Dean will assist students by maintaining a list of approved housing. The facilities are inspected and approved if they provide adequate heat, light, ventilation and study conditions.

EMPLOYMENT

Every possible effort is made to secure desirable part-time employment for those who need financial help and who have time for such work. Students who wish part-time employment should register their qualifications with the Dean who maintains a file of available opportunities.

LANSING PUBLIC LIBRARY

The Lansing Public Library, adjacent to the Lansing Community College, will be used as a library services laboratory and service department in the midst of college activities, both curricular and extra-curricular. Here students will have an opportunity to develop skill in the use of time-saving indexes and other important reference materials found in modern libraries. The close cooperation of instructors and library personnel insures constant development of the library as a vital part of the instructional program.

FACILITIES

The Lansing Community College has excellent facilities for Liberal Arts, Business Training, and the Technical Curriculums. Extensive renovations have been completed in the West wing of the present Board of Education Building, where the college is located. At present the college has the following facilities:

1. Drafting Rooms
2. Several Lecture Rooms
3. Chemistry & Physics Laboratory
4. Electronics Laboratory
5. Hydraulics Laboratory
6. Electrical Laboratory
7. Counseling Center
8. Strength of Materials Laboratory
9. Engineering Materials Laboratory
10. Metallurgical Laboratory
11. Machine Shop
12. Fabrication Laboratory
13. Welding Laboratory
14. Gymnasium
15. Reference Library
16. Business and Secretarial Laboratories
17. Cafeteria
18. Student Lounge
19. Biology Laboratory
20. Practical Nurses Classrooms and Laboratory

The Lansing Community College will use the Lansing Public Library which is adjacent to the college.

BOOKS & SUPPLIES

Each student provides his own books and supplies. Students expenses per quarter for books and supplies will average between twenty and thirty dollars.

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 are not required. The student should remember that attendance at the college is a privilege and can be revoked at any time by the Dean of the college.

Apprentice Training School

Frank Benedict - Co-ordinator

Room 108, Phone IV 9-6581 Ext. 27

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

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

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

Bricklaying
Carpentry
Die Making
Die Sinking
Electrical Construction
Electrical Maintenance
Electrical (Municipal)
Iron Work (Structural)
Jig Building
Machinist
Sheet Metal
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 school does not provide job placement service nor does it exercise any 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 between 18 and 25, although exceptions are sometimes made. School records, test results, and

personal interview are used by most committees in determining the qualifications of the applicant.

Becoming an Apprentice

To become an apprentice, application should be made to a joint Apprenticeship Committee representing labor and management of the trade. Applications are taken by the committee secretary or the apprentice co-ordinator. Some committees require that the applicant have promise of employment in which the employer agrees to observe the apprenticeship standards. Other committees arrange for job placement if the applicant meets the qualifications and employment is available. Applicants must reside within the jurisdiction of the Joint Apprenticeship Committee. They must be in good health, of sound integrity, mentally alert, and genuinely interested in the training. *40 hrs. work per wk. 160 hrs. training per year.*

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 Apprenticeship Committee for previous experience. In most of the trades, the apprentice attends related training classes one day every two weeks (several trades require attendance one-half day every week). The on-the-job training is obtained during the remainder of the time.

Earnings

Apprentices are paid by their employer for the 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 standards. It then becomes a function of the Joint Apprenticeship Committee or its agent to observe these standards. 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 by the Joint Apprenticeship Committee or the employer are assigned a day to report to school by either the committee or the employer. On inquiry at the apprentice office, they are referred to the teacher for the trade. They are then required to complete their school registration and pay the school apprentice fee at the school office.

Fees

Each apprentice receiving related training at the Apprentice Training School is required to pay a course fee of \$2.00 per term. The fee is pro-rated for individuals entering late in the fiscal period. A class admission slip indicating payment of apprentice fees must be shown to the teacher at the time a student enters a class.

Veterans

Veterans who are eligible for training benefits under existing laws for veterans' readjustment (PL895, or PL550) should consult the apprentice co-ordinator at the school office relative to benefits in apprenticeship training and the application procedure to be followed for obtaining such benefits.

Apprentice Instructors

Balmer, Harold-----	Machine Trades	Related Instruction
Kowatch, John-----	Electrical	Related Instruction
Lehman, Fred-----	Plumbing	Related Instruction
Nothelfer, Donald-----	Iron Working	Related Instruction
Smith, Carl-----	Electrical	Related Instruction
Webb, Frank-----	Sheet Metal	Related Instruction
Wilder, Francis-----	Carpentry	Related Instruction
Zander, Hugo-----	Bricklaying	Related Instruction

LANSING PRACTICAL NURSE CENTER

Rooms 308-310
Lansing Community College
Lansing, Michigan

Requirements for Admission

Age-----Minimum 18 years - Maximum 50 years

Education---High School, for 18 to 25 years
Minimum eighth grade, for over 25 years of age

Good Health----Mental and Physical
Pre-entrance physical examination by family doctor

Fees

\$10.00----When application is accepted
\$20.00----On entrance
\$35.00----End of first three months
*\$25.00----For three uniforms
 3 caps, 3 jumpers and blouses
*\$ 9.00----Testbooks
\$15.00----Activities fee

Earnings

The students begin to earn as soon as assigned to hospital affiliation.

\$3.00 a day for a five day week starting in the fifth month and continuing through the first eighty days of hospital affiliation.

\$4.00 a day for the remaining eighty days.

A One Year Course

4 months at the Center - - 8 a.m. to 3 or 4p.m.

160 days supervised nursing practice in hospital

3 weeks vacation

1 week senior review and examinations

*Prices may vary

During the hospital affiliation one learns to care for common diseases, medical, surgical cases, mothers and babies, handicapped patients, and to serve special diets.

Hospital Affiliations

Edward W. Sparrow Hospital, Lansing

St. Lawrence Hospital, Lansing

Ingham County Chest Hospital, Lansing

Ingham County Rehabilitation Center, Okemos

Certificate

Upon graduation the student receives a certificate from the State Office of Vocational Education.

Upon graduation the student is eligible to write the examination to become a Licensed Practical Nurse.

Opportunities After Graduation

Work is available in hospitals, homes, and other health agencies under the supervision of doctors and professional nurses.

Sponsors

Lansing Board of Education
State Office of Vocational Education
Michigan State Practical Nurses Association
College Womens Volunteer Service
Michigan State Nurses Association

Approved by the Michigan Board of Nursing

For Information and Applications write to:

Lansing Practical Nurse Center
Lansing Community College
419 N. Capitol Avenue
Lansing, Michigan

Call--IVanhoe 9-6581 Extension 41

A lifetime vocation (age is no handicap)

A career that is interesting, varied, and rewarding

Employment that is available now at good pay

Practical Nurse Certificate

State licensure

Correspondence courses for practical nurses, doctors assistants, and dental assistants are not recognized by the Michigan Board of Nursing.

