LANSING COMMUNITY COLLEGE
419 North Capitol
Lansing, Michigan

Catalog #1, September 1957
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>1</td>
</tr>
<tr>
<td>Calendar</td>
<td>2 - 3</td>
</tr>
<tr>
<td>Faculty</td>
<td>4</td>
</tr>
<tr>
<td>General Information</td>
<td>5 - 6</td>
</tr>
<tr>
<td>Schedule of Fees</td>
<td>7 - 8</td>
</tr>
<tr>
<td>Registration Procedure</td>
<td>8 - 10</td>
</tr>
<tr>
<td>Credit by Examination</td>
<td>11</td>
</tr>
<tr>
<td>Transfer of Credits</td>
<td>11</td>
</tr>
<tr>
<td>System of Grades &amp; Student Credit Load</td>
<td>12</td>
</tr>
<tr>
<td>Scholarship</td>
<td>13</td>
</tr>
<tr>
<td>Examinations &amp; Attendance</td>
<td>14</td>
</tr>
<tr>
<td>Graduation Requirements</td>
<td>15</td>
</tr>
<tr>
<td>Associate Degree in Science</td>
<td>16</td>
</tr>
<tr>
<td>Counseling</td>
<td>16</td>
</tr>
<tr>
<td>Employment &amp; Housing</td>
<td>17</td>
</tr>
<tr>
<td>Facilities</td>
<td>18</td>
</tr>
<tr>
<td>Books &amp; Supplies</td>
<td>18</td>
</tr>
<tr>
<td>Apprentice Training Program</td>
<td>19 - 22</td>
</tr>
<tr>
<td>Practical Nurse Program</td>
<td>23 - 25</td>
</tr>
<tr>
<td>Civil Curriculum</td>
<td>26 - 35</td>
</tr>
<tr>
<td>Electrical Curriculum</td>
<td>36 - 44</td>
</tr>
<tr>
<td>Mechanical Curriculum</td>
<td>45 - 52</td>
</tr>
</tbody>
</table>
LANSING COMMUNITY COLLEGE
Lansing, Michigan
September, 1957

Lansing Board of Education

Mrs. Lloyd Darling, President
Mrs. Nellie Nussdorfer, Secretary
Mr. Richard Herrmann, Treasurer
Mrs. Marjorie C. Ludlum
Mr. Clarence Rosa
Mr. Vernon D. Ebersole
Mr. John T. Anas

Mr. Dwight H. Rich, Superintendent of Schools
Mr. Forrest G. Averill, Deputy Superintendent of Schools
Mr. Stephen A. Partington, Assistant Superintendent of Schools

Address Communications and Inquiries to:

Philip J. Gannon, Acting Dean
Lansing Community College
419 N. Capitol Avenue
Lansing, Michigan

Telephone IV 9-6581
LANSING COMMUNITY COLLEGE
CALENDAR
For
Day And Evening College

August 26
Monday-Math refresher course begins.
   Five weeks (evening).

September 27
Friday-Math refresher course ends.

Fall Quarter
September 23 - 27
Monday through Friday-Final registration
   of students.

September 30
Monday-Day and evening classes begin.

November 12
Tuesday-Mid-term grades due.

November 28 - Dec. 1
Thanksgiving recess.

December 11 - 17
Wednesday-Tuesday-Final exams.

December 17
Tuesday-Fall quarter closes.

Winter Quarter 1958
January 2 - 3
Thursday-Friday-Registration of students.

January 6
Monday-Courses begin.

February 18
Tuesday-Mid-term grades due.

March 17 - 21
Monday-Friday-Final exams.

March 24
Monday-Winter quarter closes.

Spring Quarter 1958
March 31, April 1 - 2
Monday-Wednesday-Registration of
   students.

April 3
Classes begin.

May 16
Friday-Mid-term grades due.

May 30
Memorial Day (Holiday)

June 12 - 18
Final exams.

June 19
Thursday-Spring quarter closes
Summer Quarter 1958

June 20 - 23  Friday-Monday-Registration of students.
June 24      Tuesday CLasses begin.
July 4       4th of July (Holiday)
August 1     Friday-Summer quarter closes
Philip J. Gannon----------------------Acting Dean

B.A., Albion College; M.A., Michigan State University.
Additional graduate work: Duke University, Columbia
University, Michigan State University.

Ram Desai-----------------------------Political Science, Economics

B.A., University of Bombay; M.A., Wayne University;
M.A., Michigan State University. Additional graduate
work: Michigan State University.

Frank Flory-----------------------------Mechanical Technology

B.S., Eastern Michigan College; M.A., University of
Michigan. Additional graduate work: Michigan State
University.

Dave Lawton-----------------------------Communication Skills

B.A., Hiram College; M.A., Western Reserve University.
Additional graduate work: Michigan State University.

John Overhouse--------------------------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.

Donald Stolberg------------------------Physical Education

B.S., Western Michigan University; M.A., Michigan State
University. Additional graduate work: Michigan State
University.

Harry Wilson---------------------------Electrical Technology

B.S., Western Michigan University. Additional graduate
work: Michigan State University.

Elma Witcher---------------------------Mathematics

B.S., University of Virginia; M.A., Columbia University.
Additional graduate work: John Hopkins University.

Office Staff

Phyllis Rich-----------------------------Secretary
Betty Clegg -----------------------------Evening Secretary
GENERAL INFORMATION

BACKGROUND
After completing a study of the need for technically-trained people in the Lansing area, the Lansing Board of Education decided to add a community college to the city's total educational program. The study was conducted by the Lansing Public Schools, and representatives from Lansing business and industry, and was made in cooperation with Michigan State University. The college will open its doors to students September 30, 1957.

