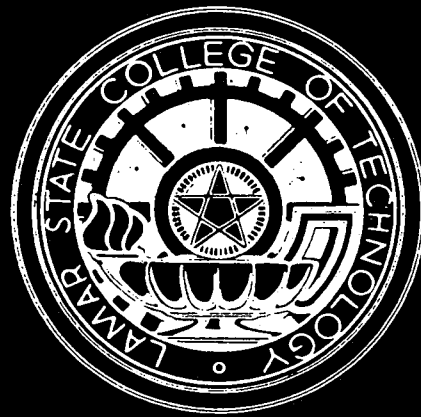


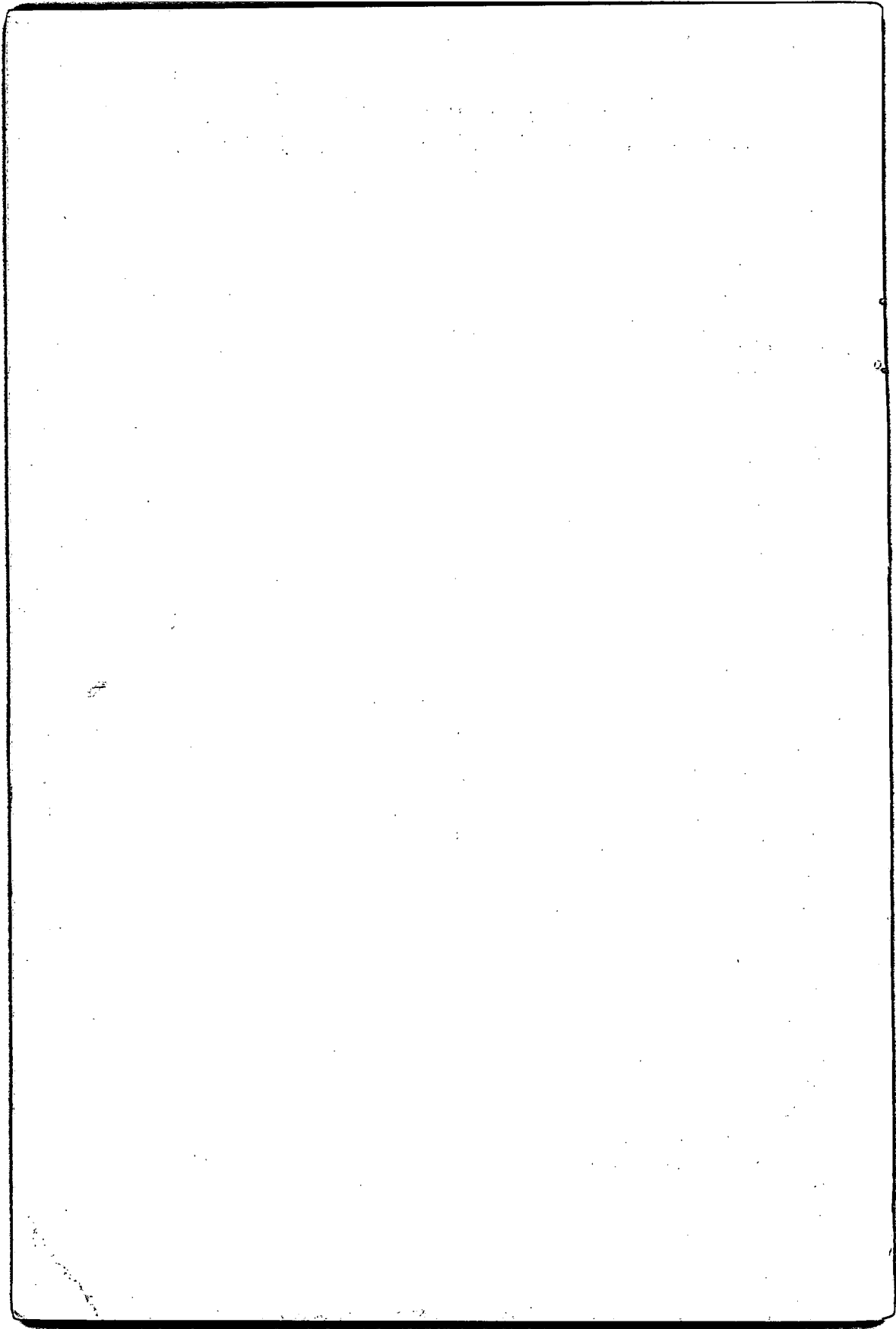
**BULLETIN OF**

**LAMAR STATE COLLEGE  
OF TECHNOLOGY**



**ANNUAL CATALOG ISSUE FOR  
LAMAR SCHOOL OF VOCATIONS**

**1969-1970**



**BULLETIN OF  
LAMAR STATE COLLEGE OF TECHNOLOGY**

BEAUMONT, TEXAS

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VOL. XIX

MARCH, 1969

NO. 8

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**SIXTEENTH ANNUAL CATALOG ISSUE**

**With Announcements for 69-70**

**For The**

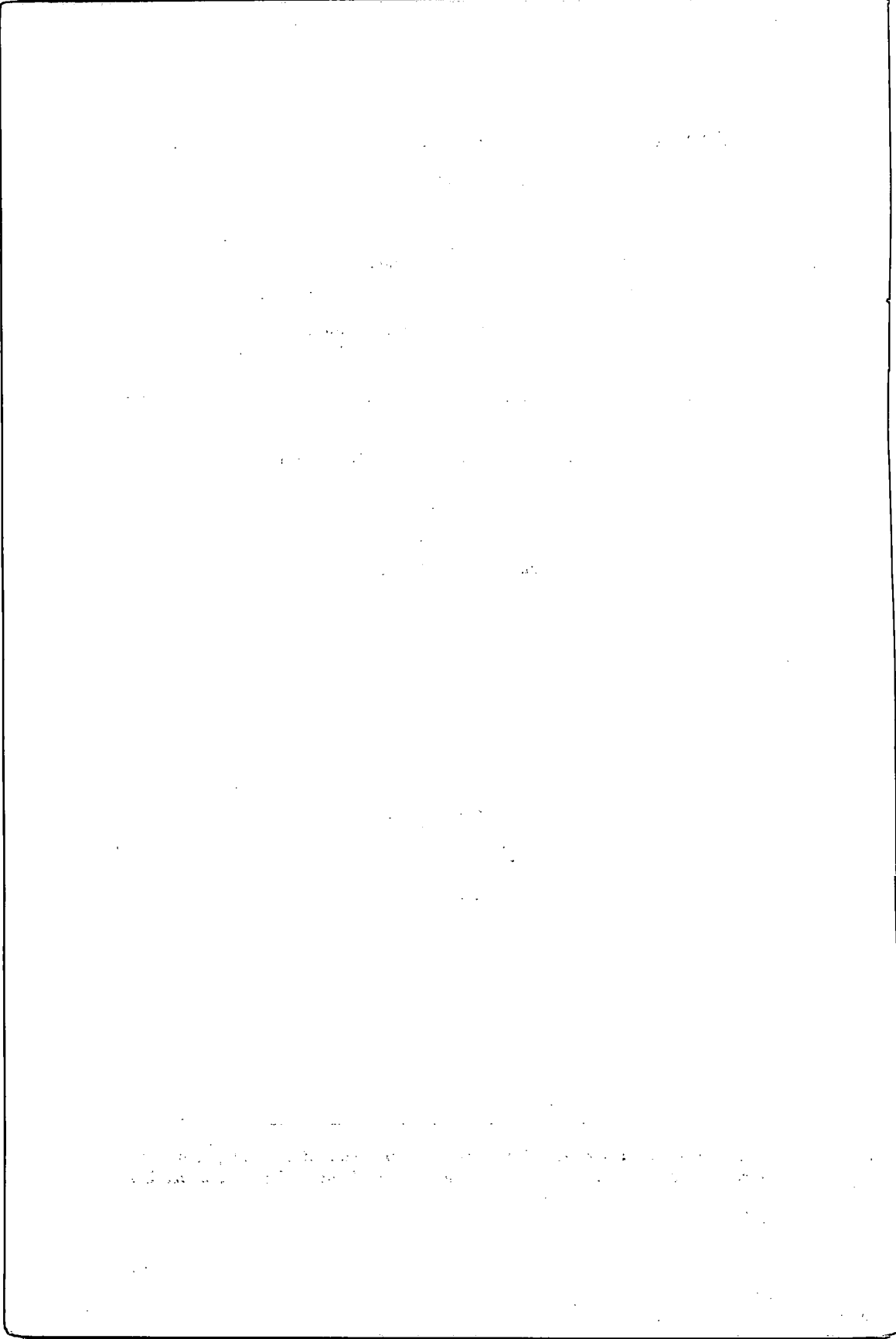
**Lamar School of Vocations**



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The course, tuition and fees, and all other conditions and policies set forth in this catalog issue shall be subject to change without notification.



## BOARD OF REGENTS

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H. J. Shands, Jr. .... Lufkin, Texas

## CALENDARS FOR 1969 AND 1970

<b>JANUARY 1968</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>MAY 1968</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	<b>SEPTEMBER 1968</b> S M T W T F S 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
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## LAMAR STATE COLLEGE OF TECHNOLOGY

## LAMAR SCHOOL OF VOCATIONS

## College Calendar for 1969-70

## Fall Semester for 1969

Sept.	12	Friday	10 a.m.	General faculty meeting.
	12	Friday	1 p.m.	Vocations faculty meeting.
	15	Monday	9 a.m.	Registration of day students.
	15	Monday	1 p.m.	Registration of day students.
	15	Monday	6 p.m.	Registration for evening classes.
	16	Tuesday	9 a.m.	Registration of day students.
	16	Tuesday	1 p.m.	Registration of day students.
	16	Tuesday	6 p.m.	Registration for evening classes.
	17	Wednesday	9 a.m.	Registration of day students.
	17	Wednesday	1 p.m.	Registration of day students.
	17	Wednesday	6 p.m.	Registration for evening classes.
	18	Thursday	8 a.m.	Classes begin. (Late Registration Fee Charged)
	18	Thursday	6 p.m.	Evening classes begin.
Oct.	3	Friday	8 p.m.	Twelfth Class Day.
	28	Tuesday	8 p.m.	Last day for dropping or withdrawing without penalty.
Nov.	26	Wednesday	10 p.m.	Thanksgiving holidays begin.
	26	Wednesday	6 p.m.	Dining Hall closes.
	27	Thursday	10 a.m.	Dormitories close.
	30	Sunday	12 noon	Dormitories open.
Dec.	1	Monday	7 a.m.	Dining Hall opens.
	1	Monday	7 a.m.	Classes resume.
	19	Friday	6 p.m.	Christmas holidays begin.
	19	Friday	6 p.m.	Dining Hall closes.
	19	Friday	10 p.m.	Dormitories close.
Jan.	4	Sunday	12 noon	Dormitories open.
	5	Monday	7 a.m.	Dining Hall opens.
	5	Monday	7 a.m.	Classes begin.
	19-22	Monday-Thursday		Final examinations fall semester.
	23	Friday	12 noon	Final grades to the Director's Office.

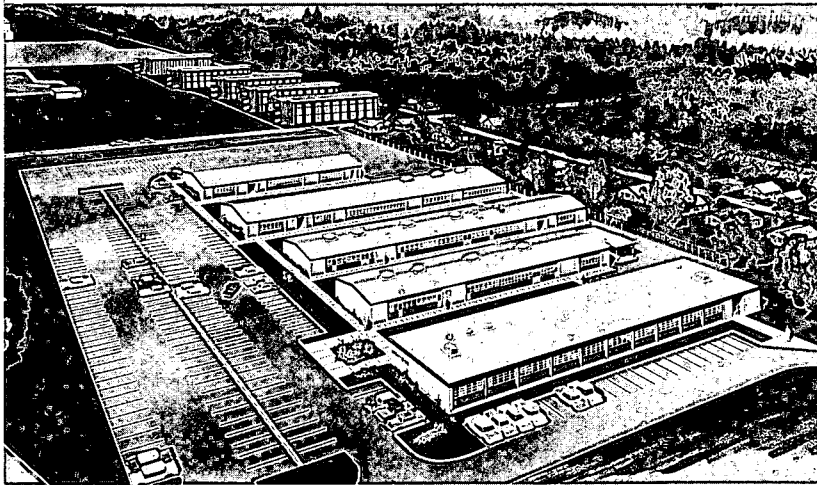
## Spring Semester, 1970

Jan.	26	Monday	1:30 p.m.	Vocations faculty meeting.
	26	Monday	6 p.m.	Registration for evening students.
	27	Tuesday	9 a.m.	Registration of day students.
	27	Tuesday	1 p.m.	Registration of day students.
	27	Tuesday	6 p.m.	Registration for evening students.
	28	Wednesday	9 a.m.	Registration of day students.
	28	Wednesday	1 p.m.	Registration of day students.
	28	Wednesday	6 p.m.	Registration for evening students.
	29	Thursday	8 a.m.	Classes begin. (Late Registration Fee charged)
Feb.	13	Friday		Twelfth Class Day.
March	11	Wednesday		Last day for dropping courses or withdrawing without penalty.
	20	Friday	6 p.m.	Spring holidays begin.
	20	Friday	6 p.m.	Dining Hall closes.
	20	Friday	10 p.m.	Dormitories close.
	29	Sunday	12 noon	Dormitories open.
	30	Monday	7 a.m.	Dining Hall opens.
	30	Monday	8 a.m.	Classes resume.
May	25-27	Monday-Wednesday		Final examination, spring semester.
	28	Thursday	4 p.m.	Final grades to the Director's Office.
	29	Friday	9 a.m.	Graduation exercises.
	29	Friday	10 p.m.	Dormitory closes.