Classes Start

Two classes are enrolled annually, September and February.

Instructors

Mrs. Jane Kleiver, R.N., Director

Mrs. Ardath Hamelin, R.N., Nursing Arts

Mrs. Laura Warbach, R.N., Nursing Arts

Mrs. Ruby Clark, B.S., Homemaking

Office Staff

Mrs. Lyla Cavanaugh, L.P.N.-----Secretary

Curriculum

First 4 months

P.N. 101 Nursing procedures

P.N. 102 Body structure and functions

P.N. 103 Personal and community health

P.N. 104 Vocational relationships

P.N. 105 Nursing care of common diseases, aged, and handicapped

P.N. 106 Care of mothers and babies

P.N. 107 Normal growth and development

P.N. 108 Nutrition

Diversional activities

B U S I N E S S T R A I N I N G

BUSINESS TRAINING

This curriculum is designed to help prepare the college student for a responsible position in local business offices.

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
	Eng. 101 English	3		3
	P.S. 101 Political Science	3		3
	B.T. 101 Beginning Typewriting		3	3
	B.T. 104 Beginning Shorthand	4		4
	B.T. 107 Business Machines	<u> </u>	<u>3</u>	<u>3</u>
	Total	10	6	16
	Winter Term			
	Eng. 102 English	3		3
	P.S. 102 Political Science	3		3
	B.T. 102 Intermediate Typewriting		4	4
	B.T. 105 Intermediate Shorthand	4		4
	B.T. 108 Business Machines	<u> </u>	<u>4</u>	<u>3</u>
	Total	10	8	17
	Spring Term			
	Eng. 103 English	3		3
	P.S. 103 Basic Principles of Economics	3		3
	B.T. 103 Advanced Typewriting		4	4
	B.T. 106 Advanced Shorthand	4		4
	B.T. 109 Secretarial Machines	<u> </u>	<u>3</u>	<u>3</u>
	Total	10	7	17

BUSINESS TRAINING

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
	Eng. 104 Speech	3		3
	B.T. 201 Transcription		4	4
	B.T. 205 Principles of Accounting		4	4
	Hist 101 History of Western Thought	<u>4</u>	<u> </u>	<u>4</u>
	Total	7	8	15
	Winter Term			
	B.T. 202 Shorthand Speed Building	4		4
	B.T. 206 Office Management	3		3
	Hist 102 History of Western Thought	4		4
	Elective			3
	Elective	<u> </u>	<u> </u>	<u>3</u>
	Total	11		17
	Spring Term			
	B.T. 203 Secretarial Training	3		3
	B.T. 204 Letter Writing	3		3
	Hist 103 History of Western Thought	4		4
	Elective			3
	Elective	<u> </u>	<u> </u>	<u>3</u>
	Total	10		16

T E C H N I C A L T R A I N I N G

CIVIL TECHNOLOGY

Titles Of Positions Held By Civil Technicians

Topographical Draftsman	Construction Equipment Salesman
Engineering Draftsman	Materials Salesman
Structural Draftsman	Materials Tester
Structural Detailer	Contractor
Construction Foreman	Contractor's Aide
Construction Supervisor	Surveyor
Construction Inspector	Rod Man
Specification Writer	Instrument Man
Quantity Surveyor	Chief of Party
Estimator	Layout Man
Expediter	Equipment Supervisor

DESCRIPTIONS OF TYPICAL POSITIONS

TOPOGRAPHICAL DRAFTSMAN

Prepares topographical maps from field information; draws profiles and sections of road locations.

CONSTRUCTION INSPECTOR

Represents the owner on construction work to insure that material and workmanship are in accordance with plans and specifications.

MATERIALS TESTER

Makes physical and/or chemical tests on materials to determine their fitness and compliance with specifications; prepares reports of his findings.

CHIEF OF PARTY

Is in charge of surveying party; sets line and grade stakes for construction work; makes preliminary and final surveys to determine quantities for payment; makes topographical surveys.

CIVIL TECHNOLOGY

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Eng. 101	English	3		3
Math 101	Mathematics	4		4
P.S. 101	Political Science	3		3
E.D. 101	Engineering Drawing		6	3
C.T. 101	Concrete & Materials of Construction	<u>2</u>	<u>4</u>	<u>4</u>
	Total	12	10	17
	Winter Term			
Eng. 102	English	3		3
Math 102	Mathematics	4		4
P.S. 102	Political Science	3		3
E.D. 102	Engineering Drawing		6	3
C.T. 102	Construction Methods & Equipment	1	2	2
C.S. 102	Elementary Surveying I	<u>3</u>		<u>3</u>
	Total	14	8	18
	Spring Term			
Eng. 103	English	3		3
Math 103	Mathematics	4		4
P.S. 103	Basic Principles of Economics	3		3
E.D. 103	Descriptive Geometry		6	3
C.T. 103	Construction Costs	2		2
C.S. 103	Field Practice in Surveying II		<u>6</u>	<u>3</u>
	Total	12	12	18

CIVIL TECHNOLOGY

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
	Sci. 201 Physics (Statics)	2	4	4
	C.H.D.201 Highway Drafting		6	3
	C. S. 201 Route Surveying III	1	6	4
	C. T. 201 Contract Documents	3		3
	Math 201 College Algebra (elective)			
	Total	6	16	14
	Winter Term			
	Sci. 202 Physics	2	4	4
	M. T. 206 Strength of Materials	2	3	3
	C.H.D.202 Highway Drafting & Mapping		6	3
	C. T. 202 Highway Technology	2	2	3
	Math 202 Analytic Geometry (elective)			
	Total	6	15	13
	Spring Term			
	Sci. 203 Physics	2	4	4
	C. M. 203 Highway Mapping (Aerial)		4	3
	C. T. 203 Highway Design		3	2
	C. T. 213 Steel & Concrete Design	2	2	3
	C. T. 223 Geology (Soils & Drainage)	2		2
	Math 203 Calculus (elective)			
	Total	6	13	14

CIVIL TECHNOLOGY

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Eng. 101	English	3		3
Math 101	Mathematics	4		4
P.S. 101	Political Science	3		3
E.D. 101	Engineering Drawing		6	3
C.T. 101	Concrete & Materials of Construction	<u>2</u>	<u>4</u>	<u>4</u>
	Total	12	10	17
	Winter Term			
Eng. 102	English	3		3
Math 102	Mathematics	4		4
P.S. 102	Political Science	3		3
E.D. 102	Engineering Drawing		6	3
C.T. 102	Construction Methods & Equipment	1	2	2
C.S. 102	Elementary Surveying I	<u>3</u>		<u>3</u>
	Total	14	8	18
	Spring Term			
Eng. 103	English	3		3
Math 103	Mathematics	4		4
P.S. 103	Basic Principles of Economics	3		3
E.D. 103	Descriptive Geometry		6	3
C.T. 103	Construction Costs	2		2
C.S. 103	Field Practice in Surveying II		<u>6</u>	<u>3</u>
	Total	12	12	18