AIMS AND FUNCTIONS
A primary aim of the Lansing Community College will be 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 will adjust its program to meet any new needs of the community.

With these aims in mind, the designers of the Lansing Community College determined that it would offer training in three fields: electrical, civil, and mechanical technology.

FULL-TIME PROGRAM
To students desiring to attend college on a full time basis, a daytime program will be offered in electrical, civil, and mechanical technology. The above curricula are two years in length, with an Associate Degree in Science awarded on successful completion.
PART-TIME PROGRAM

The Community College will have a part-time program in each of the technical fields. Students may enroll for courses offered by the college in an evening program and should be able to complete requirements for a degree in technical training 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 technical 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.
SCHEDULE OF FEES

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 Civil, Mechanical and Electrical Technology----------------------------$ 2.00

Locker Fee:

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

Towel Fee:

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

ALL FEES SHOULD BE PAID BEFORE ATTENDING CLASSES

*Courses marked laboratory in catalog
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

No refunds will be made for reduction of credit hours after final registration.

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. File with the Dean's office a health examination record which has been completed by a licensed doctor.

3. Request official transcripts from any other college or university in which the student has been enrolled since his last attendance in high school to be sent to the Dean's office.

4. 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.

5. 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 "F" 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 his status as to conduct, character and scholarship is such as to entitle him to continue in the college and he has met all his financial obligations to the college.

SCHOLASTIC REGULATIONS

CREDITS

The regular college year is divided into three quarters of approximately twelve weeks each. In general, a class meets once each week for each "quarter hour" of credit earned; somewhat more time...
is required for courses with laboratory work. The usual load of 17 quarter 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 quarter hours each quarter plus ½ quarter hour in physical education, the student will earn in two years the 110 quarter hours credit required for graduation. Credit hours earned follow the course titles in this catalog.

CREDIT BY EXAMINATION
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 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 par-
ticular 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 quarter. Permis-
sion 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 quarter. A student receiving this grade should
   immediately consult with his instructor regarding comple-
tion of the work. Incompletes must be removed before the
closing date of the next quarter 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 quarter falls below 1.5 will have special counseling before he re-enrolls. Two consecutive quarters of grade point below 1.5 will place the student on probation. If the student's grade point continues below 1.5 after being placed on probation he shall have eliminated himself from enrolling for the next quarter.

After one quarter 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.

QUARTERLY GRADE REPORTS

A grade report will be issued approximately one week after the last day of final examinations each quarter. 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.

EXAMINATIONS

Final examinations are held regularly at the end of each quarter. 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.

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 lowered grade.

An absence or tardiness due to serious illness or unavoidable circu
stances 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 of 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, if 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. It should (a) be suitable for transfer to admit the student to about the level of upper-division work in a four-year college of his choice, or (b) form a complete program of study to be terminated at the end of two years here.

2. Of credits earned toward graduation at least 15 must be earned at this college; if less than 25 are earned here, not less 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 quarter.

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 quarters will be able to apply for graduation during the quarter his work is completed. All degrees will then be granted in June of that school year.

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 is 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.

LANING 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 material;
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 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.

LANING 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 material.
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 the technical areas that will be offered in its first year of operation. Extensive renovations have been completed in the West wing of the present Board of Education Building, where the college will be located. At present the college has the following facilities:

1. Drafting Room
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

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 - Coordinator
Room 108 Phone IV 9-5681-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 exception is 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 coordinator. 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 intergrity, mentally alert, and genuinely interested in the training.

**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. 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 time of entering class.

Veterans

Veterans who are eligible for training benefits under existing laws for veterans' readjustment (PL895, or PL550) should consult the apprentice coordinator at the school office relative to benefits in apprenticeship training and the application procedure to be followed for obtaining such benefits.
- 23 -

LANSONG 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 two months
$25.00----for three uniforms
3 caps, 3 jumpers and blouses
$9.00----Textbooks
$15.00----Activities fee
School lunches two days per week at cost

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 of course and continuing through the eighth
month.

$4.00 a day for the remaining three months.

A One Year Course

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

7 months supervised nursing practice in hospital

1 month vacation
1 week senior review and examinations

* prices may vary
Last 7 Months

During the hospital affiliation you learn 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
Ingham County Rehabilitation Center, Okemos
St. Lawrence Hospital, Lansing
Ingham County Chest Hospital, Lansing

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 Women's 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
or call
IV 9-6581 Extension 41
Benefits Of Training

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.

Whether you choose a career or marriage or both, your practical nurse training will enrich your entire life.

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

Curriculum

First 4 months

<table>
<thead>
<tr>
<th>P.N.</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>101</td>
<td>Nursing procedures</td>
</tr>
<tr>
<td>102</td>
<td>Body structure and functions</td>
</tr>
<tr>
<td>103</td>
<td>Personal and community health</td>
</tr>
<tr>
<td>104</td>
<td>Vocational relationships</td>
</tr>
<tr>
<td>105</td>
<td>Nursing care of common diseases, aged, and handicapped</td>
</tr>
<tr>
<td>106</td>
<td>Care of mothers and babies</td>
</tr>
<tr>
<td>107</td>
<td>Normal growth and development</td>
</tr>
<tr>
<td>108</td>
<td>Nutrition</td>
</tr>
<tr>
<td>107</td>
<td>Diversional activities</td>
</tr>
</tbody>
</table>
TITLES OF POSITIONS HELD BY
CIVIL TECHNICIANS