## Summer Session, 1969

June	7	Sunday		Limited operations of dormitories
	8	Monday	7 a.m.	Dining Hall opens.
	8	Monday	9 a.m.	Registration.
	9	Tuesday	8 a.m.	Classes begin. (Late Registration Fee Charged)
	12	Friday		Fourth Class Day.
Aug.	26-27	Wed.-Thurs.		Final examinations, summer session.
	28	Friday		Final grades to the Director's Office.
	28	Friday	9 a.m.	Graduation Exercises.
	29	Saturday	10 a.m.	Dining Hall and Dormitories close.





### LAMAR SCHOOL OF VOCATIONS

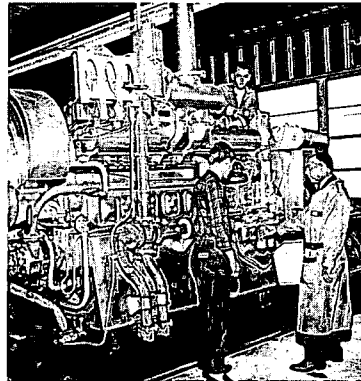
The 45-year-old Lamar School of Vocations, a part of Lamar State College of Technology, which has provided industrial and technical education for thousands of Texas men and women, is housed in this all new and modern plant. The five buildings shown in the above picture comprise an excess of 80,000 square feet of floor space. This complex of five buildings provides modern facilities for instruction in Data Processing, Diesel Engines, Drafting, Industrial Electricity and Electronics, Machine Shop, Refrigeration and Air Conditioning, Vocational Nursing and Welding.



**Learn a Trade at Lamar**

The rapid expansion of our national economy has increased many times the number of employment opportunities for those possessing the knowledge and skills of the industrial and technical occupations. The objective of the Lamar School of Vocations is to offer men and women an effective and economical means for learning one of these occupations in a relatively short period of time.

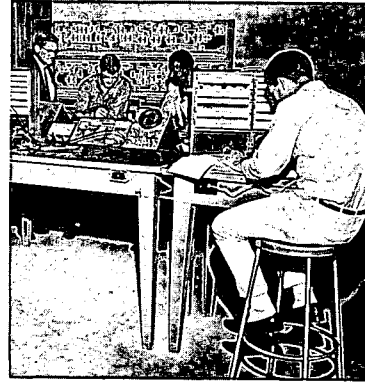
Preparatory courses are offered in Data Processing, Drafting, Diesel Engines, Industrial Electricity and Electronics, Machine Shop, Refrigeration and Air Conditioning, Vocational Nursing, and Welding. These courses have been planned to provide the proper balance between practice, where the skills of the occupation are acquired, and classroom work where the necessary related knowledge is learned. Three hours of practice is provided for



each two hours spent in the related classes. All of these with the exception of Vocational Nursing requires full-time attendance for a period of eighteen months. The Vocational Nursing course requires twelve calendar months for completion.

Completion of one of these courses should provide sufficient knowledge and skills to enable an individual to secure employment and advance in his chosen vocation. Preparatory training in the industrial-technical occupations also enables a person to obtain employment in many fields which are allied to the one for which he has been trained.

For the young person possessing the aptitude and ability, the Industrial-Technical programs of the Lamar School of Vocations offer a most efficient and economical means of entry into an industrial or technical vocation.



## THE FACULTY

## OFFICERS OF ADMINISTRATION

R. W. SETZER, A.B., M.A., Ph.D., President  
FRANK A. THOMAS, JR., B.S., M.S., Ph.D., Vice President of Academic  
Affairs  
G. A. WIMBERLY, B.S., Assistant to the President  
H. C. GALLOWAY, JR., B.S., M.Ed., Vice President of Finance  
DAVID BOST, B.A., M.J., Ph.D., Vice President of Student Affairs  
NORRIS H. KELTON, B.A., M.A., Dean of Admissions  
GEORGE E. McLAUGHLIN, B.S., Dean of Men  
MRS. ANITA CHERRY, B.A., M.Ed., Dean of Women  
CELESTE KITCHEN, B.A., M.Ed., Registrar  
E. E. MILLER, B.S., M.S., Director, Lamar School of Vocations  
JOE B. THRASH, B.S., M.A., Director, Testing and Placement Center

## FACULTY

MARIAN A. ANDREWS, Instructor of Vocational Nursing, 1966  
Registered Nurse, State of Texas  
NORMA M. AYCOCK, Instructor of Vocational Nursing 1962  
Registered Nurse, State of Texas  
ROGER AYERS, Instructor of Related Subjects, 1965  
ROBERT C. BARTHOLOMEW, Instructor of Data Processing, 1967  
B.S., Michigan State College  
DONALD E. BELKEN, Instructor of Insurance, 1966  
WILLIAM S. BEVINGTON, Instructor of Electricity, 1968  
EMMETT S. BLACK, Instructor of Machine Shop, 1964  
NANCY B. BONEAU, Instructor of Vocational Nursing, 1967  
Registered Nurse, State of Texas  
HOYT G. BYRD, Assistant to the Director, 1968  
B.S., M.S., North Texas State University  
GUS A. CARLSEN, Instructor of Machine Shop, 1946  
I.E., Arlington State College  
WILLIAM C. COOK, Instructor of Real Estate, 1962  
B.A., University of Texas

- GEAROLD R. COPPINS, Instructor of Electricity, 1954
- JOHN W. CRAWLEY, Instructor of Refrigeration, 1967
- T. J. DAIGLE, Instructor of Electricity, 1951  
 B.S., Southwestern Louisiana Institute
- HAROLD O. DANIELS, Instructor of Industrial Instruments, 1956
- EDWARD DAY, Instructor of Refrigeration, 1967
- BERTRAND DIONNE, Instructor of Industrial Supervision, 1967
- JAMES C. ELLIS, Instructor of Carpentry, 1962
- J. B. ENER, Instructor of Real Estate, 1964
- GARY GRAHAM, Instructor of Pumps, 1963
- PHIL V. HALL, Instructor of Real Estate, 1952
- WILLARD J. HALL, Instructor of Real Estate, 1955
- WILLIAM HARTFORD, Coordinator of Trade Extension Training, 1947
- C. L. HENDERSON, Instructor of Related Subjects, 1951  
 B.S., Sam Houston State College  
 M.Ed., University of Houston
- MARVIN HOGAN, Instructor of Electricity, 1966
- FRANK B. HERRING, Instructor of Electricity, 1967
- GORDON JOHNSON, Instructor of Law Enforcement, 1968
- DOLORES JONES, Instructor of Vocational Nursing, 1962  
 Registered Nurse, State of Texas
- JOE I. JUAREZ, Instructor of Related Subjects, 1968
- ANN KEEN, Instructor of Vocational Nursing, 1958  
 Registered Nurse, State of Texas
- ARNOLD LABOVE, Instructor of Ironworking, 1966
- R. J. LAWRENCE, Instructor of Electronics, 1958
- GAINES E. LEE, Instructor of Drafting, 1955
- NORMAN LOWREY, Coordinator of Apprenticeship Training, 1967
- SAM LUCIA, Instructor of Diesel Engines, 1954
- CALVIN MCKAY, Instructor of Industrial Supervision, 1966
- RONALD I. MARBLE, Instructor of Welding, 1967
- ALLEN G. MELTON, Instructor of Data Processing, 1967  
 B.S., Lamar State College of Technology
- U. FRED MILLER, Instructor of Carpentry, 1967
- RALPH C. MOCK, Instructor of Drafting, 1966

- ANDREW B. MOOREFIELD, Instructor of Carpentry, 1966
- MYRON M. MYRICK, Instructor of Drafting, 1967
- PETE A. OCHOA, Instructor of Drafting, 1967  
B.S., M.A., East Texas State University
- F. E. RICHARDS, Coordinator of Distributive Education, 1961  
B.B.A., University of Texas  
M.B.A., Lamar State College of Technology
- VIRGIL ROBERTS, Instructor of Machine Shop, 1965
- M. PAUL ROY, Instructor of Machine Shop, 1963
- J. C. SHANKLES, Instructor of Welding, 1952
- LENOX SIGLER, Instructor of Electronics, 1965
- MARY DOUG STEPHENS, Instructor of Insurance, 1952
- BERNICE STURROCK, Instructor of Vocational Nursing, 1963  
Registered Nurse, State of Texas
- EDNA MARY TERRELL, Instructor of Vocational Nursing, 1968  
Registered Nurse, State of Texas
- DON THOMPSON, Instructor of Real Estate, 1966
- ELLIS THOMPSON, Instructor of Refrigeration, 1956
- MAX V. TRENCK, Instructor of Industrial Supervision, 1952
- WALTER W. TURMAN, Instructor of Related Subjects, 1967  
B.S., East Texas State University  
M.A., Texas A&M University
- GENE VAN METER, Instructor of Electricity, 1963
- CAREY B. WESLEY, Instructor of Welding, 1966
- LINDSEY WALKER, Instructor of Real Estate, 1966  
B.A., LL.B., University of Texas

**GENERAL INFORMATION****Location**

Lamar School of Vocations is a part of Lamar State College of Technology, a state supported college located in the heart of industrial Southeast Texas at Beaumont. The principal industries in the area are oil refining, shipping, ship building, rubber manufacturing and other related industries. Rice farming and ranching are the chief agricultural pursuits.

The campus is adjacent to the Beaumont-Port Arthur Highway in southeastern Beaumont. With a population of approximately 130,000, Beaumont has modern schools, churches, and shopping districts to serve the thriving industrial community.

In the metropolitan Beaumont area are the cities of Port Arthur, Orange, Vidor, Port Neches, Nederland and Groves, all within 25 miles and forming the heart of the Gulf Coast area with an estimated population of more than 350,000.

**History**

South Park Junior College was established in 1923. The college was organized and controlled by the South Park Independent School District, and classes were conducted in the South Park High School Building. Enrollment increased from about 125 in 1923 to 300 in 1931.

In 1932, the name of the institution was changed to Lamar College. At this time separate facilities were provided, additional equipment was purchased and new policies were instituted. By 1939, enrollment was approximately 640.

In 1940, Lamar Union Junior College District was created, and Lamar College was separated from the South Park Independent School District. Bonds were voted and new facilities were constructed on the site of the present main campus.

A movement to expand Lamar College into a four-year state-supported school culminated in the creation of Lamar State College of Technology on September 1, 1951. Since that time the curriculum has been expanded and liberalized to include many areas of study, and many additional facilities have been provided. Enrollment has increased until there are now more than 10,000 students enrolled.

The College offered graduate work in specified fields beginning in the academic year of 1960-61.

**Government**

The government of the college is vested in a board of nine regents appointed by the Governor and approved by the Senate for terms of six years. The direction of academic affairs is delegated by the Board of Regents to the President, administrative officers, and faculty.

### THE LAMAR SCHOOL OF VOCATIONS

Student scholastic matters requiring the attention or approval of the Director of the School of Vocations are:

1. Guidance and assignment of counsellor.
2. Study load.
3. Changes in schedule.
4. Dropping and adding courses.
5. Unsatisfactory academic progress.
6. Withdrawal from college.
7. Graduation requirements.

#### Building and Grounds

Located on a campus of approximately 200 acres and valued in excess of \$30,000,000, the Lamar plant includes many new and functional buildings of modern design. These structures include:

Administration Building, Administration Annex, Art Building, Biology Building, Bookstore, Business Building, two Chemistry Buildings, Dining Halls A and B, Education Building, Educational Services Center, three Engineering Buildings, Geology Building, Health Center, Home Economics Building, Theatre/Gallery, Liberal Arts Building, Library, McDonald Gymnasium, Music-Speech Building, Physics Building, Post Office Building, Science Lecture Auditorium, Student Center, five School of Vocations Buildings, and Women's Health and Physical Education Building.

Nine of these buildings have been constructed within the past two years. Currently in progress are expansion programs for the Home Economics and Men's Health and Physical Education buildings.

Also, more than \$2,000,000 is being spent for the expansion, renovation and furnishing of the Student Center.

On-campus dormitories include Brooks Hall, Gentry Hall and Gray Hall for women; Campbell Hall, Combs Hall, Morris Hall, Plummer Hall, and Shivers Hall for men. Also, three apartment buildings for upper class students and married couples are included in the residence hall system.

The President, Assistant Dean of Men, and Director of the Physical Plant have homes on the campus.

A football stadium seating 17,150 and arranged to eventually accommodate 38,500; an athletic field house, athletic practice fields, Olympic swimming pool, 14 tennis courts, track and field stadium, and a four-building maintenance complex are also located on campus.

#### The Library

A new addition to the Library was occupied in the fall, 1966. This addition more than doubled the space of the Library, providing the student body and faculty with additional seating capacity, reference rooms, individual



carrels, study rooms, etc. The Library has holding of over 170,000 volumes and subscribes to more than 3,000 periodicals. With these holdings and a budget of sufficient size to increase the number of volumes by thousands per year, the Library provides excellent service to both students and faculty.

Library hours are 7:45 to 11 p.m. Monday through Thursday, 7:45 a.m. to 5 p.m. Friday and Saturday, and 1 p.m. to 11 p.m. Sunday. The Library is closed on holidays.

#### **Computing Center**

The college has a computing center which provides computing services for students, faculty, and administrative personnel. It also provides services for research and other technological activities.

Equipment in the center is valued at approximately \$750,000 and includes a new Control Data Corporation 3300 digital computer system, a TR 48 analog computer, and other allied facilities.

#### **Accreditation**

All courses offered by the Lamar School of Vocations are accredited by the Texas Education Agency.

#### **Intramural Sports Program**

Under the supervision of the director of intramural sports, the Department of Physical and Health Education offers an intramural program with opportunities for participation in recreational physical activities. Participation is voluntary.

#### **Bookstore**

In order to reduce the cost of textbooks and for the convenience of faculty and students, the College operates its own bookstore where supplies and books, new and used, may be purchased.

Used books which are currently approved may be sold to the bookstore at prices much better than such books would ordinarily bring. Books which must be discontinued for very good reasons are not purchased by the Bookstore except at a salvage price.