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
	Sci. 201 Physics (Statics)	2	4	4
	C.H.D.201 Highway Drafting		6	3
	C. S. 201 Route Surveying III	1	6	4
	C. T. 201 Contract Documents	3		3
	Math 201 College Algebra (elective)			
	Total	6	16	14

Winter Term				
	Sci. 202 Physics	2	4	4
	M. T. 206 Strength of Materials	2	3	3
	C.H.D.202 Highway Drafting & Mapping		6	3
	C. T. 202 Highway Technology	2	2	3
	Math 202 Analytic Geometry (elective)			
	Total	6	15	13

Spring Term				
	Sci. 203 Physics	2	4	4
	C. M. 203 Highway Mapping (Aerial)		4	3
	C. T. 203 Highway Design		3	2
	C. T. 213 Steel & Concrete Design	2	2	3
	C. T. 223 Geology (Soils & Drainage)	2		2
	Math 203 Calculus (elective)			
	Total	6	13	14

Titles Of Positions Held By Electrical Technicians

Contractor	Instrument Technician
Draftsman	Laboratory Technician
Distribution Engineering Aide	Electronics Technician
Electrical Maintenance Man	Research Technician
Electrician	Radio-TV Service Man
Electrical Designer	Railroad Signal Mechanic
Engineering Aide	Sales Engineer
Electrical Instructor	Power Plant Operator
Installation Technician	Transmitter Operator
Technical Salesman	TV Studio Technician
Customer Engineer	Lighting Technician
Estimator	Field Engineer

The technician has forged a link in the chain of cooperation between the scientist, the engineer, and the craftsman. In Electrical Technology he is an indispensable part of such fields as automation, radio, television, digital and analog computers, electronic machine tool and motor control, welding control, and process control.

He prepares blueprints and assists in the construction of electrical and electronic apparatus. He tests, modifies and maintains the final product. He must possess the ability to understand and to do, to supervise the work of others, and to describe with technical accuracy the functions of the machines he controls. He is frequently required to record data, make calculations, draw graphs and write reports of his work. He may be called upon to sell the equipment he helped to build or to instruct others in its use.

ELECTRICAL TECHNOLOGY

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Eng. 101	English	3		3
Math 101	Mathematics	4		4
P.S. 101	Political Science	3		3
P.E. 101	Physical Education		2	1
E.D. 101	Engineering Drawing		6	3
E.T. 101	D.C. Theory & Practice	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18
	Winter Term			
Eng. 102	English	3		3
Math 102	Mathematics	4		4
P.S. 102	Political Science	3		3
P.E. 102	Physical Education		2	1
E.D. 102	Engineering Drawing		6	3
E.T. 102	A.C. Theory & Practice	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18
	Spring Term			
Eng. 103	English	3		3
Math 103	Mathematics	4		4
P.S. 103	Basic Principles of Economics	3		3
P.E. 103	Physical Education		2	1
E.D. 103	Descriptive Geometry		6	3
E.T. 103	Electronics I	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18

ELECTRICAL TECHNOLOGY

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Sci. 201	Physics I	2	4	4
E.D. 201	Electronic Circuits		6	3
E.T. 201	D.C. Motors & Motor Control	3	4	4
E.T. 202	Electronics II	3	4	4
Math 201	College Algebra (elective)	—	—	—
	Total	8	18	15
	Winter Term			
M.T. 101	Engineering Processes		6	3
Sci. 202	Physics II	2	4	4
E.T. 203	A.C. Motors & Motor Control	3	4	4
E.T. 204	Electronics III	3	4	4
Math 202	Analytic Geometry (elective)	—	—	—
	Total	8	18	15
	Spring Term			
Eng. 204	Technical Report Writing	2		2
Sci. 203	Physics III	2	4	4
Sci. 204	Hydraulic & Pneumatic Controls		3	3
E.T. 205	Electronics IV	3	4	4
E.T. 206	Project Laboratory	2	4	3
Math 203	Calculus (elective)	—	—	—
	Total	9	15	16

MECHANICAL TECHNOLOGY

Titles Of Positions Held By Mechanical Technicians

Tool Designer	Quality Control Technician
Machine Designer	Production Expediter
Mechanical Draftsman	Specification Writer
Product Designer	Cost Estimator
Lead Draftsman	Time Study Technician
Detailer	Tool Inspector
Checker	Shop Foreman
Engineering Aide	Installation Engineer
Research Laboratory Technician	Service Technician
Mechanical Laboratory Technician	Technical Salesman
Materials Testing Laboratory Technician	Instrument Technician
Plant Layout Technician	Purchasing Agent

DESCRIPTIONS OF TYPICAL POSITIONS

MACHINE DESIGNER

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

COST ESTIMATOR

A person with a complete knowledge of manufacturing processes, besides a familiarity with the machines and processes in his own plant so that he can accurately figure the manufacturing cost of any component from a drawing.

MECHANICAL TECHNOLOGY

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Eng. 101	English	3		3
Math 101	Mathematics	4		4
P.S. 101	Political Science	3		3
P.E. 101	Physical Education		2	1
E.D. 101	Engineering Drawing		6	3
M.T. 101	Engineering Processes	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18

Winter Term

Eng. 102	English	3		3
Math 102	Mathematics	4		4
P.S. 102	Political Science	3		3
P.E. 102	Physical Education		2	1
E.D. 102	Engineering Drawing		6	3
M.T. 102	Engineering Processes	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18

Spring Term

Eng. 103	English	3		3
Math 103	Mathematics	4		4
P.S. 103	Basic Principles of Economics	3		3
P.E. 103	Physical Education		2	1
E.D. 103	Descriptive Geometry		6	3
M.T. 103	Engineering Processes	<u>3</u>	<u>6</u>	<u>4</u>
	Total	13	14	18

MECHANICAL TECHNOLOGY

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Sci. 201	Physics	2	4	4
T.D. 201	Machine Design		6	3
M.T. 201	Engineering Processes	3	3	4
M.T. 204	Hydraulic & Pneumatic Controls		3	3
Math 201	College Algebra (elective)			
	Total	5	16	14
	Winter Term			
Sci. 202	Physics	2	4	4
T.D. 202	Tool Design		6	3
M.T. 202	Engineering Processes	3	3	4
M.T. 205	Metallurgy	2	3	3
Math 202	Analytic Geometry (elective)			
	Total	7	16	14
	Spring Term			
Eng. 204	Technical Report Writing	2		2
Sci. 203	Physics	2	4	4
T.D. 203	Tool Design		6	3
M.T. 203	Engineering Processes	3	3	4
M.T. 206	Strength of Materials	2	3	3
Math 203	Calculus (elective)			
	Total	9	16	16

L I B E R A L A R T S

LIBERAL ARTS

The following Liberal Arts curriculum offers two years of college study in the humanities and sciences. These areas prepare the student for transfer to a senior college as well as offer additional training in developing a personal philosophy of life. The strength and purposes of this curriculum, along with others included 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 student attending the Community College who desires to transfer to another college or university should study the requirements for course work demanded by that institution. Counseling is available at the college to help each student analyze the courses to be taken to assure that his work will be fully transferable to the institution of his choice. It is possible for the student attending this college to receive credit that will transfer into pre-law, medicine, dentistry, teaching, engineering, and many other fields.