Topographical Draftsman
Engineering Draftsman
Structural Draftsman
Structural Detailer
Construction Foreman
Construction Supervisor
Construction Inspector
Specification Writer
Quantity Surveyor
Estimator
Expediter

Construction Equipment Salesman
Materials Salesman
Materials Tester
Contractor
Contractor's Aide
Surveyor
Rod Man
Instrument Man
Chief of Party
Layout Man
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 materials 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.
### CURRICULUM OUTLINE

#### Civil Technology

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Quarter</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 101</td>
<td>Communication Skills</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 101</td>
<td>Technical Mathematics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.D. 101</td>
<td>Civil Drafting</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 101</td>
<td>Physical Education</td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>P.S. 101</td>
<td>Political Science</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.T. 101</td>
<td>Concrete &amp; Engineering Materials</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>11</td>
<td>17 1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Winter Quarter</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 102</td>
<td>Communication Skills</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 102</td>
<td>Technical Mathematics</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.D. 102</td>
<td>Civil Drafting</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 102</td>
<td>Physical Education</td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>P.E. 102</td>
<td>Political Science</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.T. 102</td>
<td>Construction Methods &amp; Equipment</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>C.S. 10</td>
<td>Elementary Surveying</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>16</td>
<td>19 1/2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Spring Quarter</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 103</td>
<td>Technical Report Writing</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Math 103</td>
<td>Advanced Tech. Math</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.H.D. 103</td>
<td>Highway Drafting</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 103</td>
<td>Physical Education</td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>C.T. 103</td>
<td>Construction Costs</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>C.S. 103</td>
<td>Elementary Surveying</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>12</td>
<td>18 1/2</td>
</tr>
</tbody>
</table>

Sci 101 - 102 Physics

4       6       8
<table>
<thead>
<tr>
<th>Year II</th>
<th>Fall Quarter</th>
<th>Hours</th>
<th>Per Week</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sci 201 Statics</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Math 201 Engineering Math</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.H.D. 201 Highway Drafting</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.T. 201 Contract Documents</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>C.S. 201 Route Surveying</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>12</td>
<td>15</td>
<td>18</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Winter Quarter</th>
<th>Hours</th>
<th>Per Week</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sci 202 Strength of Materials</td>
<td>4</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 202 Engineering Math</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C.H.D. 202 Highway Drafting</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>1½</td>
</tr>
<tr>
<td>C.M. 202 Highway Mapping</td>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C.T. 202 Highway Construction</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>15</td>
<td>16</td>
<td>½</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Quarter</th>
<th>Hours</th>
<th>Per Week</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.T. 210 Steel &amp; Concrete Design</td>
<td>3</td>
<td>3</td>
<td>4½</td>
<td></td>
</tr>
<tr>
<td>Math 203 Engineering Math</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C.M. 203 Highway Mapping</td>
<td>6</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C.T. 203 Route Planning</td>
<td>3</td>
<td>3</td>
<td>4½</td>
<td></td>
</tr>
<tr>
<td>C.T. 211- Drainage</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>C.T. 301 Cooperative Training</td>
<td>2</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>12</td>
<td>19</td>
<td></td>
</tr>
</tbody>
</table>
Basic Curriculum for Technician Program

English

Eng. 101 & 102 Communication Skills
This course is designed to develop the student's ability to comprehend and evaluate what he reads and to organize and communicate his thinking in clear, cogent, and correct English.
Prerequisite: Communication Skills 101 for Communication Skills 102. Three one-hour periods each week. Three hours credit.

Eng. 103 Technical Report Writing
Extensive application of the principles of good writing in industrial reporting. Introductory materials are in the nature of an extension of the preliminary work required in Communication Skills. Considerable emphasis is given to sentence and paragraph development with special attention to concise expression of original ideas. Prerequisite: Communication Skills 101 & 102. Three one-hour periods each week. Three hours credit.

Mathematics

Math 101 Technical Mathematics
A beginning course in technical mathematics. Topics covered include: numbers, quantities, measurements, sources of error, significant digits, positive and negative numbers, exponents, calculations with scientific notation, basic slide rule operations, algebraic notation, and formulas. No prerequisite. Three one-hour class periods each week. Three hours credit.

Math 102 Advanced Technical Mathematics
A continuation of Technical Mathematics 101. Emphasis is on algebraic equations, advanced slide rule operations, derivation, types of data, graphs and equations, and strategy of problem solving. Prerequisite: Technical Mathematics 101. Three one-hour class periods each week. Three hours credit.

Math 103 Advanced Technical Mathematics
An advanced course in technical mathematics, covering problem solving associated with analytic geometry and trigonometry. Continued use of the slide rule is stressed. Prerequisites: Technical Mathematics 101 & 102. Three one-hour class periods, each week. Three hours credit.

Science

Sci 101 Physics (Mechanics)
Simple machine elements, torque, work, power, efficiency, concurrent and nonparallel forces, properties of materials, accelerated motion, three laws of motion, energy and momentum, rotary motion, simple-vibratory motion. No prerequisite. Two
(continue Basic Curriculum)

one-hour class periods and two, two-hour laboratory periods each week. Four hours credit.

Cci 102 Physics (Fluids and heat)
Liquids at rest, pressure of gases, fluids in motion, temperature and expansion, measurement of heat, physics of the atmosphere, transmission of heat, heat engines. Prerequisite: Physics 101. Two one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

Economics & Political Science

Econ 101 Basic Principles of Economics
A study of the basic economic principles underlying the operation of the American economic system. Particular attention is given to American Capitalism, its institutional structure, its dynamic character, and the political climate needed for its growth. In addition, some attention will be given to the primary issues of collective bargaining such as wages, seniority, and union shops.