The Bookstore reserves the right to require the seller to prove his ownership.

#### **Dining Hall**

The College owns and operates two dining halls located on the Main campus. Also, dining halls are maintained for residents of Brooks, Gentry, Plummer, and Shiver Halls.

Two snack bars are located in the Student Union Building and one in the School of Vocations Administration Building where sandwiches, soft drinks and light lunches are available.

**Placement Service**

Placement service is provided by the College and is available to all students, faculty, and former students. Prospective employers are invited to call or write the Testing and Placement Center for assistance in securing qualified part-time or full-time personnel.

**Student Part-Time Work**

The College and many local businesses and industries provide a number of part-time jobs which enable worthy students to earn part or all of their expenses while attending College. Applicants should contact the Director of Financial Aids and Awards.

**Student Insurance**

All students enrolled for nine or more semester hours are eligible to purchase accident and sickness insurance. Coverage is effective in the United States and Canada for a full twelve months. A brochure explaining the coverage and benefits is available at the office of the Director of Housing. The fee is approximately \$25.00 per year and is payable upon enrollment.

Medical care insurance is required of all foreign students.

**Student Activities**

Student life at the College includes many activities in addition to those connected with the courses of study. Some students are socially inclined and find an opportunity for the development of their interest in clubs and social affairs of the year. A wide assortment of opportunities of this nature is available. Others are interested in athletics and physical activities. For these there is a variety of intercollegiate and intramural sports. Still others may be interested in dramatics, music, publications, student government, or religious life, in all of which there are opportunities for participation under faculty guidance and cooperation.

**Veterans Education**

Lamar Tech holds a contract for educating veterans under the Vocational Rehabilitation Law, known as Public Law Number 16, and is an approved college for veterans under Public Law Number 346 and Public Law Number 550. The vocational training has been especially prepared for those who wish to establish themselves in business and industry in the Sabine-Neches area.

Veterans who are interested in continuing their education under federal laws providing such training are directed to secure information and aid in planning their college work by consulting the Office of Veterans' Education, Room 102, Administration Annex.

**Ex-Students Association**

An association of ex-students of Lamar was formed in the fall of 1943. Membership in this association is open to all former students, whether graduates or not. The Ex-Students Association promotes in every way possible the best interests of the College.

**Entering Dates**

Courses and schedules have been arranged so that students may enter Lamar three times per year. The approximate entering dates are June 1, September 15 and February 1. The current College Calendar gives information regarding registration periods and exact entering dates.

**SCHOLARSHIPS**

Many interested organizations and citizens annually give to deserving students a large number of scholarships which are awarded on a basis of merit. Generally, these scholarships are for tuition and fees only; however, in some cases they provide for textbooks and other expenses. Anyone interested in applying for a scholarship may obtain additional information concerning the program from the Chairman of the Scholarship Committee.

**Valedictorian Scholarships**

Lamar State College of Technology offers a scholarship to the highest ranking graduate of each fully affiliated high school of Texas.

Each scholarship exempts the holder from payment of the \$50.00 tuition.

**Students with Physical Handicaps: (Vocational Rehabilitation)**

The State Board of Vocational Education through the Vocational Rehabilitation Division, offers assistance on tuition to students who have certain physical disabilities, provided the vocational objective selected by the disabled persons has been approved by a representative of the Division. Application for Vocational Rehabilitation assistance should be made to the nearest rehabilitation office or to the Director of Vocational Rehabilitation, 302 Walton Building, Austin, Texas. The Beaumont office is located at 564 First Federal Savings Building.

**Health Center**

The College maintains a Health Center for the use of students during the long term or summer session.

Two types of service are available: (1) out-patient service for those who have minor ailments but who do not require constant supervision, and (2) infirmary service for those who are in need of the continued attention of the College physician or a registered nurse.

It is not possible for the College to provide unlimited medical service. Special medicines, examinations, treatments, X-ray examinations, and laboratory tests are not furnished by the College. However, no charge is made for care in the Health Center up to ten days each semester. A small fee for drugs, supplies, and special services may be charged students required to remain in the Health Center for more than ten days.

The Health Center, located on East Virginia near Combs Hall, is adequately staffed and equipped for treating acute illnesses and minor injuries. It is not intended that the Center will provide care for students requiring surgery or the services of specialists. In these cases, every effort will be made by the College physician or nurse to notify the parents or guardians of the students' needs.

The College assumes no responsibility for continued medical care for students having chronic diseases. These students should arrange for the care of a private physician located in Beaumont or vicinity.

In the event the Health Center is filled to capacity, the College is not under obligation to provide hospital service elsewhere. However, the Health Center has a sufficient number of beds for all normal needs.

Students who are ill should report promptly to the Center for diagnosis and treatment. They will not be treated in the dormitory or in rooming houses. The College will take appropriate disciplinary action against students who refuse to report for medical advice when ill.

### GENERAL REGULATIONS

#### Conditions of Admission

Meeting requirements as outlined below are necessary for admission to Day-Trade Preparatory Courses:

1. A minimum entrance age of 16 years is required for students applying for admission.
2. Evidence of graduation from an accredited high school.
3. Persons 21 years of age or over who have not graduated from an accredited high school may be admitted upon individual approval by the Director of The Lamar School of Vocations. A minimum age of 18 for discharged military personnel is acceptable.
4. Transfer from an accredited school of vocations. A transcript must be provided by the student.
5. All students must be of good moral character.

Meeting requirements as outlined below are necessary for admission to Trade Extension, Apprentice, Distributive Education and Supervisor Training Courses:

1. A minimum age of 18 years is required for admission.
2. Employed persons may enroll in classes in which the instruction given is confined to that which is supplementary to the daily employment of the workers enrolled. To be considered supplementary to the daily employment, the instruction must be such as will increase the skill or knowledge of the worker in the trade or industrial pursuit in which he is employed. This may improve his ability in the work that he is doing; help him to keep abreast of technological and economic changes in his occupation; or assist him to qualify for advancement in the field of work in which he is engaged.  
An interpretation would indicate that these courses are not preparatory in character. They are not designed to train workers in a trade or occupation other than the one in which they are daily employed.
3. Admission to these classes is based upon a statement by the student which shall include, (1) the name and address of his employer, (2) his payroll designation, and (3) a brief description of the duties of his daily employment.

### Course Numbering

Semester units of a course are numbered separately, and each number contains three figures. The first digit indicates the rank of the course; 1 means that it is for freshmen, 2 for sophomores. The second figure indicates the number of semester hours credit. The third figure usually indicates the order in which the course is taken, and is selected by the department concerned. Certain courses can be taken in two parts as indicated by numerals in parenthesis following a course number, such as 181 (141-142).

The letters a, b, or c following a course number indicates semester hours credit as follows: the letter a indicates 1 semester hour credit, b indicates 2 semester hours credit, and c indicates 3 semesters credit.

### Grading Systems

The semester grade of a student in a specific course is based upon recitation, written exercises, both oral and written tests, and the final examination. The final examination has a value of one-third of the final grade and the proportionate value of the other factors is determined by the instructor in charge of the course.

The four passing grades with the Grade Points awarded for each are listed below:

Grade	Description	Range	Gr. Pts. per Sem. Hr.
A	Excellent	90-100	3
B	Good	80-89	2
C	Fair	70-79	1
D	Passing	65-79	0

Any grade below 65 is failing and is recorded as an F. A grade of F requires satisfactory repeating of a course before any credit is awarded.

The grade "Inc." (Incomplete) is a temporary grade. It indicates that the student has satisfactorily completed the course with the exception of a major quiz, other work, or the final examination. A grade of "Inc." is given only when the deficiency is due to authorized absence or other cause beyond the control of the student and when the work already completed has been of acceptable quality.

A semester grade of "Inc." must be removed before the end of the first month of the next succeeding semester in the Lamar School of Vocations. Unless an Incomplete grade is made up within the time allowed the "Inc." will automatically be changed to a grade of "F."

A C average is required for graduation.

### Grade Reports

**Mid-Semester Report:** A preliminary report of the student's progress is sent to the parent or guardian approximately nine weeks after the beginning of each semester.

**Semester Reports:** A report of the student's work is sent directly to the parent or guardian at the conclusion of the semester.

Once a passing grade is made by a student, the grade cannot be raised without repeating the course.

**Grade Points**

For the purpose of computing cumulative and collective grade averages, grade points are assigned as follows: To the grade, A, 3 points; to B, 2 points; to C, 1 point; to D and F, 0 points. A student's grade-point average for a semester, or for a longer period, is obtained by multiplying the number of semester hours credit of each grade by the points assigned to the grade and dividing the sum of these several products by the total number of semester hours of all work taken, whether passed or failed.

**Reports**

Reports are sent out to parents and guardians at the end of each semester. Mid-semester reports are sent out by the Director of the Lamar School of Vocations to parents and guardians of students doing work below the passing grade (D). A failing grade reported at the mid-semester period represents the average grade to date of the student in the given course.

Students over 21, married or veterans may have grades sent directly to them if the Director is so notified.

**Honor List**

At the end of each semester the Director's office prepares a list of all the students who have no grades below A and a second list of all students who have no grades below B. These lists are known as honor lists for the semester and are made out in order to give recognition to those students whose scholastic rank is high and to encourage all students to improve their scholastic standing.

The "Distinguished Student" list is made up of the "A" honor list plus those of the "B" honor list who have at least 4 A's on twelve or more semester hours of work and no grade lower than B.

**Class Attendance and Absences**

1. Regular and punctual attendance in classes and laboratories is required.
2. An absence or a late attendance is classified as approval or unapproved.
  - (1) A student having an approved absence may make up examinations.
  - (2) A student having an unapproved absence does not have the privilege of makeup.
  - (3) Makeup of "shop time" is not permitted.
3. For college sponsored activities, the sponsor, coach, teacher, or supervisor submits to the Director of the School of Vocations a list of participating students, and a make-up permit is issued. The absences then become approved absences.
4. Absences are counted from the first meeting of the class.
5. All make-up work must be completed within ten days following the return to classes after absences.

6. Students who accumulate as many as 3 consecutive absences or who jeopardize their class work by irregular attendance are to be reported to the director.
7. Students who continue poor attendance may, at the discretion of the director, be dropped from the rolls of the class and given the grade of F.

#### **Changing Schedules**

No course may be added, changed or dropped without the permission of the Director of the School of Vocations. Usually a course may not be added after the first week of the semester (first 2 days of summer session). Likewise, section changes may not be made after a like period unless the change involves one instructor only. See college calendar.

#### **Withdrawals**

A student wishing to withdraw for the remainder of a semester, or term, should fill out a "Request for Withdrawal" form in the Office of the School of Vocations after clearing all financial obligations, and returning all uniforms, books, laboratory equipment and other materials to the point of original issue.

The director will then issue a Drop-Add-Withdrawal form in triplicate and distribute one copy each to the Registrar and the Vice-President of Finance.

On application the Office of Finance will return such fees as are returnable according to the schedule shown under the "Fees" section of this catalog. This return will be made only to the person withdrawing.

A student who leaves without an official withdrawal will receive a grade of "F" in all courses, and will forfeit all returnable fees. If the withdrawal is officially made, the student's record shows "Withdrawal" only except as shown under "Withdrawal to Enter Military Service."

#### **Withdrawal to Enter Military Service**

A student who withdraws after 10 weeks of a semester to enter military service will receive credit for all courses in which a grade of "C" or better is being made at time of withdrawal. A notation of "Drop" will be made for all courses in which the student is not passing at time of withdrawal.

#### **Class Attendance Probation**

Whenever a student accumulates an excessive number of absences and investigation indicates that at least some of these absences were avoidable, the student may be placed on Class Attendance Probation. If an additional avoidable absence occurs the student may be dropped from the rolls of the College. Instructors are expected to report promptly any absence of such a student.

**Scholastic Probation**

A student not making acceptable scholastic progress may be placed on scholastic probation if such procedure seems advisable but if a student makes less than nine semester hours and nine grade points scholastic probation becomes automatic.

A student on scholastic probation must attend all classes without fail and must show seriousness of purpose at all times. Failure to do so is sufficient cause for dismissal.

A student may be removed from scholastic probation at the end of any semester if acceptable scholastic progress has been made during that semester.

**Disciplinary Probation**

A student may be placed on disciplinary probation for unacceptable behavior at any time or place. The Dean of Men or the Dean of Women may classify behavior as unacceptable and may set the period of probation subject to the approval of the Dean. The student has the privilege of appealing the decision to the Disciplinary Committee of the College. This appeal is made through the office of the Vice-President of Academic Affairs.

Possession or use of alcoholic liquors on the campus is forbidden by law and the guilty student is subject to immediate dismissal as well as criminal prosecution. Possession or use of such liquors at any college sponsored function is classified as unacceptable behavior.

**Scholastic Progress**

1. **Regular.** A student is making regular scholastic progress when his cumulative record shows a grade point average of at least 1.0 on all courses taken provided that the semester hours are accumulated at a rate which will allow graduation in the usual allotted time for the training objective of the student.

2. **Acceptable.** A student not making regular scholastic progress may be making acceptable scholastic progress if the cumulative record shows reasonable evidence that the training objective will be reached in the normal number of semesters (supplemented by intervening summer sessions) remaining in his program of study.

**Registration Procedure**

The first step in registration is to provide the School Director with an Application for Admission. An Application for Admission is provided at the back of this catalog. Additional forms can be secured from the Office of the School of Vocations.

After receipt of the application, the Director will notify applicant of date, hour and place for registration. Prompt appearance at the appointed time and place will accelerate the registration procedure for the student. Advisors, program makers, and detailed directions for completion of registration will be provided.



It is strongly recommended that the new student consult the Director of the school before beginning of the semester so that an appropriate program of study may be planned.

Registration is completed by payment of tuition and fees.