LIBERAL ARTS

Freshman Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
Eng. 101	English	3		3
Math 101	Mathematics	4		4
P.S. 101	Political Science	3		3
P.E. 101	Physical Education		2	1
Hist 101	History of Western Thought	<u>4</u>	<u> </u>	<u>4</u>
	Total	14	2	15
	Winter Term			
Eng. 102	English	3		3
Math 102	Mathematics	4		4
P.S. 102	Political Science	3		3
P.E. 102	Physical Education		2	1
Hist 102	History of Western Thought	<u>4</u>	<u> </u>	<u>4</u>
	Total	14	2	15
	Spring Term			
Eng. 103	English	3		3
Math 103	Mathematics	4		4
P.S. 103	Basic Principles of Economics	3		3
P.E. 103	Physical Education		2	1
Hist 103	History of Western Thought	<u>4</u>	<u> </u>	<u>4</u>
	Total	14	2	15

LIBERAL ARTS

Sophomore Year	Fall Term	Hours Per Week		Credit Hours
		Class	Laboratory	
	Eng. 104 Speech	3		3
	Sci. 101 or Sci. 201 Science	2	4	4
	P.E. 201 Physical Education		2	1
	Phil 101 Philosophy	3		3
	Elective			3
	Elective			3
	Total	<u>8</u>	<u>6</u>	<u>17</u>
	Winter Term			
	Sci. 102 or Sci. 202 Science	2	4	4
	P.E. 202 Physical Education		2	1
	Phil 102 Philosophy	3		3
	Elective			3
	Elective			3
	Elective			3
	Total	<u>5</u>	<u>6</u>	<u>17</u>
	Spring Term			
	Sci. 103 or Sci. 203 Science	2	4	4
	P.E. 203 Physical Education		2	1
	Phil 203 Philosophy	3		3
	Elective			3
	Elective			3
	Elective			3
	Total	<u>5</u>	<u>6</u>	<u>17</u>

C O U R S E S O F I N S T R U C T I O N

BUSINESS TRAINING

- B.T. 101 Beginning Typewriting
Introduction and mastery of keyboard; building accuracy and speed. No prerequisite. Three one-hour periods each week. Three hours credit.
- B.T. 102 Intermediate Typewriting
Improvement of speed, accuracy and manipulation; business letters, reports and tabulation. Prerequisite: B.T. 101. Four one-hour periods each week. Four hours credit.
- B.T. 103 Advanced Typewriting
Improvement of efficient secretarial skills based on knowledge and judgment. Prerequisite: B.T. 102. Four one-hour periods each week. Four hours credit.
- B.T. 104 Beginning Shorthand
Basic principles and elementary vocabulary for beginners. No prerequisite. Four one-hour periods each week. Four hours credit.
- B.T. 105 Intermediate Shorthand
Completion of theory, development of speed and accuracy in reading from plates, and limited dictation. Prerequisite: B.T. 104. Four one-hour periods each week. Four hours credit.
- B.T. 106 Advanced Shorthand
Development of high speed; writing from dictation. Prerequisite: B.T. 105. Four one-hour periods each week. Four hours credit.
- B.T. 107 Business Machines
Machine calculation covering basic operations. Includes ten-key, key-driven, rotary calculators and Burrough's Sensimatic. No Prerequisite. Three one-hour periods each week. Three hours credit.
- B.T. 108 Business Machines
Development of speed. Prerequisite: B.T. 107. Four one-hour periods each week. Three hours credit.
- B.T. 109 Secretarial Machines
Stencil and fluid duplicating; machine transcription; filing. No Prerequisite. Three one-hour periods each week. Three hours credit.
- B.T. 201 Transcription
Production of mailable transcripts from shorthand notes. Prerequisite: B.T. 106. Four one-hour periods each week. Four hours credit.
- B.T. 202 Shorthand Speed Building
Attention given to specialized vocabulary; high speed writing. Prerequisite: B.T. 201. Four one-hour periods each week. Four hours credit.

BUSINESS TRAINING

- B.T. 203 Realization of effective personality; office practice procedure. No prerequisite. Three one-hour periods each week. Three hours credit.
- B.T. 204 Letter Writing
Development of effective correspondence techniques. No prerequisite. Three one-hour periods each week. Three hours credit.
- B.T. 205 Elements of Accounting I
Work of the first quarter includes the development of basic principles underlying the bookkeeping procedures as applied to the single proprietorship, the accounting cycle, the worksheet, controlling accounts and special journals. No prerequisite. Four one-hour periods each week. Four hours credit.
- B.T. 205a Elements of Accounting II
Continuation of accounting principles as applied to partnerships and corporations. Prerequisite: B.T. 205. Four one-hour periods each week. Four hours credit.
- B.T. 205b Elements of Accounting III
Continuation of accounting principles in the interpretation and analysis of balance sheets, manufacturing statements, the voucher system, payroll procedures. Prerequisite: 205a. Four one-hour periods each week. Four hours credit.
- B.T. 206 Office Management
Introductory principles; office organization and lay-out; functions of business departments. No prerequisite. Three one-hour periods each week. Three hours credit.
- B.L. 201 Business Law I - Contracts
A course in the law of contracts for the student of business, including the study of fundamentals of legal binding agreements between persons, and and their enforcement. No prerequisite. Three one-hour periods each week. Three hours credit.
- B.L. 202 Business Law II - Agency, Partnership, and Corporations
A course designed to give the student of business a practical working knowledge of important laws governing the formation and operation of partnerships and corporations. Prerequisite: B.L. 201. Three one-hour periods each week. Three hours credit.
- B.L. 203 Business Law III - Sales and Negotiable Instruments
A course in the fundamental principles that apply to sales, bills of exchange, promissory notes, and checks. Designed to guide the businessman in his daily transactions with such instruments. Prerequisite: B.L. 201. Three one-hour periods each week. Three hours credit.