P.S. 101 - 102 Political Sciences
The work of the course consists of a study of national government and administration, emphasizing political problems, developments, and tendencies. Attention is given to state and local government. No prerequisite. Five one-hour periods each week. Five hours credit.
Civil Technology

Year I

C.T. 101 Concrete and Engineering Materials
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 three-hour laboratory periods each week. Five hours credit.

C.T. 102 Construction Methods and Equipment
A study of best methods for excavating, trenching and hauling as related to types of equipment, foundations, and pilings. 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. Three one-hour class periods and one three-hour laboratory period. Four hours credit.

C.T. 103 Construction Costs and Estimating
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. Three one-hour class periods each week. Three hours credit.

C.S. 102 Surveying I

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 lots, depts. 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. Three one-hour class periods and two three-hour laboratory periods each week. Six hours credit.
(continue Civil Technology)

C.D. 101 Civil Drafting I
Drawing to develop skill in the use of drawing instruments and a thorough understanding of orthographic projection, auxiliary views, sections, isometric and oblique drawings. Proper techniques in dimensioning and lettering. No prerequisite. Two three-hour laboratory periods each week. Three hours credit.

C.D. 102 Civil Drafting II
Review in obliques and isometrics. Practice in perspectives for skill in technical sketching. Instruction in shades and shadows to render sketches more realistic. Descriptive Geometry to determine the intersection of surfaces and true length of lines. Graphs and curves as visual aids in presenting facts on technical reports. Prerequisite: C.D. 101. Two three-hour laboratory periods each week. Three hours credit.

C.H.D. 103 Civil Highway Drafting III (for highway technicians)
Further development of skills in drafting by making topographic and contour maps, and plotting highway curves. Profile drawings of existing round lines as related to surveying course. Plotting of proposed grade lines vertical curves and sections with pencil and india ink on cloth. Prerequisite: C.D. 102. Two three-hour laboratory periods each week. Three hours credit.
Civil Technology

Year II

Sci 201 Statics
Fundamentals of static forces as related to design of beams, columns, footings, and other parts of structures. Liberal use of visual aids and models to illustrate stress and strain (tension, compression, and shear) to become familiar with forces in structures. Prerequisite: Math 103. Three one-hour class periods and one three-hour laboratory period each week. Four hours credit.

Sci 202 Strength of Materials

C.T. 201 Contract Documents and Engineering Law
Preparation of specifications, requests for quotation, bid analysis, proposals contracts, and change orders. Fundamentals of law in engineering, liability, and worker's compensation. Prerequisite: C.T. 103. Three one-hour class periods each week. Three hours credit.

C.T. 202 Highway Technology
Earthwork, computing end areas, and measuring with planimeter. Cross sections, slope stakes, borrow pits, surplus, haul and over-haul, mass diagrams, free haul, right of way, drainage and construction procedure. Prerequisite: C.T. 201. Three one-hour class periods and two three-hour laboratory periods each week. Six hours credit.

C.T. 203 Highway Technology
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. Three one-hour class periods and one three-hour laboratory period each week. Four and one half hours credit.

C.T. 210 Design in Steel and Concrete
Student designs complete structure and prepares detail drawings and plans, elevations, perspectives, and specifications. Prerequisite: C.T. 202. Three one-hour class periods and one three-hour laboratory period each week. Four and one half hours credit.
(continue Civil Technology year II)

C.T. 211 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. Three one-hour class 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. Three one-hour class periods and two three-hour laboratory periods each week. Five 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: C.H.D. 103. Two three-hour laboratory periods each week. Three hours credit.

C.H.D. 202 Civil Highway Drafting

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 over haul are indicated on mass diagrams and quantity sheets. Curb and gutter details to be on special detail sheets. Prerequisite: C.H.D. 201. One three-hour laboratory each week. One and one half hours credit.

C.M. 202 Highway Mapping

Photogrammetry. Prerequisite: C.D. 102. Two three-hour laboratory periods each week. Three hours credit.

C.M. 203 Highway Mapping

Advanced Photogrammetry. Prerequisite: C.M. 202. Two three-hour laboratory periods each week. Three hours credit.
(continue Civil Technology year II)

Math 201 College Algebra (Engineering Math)
Exponents and radicals; logarithms; quadratic equations, inequalities; proportion and variation, binomial theorem, progressives; introduction to theory of equations; determinants and simultaneous linear equations. Prerequisite: Math 103. Three one-hour class periods each week. Three hours credit.

Math 202 Trigonometry (Engineering Math)
Trigonometric functions, identities, related angles, radian measure, graphs, sum and difference formulas, simple trigonometric equations, logarithms, solutions of plane triangle, inverse functions and trigonometry of complex numbers. Prerequisite: Math 201. Three one-hour class periods each week. Three hours credit.

Math 203 Calculus (Engineering Math)
Differentiation of elementary functions. integration of polynomials and powers, and applications. Prerequisite: Math 202. Three one-hour class periods each week. Three hours credit.