Students who expect to attend under the Veterans' Benefit Plan should secure a certificate of eligibility from the Veterans' Administration before registration. The Veterans' Office of Lamar or the local Veterans' Administration Office will help in securing this certificate.

No one may register after the last date for registration for credit shown on the official calendar.

#### **Social Security Number Required**

The application for admission form calls for the applicant's Social Security Number. The number will be used as a permanent study number in machine processing of student records. Non-holders of Social Security cards should secure one so that the proper information can be entered on the application form.

#### **Admission to Class**

The only way to become a member of a class is to register for it through the regular registration procedure. After fees are paid, an admission card for each lecture and laboratory class is issued to the student by the Office of Finance and these cards must be used as tickets of admission to the courses for which the student is registered. The instructor's class roll is made up from these admission cards.

No admission will be permitted nor grade given unless the instructor has an official class admission card for the student.

#### **Graduation Under a Particular Catalog**

A student may complete his work for graduation according to the requirements of the catalog of the year in which he enters or of the year at the end of which he graduates, or that of any intervening catalog. The catalog selected is subject to the approval of the Director of the School.

The catalog year shall be considered as beginning with the Long Session in September. Students entering for the first time in the summer session are subject to the catalog for the Long Session immediately following.

Failure to complete the requirements for graduation within two years after the entering date will require the student to graduate under the regulations effective for the current graduating class.

The College reserves the right to institute and make effective, during the course of a student's work toward graduation, any new ruling which may be necessary for the general good of the College and to substitute courses currently offered for those no longer offered.

#### **Minimum Class Enrollment**

The College reserves the right not to offer any courses listed in this catalog unless there are at least twelve students who register for the course.

### **New Courses**

In order to meet changing educational requirements, the College reserves the right to add any needed courses at any time without regard to the listing of such courses in the catalog. It is expected that listing of these courses will appear in the next catalog issue.

The right to change numbers in order to indicate changes in semester hours credit is also reserved for the reason above. Elsewhere in this catalog under "Course Numbering" is a further explanation of this policy.

### **Classification of Students**

Students are classified as Freshmen, Sophomores, Unclassified, and Special. For the purpose of determining eligibility to hold certain offices and for other similar reasons, students are classified as follows:

**Freshman:** A regularly enrolled student with all entrance requirements met who has completed fewer than thirty semester hours.

**Sophomores:** A regularly enrolled student who has completed a minimum of thirty hours with thirty grade points.

**Unclassified:** Those students who do not wish to work toward a certificate or who do not meet entrance requirements.

**Special Students:** Those who do not expect to earn a certificate from Lamar. Special students are required to meet all entrance requirements.

### **Change of Address**

A change in home or Beaumont address should be immediately reported to the Office of the Director.

### **Discipline**

The College authorities assume that any student eligible for admission to the College is familiar enough with the ordinary rules of conduct for ladies and gentlemen to need no definite disciplinary regulations. The College reserves the right to place on disciplinary probation or to dismiss any student at any time for sufficient cause.

Any activity sponsored by any group of Lamar students recognized as such must conform to accepted behavior requirements of the College. The officers of the particular group are held responsible for the behavior of the participants in the sponsored activity. Failure to maintain this standard of behavior may subject the group to suspension of all social activities for as much as one long session.

### **Eligibility for Extracurricular Activities**

An extracurricular activity is understood to be any activity representing the student body, any student organization, any department or division organization or any activity representing the College.

Any full-time student not on disciplinary or scholastic probation who is regularly registered is eligible to become a candidate or to hold student office or to represent the College in any extracurricular activity provided such student has a grade point average of at least 1 for both the whole of his college work completed at Lamar and that of the preceding semester.

For the purpose of establishing eligibility, two six-week summer terms may count as one semester.

Transfer students have the same eligibility as freshman students until completion of one semester at Lamar.

#### **Eligibility for Intercollegiate Activities**

A high school graduate who has been admitted as a regular student and who is registered for a minimum of twelve semester hours is eligible for intercollegiate athletics in the Southland Conference of which Lamar is a member.

Further competition in intercollegiate athletics depends upon the student's ability to carry a minimum of twelve semester hours and to pass at least 9 semester hours with at least 9 grade points.

For further details on eligibility for intercollegiate athletics the student is directed to make inquiry of the Director of Athletics.

#### **Organization of Clubs**

Any group of Lamar students may organize a club on the campus if the objectives of the club are worthwhile.

In order to have faculty approval, clubs must meet the following requirements:

1. Membership must be limited to Lamar students.
2. Objectives must be worthwhile.
3. Must have a faculty sponsor.
4. Official list of officers and sponsor for the current semester must be on file in the Vice-President of Student Affairs.

#### **Official Summons**

An official summons from any administrative office, Division Director, or Department Head of the College takes precedence over all other College activities of the student and should be answered promptly on the day and hour designated. Failure to heed this official summons may subject the student to serious disciplinary action.

#### **Hazing**

Lamar State College of Technology is opposed to hazing in all of its various forms and will discipline all offenders in the spirit of the statutes governing this offense, as set forth in Chapter 4-A of Title 15 of Vernon's Criminal Statutes in the State of Texas.

**Telephone Service**

Public telephone pay stations have been installed in the Administration, Engineering, Home Economics, Union and Vocations Buildings. Students are expected to use these telephones for their personal calls. Office telephones are for the use of faculty and administrative personnel only. Incoming telephone calls for students are transmitted to the student between classes only, except in cases of emergency.

**STUDENT ACTIVITIES****Student Government**

All full-time students are automatically members of the Students Association of Lamar State College of Technology. Officers of the Association and representatives of the various classes are elected annually and make up the association's executive body known as the Student Council. The association affords an opportunity to promote and participate in student government and to manage a well-rounded program of student activities.

**Newspaper**

The *Redbird*, the official college newspaper, is published regularly by a self-organized staff elected from the student body. The publication serves both as a medium of training and as a source of information. Any student is eligible to become a staff member.

**College Annual**

The *Cardinal* is the official annual of Lamar Tech. Any student is eligible to become a staff member. Those interested are urged to apply.

The *Student Handbook* is published primarily for the benefit of new students. Pertinent information concerning the College and student activities is given in this publication.

**Artist Series**

The Artist Series Committee is made up of students and faculty. The committee annually arranges for the presentation in the college auditorium of a number of programs by professional artists and entertainers.

**Student Organizations**

The 94 student organizations currently active on the campus offer student membership in one or more service, professional, religious, social or mutual interest clubs.

FEEES AND EXPENSES

EXPENSES

Payment of Fees.

Lamar State College of Technology reserves the right to change fees in keeping with acts of the Texas Legislature.

A student is not registered until all his fees are paid in full. Payment may be made by check, money order, or currency. Checks and money orders, not in excess of total fees, should be made payable to Lamar State College of Technology and will be accepted subject to final payment.

Fees Summary

Resident Students (Texas)

Semester Hours	Tuition	S.S. Fee	Bldg. Use Fee	Total + Laboratory Fees	
12 or more	\$50.00	\$22.00	\$26.00	\$98.00	+ Lab fee
11	47.00	22.00	26.00	95.00	" " "
10	43.00	22.00	26.00	91.00	" " "
9	39.00	22.00	26.00	87.00	" " "
8	35.00	22.00	26.00	83.00	" " "
7	31.00	8.00	13.00	52.00	" " "
6	27.00	8.00	13.00	48.00	" " "
5	23.00	8.00	13.00	44.00	" " "
4	19.00	8.00	13.00	40.00	" " "
3 or less	15.00	8.00	13.00	36.00	" " "

Non-Resident Student (out of Texas)

Semester Hours	Tuition	S.S. Fee	Bldg. Use Fee	Total + Laboratory Fees	
12 or more	\$200.00	\$22.00	\$26.00	\$248.00	+ Lab fee
11	183.00	22.00	26.00	231.00	" " "
10	167.00	22.00	26.00	215.00	" " "
9	150.00	22.00	26.00	198.00	" " "
8	133.00	22.00	26.00	181.00	" " "
7	117.00	8.00	13.00	138.00	" " "
6	100.00	8.00	13.00	121.00	" " "
5	83.00	8.00	13.00	104.00	" " "
4	66.00	8.00	13.00	87.00	" " "
3 or less	50.00	8.00	13.00	71.00	" " "

For summer session students, the student service fee is \$12.00.

These fees have been approved by appropriate acts of the Legislature of the State of Texas.

**Students' Responsibility for Residence Classification**

The responsibility of registering under proper residence classification is that of the student, and if there is any possible question of his right to classification as a resident of Texas, it is his obligation prior to or at the time of his registration, to raise the question with the Director of the School of Vocations and have his status officially determined.

Every student who is classified as a resident student but who becomes a non-resident at any time by virtue of a change of legal residence by his own action or by the person controlling his domicile is required to notify the Director of the School of Vocations.

Students failing to comply with the residency provision of the State tuition bill (Art. 2645c V.C.S. as amended 1957) are subject to penalties.

**Laboratory Fees**

For all courses in which the combined credit of lecture and laboratory is from 1 to 3 semester hours, a laboratory fee of \$2.00 is charged for each semester. For such courses in which the credit is 4 semester hours or more, the laboratory fee is \$4.00 per semester.

**Parking Fee**

Charges for parking on campus are made at the time a student is registered. In each instance, a student's parking fee is honored up to the end of the current fiscal year, which is August 31.

Registration of an automobile in September is \$10.00. The February fee is \$6.00. A student registering for the first Summer Session is charged \$4.00, and for the second Summer Session the fee is \$2.00.

Only one registration is required for one school year.

**Returned Check Fees**

If a check is returned unpaid, the student is automatically suspended from college, but may re-enter upon redemption of the check plus payment of the return check fee of \$2.00.

**Miscellaneous Fees**

Certification of Completion .....	\$4.00
Late Registration .....	5.00
Returned Checks .....	2.00
Transcript Fee .....	.50

**Health and Accident Insurance**

Additional health and accident coverage providing protection over and beyond that given by the health center is available at registration for students carrying 9 or more semester hours. The fee is \$25.00 (estimated).

For their protection and welfare this (or similar) insurance is **required** of all foreign students.

**Fines and Breakage Loss**

All library fines, breakage or loss of equipment charges, or other charges must be paid before a transcript of credit or a permit to re-enter college will be issued.

The College reserves the right to make a special assessment against any student guilty of inexcusable breakage or loss of instructional equipment or other college property.

**Special Fees**

Fees for courses for which special plans must be prepared and for which specialists must be secured as instructors will be set for each such course by the college administration subject to the approval of the president.

**Exemption 1. Scholarships to High School Honor Graduates**

The highest ranking student in the graduating classes of fully affiliated Texas high schools will be entitled to a scholarship at Lamar State College of Technology. The scholarship is valued at \$100.00 and must be utilized during the long session immediately following graduation.

**Exemption 2. Ex-service Men of World War I and World War II**

Men and women who were citizens of Texas and who were inducted in the Armed Forces in Texas in World War I or World War II and were honorably discharged therefrom, and who are not eligible for educational benefits provided for veterans of the United States Government, are exempted from payment of tuition but not from other fees. To obtain this exemption the service record, discharge papers, or other necessary papers must be presented at the time of registration.

The above exemption also extends to children of members of the Armed forces who were killed in action or died while in the service in World War II.

**Refund of Fees**

Any student withdrawing officially will receive a refund of his registration and service fee according to the following schedule:

**Long Session**

1. During the first two weeks of the semester, 80 percent.
2. During the third week of the semester, 60 percent.
3. During the fourth week of the semester, 40 percent.
4. During the fifth week of the semester, 20 percent.

**Summer Session**

1. During the first two weeks of the semester, 60 percent.
2. After first two weeks no refund.

No refunds are made when dropping courses. All refunds will be computed from the official date on which classes are scheduled to begin.

**HOUSING**

Proposed housing arrangements must be approved before a student can be accepted for admission or re-enrollment. A completed Request for Approval of Housing form must be submitted by all students seeking to enroll. The admission of new students and the re-admission of returning students is dependent upon submission of this form and approval of housing arrangements by the Housing office.

The housing program is part of the total educational plan of the college. The Board of Regents has committed the college to maintaining full occupancy of all rooms in the dormitories. For these reasons, students are required to live in college housing and to take their meals in college dining halls.

Permission to live off-campus can be granted only to:

- (1) Students who live with parents or relatives.
- (2) Married students who live with their wives or husbands.
- (3) Students whose health conditions demand special services.

If college housing is not available, upperclassmen will be permitted to live in approved off-campus housing until such time as they can be accommodated in a dormitory. The Assistant to the Dean of Student Life will review all requests for permission to live off campus. The college reserves the right to require campus residence of any student. A student who gives a false statement concerning his place of residence will be subject to suspension.

**Residence Halls****Dormitories**

Lamar dormitories offer the latest features in student housing. They are designed for maximum comfort and are conducive to enrichment through community living. The dormitories are organized into units for purposes of self-government, intramural athletics, and social life, offering opportunities for student growth and development in democratic living. Television, game areas, lounges are available for leisure-time activities. Each dormitory room has telephone service through the campus switchboard for inter-campus and Beaumont exchange calls. Free self-service laundry facilities are provided for dormitory.

Brooks (Women), Gentry (women), Plummer (men) and Shivers (men) are the newest additions to campus housing. These four dormitories are centrally heated and air conditioned. Rooms are shared by two students, and each room has its own dressing mirror and lavatory. Students take their meals in the dormitory dining hall.

Campbell (men), Combs (men), Morris (men) and Gray (women) house three students to each room. Suites of two rooms share a common bath and lavatory facilities. These dormitories are not centrally air conditioned, but a limited number of rooms in Morris and Gray Halls have window units that may be used by students who desire this type of accommodation. An extra charge is necessary for this service. Students living in these dormitories take their meals in the college Dining Hall located conveniently to them. All dining halls serve three meals per day except on Sundays when only breakfast and lunch are served.