E.D. 101 Engineering Drawing

A basic course in drafting designed to cover beginning work in the Civil, Electrical, and Mechanical fields. The student develops skill in the use of drawing instruments and gains a thorough understanding of orthographic projection, sketching, auxiliary views, and sections. Principles of dimensioning and techniques of lettering are introduced. No prerequisite. Two three-hour laboratory periods each week. Three hours credit.

E.D. 102 Engineering Drawing

Further work is given in the principles of dimensioning with practice in perspectives to develop skill in technical sketching. Assembly drawings are developed and detailed. Prerequisite: E.D. 101. Two three-hour laboratory periods each week. Three hours credit.

E.D. 103 Descriptive Geometry

A basic course in the science of graphic representation and solution of space problems through the fundamental principles of advanced orthographic projection. Topics covered are the following: points, lines, and planes; primary and successive auxiliary views; parallelism; perpendicularity; concurrent vectors; developments and intersections; pictorial projections; shades and shadows. Civil, Electrical, and Mechanical engineering problems are studied. Prerequisite: E.D. 102. Two three-hour laboratory periods each week. Three hours credit.

C.H.D. 201 Civil Highway Drafting

Bridge drawings to acquaint student with plans for site and alignment of structure, horizontal and vertical curves, boring and survey details. Plans for typical bridge structure to show general features, plans, elevations, sections and details of abutments, piers, superstructure and structural steel. The approach drawings to show typical cross sections, removal sheets and grade details. Prerequisite: E.D. 103. Two three-hour laboratory periods each week. Three hours credit.

C.H.D. 202 Civil Highway Drafting & Mapping

Typical road drawings to include plot plan of topography showing centerline horizontal curves, benchmarks, drainage, culverts, bridges, right of way, witness ties, and landmarks. The profile drawings to show survey of existing centerline, proposed grade, vertical curves, stations, and elevations. Earthwork cut and fill, borrow and surplus, economic haul and overhaul are indicated on mass diagrams and quantity sheets. Curb and gutter details to be on special detail sheets. Prerequisite: C.H.D. 201. Two three-hour laboratory periods each week. Three hours credit.

C.M. 203 Highway Mapping (Aerial)

Methods in photogrammetry. Practice in route planning on aerial mosaic maps. Prerequisite: C.H.D. 202. Two two-hour laboratory periods each week. Three hours credit.

CIVIL TECHNOLOGY

C. S. 102 Surveying I

Units of measure in linear distance, direction, and elevation. A study of plane, geodetic, topographic, route, hydrographic, aerial, construction, and mine surveys. Computing with logarithms graphical and algebraic methods. Facing, taping of distances, measurement of direction, angles bearings and azimuths with compass. The theory, use and care of transit and level instruments. The reading and design of verniers. Prerequisite: E.D. 101 and Math 101. Three one-hour class periods each week. Three hours credit.

C.S. 103 Surveying II

Measuring horizontal and vertical angles with transit. Reading verniers on level rods. Differential leveling with hand level, Wye and Dumpy Levels and Transits for bench marks, profiles and side shots. Trigonometric leveling with transit. Care and adjustment of levels and transits. Systems of land subdivision, balancing of traverses for lats, deps, and area. Topography with transit, level, stadia, plane table. Aerial surveys and contours from aerial photos. Surveying for layout of buildings, bridges and route lines for pipe, transmission, road plans, and profiles. True meridian by Solar and Polaris observation. Prerequisite: C.S. 102 and Math 102. Two three-hour laboratory periods each week. Three hours credit.

C.S. 201 Route Surveying III

Route surveys for highways, railways, canals, pipe lines, transmission lines, cableways, conveyors, and transportation-communications construction. Reconnaissance, preliminary and location surveys with simple, compound and reverse curves, vertical and spiral curves. Prerequisite: C.S. 103. One one-hour class period and two three-hour laboratory periods each week. Four hours credit.

C.T. 202 Highway Technology

Earthwork, computing end areas, and measuring with planimeter, cross sections, slope stakes, borrow pits, surplus, haul and overhaul, mass diagrams, free haul, right of way, drainage and construction procedure. Prerequisite: C.T. 201. Two one-hour class periods and one two-hour laboratory period each week. Three hours credit.

C.T. 203 Highway Design

Structural design of rigid and flexible pavements. Asphalt products and maintenance of concrete and bituminous surfaces. Prepare topographic map and design of grade separation. Lectures by Highway Personnel on Highway Department organization, planning and finance, traffic planning and control. Relationship with city and county road departments. Prerequisite: C.T. 202. One three-hour laboratory period each week. Two hours credit.

C.T. 223 Geology (Soils & Drainage)

A study of precipitation, run-off, evaporation, transpiration and infiltration of rainfall. Proper size and location of culverts, ditches, and conduits. Discussions on highway surface drainage, crown, side slopes, gutters, and curb details. Studies in soil moisture, frost heaving and sub-surface drains. (Lab work to be done in Highway Design drawing) Prerequisite: C.T. 202. Two one-hour class periods each week. Two hours credit.

C.T. 101 Concrete and Materials of Construction

The study and testing of sand, gravel, cement, and concrete. The design of concrete mixes (water-cement ratios) using the PCA and ACI methods, slump and strength tests. Mixing, placing, and curing of concrete. Codes and specifications on ready mixed, lightweight, insulating concrete, reinforced and pre-stressed concrete, and concrete products. Also a study of structural clay products; brick, tile, and ceramic tile. Proper application of steel shapes and use of steel manual. Types of stone, board products, insulation, plaster, roofing, and glass. Two one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

C.T. 102 Construction Methods & Equipment

A study of best methods for excavating, trenching and hauling as related to types of equipment, foundations, and piling. Construction with concrete forming. Heavy construction as applied to industrial structures and bridges. Light construction as applied to building of homes. Prerequisite: C.T. 101. One one-hour class period and one two-hour laboratory period each week. Two hours credit.

C.T. 103 Construction Costs

A study of road building costs and construction costs. Costs of right of way, excavation unit costs, depreciation, maintenance, interest, taxes, and transportation of equipment. Estimates on buildings, labor, material, plant, overhead, and profit. Prerequisite: C.T. 102. Two one-hour class periods each week. Two hours credit.

C.T. 201 Contract Documents

Preparation of specifications, requests for quotation, bid analysis, proposals contracts, and change orders. Fundamentals of law in engineering, liability, and workmen's compensation. Prerequisite: C.T. 103. Three one-hour class periods each week. Three hours credit.

M.T. 206 Strength of Materials

Use of shear and moment diagrams, moment of inertia and section modulus in design of beams. Column, bearing plate, footing designs. Trusses and girders. Allowable and specified strengths. The use of AISC manuals in design of steel. Reference to manuals on concrete design. Code restrictions. Prerequisite: Sci 201. Two one-hour class periods and one three-hour laboratory period each week. Three hours credit.