C.T. 301 Cooperative Training
The student, under the joint supervision and responsibility of the Institute and employer, will work in industry in an area which will give him direct work experience in his selected background of preparation.
TITLES OF POSITIONS HELD BY
ELECTRICAL TECHNICIANS

Contractor
Draftsman
Distribution Engineering Aide
Electrical Maintenance Man
Electrician
Electrical Designer
Engineering Aide
Electrical Instructor
Installation Technician
Technical Salesman
Customer Engineer
Estimator
Lineman

Instrument Technician
Laboratory Technician
Electronics Technician
Research Technician
Radio-TV Service Man
Railroad Signal Mechanic
Sales Engineer
Power Plant Operator
Transmitter Operator
TV Studio Technician
Lighting Technician
Field Engineer
Product Tester

DESCRIPTIONS OF TYPICAL POSITIONS

ELECTRICAL DRAFTSMAN

The functions of the electrical draftsman may be logically grouped into three major fields, viz.; Conduit, wire, and equipment layout; Power control equipment wiring and schematic diagrams; Electronic equipment wiring and schematic diagrams. In addition, the electrical draftsman must be familiar with basic mechanical design and small structural shapes pertinent to the equipment. He must be thoroughly familiar with the A.S.A. symbols employed, and must be versatile in composition and arrangement of basic circuit components into complete circuits.
(continue Titles of Electrical Technicians)

ELECTRONICS TECHNICIAN

An electronics technician assists in conducting tests on various types of equipment. He is frequently required to record data, make calculations, draw graphs, or write reports on the tests. He assembles and tests experimental electronic circuits. He may also assist in setting up special tests, making adjustments as the tests are run, and also repairing test equipment.
## CURRICULUM OUTLINE

### Year I

#### Electrical Technology

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours Per Week</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Quarter</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 101</td>
<td>Communication Skills</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 101</td>
<td>Technical Mathematics</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>M.D. 101</td>
<td>Engineering Drawing</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>P.E. 101</td>
<td>Physical Education</td>
<td>2</td>
<td>½</td>
<td></td>
</tr>
<tr>
<td>P.S. 101</td>
<td>Political Science</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E.T. 101</td>
<td>Electricity</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>11</strong></td>
<td><strong>17 ½</strong></td>
</tr>
<tr>
<td><strong>Winter Quarter</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 102</td>
<td>Communication Skills</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 102</td>
<td>Advanced Technical Math</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>M.D. 102</td>
<td>Engineering Drawing</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>P.E. 102</td>
<td>Physical Education</td>
<td>2</td>
<td>½</td>
<td></td>
</tr>
<tr>
<td>P.S. 102</td>
<td>Political Science</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E.T. 102</td>
<td>Electricity</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>11</strong></td>
<td><strong>17 ½</strong></td>
</tr>
<tr>
<td><strong>Spring Quarter</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eng. 103</td>
<td>Technical Report Writing</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Math 103</td>
<td>Advanced Tech. Math</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>M.D. 103e</td>
<td>Electrical Design</td>
<td>6</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>P.E. 103</td>
<td>Physical Education</td>
<td>2</td>
<td>½</td>
<td></td>
</tr>
<tr>
<td>Econ 101</td>
<td>Basic Principles of Economics</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>E.T. 103</td>
<td>Electricity</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>11</strong></td>
<td><strong>17 ½</strong></td>
</tr>
<tr>
<td><strong>Summer (8 weeks)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sci 101-102</td>
<td>Physics</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
## Electrical Technology

### Year II

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Course</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Quarter</strong></td>
<td></td>
<td>Class</td>
</tr>
<tr>
<td>M.T. 203</td>
<td>Hydraulic &amp; Pneumatic Controls</td>
<td>2</td>
</tr>
<tr>
<td>Sci. 103</td>
<td>Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>E.T. 201</td>
<td>Electronics</td>
<td>3</td>
</tr>
<tr>
<td>E.T. 104</td>
<td>Electricity</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td><strong>Winter Quarter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M.T. 101</td>
<td>Engineering Processes</td>
<td>2</td>
</tr>
<tr>
<td>M.T. 204</td>
<td>Hydraulic &amp; Pneumatic Controls</td>
<td>2</td>
</tr>
<tr>
<td>E.T. 202</td>
<td>Electronics</td>
<td>2</td>
</tr>
<tr>
<td>E.T. 203</td>
<td>Electronics</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td><strong>Spring Quarter</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E.T. 206</td>
<td>Project Laboratory</td>
<td>2</td>
</tr>
<tr>
<td>E.T. 204</td>
<td>Electronics</td>
<td>2</td>
</tr>
<tr>
<td>E.T. 301</td>
<td>Cooperative Training</td>
<td>15</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>
Basic Curriculum for Technician Program

English

Eng. 101 & 102 Communication Skills
This course is designed to develop the student's ability to comprehend and evaluate what he reads and to organize and communicate his thinking in clear, cogent, and correct English. Prerequisite: Communication Skills 101 for Communication Skills 102. Three one-hour periods each week. Three hours credit.

Eng. 103 Technical Report Writing
Extensive application of the principles of good writing in industrial reporting. Introductory materials are in the nature of an extension of the preliminary work required in Communication Skills. Considerable emphasis is given to sentence and paragraph development with special attention to concise expression of original ideas. Prerequisite: Communication Skills 101 & 102. Three one-hour periods each week. Three hours credit.

Mathematics

Math 101 Technical Mathematics
A beginning course in technical mathematics. Topics covered include: numbers, quantities, measurements, sources of error, significant digits, positive and negative numbers, exponents, calculations with scientific notation, basic slide rule operations, algebraic notation, and formulas. No prerequisite. Three one-hour class periods each week. Three hours credit.