**Apartments (upperclassmen)**

The college maintains a number of apartment units for upperclassmen who desire this type of housing facility. These apartments are completely furnished, and each consists of kitchenette, private bath, built-in closets, and combination living room and bedroom area. A central laundry room is available at no extra cost. Charges for board and room are \$774.00, plus tax, for the nine-month term. Charges for room only per month for the nine-month term are \$324.00. Apartments with air conditioning cost \$20 per month in addition to regular room charges. For the convenience of students wishing an installment plan, three payments may be made to the Finance Office.

**Apartments (married students)**

A limited number of accommodations for married students are located on the campus and are operated by the college. Although ample for a couple, these apartments are not large enough to permit occupancy by children.

Each apartment consists of kitchenette, bath, two clothes closets, and combination living room-bedroom. These apartments are completely furnished with fold-away beds, living room furniture, dinette set, kitchen stove, refrigerator, and window fan. There is also a central laundry with automatic washers and dryers available at no additional charge.

These apartments rent for \$594.00 for the nine months period. This rental includes all utilities except telephones. Renters may make direct arrangements with the telephone company if they desire telephone service.

For the convenience of students who wish to pay rentals by the month, the charges may be arranged in nine equal payments of \$66 each.

Some of these apartments are air-conditioned from April 15 to October 15. An additional \$20 per month is charged for this service.

For information regarding these apartments, write the Assistant to the Dean of Student Life. A \$20 room deposit is required to reserve an apartment. For those reserving apartments for the fall term the first payment of \$66 is due by September 5. If this first payment is not received by September 5, the apartment will not be held and the deposit will be forfeited. A partment residents will be refunded deposits when moving, less breakage or cleaning charges.

Rent refunds will not be made to students who move out during any month.

**Assignments.**

Permanent assignments cannot be made until the student reports for check-in. The college reserves the right to assign students to specific apartments, dormitories and room as it deems necessary. Students may request certain apartments, dormitories and rooms, and all possible consideration will be given each request. Students already living in college owned housing units have the first choice for rooms and apartments the following semester.

**Reservations**

To reserve a room in the dormitories or an apartment, direct a request to the Assistant to the Dean of Student Life, Lamar State College of Technology, 201 Student Union Building, eBaumont, Texas 77704. A check for \$20.00 must accompany the reservation request. Reservations may be cancelled with full refund until three weeks prior to the first day of classes.

No refunds will be issued on cancellations received after this date. All unclaimed rooms and apartments will be declared vacant and the deposit forfeited at 6:00 p.m. on the last day of registration unless the student gives the Assistant to the Dean of Student Life office written instructions to hold the room or apartment for a longer period. Residents will be refunded deposits, less any breakage charges, at the end of a semester on proper withdrawal from the housing unit. The deposit will not be refunded if the student moves from the housing system prior to the end of a semester or for any other reason: this includes the student who is dropped from school for disciplinary reasons.

### Costs

#### Apartments

For rent costs of the apartments see the section on residence halls.

#### Dormitories

The charge for board and room for the nine-month term is \$720.00, plus state sales tax, for Campbell, Combs, Gray, and Morris Halls, and \$810, plus state sales tax, for Brooks, Gentry, Plummer and Shivers Halls. Charges for a full semester may be paid at the beginning of each semester. For the convenience of those who desire, payments may be spread over the semester according to the plans indicated below. Students are required to pay the room rent for the semester in September and February, but may purchase meal tickets on a monthly basis according to one of the following plans.

Rates for Brooks (women), Gentry (women), Plummer (men) and Shivers (men) Halls:

September .....	\$180.00	(semester room rent)
	29.48	(first board payment)
	<u>\$209.48</u>	(paid at check-in time)
October (board payment) .....	60.92	
November (board payment) .....	53.06	
December (board payment) .....	37.34	
January (board payment) .....	41.27	
	<u>\$402.07</u>	(total charge for fall semester)
	\$180.00	(semester room rent)
	66.81	(February board payment)
	<u>\$246.81</u>	(paid at start of semester)
March (board payment) .....	55.02	
April (board payment) .....	47.16	
May (board payment) .....	58.94	
	<u>\$407.93</u>	(total charge for spring semester)
Total (Fall & Spring Semesters)	\$810.00	
Rates for Campbell (men), Combs (men), Gray (women), and Morris (men) Halls:		
September .....	\$135.00	(semester room rent)
	29.48	(first board payment)
	<u>\$164.48</u>	(paid at check-in date)

October (board payment) .....	60.92	
November (board payment) ...	53.06	
December (board payment) ....	37.34	
January (board payment) .....	41.27	
	<u>\$357.07</u>	(total charge for fall semester)
	\$135.00	(semester room rent)
	66.81	(February board payment)
	<u>\$201.81</u>	(paid at start of semester)
March (board payment) .....	55.02	
April (board payment) .....	47.16	
May (board payment) .....	58.94	
	<u>\$362.93</u>	(total charge for spring semester)
Total (Fall & Spring Semester)	\$720.00	

Board charges currently subject to 2% sales tax.

If the payment plan is elected, the semester's rent and the first board payment are due when the student checks into the dormitory and on the first day of registration for subsequent semesters. Subsequent board payments are due before the first day of each payment month. A \$5.00 late fee will be charged for payments made after the fifth unless a delay in payment is approved by the assistant to the Dean of Student Life prior to the deadline.

When students move into a dormitory, they automatically enter into a contract for room and board for the fall and spring semester, unless they officially withdraw from college or obtain special permission from the Assistant to the Dean of Student Life to live elsewhere.

Several rooms in Gray and Morris Halls are equipped with window unit air conditioners. The cost for air conditioning, assessed only during months of operation, is \$20 per semester in addition to regular room charges, regardless of the number of occupants per room. Occupants share this additional cost.

#### Change in Rates

The college reserves the right to change rent and board rates with ten days notice.

#### Summer School Housing

If Combs, Morris, Campbell, and Gray Halls are utilized for summer sessions the charges for board and room for each session will be \$128.00, plus tax. This is payable at the time of admission to the dormitory. Air conditioned rooms are \$30.00 per six weeks in addition to the regular share. Occupants share this costs. If Brooks and Shivers hall are utilized for the summer sessions the charges will be \$143.00 plus tax, for each session.

**Refunds for Board and Room**

A resident student may obtain a refund for board and for rent under the conditions listed below:

1. A written approval must be obtained from the Assistant to the Dean of Student Life and presented to the Finance Office.
2. The student must have been absent for approved cause in excess of ten consecutive days. The amount of the board refund will be on a pro rata basis beginning with the eleventh day of absence. No refund will be issued for rent.
3. A student who withdraws from college two weeks prior to the end of the semester will be refunded board charges on a pro rata basis for all meals paid for in advance. Rent will be refunded on a pro rata basis on all days remaining in the semester except for days remaining in the months of withdrawal.
4. No refunds will be made for either board or rent for official holidays or for absence from the campus other than those explained above since deductions for these were considered in determining the semester charge.

## SCHOOL OF VOCATIONS

The School of Vocations offers a curriculum of vocational subjects through two general programs: (1) Trade Preparatory Courses, and (2) the Extended Day Program, for persons desiring to attend a part-time program of study.

Trade Preparatory Courses are offered in the following departments: (1) Data Processing, (2) Diesel Engines, (3) Drafting, (4) Electricity and Electronics, (5) Machine Shop, (6) Refrigeration and Air-Conditioning, (7) Vocational Nursing, and (8) Welding. The courses offered in the several departments of trade-preparatory work are designed to give the student trade training prior to his entrance into a skilled trade or occupation. Completion of one of these courses should provide the student with sufficient knowledge and skill to enter and advance in his chosen vocation or any one of a large number of closely allied occupations.

Extension and evening courses are provided throughout the Fall and Spring Semesters for employed persons who desire to extend their occupational knowledge of skills in the trade in which they are employed. These are grouped into five broad classifications as follows: (1) Apprentice Training, for those employed as apprentices in the skilled trades, (2) Distributive Education, consisting of classes for those engaged in retailing, wholesaling or service occupations, (3) Trade Extension or courses for tradesmen of journeyman grade. (4) Courses for persons employed in Industrial Supervision and Leadership, and (5) Conferences and Short Courses.

### TRADE PREPARATORY COURSES

#### Programs of Study

#### Full-Time Trade Preparatory

#### DATA PROCESSING

A two-year course leading to Certificate of Completion and employment in one of the many fields of data processing.

First Year		Second Year	
Data Processing 151-162	11	Data Processing 251-264	11
Data Processing 161-163	12	Data Processing 252-245	9
Data Processing 131-132	6	Data Processing 253-256	10
Math 136-137	6	Math 237-238	6
Basic Com. 131-132	6	Job Relations 221-222	4
	41		40

#### DRAFTING

A two-year course leading to a Certificate of Completion and employment as a draftsman.

First Year		Second Year	
Drafting 181-182	16	Drafting 281-282	16
Drafting 151-152	10	Drafting 251-252	10
Math. 131-135	6	Math. 235-236	6
Basic Com. 131-132	6	Job Relations 221-222	4
Electives (By Approval)	4	Electives (By Approval)	4
	42		40

**DIESEL ENGINES**

A two-year course of study leading to a Certificate of Completion in Diesel Engines and employment as a diesel technician or in one of the many occupations dealing with the selling installation, operation, maintenance and repairing of diesel engines.

<b>First Year</b>		<b>Second Year</b>	
Diesel Engines 181-182 .....	16	Diesel Engines 281-282 .....	16
Diesel Engines 151-152 .....	10	Diesel Engines 251-252 .....	10
Math. 131-132 .....	6	Math. 231-232 .....	6
Basic Com. 131-132 .....	6	Job Relations 221-222 .....	4
Electives (By Approval) .....	4	Electives (By Approval) .....	4
	42		40

**INDUSTRIAL ELECTRICITY AND ELECTRONICS**

A two-year course of study leading to a Certificate of Completion and employment as an electrician or electronics technician or in one of the allied trades or occupations.

<b>First Year</b>		<b>Second Year</b>	
Electricity 181-182 .....	16	Electricity 281-282 .....	16
Electricity 151-152 .....	10	Electricity 251-252 .....	10
Math. 133-134 .....	6	Math. 233-234 .....	6
Basic Com. 131-132 .....	6	Job Relations 221-222 .....	4
Electives (By Approval) .....	4	Electives (By Approval) .....	4
	42		40

**MACHINE SHOP PRACTICE**

A two-year course of study leading to a Certificate of Completion in Machine Shop Practice and employment in the trade or an allied trade or occupation.

<b>First Year</b>		<b>Second Year</b>	
Machine Shop 181-182 .....	16	Machine Shop 281-282 .....	16
Machine Shop 151-152 .....	10	Machine Shop 251-252 .....	10
Math. 131-132 .....	6	Math. 231-232 .....	6
Basic Com. 131-132 .....	6	Job Relations 221-222 .....	4
Electives (By Approval) .....	4	Electives (By Approval) .....	4
	42		40

**REFRIGERATION AND AIR-CONDITIONING**

A two-year course of study leading to a Certificate of Completion and employment as a refrigeration and air air-conditioning technician in one of the allied trades or occupations dealing with the selling or servicing of refrigeration equipment, parts and supplies.

First Year		Second Year	
Refrigeration 181-182 .....	16	Refrigeration 281-282 .....	16
Refrigeration 151-152 .....	10	Refrigeration 251-252 .....	10
Math. 131-132 .....	6	Math. 231-232 .....	6
Basic Com. 131-132 .....	6	Job Relations 221-222 .....	4
Electives (By Approval) .....	4	Electives (By Approval) .....	4
	42		40

**WELDING**

A two-year course of study leading to a Certificate of Completion in Welding and employment as a welder or in a trade or occupation requiring knowledge of welding and welding equipment and supplies.

First Year		Second Year	
Welding 181-182 .....	16	Welding 281-282 .....	16
Welding 151-152 .....	10	Welding 251-252 .....	10
Math. 131-132 .....	6	Math. 231-232 .....	6
Basic Com. 131-132 .....	6	Job Relations 221-222 .....	4
Electives (By Approval) .....	4	Electives (By Approval) .....	4
	42		40

**VOCATIONAL NURSING**

The objective of this program of study is to prepare the student to become an efficient bedside nurse in the hospital and the home. Upon successful completion of the course, the graduate is eligible to take the examination given by the State Board of Vocational Nurse Examiners to become a Licensed Vocational Nurse (L.V.N.).

The vocational nursing program at Lamar Tech comprises four months of classroom and laboratory study and eight months of study in the patient situation in the hospitals that are affiliated with the vocational nursing program. The student is allowed a stipend for maintenance during the eight months of study in the hospitals.

This is a full-time educational program and will require the student to spend approximately forty hours per week in the classroom or in the hospital for the twelve months training program.

First Semester		Second Semester	
Voc. Nursing 121 .....	2	Voc. Nursing 126 .....	2
Voc. Nursing 122 .....	2	Voc. Nursing 127 .....	2
Voc. Nursing 133 .....	3	Voc. Nursing 176 .....	7
Voc. Nursing 144 .....	4	Voc. Nursing 177 .....	7
Voc. Nursing 175 .....	7		18
	18		
		Third Semester	
		Voc. Nursing 128 .....	2
		Voc. Nursing 129 .....	2
		Voc. Nursing 178 .....	7
		Voc. Nursing 179 .....	7
			18

## COURSE DESCRIPTIONS

**Basic Communications 131.** The objective of this course is to prepare the student to speak and write correctly. Subject matter will be taken from the work being done by the student in the shops and will include the terminology and nomenclature of his trade, letter writing and oral and written reports. Lec. 3 hrs. Credit: 3 semester hours.

**Basic Communications 132.** The preparation of specifications, inventories, orders for supplies, tools and equipment, and the use of the telephone and telegraph in connection with the trade of the student will be stressed. Lec. 3 hrs. Credit: 3 semester hours.