C.T. 213 Steel & Concrete Design

Student designs complete structure and prepares detail drawings and plans, elevations, perspectives, and specifications. Prerequisite: C.T. 202. Two one-hour class periods and one two-hour laboratory period each week. Three hours credit.

ELECTRICAL TECHNOLOGY

- E.D. 101 Engineering Drawing
A basic course in drafting designed to cover beginning work in the Civil, Electrical, and Mechanical fields. The student develops skill in the use of drawing instruments and gains a thorough understanding of orthographic projection, sketching, auxiliary views, and sections. Principles of dimensioning and techniques of lettering are introduced. No prerequisite. Two three-hour laboratory periods each week. Three hours credit.
- E.D. 102 Engineering Drawing
Further work is given in the principles of dimensioning with practice in perspectives to develop skill in technical sketching. Assembly drawings are developed and detailed. Prerequisite: E.D. 101. Two three-hour laboratory periods each week. Three hours credit.
- E.D. 103 Descriptive Geometry
A basic course in the science of graphic representation and solution of space problems through the fundamental principles of advanced orthographic projection. Topics covered are the following: points, lines, and planes; primary and successive auxiliary views; parallelism; perpendicularity; concurrent vectors; developments and intersections; pictorial projections; shades and shadows. Civil, Electrical, and Mechanical engineering problems are studied. Prerequisite: E.D. 102. Two three-hour laboratory periods each week. Three hours credit.
- E.D. 201 Electronic and Electrical Circuits
A course in the drawing and reading of electronic and electrical circuit diagrams. The student is introduced to the use of tube manuals, catalogs, hand books, periodicals, and standards. Typical diagrams are drawn and analyzed. Component parts are specified and their functions in the circuit determined. Representative projects include a power supply, an amplifier, a transmitter, and a machine tool control circuit. Prerequisite: E.T. 103. Two three-hour laboratory periods each week. Three hours credit.
- E.T. 101 D.C. Theory and Practice
In this course in electricity, the student is introduced to a study of Ohm's Law, series and parallel circuits, electrical energy and power, magnetism, measuring instruments, and methods. Problems typical of both electronic and electrical circuits are studied. No prerequisite. Three one-hour class period and two three-hour laboratory periods each week. Four hours credit.
- E.T. 102 A.C. Theory and Practice
This course introduces the study of alternating current. Some of the topics are inductance and inductive reactance, capacity and capacitive reactance, impedance, A-C circuits in parallel and series, single and three phase circuits, transformers. Prerequisite: E.T. 101. Three one-hour class periods and two three-hour laboratory periods each week. Four hours credit.

ELECTRICAL TECHNOLOGY

E.T. 103 Electronics I

An introduction to basic electronics. The electron tube is presented in its basic functional circuits. Studies include rectifiers, amplifiers and oscillators. Topics included are diode rectifiers, selenium rectifiers, D.C. and A.C. amplifiers, detectors and R.F. oscillators. Prerequisite: E.T. 102. Three one-hour class periods and two three-hour laboratory periods each week. Four hours credit.

E.T. 201 D.C. Motors and Motor Control

A course introducing motor control. Topics included are D.C. generators and rectified D.C. power supplies, D.C. motors, manual speed controllers, basic principles of electronic control. Laboratory work includes the layout and construction from circuit diagrams of simple electric and electronic motor controls. Prerequisite: E.T. 103 and E.T. 101. Three one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

E.T. 202 Electronics II

The purpose of this course is to familiarize the student-technician with A.M. and F.M. receivers and transmitters. An introduction is also given to the theory and functions of crystal diodes, transistors and other semi-conductor devices. A detailed study is made of the superheterodyne receiver, F.M. receiver and a high-frequency transmitter. Typical transistor circuits are constructed and analyzed. Servicing procedures are incorporated in the laboratory work. Prerequisite: E.T. 103. Three one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

E.T. 203 A.C. Motors and Motor Control

A study of various types of A.C. generators and motors, also the control of D.C. motors through the use of synchros and servomechanisms. Topics included are alternators, fractional horsepower A.C. motors, two-phase and three-phase motors, squirrel cage motors, synchro motors, generators, differentials and control transformers. Servo-mechanisms, servo-motors and amplifiers are also studied. Prerequisite: E.D. 203 and E.T. 102. Three one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

E.T. 204 Electronics III

This course places emphasis on the use of special tubes and semi-conductor devices in industrial control circuits. Topics include electronic relay control, timing circuits, photo-electric control, electronic power controls, and electronic control of welding. Prerequisite: E.T. 203. Three one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

ELECTRICAL TECHNOLOGY

E.T. 205 Electronics IV

An introduction to the field of television. Topics included are television receiver fundamentals, mixer-oscillator stages, vertical and horizontal sweep systems, power supplies and antennas. Servicing procedures are given as part of the laboratory work. Prerequisite: E.T. 202. Three one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

E.T. 206 Project Laboratory

In this course the student selects a project compatible with his chosen special field of work. Under guidance of the instructor, and through research, he designs, constructs, and tests an electrical or electronic mechanism. This work is inter-related with his other courses. Prerequisite: The second term of the second year. Two one-hour periods of supervised study and two two-hour laboratory periods each week. Three hours credit.

E.D. 101 Engineering Drawing

A basic course in drafting designed to cover beginning work in the Civil, Electrical, and Mechanical fields. The student develops skill in the use of drawing instruments and gains a thorough understanding of orthographic projection, sketching, auxiliary views, and sections. Principles of dimensioning and techniques of lettering are introduced. No prerequisite. Two three-hour laboratory periods each week. Three hours credit.

E.D. 102 Engineering Drawing

Further work is given in the principles of dimensioning with practice in perspectives to develop skill in technical sketching. Assembly drawings are developed and detailed. Prerequisite: E.D. 101. Two three-hour laboratory periods each week. Three hours credit.

E.D. 103 Descriptive Geometry

A basic course in the science of graphic representation and solution of space problems through the fundamental principles of advanced orthographic projection. Topics covered are the following: points, lines, and planes; primary and successive auxiliary views; parallelism; perpendicularity; concurrent vectors; developments and intersections; pictorial projections; shades and shadows. Civil, Electrical, and Mechanical engineering problems are studied. Prerequisite: E.D. 102. Two three-hour laboratory periods each week. Three hours credit.

T.D. 201 Machine Design

Practical application of the theory and laboratory work in Strength of Materials. A study is made of bolts and screws, cylinders, shafts and keys, couplings, clutches, gears and bearings. Prerequisite: E.D. 103. Two three-hour laboratory periods each week. Three hours credit.

T.D. 202 and 203 Tool Design

A course designed to acquaint the student-technician with methods used in designing and proportioning tools which will most economically meet the requirements called for by the production plans. The "project" method is used and all tools are designed to process a small machine part on a mass production basis. The sequence of operations of a process is studied and charted. Standard and special cutting tools are specified and designed. Holding devices, jigs, fixtures, and gages are designed. Prerequisite: T.D. 201. T.D. 202 is prerequisite to T.D. 203. Two three-hour laboratory periods each week. Three hours credit.