Math 102 Advanced Technical Mathematics
A continuation of Technical Mathematics 101. Emphasis is on algebraic equations, advanced slide rule operations, derivation, types of data, graphs and equations, and strategy of problem solving. Prerequisite: Technical Mathematics 101. Three one-hour class periods each week. Three hours credit.

Math 103 Advanced Technical Mathematics
An advanced course in technical mathematics, covering problem solving associated with analytic geometry and trigonometry. Continued use of the slide rule is stressed. Prerequisites: Technical Mathematics 101 & 102. Three one-hour class periods each week. Three hours credit.

Science

Sci 101 Physics (Mechanics)
Simple machine elements, torque, work, power, efficiency, concurrent and nonparallel forces, properties of materials, accelerated motion, three laws of motion, energy and momentum, rotary motion, simple vibratory motion. No prerequisite. Two
(continue Basic Curriculum)

one hour class periods and two, two hour laboratory periods each week. Four hours credit.

Sci 102  Physics (Fluids and heat)
Liquids at rest, pressure of gases, fluids in motion, temperature and expansion, measurement of heat, physics of the atmosphere, transmission of heat, heat engines. Prerequisite: Physics 101. Two one hour class periods and two two hour laboratory periods each week. Four hours credit.

Sci 103  Chemistry
Metric system, 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. Two one hour class periods and two three hour laboratory periods each week. Four hours credit.

Engineering Drawing

M.D. 101  Engineering Drawing
This course is designed to give the student instruction and practice in the fundamentals of mechanical drafting. Emphasis will be placed on lettering, use of instruments, orthographic projections, and sketching. No prerequisite. Two three hour laboratory periods each week. Three hours credit.

M.D. 102  Engineering Drawing
A continuation of Engineering Drawing 101. In this quarter emphasis will be placed on the theory of dimensioning, auxiliary views, sections, details, and assembly drawing. Prerequisite: Eng. Drawing 101. Two three hour laboratory periods each week. Three hours credit.

Economics & Political Science

Econ 101  Basic Principles of Economics
A study of the basic economic principles underlying the operation of the American economic system. Particular attention is given to American Capitalism, its institutional structure, its dynamic character and the political climate needed for its growth. In addition, some attention will be given to the primary issues of collective bargaining such as wages, seniority, and union shops

P.S. 101-102  Political Sciences
The work of the course consists of a study of national government and administration, emphasizing political problems, developments, and tendencies. Attention is given to state and local governments. No prerequisite. Five one hour periods each week. Five hours credit.
M.T. 101 Engineering Processes

This course deals with operation of lathes, milling machines, drillpresses, grinders, use of measuring tools and gauges, grinding of cutting tools, and setup of machines for machining metals and non-metals. This course also aims to relate the use of machine tools to product design, tool design, and production planning. No prerequisite for 101. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

Cooperative Training

C.T. 206 M.T. 206 Project Laboratory

In this course each student will pick a research area pertaining to his curriculum emphasis, and complete a project interrelated with his cooperative training and course work. Prerequisite: Third quarter second year. One two-hour class period and one three-hour laboratory period each week. Three hours credit.

C.T. 101 M.T. 301 E.T. 301 Cooperative Training

The student, under the joint supervision and responsibility of the Institute and employer, will work in industry in an area which will give him direct work experience in his selected background or preparation.
E.T. 101 Electricity
The first course in electricity. Electron theory, Ohm's law, series and parallel circuits, electrical energy and power, magnetism, measuring instruments and methods, wiring methods and materials. Problems typical of both electrical and electronic circuits are handled. No prerequisite. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

E.T. 102 Electricity
Introduces the study of alternating current. Some of the topics are: Inductance and inductive reactance, capacitive reactance, impedance, A-C circuits parallel and series, single and three phase circuits. Prerequisite: E.T. 101. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

E.T. 103 Electricity
A course introducing motor control. Topics included are: D-C generators, D-C motors, manual speed controllers, automatic control, polyphase circuits & transformers. Prerequisite: E.T. 102. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

E.T. 104 Electricity
A course in AC motors and generators. Some of the topics are: Three-phase alternators, induction motors, synchronous motors, selssyn units, repulsion type motors, A-C series motors, and controllers for three-phase motors. Prerequisite: E.T. 103. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

M.D. 103e Electrical Design
A course in the drawing and reading of electrical circuit diagrams. Topics included are: Use of electrical handbooks, manuals and periodicals, types of diagrams, sequence tables, residential wiring systems, commercial wiring systems, and panel wiring layout. Circuits typical of both electrical and electronic schematic diagrams are studied. Prerequisite: M.D. 102. Two three-hour laboratory periods each week. Three hours credit.
**Electrical Technology**

**Year II**

**E.T. 201 Electronics**

The first course in electronics covering: Electron tubes, diode rectifiers, D-C amplifiers, A-C amplifiers, selenium rectifiers, and low frequency voltage amplifiers. Problems will be selected from industrial and communication electronics. **Prerequisite: E.T. 103**. Two one-hour class periods and two three-hour laboratory periods each week. **Five hours credit.**

**E.T. 202 Electronics**

This course includes the following topics: Grid and cathode bias, power amplifiers, transducers, phase inverters, and oscillators. Problems and experiments will be selected from both the industrial and communication fields. **Prerequisite: E.T. 201**. Two one-hour class periods and two three-hour laboratory periods each week. **Five hours credit.**