**Data Processing 151. Computer Fundamentals.** Problem flow-charting, study of number systems, evolution of computer systems, input/output devices and storage devices. Introduction to the 1401. Lec. 4 Hrs. Lab 3 Hrs. Credit: 5 semester hours.

**Data Processing 161. Unit Record Equipment.** Survey of unit record equipment. Independent system and unit support. Lec. 4 Hrs. Lab 5 Hrs. Credit: 6 semester hours.

**Data Processing 131. The Business Environment.** Business organizations, concepts, structures and accounting principles. Lec. 3 Hrs. Credit: 3 semester hours.

**Data Processing 132. The Business Environment.** Human relations, social science, statistics. Prerequisite: DP 131. Lec. 3 Hrs. Credit: 3 semester hours.

**Data Processing 162. Programming Introduction.** Programming the IBM 1401. Programming systems, languages, compilers, assemblers, report generators. Prerequisite: DP 151. Lec. 4 Hrs. Lab 4 Hrs. Credit: 6 semester hours.

**Data Processing 163. Macro and High Level Programming.** Magnetic tape and direct access devices (disks), macros, high level languages, COBOL, FORTRAN and RPG. Prerequisite: DP 162. Lec. 4 Hrs. Lab 4 Hrs. Credit: 6 semester hours.

**Data Processing 251. Programming Management and Accounting Systems.** Lec. 3 Hrs. Lab 4 Hrs. Credit: 5 semester hours.

**Data Processing 252. Business Applications.** Effective use of data process equipment in meeting business needs. Prerequisite: DP 132 Lec. 3 Hrs. Lab 4 Hrs. Credit: 5 semester hours.

**Data Processing 253. Linear Programming and Model Design.** Matrix algebra and linear programming. Prerequisite: Math 137. Lec. 4 Hrs. Lab 2 Hrs. Credit: 5 semester hours.

**Data Processing 264. Engineering Computer Application.** Non-business application. Math review, study of process control and other real-time applications. Prerequisite: DP 163. Lec. 4 Hrs. Lab 4 Hrs. Credit: 6 semester hours.



**Data Processing 245. Data Field Project.** A data processing application from start to finish. This will include system analysis, programming diagramming, documentation, procedures, maintenance and operation. Prerequisite: DP 251. Lec. 2 Hr. Lab 4 Hrs. Credit: 4 semester hours.

**Data Processing 256. Survey of Third Generation Structures and Languages.** A study of BYTE-WORD relationships. Lec. 4 Hrs. Lab. 2 Hrs. Credit: 5 semester hours.

**Diesel Engines 151.** The diesel cycle, its advantages and applications. The basic problems of operations and the design and construction of the diesel engines are studied. Lec. 5 Hrs. Credit: 5 semester hours.

**Diesel Engines 152.** Maintenance and repair problems of the diesel engine. The checking of bearing clearances and the installation of piston rings is stressed. Prerequisite: Diesel Engines 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Diesel Engines 251.** A comprehensive study of diesel fuels and lubricating oils. The electrical and gasoline starting systems are also stressed. Prerequisite: Diesel Engines 152. Lec. 5 Hrs. Credit: 5 semester hours.

**Diesel Engines 252.** Fuel injection systems, engine tune-up and trouble shooting. Prerequisite: Diesel Engines 251. Lec. 5 Hrs. Credit: 5 semester hours.

**Diesel Engines 181.** This is the first in a series of four shop courses on the installation, operation, maintenance and repair of diesel engines. The correct usage of hand tools and precision instruments is developed in this course. Practice in the correct procedures for the disassembly and assembly of the diesel engine is provided. Lec. 1 Hr. Lab 14 Hrs. Credit. 8 semester hours.

**Diesel Engines 141.** This is the first in a series of four shop courses on the installation, operation, maintenance and repair of diesel engines. The correct usage of hand tools and precision instruments is developed in this course. Practice in the correct procedures for the disassembly and assembly of the diesel engine is provided. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Diesel Engines 142.** This is the first in a series of four shop courses on the installation, operation, maintenance and repair of diesel engines. The correct usage of hand tools and precision instruments is developed in this course. Practice in the correct procedures for the disassembly and assembly of the diesel engine is provided. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 141. Credit: 4 semester hours.

**Diesel Engines 182.** Maintenance and repair of diesel engines. Inspecting and checking parts for wear and the refitting and replacing of bearings and piston rings is stressed. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Diesel Engines 181 or 141 and 142. Credit: 8 semester hours.

**Diesel Engines 143.** Maintenance and repair of diesel engines. Inspecting and checking parts for wear and the refitting and replacing of bearings and piston rings is stressed. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 181 or 141 and 142. Credit: 4 semester hours.

**Diesel Engines 144.** Maintenance and repair of diesel engines. Inspecting and checking parts for wear and the refitting and replacing of bearings and piston rings is stressed. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 143. Credit: 4 semester hours.

**Diesel Engines 281.** A study of the fuel and lubricating systems and how they are serviced and repaired. Blowers and superchargers will also be serviced and repaired in the course. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Diesel Engines 182 or 143 and 144. Credit: 8 semester hours.

**Diesel Engines 241.** A study of the fuel and lubricating systems and how they are serviced and repaired. Blowers and superchargers will also be serviced and repaired in the course. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 182 or 143 and 144. Credit: 4 semester hours.

**Diesel Engines 242.** A study of the fuel and lubricating systems and how they are serviced and repaired. Blowers and superchargers will also be serviced and repaired in the course. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 241. Credit: 4 semester hours.

**Diesel Engines 282.** The final course in a series of four shop courses on the diesel engine. This one will stress the servicing and repairing of fuel injector and governors, the tuning-up of the engine and the diagnosing of engine troubles. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Diesel Engines 281 or 241 and 242. Credit: 8 semester hours.

**Diesel Engines 243.** The final course in a series of four shop courses on the diesel engine. This one will stress the servicing and repairing of fuel injector and governors, the tuning-up of the engine and the diagnosing of engine troubles. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 281 or 241 and 242. Credit: 4 semester hours.

**Diesel Engines 244.** The final course in a series of four shop courses on the diesel engine. This one will stress the servicing and repairing of fuel injector and governors, the tuning-up of the engine and the diagnosing of engine troubles. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Diesel Engines 243. Credit: 4 semester hours.

**Drafting 151.** Instruments and materials of the professional draftsman. The course will include geometric constructions, orthographic projections, sections conventions, various methods of pictorial drawing and other technology as required in the profession. Lec. 5 Hrs. Credit: 5 semester hours.

**Drafting 152.** ASME standards, pipe and fitting designs, symbols and specifications, and the layout of process systems. Prerequisite: Drafting 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Drafting 251.** AISC specifications and standards, basic strength of materials, structural theory and data. Detailing structure members and connections. Prerequisite: Drafting 152. Lec. 5 Hrs. Credit: 5 semester hours.

**Drafting 252.** Architectural drafting techniques, symbols for materials, symbols used in plans, elevations, plumbing and electrical symbols, foundations, floor plans, roof plans and other technology will be included in this course. Prerequisite: Drafting 251. Lec. 5 Hrs. Credit: 5 semester hours.

**Drafting 181.** This is the first in a series of four courses in the use of drafting instruments, freehand and mechanical lettering, conventional signs and symbols, orthographic projection and pictorial drawing. This is a comprehensive laboratory course in basic drafting procedures and skills and is planned as a preparation for the three succeeding courses which will provide practice in the skills required in specialized types of drafting. Lec. 1 Hr. Lab 14 Hrs. Credit: 8 semester hours.

**Drafting 141.** This is the first in a series of four courses in the use of drafting instruments, freehand and mechanical lettering, conventional signs and symbols, orthographic projection and pictorial drawing. This is a comprehensive laboratory course in basic drafting procedures and skills and is planned as a preparation for the three succeeding courses which will provide practice in the skills required in specialized types of drafting. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Drafting 142.** Freehand and mechanical lettering, conventional signs and symbols, orthographic projection and pictorial drawing. This is a comprehensive laboratory course in basic drafting procedures and skills and is planned as a preparation for the three succeeding course groups which will provide practice in the skills required in specialized types of drafting. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 141. Credit: 4 semester hours.

**Drafting 182.** Drafting of piping for processing systems, flow diagrams, vessels, heat exchanges, compressors and mechanical equipment. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Drafting 181 or 141 and 142. Credit: 8 semester hours.

**Drafting 143.** Drafting of piping for processing systems, flow diagrams, vessels, heat exchanges, compressors and mechanical equipment. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 181 or 141 and 142. Credit: 4 semester hours.

**Drafting 144.** Drafting of piping for processing systems, flow diagrams, vessels, heat exchanges, compressors and mechanical equipment. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 143. Credit: 4 semester hours.

**Drafting 281.** Drafting of plans, sections and details and specifications for industrial structures which will include structural steel, pipe and concrete reinforcing rods. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Drafting 182 or 143 and 144. Credit: 8 semester hours.

**Drafting 241.** Drafting of plans, sections and details and specifications for industrial structures which will include structural steel, pipe and concrete reinforcing rods. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 182 or 143 and 144. Credit: 4 semester hours.

**Drafting 242.** Drafting of plans, sections and details and specifications for industrial structures which will include structural steel, pipe and concrete reinforcing rods. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 241. Credit: 4 semester hours.

**Drafting 282.** Drafting of plans for construction in wood, metals and masonry. The course will include foundations, floor and roof plans, window and door sections, and other details of construction. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Drafting 281 or 241 and 242. Credit: 8 semester hours.

**Drafting 243.** Drafting of plans for construction in wood, metals and masonry. The course will include foundations, floor and roof plans, window and door sections, and other details of construction. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 281 or 241 and 242. Credit: 4 semester hours.

**Drafting 244.** Drafting of plans for construction in wood, metals and masonry. The course will include foundations, floor and roof plans, window and door sections, and other details of construction. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Drafting 243. Credit: 4 semester hours.

**Electricity 151.** Basic laws and fundamental theories of electricity, Ohms law, series and parallel circuits, direct current, conductor and insulators, resistors, batteries, magnetism and electromagnetic induction. Lec. 5 Hrs. Credit: 5 semester hours.

**Electricity 152.** Alternating current circuits, inductive and capacitive circuits, inductive and capacitive reactance, resonance, filters, electron tubes and transistors. Prerequisite: Electricity 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Electricity 251.** Alternating current motors and alternators, single phase and polyphase, direct motors and generators repair and rebuilding, transformer connections, distribution systems. The principles and operation of rectifiers, amplifiers, oscillator transmitter and receivers are covered. Prerequisite: Electricity 152. Lec. 5 Hrs. Credit: 5 semester hours.

**Electricity 252.** Application of theory to practical work on instruments and meters in calculation of power circuits, modern industrial electronic circuits, F.C.C. Second and Third Class License requirements are covered. Prerequisite: Electricity 251. Lec. 5 Hrs. Credit: 5 semester hours.

**Electricity 181.** The tools and materials of the electrical trade as well as the basic shop skills. Lighting and signal wiring is practiced and proper safety practices in handling electricity are emphasized. Lec. 1 Hr. Lab 14 Hrs. Credit: 8 semester hours.

**Electricity 141.** The tools and materials of the electrical trade as well as the basic shop skills. Lighting and signal wiring is practiced and proper safety practices in handling electricity are emphasized. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Electricity 142.** The tools and materials of the electrical trade as well as the basic shop skills. Lighting and signal wiring is practiced and proper safety practices in handling electricity are emphasized. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: IEE 141. Credit: 4 semester hours.

**Electricity 182.** All types of modern residential and commercial wiring systems used in this course and shop methods of testing, repairing and maintaining electrical appliance and equipment are practiced. Lec. 1 Hr. Lab 15 Hrs. Prerequisite: Electricity 181 or 141 and 142. Credit: 8 semester hours.

**Electricity 143.** All types of modern residential and commercial wiring systems used in this course and shop methods of testing repairing and maintaining electrical appliance and equipment are practiced. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Electricity 181 or 141 and 142. Credit: 4 semester hours.

**Electricity 144.** All types of modern residential and commercial wiring systems used in this course and shop methods of testing, repairing and maintaining electrical appliance and equipment are practiced. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Electricity 143. Credit: 4 semester hours.

**Electricity 281.** Diagnosis of motor and control equipment, rewinding and repair of single and polyphase alternating current motors, direct current motors, A.C. transformer and connections, blueprint reading, meters and neon signs. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Electricity 182 or 143 and 144. Credit: 8 semester hours.

**Electricity 241.** Diagnosis of motor and control equipment, rewinding and repair of single and polyphase alternating current motors, direct current motors, A.C. transformer and connections, blueprint reading, meters and neon signs. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Electricity 182 or 143 and 144. Credit: 4 semester hours.

**Electricity 242.** Diagnosis of motor and control equipment, rewinding and repair of single and polyphase alternating current motors, direct current motors, A.C. transformer and connections, blueprint reading, meters and neon signs. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Electricity 241. Credit: 4 semester hours.

**Electricity 282.** Lab experiments in the construction of AF and RF oscillators, amplifiers, product and plate detectors, rectifier circuits and specialized circuitry, employing the use of vacuum tubes and solid state devices. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Electricity 281 or 241 and 242. Credit: 8 semester hours.

**Electricity 243.** Lab experiments in the construction of AF and RF oscillators, amplifiers, product and plate detectors, rectifier circuits and specialized circuitry, employing the use of vacuum tubes and solid state devices. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Electricity 281 or 241 and 242. Credit: 4 semester hours.

**Electricity 244.** Lab experiments in the construction of AF and RF oscillators, amplifiers, product and plate detectors, rectifier circuits and specialized circuitry, employing the use of vacuum tubes and solid state devices. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Electricity 243. Credit: 4 semester hours.

**Job Relations 221.** Planned to supplant the technical education of the student with a practical understanding of the personal problems encountered in his association with employers and fellow employees. Lec. 2 Hrs. Credit: 2 semester hours.