M.T. 101, 102, 103. Engineering Processes

In these courses the student is introduced to the use of the lathe, milling machine, drill press, grinder and other machine tools. At this time he also uses measuring instruments and gains experience in the grinding of cutting tools and the set-up of machines for production. Both metals and non-metals are processed. Work in the welding, metal fabrication, and heat-treat laboratories, with pattern-making and foundry, is integrated with these experiences. These areas form an invaluable background for future studies in product design, tool design, and production planning. No prerequisite for M.T. 101.

M.T. 101 is prerequisite for M.T. 102 and M.T. 102 is prerequisite for M.T. 103. Three one-hour class periods and two three hour laboratory periods each week. Four hours credit.

M.T. 201, 202, 203. Engineering Processes

In advanced Engineering Processes the student-technician gains experience in the analytical or "scientific" method used in attacking problems within his field. Using his background in the mechanics of machine tool operation he acquires and applies further knowledge in strength of materials, metallurgy, heat treatment of metals, welding, foundry practice, hydraulics and pneumatics. Practical processing problems are presented and analyzed. Prerequisite: M.T. 103. M.T. 201 is prerequisite to 202 and M.T. 202 is prerequisite to M.T. 203. One three hour lecture and one three hour laboratory period each week. Four hours credit.

M.T. 204 Hydraulic & Pneumatic Controls

This course covers the standard hydraulic and pneumatic equipment used on modern machine tools, the different types of pumps, their construction and operation, the different types of valves, their uses, construction, and adjustment, tracing of circuits, checking of circuits, and making repairs. No prerequisite. One three-hour laboratory period each week. Three hours credit.

M.T. 205 Metallurgy

This course is designed to acquaint the student with the principle processes in the production of iron, steel, copper, and aluminum; and with the crystalline state of metals, the phase diagram, the theory of alloys, the non-carbon diagram, and the critical temperature diagram. The laboratory work will consist of the preparation of metallurgical specimens and the examination and interpretation of structures. A study will be made of the mechanical treatment of steel, iron and its alloys with carbon, heat treatment of steel, analysis and uses of steel with one or more alloying elements, non-ferrous metals, and alloys. Laboratory work will involve experiments in the heat treatment of the above metals and the study of the effect of this process upon their physical properties. Students will become familiar with the operation and use of various metallurgical equipment such as polishers, microscopes, metallograph, etc. Prerequisite: Physics 201. One two-hour class period and one three-hour laboratory period each week. Three hours credit.

MECHANICAL TECHNOLOGY

M.T. 206 Strength of Materials

Equilibrium of forces, stress and strain, center of gravity, moment of inertia, riveted, bolted and welding joints, shear and bending moment diagrams, stresses and deflection in bending, stresses due to eccentrically applied loads, torsion, columns, combined stresses, fatigue strength, fatigue stress concentrations, concrete, wood. Prerequisite: Physics 201. Two one-hour class periods and one three-hour laboratory period each week. Three hours credit.

HUMANITIES AND SCIENCE

Biology 101, 102, 103 (Zoology and Botany)

This course is planned to help the student gain a basic working knowledge of animal life and a general understanding of the world of plants. In Botany the student will study the structure, functioning and economic importance of the flowering plants along with the plant kingdom, emphasizing the evolution of the plant world and including a study of genetics. In Zoology the student will be concerned with such basic aspects of life science as structure, function, classification, growth, reproduction, development, heredity, and evolution. No prerequisite for Biology 101. Biology 101 is prerequisite for Biology 102 and Biology 102 is prerequisite for Biology 103. Two one-hour class periods and two three-hour laboratory periods each week. Four hours credit.

Chemistry 101 and 102

This course is designed to give the student a background in elementary college chemistry. The course consists of the following: metric systems, elements, mixtures, atoms, atomic weights, molecular weights, crystals, solutions, gas laws, electron theory, periodic table, valence, equations, acids, bases, salts, ionization, reactions, electrolysis spectrum analysis, and pH. No prerequisite for Chemistry 101. Chemistry 101 is prerequisite for Chemistry 102. Two one-hour class periods and two three-hour laboratory periods each week. Four hours credit.

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 have to take English 010, 011, and 012 as a prerequisite to entrance into the standard freshman English course.

Eng 010, 011, 012. Remedial English

This course is designed for students who fail to make a satisfactory score on the English placement test. Hence, the course is concerned with sentence structure, vocabulary building, selected readings, and expository writing.

A student may waive 011 or 012 and enter the regular college-transfer English section upon his satisfactory completion of the English placement test at the end of the 010 or 011 course. Three one-hour class periods per week.

N.B. It is suggested that a student in the foregoing program carry a reduced load.

Eng. 101, 102, 103. English

Emphasis is placed on writing and reading. The course is designed to develop the student's ability to clarify his purposes; to organize his ideas in a clear and logical manner; to write and speak clearly, effectively, and accurately; to reorganize and utilize the various communicative devices. An investigative paper is required third term. Eng. 101 is prerequisite for 102 and Eng. 102 is prerequisite for Eng. 103. Three one-hour class periods each week. Three credit hours.

Eng. 104 Speech

Consideration will be given to the following areas of speech activity: discussion, informal public speaking, interpretation, diction, pronunciation, enunciation; the collective effectiveness of oral communication will be emphasized. Three one-hour class periods. Three credit hours.

Eng. 201, 202, 203. Introduction to Literature

The object of this course is to help the student read literature with understanding and appreciation. The course consists in the study of representative fiction, non-fiction, poetry, and drama. Three one-hour class periods each week. Three credit hours.

Eng. 204 Technical Report Writing

Extensive application of the principles of good writing in industrial reporting. Emphasis is placed on short, accurate reports in the students area of interest. Two one-hour class periods each week. Two hours credit.

Hist. 101, 102, 103. History of Western Thought

This is a basic course which traces the cultural foundations of western civilization from its earliest beginnings to the present day. The artistic, literary, philosophic, and scientific contributions are stressed along with the political aspects of history. No prerequisite for Hist. 101. Hist. 101 is prerequisite for Hist. 102 and Hist. 102 is prerequisite for Hist. 103. Four one-hour class periods each week. Four hours credit.

MATHEMATICS

The following tracks indicate the sequences which are to be followed by mathematics students. The track or position on the track at which a student starts will be determined by his high school record, the results of his college mathematics placement examinations, and a personal interview.

Tracks I and II (above the double bar line) offer courses to meet the needs of those who have credit for less than 1-1/2 years of high school algebra and one year of plane geometry.

Track III offers the courses required in the ~~Technical~~ ^{logical} ~~Engineering~~ and Liberal Arts curricula.