**E.T. 203 Electronics**

A continuation of E.T. 202 with special emphasis on industrial electronics. Topics studied include: Gas filled tubes, phase shift control, photo-electric relay circuits, ignitrons, thyatrons, welding circuits, and inverters. Laboratory work stresses the use of the oscilloscope as a service instrument. **Prerequisite: E.T. 202**. Two one-hour class periods and two three-hour laboratory periods each week. **Five hours credit.**

**E.T. 204 Electronics**

A beginning study of automatic, electronically controlled mechanisms as applied to automatic process control. Topics included are: synchros, servo mechanisms, servo motors and amplifiers, Ward-Leonard and amplidyne control systems, servo anti-hunt and two speed systems. **Prerequisite: E.T. 203**. Two one-hour class periods, and two three-hour laboratory periods each week. **Five hours credit.**
TITLES OF POSITIONS HELD BY MECHANICAL TECHNICIANS

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

One who understands inspection equipment of all kins and can interpret blueprints and specifications. He is charged with the responsibility of seeing that the production line is meeting specifications.
### Mechanical Technology

#### Year I

<table>
<thead>
<tr>
<th>Fall Quarter</th>
<th>Hours Per Week Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 101 Communication Skills</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Math 101 Technical Mathematics</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.D. 101 Engineering Drawing</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 101 Physical Education</td>
<td></td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>P.S. 101 Political Science</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.T. 101 Engineering Processes</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>14</strong></td>
<td><strong>17 1/2</strong></td>
</tr>
</tbody>
</table>

**Winter Quarter**

<table>
<thead>
<tr>
<th>Winter Quarter</th>
<th>Hours Per Week Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 102 Communication Skills</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Math 102 Advanced Tech. Math</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.D. 102 Engineering Drawing</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 102 Physical Education</td>
<td></td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>P.S. 102 Political Science</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.T. 102 Engineering Processes</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>14</strong></td>
<td><strong>17 1/2</strong></td>
</tr>
</tbody>
</table>

**Spring Quarter**

<table>
<thead>
<tr>
<th>Spring Quarter</th>
<th>Hours Per Week Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eng. 103 Technical Report Writing</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Math 103 Advanced Tech. Math</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.D. 103 Engineering Drawing</td>
<td></td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>P.E. 103 Physical Education</td>
<td></td>
<td>2</td>
<td>1/2</td>
</tr>
<tr>
<td>Econ 101 Basic Principles of Economics</td>
<td>3</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>M.T. 103 Engineering Processes</td>
<td>2</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>11</strong></td>
<td><strong>14</strong></td>
<td><strong>17 1/2</strong></td>
</tr>
</tbody>
</table>

**Summer (8 weeks)**

<table>
<thead>
<tr>
<th>Summer (8 weeks)</th>
<th>Hours Per Week Class</th>
<th>Lab</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sci 101-102 Physics</td>
<td>4</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>
## Year II

### Mechanical Technology

#### Fall Quarter

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D. 201m</td>
<td>6</td>
</tr>
<tr>
<td>M.T. 207</td>
<td>2, 4</td>
</tr>
<tr>
<td>M.T. 206</td>
<td>2, 6</td>
</tr>
<tr>
<td>Sci. 103</td>
<td>2, 6</td>
</tr>
</tbody>
</table>

**Total:*** 6 — 22 — 16

#### Winter Quarter

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D. 202m</td>
<td>6</td>
</tr>
<tr>
<td>M.T. 201</td>
<td>2, 4</td>
</tr>
<tr>
<td>M.T. 203</td>
<td>2, 3</td>
</tr>
<tr>
<td>M.T. 208</td>
<td>2, 4</td>
</tr>
<tr>
<td>E.T. 101</td>
<td>2, 6</td>
</tr>
</tbody>
</table>

**Total:*** 8 — 23 — 19

#### Spring Quarter

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours Per Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.D. 203m</td>
<td>6</td>
</tr>
<tr>
<td>M.T. 206</td>
<td>2, 3</td>
</tr>
<tr>
<td>M.T. 204</td>
<td>2, 3</td>
</tr>
<tr>
<td>M.T. 301</td>
<td>15</td>
</tr>
</tbody>
</table>

**Total:*** 4 — 27 — 18
Basic Curriculum for Technician Program

English

Eng. 101 & 102 Communication Skills
This course is designed to develop the student's ability to comprehend and evaluate what he reads and to organize and communicate his thinking in clear, cogent, and correct English. Prerequisite: Communication Skills 101 for Communication Skills 102. Three one-hour periods each week. Three hours credit.

Eng. 103 Technical Report Writing
Extensive application of the principles of good writing in industrial reporting. Introductory materials are in the nature of an extension of the preliminary work required in Communication Skills. Considerable emphasis is given to sentence and paragraph development with special attention to concise expression of original ideas. Prerequisite: Communication Skills 101 & 102. Three one-hour periods each week. Three hours credit.

Mathematics

Math 101 Technical Mathematics
A beginning course in technical mathematics. Topics covered include: numbers, quantities, measurements, sources of error, significant digits, positive and negative numbers, exponents, calculations with scientific notation, basic slide rule operations, algebraic notation, and formulas. No prerequisite. Three one-hour class periods each week. Three hours credit.

Math 102 Advanced Technical Mathematics
A continuation of Technical Mathematics 101. Emphasis is on algebraic equations, advanced slide rule operations, derivation, types of data, graphs and equations, and strategy of problem solving. Prerequisite: Technical Mathematics 101. Three one-hour class periods each week. Three hours credit.

Math 103 Advanced Technical Mathematics
An advanced course in technical mathematics, covering problem solving associated with analytic geometry and trigonometry. Continued use of the slide rule is stressed. Prerequisites: Technical Mathematics 101 & 102. Three one-hour class periods each week. Three hours credit.