**Job Relations 222.** A factual presentation of trade unionism and state and federal legislation as they affect the man on the job. Lec. 2 Hrs. Credit: 2 semester hours.

**Machine Shop 151.** A study of the hand and machine tools of the modern machine shop. This course will include blueprint reading and sketching, bench work and jobs that are commonly done on the lathe and drill press. Lec. 5 Hrs. Credit: 5 semester hours.

**Machine Shop 152.** Various types of milling machines and grinders with set-ups for various jobs to be performed on each will be studied. Blueprint reading and sketching will be continued. Prerequisite: Machine Shop 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Machine Shop 251.** Lathe and bench work and the details of the various operations. The progressive study of blueprint reading and sketching will be continued. Prerequisite: Machine Shop 152. Lec. 5 Hrs. Credit: 5 semester hours.

**Machine Shop 252.** Use of the various hand and machine tools involved in the drilling, turning, planing, milling, shaping and grinding of metals. This course will also provide study in basic metallurgy and a continuation of blueprint reading and sketching. Prerequisite: Machine Shop 251. Lec. 5 Hrs. Credit: 5 semester hours.

**Machine Shop 181.** The first of a series of four shop courses. This one is designed to acquaint the student with the hand and machine tools used in the modern machine shop. Lec. 1 Hr. Lab 14 Hrs. Credit: 8 semester hours.

**Machine Shop 141.** The first of a series of four shop courses. This one is designed to acquaint the student with the hand and machine tools used in the modern machine shop. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Machine Shop 142.** This course is designed to acquaint the student with the hand and machine tools used in the modern machine shop. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 141. Credit: 4 semester hours.

**Machine Shop 182.** The objective of this course is the developing of skills in the use of the various hand and machine tools of the modern machine shop. The various jobs performed on the engine lathe and shaper will be stressed. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Machine Shop 181 or 141 and 142. Credit: 8 semester hours.

**Machine Shop 143.** The objective of this course is the developing of skills in the use of the various hand and machine tools of the modern machine shop. The various jobs performed on the engine lathe and shaper will be stressed. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 181 or 141 and 142. Credit: 4 semester hours.

**Machine Shop 144.** The objective of this course is the developing of skills in the use of the various hand and machine tools of the modern machine shop. The various jobs performed on the engine lathe and shaper will be stressed. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 143. Credit: 4 semester hrs.

**Machine Shop 281.** Jobs and processes performed on the milling machine will be stressed in this shop course. The student will also do elementary burning, acetylene welding and brazing. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Machine Shop 182 or 143 and 144. Credit: 8 semester hours.

**Machine Shop 241.** Jobs and processes performed on the milling machine will be stressed in this shop course. The student will also do elementary burning, acetylene welding and brazing. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 182 or 143 and 144. Credit: 4 semester hours.

**Machine Shop 242.** Jobs and processes performed on the milling machine will be stressed in this shop course. The student will also do elementary burning, acetylene welding and brazing. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 241. Credit: 4 semester hours.

**Machine Shop 282.** Machine shop jobs and operation requiring the student to work to close tolerances is done in this course. Tool and cutter grinding and heat treatment of steel will be emphasized. Lec. 1 Hr. Lab. 14 Hrs. Prerequisite: Machine Shop 281 or 241 and 242. Credit: 8 semester hours.

**Machine Shop 243.** Machine shop jobs and operations requiring the student to work to close tolerances is done in this course. Tool and cutter grinding and heat treatment of steel will be emphasized. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 281 or 241 and 242. Credit: 4 semester hours.

**Machine Shop 244.** Machine shops jobs and operations requiring the student to work to close tolerances is done in this course. Tool and cutter grinding and heat treatment of steel will be emphasized. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Machine Shop 243. Credit: 4 semester hours.

**Mathematics 131.** Application of mathematical processes to particular trade problems. Direct and inverse ratios, proportions and means. Prerequisite: 2 units of high school mathematics or equivalent. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 132.** Shop and trade applications of mensuration formulae. Derivation and use of frequently used constants. Prerequisite: Mathematics 131. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 133.** Slide-rule and powers of ten; introduction to algebra; addition, subtraction, multiplication, and division of monomials and polynomials; solution of simple and simultaneous linear equations; transposing electrical and electronic formulas. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 134.** Generation and measurement of angles; trigonometric functions of acute angles; use of slide-rule and trig tables for finding functions; solution of right triangles; periodic functions; rectangular and polar vectors, "J" factor, vector algebra. Prerequisite: Mathematics 133. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 135.** Use of Smoley's Tables by the draftsman. Prerequisite: Mathematics 131. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 136.** Introduction to business mathematics, algebra, number systems, probability, and matrix algebra, for data processing students. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 137.** Introduction to business mathematics, algebra, number systems, probability, and matrix algebra, for data processing students. Prerequisite: Mathematics 136. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 231.** Volume of cylinders, cones and rings. The lateral surface and height of the same objects are calculated. Miscellaneous problems for each trade. Practical algebra is also taught in this course. Prerequisite: Mathematics 132. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 232.** The essentials of trigonometry, strength of materials, work and power problems and speed ratios of pulley and gears are taught in this course. Prerequisite: Mathematics 231. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 233.** Practical application of mathematics and slide-rule to the solution of direct and alternating current circuits, simple series, and parallel, and to alternating current resonant circuits. Prerequisite: Mathematics 134. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 234.** Common and natural systems of logarithms; solution of logarithmic and exponential equations; practical application of logarithms to RC and RL circuits; to the db gain and loss of amplifiers, and to antennas and transmission lines. Prerequisite: Mathematics 233. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 235:** Use of Smoley's Tables by the draftsman. Prerequisite: Mathematics 135. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 236.** Use of miscellaneous tables and mathematical formulas commonly used in the drafting room. Prerequisite: Mathematics 235. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 237.** Extension of matrix algebra and introduction to calculus for data processing students. Prerequisite: Mathematics 137. Lec. 3 Hrs. Credit: 3 semester hours.

**Mathematics 238.** Extension of matrix algebra and introduction to calculus for data processing students. Prerequisite: Mathematics 237. Lec. 3 Hrs. Credit: 3 semester hours.

**Refrigeration 151.** The basic laws and fundamental principles of refrigeration, heat, heat transfer, thermometry, thermodynamic processes, compression cycle, compressor construction and lubrication, refrigerant metering devices, and component parts of the refrigeration cycle. Lec. 5 Hrs. Credit: 5 semester hours.

**Refrigeration 152.** Electrical devices used with refrigeration equipment, absorption systems, cycle diagrams, cooling loads, system balance, cycling controls, refrigerants, pressure drop and refrigerant piping, low temperature, dual temperatures, defrosting, multiplexing coils and compressors, capacity control methods. Commercial and industrial refrigeration problems are a part of the course. Prerequisite: Refrigeration 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Refrigeration 251.** Refrigeration for summer air conditioning, comfort conditions, cooling and heating load estimating, psychrometric properties of air, estimating the conditioned air supply, heat pumps and automobile air conditioning. Prerequisite: Refrigeration 152. Lec. 5 Hrs. Credit: 5 semester hours.



**Refrigeration 252.** Year-round air conditioning analysis. Air distribution systems, selection of grills, registers, ducts, fans and filters. Automatic control of year-round systems. Water for air conditioning, cooling towers, piping, pumps. Cost estimates and codes. Prerequisite: Refrigeration 251, Lec. 5 Hrs. Credit: 5 semester hours.

**Refrigeration 181.** Identification and correct use of tools and materials used in working with refrigerated equipment. Correct methods of evacuating, dehydrating, and charging refrigerant circuits. Disassembly and repairing of compressors, controls, and copper tube work. Safe practices in refrigeration work. Lec. 1 Hr. Lab 14 Hrs. Credit: 8 semester hours.

**Refrigeration 141.** Identification and correct use of tools and materials used in working with refrigerated equipment. Correct methods of evacuating, dehydrating, and charging refrigerant circuits. Disassembly and repairing of compressors, controls, and copper tube work. Safe practices in refrigeration work. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Refrigeration 142.** Identification and correct use of tools and materials used in working with refrigerated equipment. Correct methods of evacuating, dehydrating, and charging refrigerant circuits. Disassembly and repairing of compressors, controls, and copper tube work. Safe practices in refrigeration work. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 141. Credit: 4 semester hours.

**Refrigeration 182.** Repairing and servicing absorption refrigerant systems. Diagnosing and repairing complete hermetic systems, installing, checking, and repairing commercial refrigeration systems. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Refrigeration 181 or 141 and 142. Credit: 4 semester hours.

**Refrigeration 143.** Repairing and servicing absorption refrigerant systems. Diagnosing and repairing complete hermetic systems, installing, checking, and repairing commercial refrigeration systems. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 181 or 141 and 142. Credit: 4 semester hours.

**Refrigeration 144.** Repairing and servicing absorption refrigerant systems. Diagnosing and repairing complete hermetic systems, installing, checking, and repairing commercial refrigeration systems. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 143. Credit: 4 semester hours.

**Refrigeration 281.** Installing and repairing forced air heating systems. Skills in the correct use of air conditioning tools, materials, and instruments. Automobile air conditioning servicing. Disassembly and assembly of complete air conditioning systems. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Refrigeration 182 or 143 and 144. Credit: 8 semester hours.

**Refrigeration 241.** Installing and repairing forced air heating systems. Skills in the correct use of air conditioning tools, materials, and instruments. Automobile air conditioning servicing. Disassembly and assembly of complete air conditioning systems. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 182 or 143 and 144. Credit: 4 semester hours.

**Refrigeration 242.** Installing and repairing forced air heating systems. Skills in the correct use of air conditioning tools, materials, and instruments. Automobile air conditioning servicing. Disassembly and assembly of complete air conditioning systems. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 241. Credit: 4 semester hours.

**Refrigeration 282.** The installation, checking, maintenance and repairing of air conditioning, gas heating, and heat pumps. Servicing water-cooled equipment and cooling towers. Installing and checking resistances in air ducts. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Refrigeration 281 or 241 and 242. Credit: 8 semester hours.

**Refrigeration 243.** The installation, checking, maintenance and repairing of air conditioning, gas heating, and heat pumps. Servicing water-cooled equipment and cooling towers. Installing and checking resistances in air ducts. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 281 or 241 and 242. Credit: 4 semester hours.

**Refrigeration 244.** The installation, checking, maintenance and repairing of air conditioning, gas heating, and heat pumps. Servicing water-cooled equipment and cooling towers. Installing and checking resistances in air ducts. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Refrigeration 243. Credit: 4 semester hours.

**Vocational Nursing 121.** Personal and vocational adjustments, community health. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 122.** Nutrition in health and disease. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 133.** Administration of medicines, common emergency needs. Lec. 3 Hrs. Credit: 3 semester hours.

**Vocational Nursing 144.** Body structure and functions. The life span, family life and introduction to conditions of illness. Lec. 4 Hrs. Credit: 4 semester hours.

**Vocational Nursing 175.** Vocational nursing skills for home or hospital. Lec. 2 Hrs. Lab 10 Hrs. Credit: 7 semester hours.

**Vocational Nursing 126:** General care of medical patients. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 127.** General care of surgical patients. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 128.** General care of mothers and newborn infants. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 129.** General care of sick children. Lec. 2 Hrs. Credit: 2 semester hours.

**Vocational Nursing 176.** General care of medical patients. Hospital practice 20 hours. Lec. 2 Hrs. Lab 10 Hrs. Credit: 7 semester hours.

**Vocational Nursing 177.** General care of surgical patients. Hospital practice 20 hours. Lec. 2 Hrs. Lab 10 Hrs. Credit: 7 Semester hours.

**Vocational Nursing 178.** General care of mothers and newborn infants. Hospital practice 20 hours. Lec. 2 Hrs. Lab 10 Hrs. Credit: 7 semester hours.

**Vocational Nursing 179.** General care of sick children. Hospital practice 20 hours. Lec. 2 Hrs. Lab 10 Hrs. Credit: 7 semester hours.

**Welding 151.** Tools and materials will be studied in their relation to various jobs and processes of the welder's trade. Blueprint reading and sketching are also studied. Lec. 5 Hrs. Credit: 5 semester hours.

**Welding 152.** The study of tools, materials and processes as related to welding is continued. Layout work will be stressed in this course. Prerequisite: Welding 151. Lec. 5 Hrs. Credit: 5 semester hours.

**Welding 251.** The heliarc process of welding and its application to various metals will be studied. Prerequisite: Welding 152. Lec. 5 Hrs. Credit: 5 semester hours.

**Welding 252.** Advanced layout work on plate and pipe with further study of the application of the metallurgy of welding. Prerequisite: Welding 251. Lec. 5 Hrs. Credit: 5 semester hours.

**Welding 181.** Setting-up and operation of acetylene and arc welding tools and equipment comprise the major part of this course. The student will weld in all positions on several types of materials. Lec. 1 Hr. Lab 14 Hrs. Credit: 8 semester hours.

**Welding 141.** Setting-up and operation of acetylene and arc welding tools and equipment comprise the major part of this course. The student will weld in all positions on several types of materials. Lec. 1 Hr. Lab 7 Hrs. Credit: 4 semester hours.

**Welding 142.** Setting-up and operation of acetylene and arc welding tools and equipment comprise the major part of this course. The student will weld in all positions on several types of materials. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 141. Credit: 4 semester hours.

**Welding 182.** Pipe welding will be added to the continued practice on plate. Use of the "round-about" in cutting pipe. The student will weld T's, Y's, reducers, flanges, etc. Acetylene welding on various metals and alloys will be done. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Welding 181 or 141 and 142. Credit: 8 semester hours.

**Welding 143.** Pipe welding will be added to the continued practice on plate. Use of the "round-about" in cutting pipe. The student will weld T's, Y's, reducers, flanges, etc. Acetylene welding on various metals and alloys will be done. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 181 or 141 and 142. Credit: 4 semester hours.