Tracks IV A and IV B offer elective courses.

TRACKS

I	Arithmetic 010 Summer Term
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II	Algebra 011	Algebra 012	Geometry 013
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Courses designed to eliminate entrance deficiencies

III	Mathematics 101 Arithmetic	Mathematics 102 Algebra	Mathematics 103 Trigonometry
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Required for Technical Engineering and Liberal Arts

IV A	Mathematics 201 College Algebra	Mathematics 202 Analytic Geometry	Mathematics 203 Calculus
IV B	Mathematics 204 Slide Rule		

Math 010 Arithmetic - Summer 1958

Refresher course with emphasis on fractions both common and decimal and per cent. Two two-hour class periods each week.

Math 011 Beginning Algebra I

First course in high school algebra to meet college entrance requirements. Math 011 and 012 together considered equivalent to one entrance credit. Five one-hour class periods each week. Five hours credit.

Math 012 Beginning Algebra

Continuation of Mathematics 011. Five one-hour class periods each week. Five hours credit.

Math 013 Plane Geometry

High school level course with emphasis on mensuration principles. Five one-hour class periods each week. Five hours credit.

Math 101 Algebra - Geometry - Arithmetic

Arithmetic--Principles reviewed as used in algebra reveals the need; significant digits.

Algebra--formulas, fundamental operations, factoring, fractions, linear equations, word problems.

Geometry--emphasis on mensuration principles of plane and solid geometry with algebraic applications.

Prerequisite: One and one-half entrance units in high school algebra and one entrance unit in geometry or mathematics ~~010~~, 011, 012. ^{one} Four one-hour class periods per week. Four hours credit.

Math 102 Algebra - Geometry - Arithmetic

Arithmetic - continuation of policy in Mathematics 101.

Algebra - quadratic equation, systems of linear and quadratic equations with graphs, exponents, radicals, and introduction of logarithms and the use of tables, ratio, proportion, and variation.

Geometry - Continuation of policy in Mathematics 101.

Prerequisite: Mathematics 101. Four one-hour class periods per week. Four hours credit.

Math 103 Trigonometry

Trigonometric functions, radian measure, graphs, sum and difference formulas, simple trigonometric equations, logarithms, solution of plane triangles, inverse functions. Prerequisite: Mathematics 102. Four one-hour class periods per week. Four hours credit.

Math 201 College Algebra

Exponents, radicals, logarithms, quadratic equations, inequalities, proportion and variation, binomial theorem, progressions, introduction to theory of equations, determinants, and systems of equations. Prerequisite: Mathematics 103. Five one-hour class periods each week. Five hours credit.

Math 202 Analytic Geometry

Rectangular and polar coordinates, lines, circles, conic sections, loci, symmetry, and translation of axes, transcendental curves, and parametric equations. Prerequisite: Mathematics 201. Five one-hour class periods each week. Five hours credit. 1

Math 203 Calculus I

Differentiation of elementary functions, integration of polynomials and powers, and applications. Prerequisite: Mathematics 202. Five one-hour class periods each week. Five hours credit.

Math 204 Slide Rule

Fundamentals of operation, including multiplication and division, squares, and square roots, cubes and cube roots, trigonometric and logarithmic scales. Prerequisite: Mathematics 103. One one-hour class period each week. One hour credit.

Philosophy 201, 212, 203

These beginning courses are a survey of the entire field of philosophy. The major problems of philosophy are considered and the various solutions are critically discussed. Different techniques of thinking are studied to assist the student in thinking reflectively and creatively. The methods of Plato, Locke, Dewey, and other great thinkers are examined. No prerequisite for Philosophy 201. Philosophy 201 is prerequisite for Philosophy 202 and Philosophy 202 is prerequisite for Philosophy 203. Three one-hour class periods each week. Three hours credit.

Physiology 201

In this course the functions of each system of the body are studied separately, and also as each refers to the body as a functional unit. The physiology of the muscular, nervous, circulatory, respiratory, and excretory systems receive special emphasis. Frequent reference is made to practical applications of physiological phenomena and their manifestations as encountered in day to day living. No prerequisite. Two two-hour class periods each week. Four hours credit.

P.S. 101 Political Science

The study of the regulation of human behavior. The course is designed to give students basic understanding of the purpose of the government; principles underlying the American system of government, political parties and elections; fundamental problems such as loyalty and civil liberties, democracy vs. dictatorship, free enterprise vs. welfare state, role of the pressure groups, formation of political attitude. No prerequisite. Three one-hour class periods each week. Three hours credit.

P.S. 102 Political Science

This course is designed to give students theoretical as well as practical knowledge of the functioning of the state and local government; relations of the city with state and nation and with other local units, ways and means of financing state and local governments, current problems in state and local government. No prerequisite. Three one-hour class periods each week. Three hours credit.

P.S. 103 Basic Principles of Economics

The study of basic Economic principles; supply and demand, marketing, input-output relationship - income, costs, stock market, profits, national currency, wages and unemployment, free enterprise vs. planned economy, principles of taxation, government and economic life. No prerequisite. Three one-hour class periods each week. Three hours credit.

Sci. 201 Physics (Mechanics and Heat)

Simple machine elements, torque, work, power, efficiency, concurrent and non-parallel forces, properties of materials, velocity and acceleration, three laws of motion, rotational and periodic motion. Temperature and thermal expansion, heat transfer. No prerequisite. Two one-hour lecture periods and two two-hour laboratory periods each week. Four hours credit.

Sci. 202 Physics (Heat, Electricity, and Magnetism)

Solids, liquids, and gases, thermodynamics, electrostatics, capacitance, direct current circuits, electrochemistry, thermoelectricity, magnetic effects of electric currents, magnetic properties of matter, electro-magnetic induction, alternating current circuits. Prerequisite: Science 201. Two one-hour lecture periods and two two-hour laboratory periods each week. Four hours credit.

Sci. 203 Physics (Wave motion, Sound, Light and Modern Physics)

Mechanical waves, sinusoidal waves, interference phenomena, electromagnetic waves, reflection and refraction of waves, standing waves, production of sound, speed of sound in solids, liquids and gases, psychological effects of sound waves, response of ear to sound waves, Doppler effect, absorption of sound, architectural acoustics, nature of light, illumination and photometry, reflection and refraction of light, optical instruments, physical optics, dispersion and spectra, space and time at high velocities, momentum at high speeds, energy and mass, nuclear reactions. Prerequisite: Science 202. Two one-hour lecture periods and two two-hour laboratory periods each week. Four hours credit.

Soc. 201 Introduction to Sociology

This course provides a general introduction to the analysis of human social organization, not only for general education purposes, but also for those preparing to enter the professions and any vocation involving an understanding of human relations. No prerequisite. Three one-hour class periods each week. Three hours credit.