Science

Sci 101 Physics (Mechanics)
Simple machine elements, torque, work, power, efficiency, concurrent and nonparallel forces, properties of materials, accelerated motion, three laws of motion, energy and momentum, rotary motion, simple-vibratory motion. No prerequisite. Two
(continue Basic Curriculum)

one-hour class periods and two, two-hour laboratory periods each week. Four hours credit.

Sci 102 Physics (Fluids and heat)
Liquids at rest, pressure of gases, fluids in motion, temperature and expansion, measurement of heat, physics of the atmosphere, transmission of heat, heat engines. Prerequisite: Physics 101. Two one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

Sci 103 Chemistry
Metric system, 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. Two one-hour class periods and two three-hour laboratory periods each week. Four hours credit.

Engineering Drawing

M.D. 101 Engineering Drawing
This course is designed to give the student instruction and practice in the fundamentals of mechanical drafting. Emphasis will be placed on lettering, use of instruments, orthographic projections, and sketching. No prerequisite. Two three-hour laboratory periods each week. Three hours credit.

M.D. 102 Engineering Drawing
A continuation of Engineering Drawing 101. In this quarter emphasis will be placed on the theory of dimensioning, auxiliary views, sections, details, and assembly drawing. Prerequisite: Eng. Drawing 101. Two three-hour laboratory periods each week. Three hours credit.

Economics & Political Science

Econ 101 Basic Principles of Economics
A study of the basic economic principles underlying the operation of the American economic system. Particular attention is given to American Capitalism, its institutional structure, its dynamic character and the political climate needed for its growth. In addition, some attention will be given to the primary issues of collective bargaining such as wages, seniority, and union shops.

P.S. 101-102 Political Sciences
The work of the course consists of a study of national government and administration, emphasizing political problems, developments, and tendencies. Attention is given to state and local governments. No prerequisite. Five one-hour periods each week. Five hours credit.
BASIC CURRICULUM

Year II

E.T. 101 Electricity
The first course in electricity. Electron theory, Ohm's law, series and parallel circuits, electrical energy and power, magnetism, measuring instruments and methods, wiring methods and materials. Problems typical of both electrical and electronic circuits are handled. No prerequisite. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

Cooperative Training

E.T. 206 M.T. 206 Project Laboratory
In this course each student will pick a research area pertaining to his curriculum emphasis, and complete a project interrelated with his cooperative training and course work. Prerequisite: Third quarter second year. One two-hour class period and one three-hour laboratory period each week. Three hours credit.

E.T. 301 M.T. 301 E.T. 301 Cooperative Training
The student, under the joint supervision and responsibility of the Institute and employer, will work in industry in an area which will give him direct work experience in his selected background or preparation.
Mechanical Technology

Year I

M.T. 101, 102, 103 Engineering Processes
Operation of lathes, milling machines, drillpresses, grinders, use of measuring tools and gauges, grinding of cutting tools set-up of machines for machining metals and non-metals. These courses also aim to relate the use of machine tools to product design, tool design, and production planning. No prerequisite for 101. Prerequisite: 101 for 102 and 102 for 103. Two one-hour class periods and two three-hour laboratory periods each week. Five hours credit.

M.D. 103m Engineering Drawing
A continuation of Engineering Drawing 102. This course deals with the study of intersections and developments, pictorial representation, piping, and inking. Prerequisite: Eng. Drawing 102. Two three-hour laboratory periods each week. Three hours credit.

Year II

M.T. 201 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 101 & 102. Two one-hour class periods and two two-hour laboratory periods each week. Four hours credit.

M.T. 203 - 204 Hydraulics & Pneumatic Controls
This course covers the standard hydraulic & 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. Two one-hour class periods and one three-hour laboratory each week. Three credit hours.

M.T. 206 Engineering Design
The fundamental concept of material flow is developed as it pertains to the design of dies for such operations as die castin plastic molding, and forging. In addition to the concept of material flow, a study of welding fundamentals and the operating characteristics of the welding processes are presented. Prerequisite: Physics 102 & Math 103. Two class periods and two three-hour laboratory periods each week. Four hours credit.
M.T. 207 Metallurgy
This course is designed to acquaint the student with the principal 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. Students will become familiar with the operation and use of various metallurgical equipment such as polishers, microscopes, metallograph, etc. Prerequisite: Physics 102. One two-hour class period and two two-hour laboratory periods each week. Four hours credit.

M.T. 208 Metallurgy
A continuation of Metallurgy 207. 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. Prerequisite: Metallurgy 207. One two-hour class period and two two-hour laboratory periods each week. Four hours credit.

M.D. 201m Machine Design
Instruction in the techniques and general methods used in machine design; determination of sizes and shapes of machine parts and selection of materials. A study of mechanisms, bearings, friction, belt and pulley design, and the design of riveted joints. Prerequisite: Eng. Draw. 103m. Two three-hour laboratory periods each week. Three hours credit.

M.D. 202m Machine Design
Instruction in the techniques of designing shafts, screw fastenings, gears, etc. The student will design a unit of a machine or a whole machine using combinations of machine elements such as gears, levers, cams, cranks, and others. Prerequisite: Mach. Design 201m. Two three-hour laboratory periods each week. Three hours credit.

M.D. 203m Tool Design
Instruction in the design of cutting tools, jigs and fixtures, and the fundamentals of drawing dies. Prerequisite: Machine Design 202m. Two three-hour laboratory periods each week. Three hours credit.