**Welding 144.** Pipe welding will be added to the continued practice on plate. Use of the "round-about" in cutting pipe. The student will weld T's, Y's, reducers, flanges, etc. Acetylene welding on various metals and alloys will be done. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 143. Credit: 4 semester hours.

**Welding 281.** Continuation of practice in welding ferrous metals. The heliarc process will be introduced with limited practice in welding aluminum and other alloys. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Welding 182 or 143 and 144. Credit: 8 semester hours.

**Welding 241.** Continuation of practice in welding ferrous metals. The heliarc process will be introduced with limited practice in welding aluminum and other alloys. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 182 or 143 and 144. Credit: 4 semester hours.

**Welding 242.** Continuation of practice in welding ferrous metals. The heliarc process will be introduced with limited practice in welding aluminum and other alloys. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 241. Credit: 4 semester hours.

**Welding 282.** Continuation of practice in the welding of metals by the heliarc process. Extensive practice in pipe welding will also be provided. Lec. 1 Hr. Lab 14 Hrs. Prerequisite: Welding 281 or 241 and 242. Credit: 8 semester hours.

**Welding 243.** Continuation of practice in the welding of metals by the heliarc process. Extensive practice in pipe welding will also be provided. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 281 or 241 and 242. Credit: 4 semester hours.

**Welding 244.** Continuation of practice in the welding of metals by the heliarc process. Extensive practice in pipe welding will also be provided. Lec. 1 Hr. Lab 7 Hrs. Prerequisite: Welding 243. Credit: 4 semester hours.

#### ELECTIVES

**Dental Assisting 131.** Dental anatomy and physiology, terminology, general office and patient routine, bacteriology, radiology, nutrition, first aid and oral hygiene will be studied. Assisting in operative procedures, instruments and sterilization methods, chairside techniques, tooth form, functions and relationships is also a part of the course. Lec. 3 Hrs. Credit: 3 semester hours.

**Dental Assisting 132.** Dental anatomy and physiology, terminology, general office and patient routine, bacteriology, radiology, nutrition, first aid and oral hygiene will be studied. Assisting in operative procedures, instruments and sterilization methods, chairside technique, tooth form, functions and relationships are also a part of the course. Prerequisite: Dental Assisting 131. Lec. 3 Hrs. Credit: 3 semester hours.

**Diesel Engines 221.** Fluid-power systems, fluid-power plumbing, hydraulic fluids, pumps and motors, cylinders, pressure accumulators, fluid reservoirs and fluid filtration. Prerequisite: Diesel Engines 151 and 152. Lec. 2 Hrs. Credit: 2 semester hours.

**Diesel Engines 222.** Pressure, flow and directional control valves, servo systems, industrial hydraulic circuits, hydraulic applications, symbols, electrical devices, efficiency and pneumatic powered pump. Prerequisite: Diesel Engines 221. Lec. 2 Hrs. Credit: 2 semester hours.

**Diesel Engines 131.** Ignition systems, ignition requirements, battery ignition, magneto design and construction, magneto service practices, and impulse couplings. Prerequisite: Electricity 121. Lec. 3 Hrs. Credit: 3 semester hours.

**Diesel Engines 132.** Charging circuit, D-C generator, A-C alternator, output controls (regulators). Prerequisite: Electricity 121. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 121.** Electrical terminology, electricity and magnetism, series and parallel circuits, electrical power measurement (A-C and D-C), principles of the generator, motor and induction. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Electronics 141.** Functions of tubes, resistors, capacitors and inductances in basic circuits of rectifiers, amplifiers and relays for industrial application. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Electronics 142.** Circuits and special components involved in the electronic control of industrial power. Lec. 4 Hrs. Credit: 4 semester hours.

**Machine Shop 131.** Practice in the use of the hand and machine tools of the modern machine shop. Lab 6 Hrs. Credit: 3 semester hours.

**Nursing Procedures 231.** Procedures for Nurses Aides. Lec. 1 Hr. Lab 4 Hrs. Credit: 3 semester hours.

**Nursing Procedures 232.** Procedures for Nurses Aides. Lec. 1 Hr. Lab 4 Hrs. Credit: 3 semester hours.

**Nursing Procedures 233.** Procedures for hospital orderlies. Lec. 1 Hr. Lab 2 Hrs. Credit: 3 semester hours.

**Small Engines 131.** The operation and repair of small internal combustion engines. Diagnosis and "trouble shooting" will be emphasized. Lec. 3 Hrs. Credit 3 semester hours.

**Drafting 121.** Principles of multiview drawings combined with lettering and drafting techniques. Lec. 2 Hrs. Credit: 2 semester hours.

**Welding 131.** Arc welding, acetylene welding and cutting. Lab 6 Hrs. Credit: 3 semester hours.

**Welding 132.** Arc welding. Lab 6 Hrs. Credit: 3 semester hours.

#### **Apprentice Training**

**Related Training Courses for Apprentices:** These courses are planned and offered to provide the apprentice, in the various trades, with an opportunity to complete a minimum of 144 clock hours of related study per year as required by the apprenticeship agreement. The student will study related mathematics, science, blueprint reading, drafting and estimating that is a part of his trade. A study will also be made of the tools, materials, various processes and constructions, which are a part of the training that is supple-

mentary to his on-the-job training. A sufficient number of courses will be planned and offered to provide the apprentice with the opportunity to attend classes 144 hours per year for the full term of his apprenticeship.

Courses offered in this department are listed below:

**Carpentry 141, 142, 241, 242, 341, 342, 441, 442.**

**Electricity 131, 132, 133, 134, 231, 232, 234, 331, 332, 333, 334, 431,**

**Electricity 131, 132, 133, 134, 231, 232, 233, 234, 331, 332, 333, 334, 431, 432, 433, 434.**  
**432, 433, 434.**

**Ironworking 141, 142, 241, 242, 41, 342.**

**Insulation 141, 142, 241, 242.**

**Millwright 141, 142, 241, 242, 341, Welding 741, Machine Shop 151, 152.**

**Pipefitting 131, 132, 133, 134, 231, 232, 233, 234, 331, 332, 333, 334, 431, 432, 433, 434, 531, 532, Welding 741.**

**Plumbing 131, 132, 133, 134, 231, 232, 233, 234, 331, 332, 333, 334, 431, 432, 433, 434, 531, 532, Welding 741.**

**Carpentry 141.** An orientation to the carpentry trade. Ethics and history of the trade. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 142.** Basic tools, their care and use. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 241.** Types and selection of materials used by carpenters. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 242.** Reinforced concrete slabs—and foundation layouts. Builders mathematics involved in foundation work. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 341.** Roof framing and fabrication. Various problems in roof work are solved. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 342.** Interior finish and trim including floors, cabinets and built-ins. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 441.** Blueprint reading and sketching. Specifications, contracts and local building codes are covered. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 442.** Estimating job costs and quantities. Taxes, insurance, working problems and safety are discussed. Lec. 4 Hrs. Credit: 4 semester hours.

**Electricity 131.** Introduction to apprenticeship. The basic laws and theories of electricity, electrical units of measurements, Ohm's law and simple circuits are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 132.** Introduction to apprenticeship. The basic laws and theories of electricity, electrical units of measurements, Ohm's law and simple circuits are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 133.** Batteries and electrolytic action, magnets and magnetism, and current induction. The tools and materials of the trade are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 134.** Batteries and electrolytic action, magnets and magnetism, and current induction. The tools and materials of the trade are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 231.** Generators, motors and lighting circuits. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 232.** Generators, motors and lighting circuits. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 233.** Measuring instruments and theories of magnetic and electrical circuits. Vectors and phase relationships in AC circuits are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 234.** Measuring instruments and theories of magnetic and electrical circuits. Vectors and phase relationships in AC circuits are studied. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 331.** Characteristics of AC circuits, inductance, reactance, capacitance and power factor. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 332.** Characteristics of AC circuits, inductance, reactance, capacitance and power factor. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 333.** Types, service and Code requirements of transformers. Basic electronics and AC motor controls. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 334.** Types, service and Code requirements of transformers. Basic electronics and AC motor controls. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 431.** Electrical blueprint reading and sketching. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 432.** Electrical blueprint reading and sketching. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 433.** City, State and National Electrical codes and laws. Lec. 3 Hrs. Credit: 3 semester hours.

**Electricity 434.** City, State and National Electrical codes and laws. Lec. 3 Hrs. Credit: 3 semester hours.

**Ironworking 141.** Introduction to Apprenticeship. Basic tools and nomenclature, trade terminology. Safety practices. Lec. 4 Hrs. Credit: 3 semester hours.

**Ironworking 142.** The proper care and use of rigging equipment. Hoist signaling. Credit: Lec. 4 Hrs. Credit: 4 semester hours.

**Ironworking 241.** Power hoisting equipment. Lec. 4 Hrs. Credit: 4 semester hours.

**Ironworking 242.** Blueprint reading, trade mathematics and basic sketching. Lec. 4 Hrs. Credit: 4 semester hours.

**Ironworking 341.** Structural steel materials. Structural steel shapes. Lec. 4 Hrs. Credit: 4 semester hours.

**Ironworking 342.** Field and shop fabrication practices. Lec. 4 Hrs. Credit: 4 semester hours.

**Insulation 141.** Orientation, theory, history and use of insulating materials, trade ethics and responsibility. Trade mathematics. Safety and first aid. Lec. 4 Hrs. Credit: 4 semester hours.

**Insulation 142.** Basic application technique. Use and care of hand and power tools. Study of trade mathematics continued. Lec. 4 Hrs. Credit: 4 semester hours.

**Insulation 241.** Blueprint reading, material take-off, specifications. Lec. 4 Hrs. Credit: 4 semester hours.

**Insulation 242.** Use, care and operation of welding and spray equipment. Lec. 4 Hrs. Credit: 4 semester hours.

**Millwright 141.** Terminology of the millwright's trade. Hand tools and their proper care. Lec. 4 Hrs. Credit: 4 semester hours.

**Millwright 142.** Use of precision tools. Micrometers, precision levels and dial indicators. Lec. 4 Hrs. Credit: 4 semester hours.

**Millwright 241.** Machine trade blueprint reading and trade mathematics. Lec. 4 Hrs. Credit: 4 semester hours.

**Millwright 242.** Setting and alignment of pumps, motors and conveyor systems. Special shaft work will be studied. Lec. 4 Hrs. Credit: 4 semester hours.

**Millwright 341.** Shop sketching, advanced machine trade blueprint reading and trade mathematics. Lec. 4 Hrs. Credit: 4 semester hours.

**Pipefitting 131.** Orientation, history and ethics of the pipefitting trade. Measuring tools and trade math. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 132.** Orientation, history and ethics of the pipefitting trade. Measuring tools and trade math. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 133.** Trade terminology of tools and materials. Proper use and care of holding, cutting and threading tools for pipe. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 134.** Trade terminology of tools and materials. Proper use and care of holding, cutting and threading tools for pipe. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 231.** Trade mathematics, offset problems and various solutions. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 232.** Trade mathematics, offset problems and various solutions. Lec. 3 Hrs. Credit: 3 semester hours.



**Pipefitting 233.** Trade mathematics, areas, pressures, volumes, densities and specific gravity. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 234.** Trade mathematics, areas, pressures, volumes, densities and specific gravity. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 331.** Rigging and safety. Knots, hitches, cables and splices. Ladders and scaffolding. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 332.** Rigging and safety. Knots, hitches, cables and splices. Ladders and scaffolding. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 333.** Industrial blueprint reading. Material take-off and specifications. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 334.** Industrial blueprint reading. Material take-off and specifications. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 431.** Sketching for fabrication and erection. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 432.** Sketching for fabrication and erection. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 433.** Advanced blueprint reading and sketching. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 434.** Advanced blueprint reading and sketching. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 531.** Study of refrigeration and air conditioning piping and service. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 532.** Study of refrigeration and air conditioning piping and service. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 131.** History, ethics, and laws pertaining to the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 132.** History, ethics, and laws pertaining to the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 133.** A study of the tools and materials used in plumbing. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 134.** A study of the tools and materials used in plumbing. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 231.** Sketching and estimating for plumbing systems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 232.** Sketching and estimating for plumbing systems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 233.** Blueprint study and "take-off" problems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 234.** Blueprint study and "take-off" problems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 331.** Mathematics of the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 332.** Mathematics of the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 333.** Problems pertaining to lead and soldering as found in the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 334.** Problems pertaining to lead and soldering as found in the plumbing trade. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 431.** Installation of cast iron, soil and vent lines. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 432.** Installation of cast iron, soil and vent lines. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 433.** Problems in designing plumbing systems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 434.** Problems in designing plumbing systems. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 531.** A study of city and state plumbing codes. Special emphasis is placed on revisions and changes. This course is usually offered those advanced apprentices who contemplate taking the State Examination for License. Lec. 3 Hrs. Credit: 3 semester hours.

**Plumbing 532.** A study of the city and state plumbing codes. Special emphasis is placed on revisions and changes. This course is usually offered those advanced apprentices who contemplate taking the State Examination for License. Lec. 3 Hrs. Credit: 3 semester hours.

#### **Distributive Education**

This is a program of courses providing specialized training in selling or transferring goods and service occupations. The courses are for employed people desiring to supplement their regular occupational training and experience.

**D. Edu. 121.** Techniques of professional selling. Lec. 2 Hrs. Credit: 2 semester hours.

**D. Edu 122.** Effective letter writing. Lec. 2 Hrs. Credit: 2 semester hours.

**D. Edu. 123.** Public relations in business. Lec. 2 Hrs. Credit: 2 semester hours.

**D. Edu. 124.** Estimating building costs in new home construction. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 125. Business record keeping for small business. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 126. Hotel and motel management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 127. Human relations in business. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 128. Charm and poise for businesswomen. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 129. Techniques of advertising. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 131. Hotel and motel operation and management. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 132. Law office procedure for secretaries. Structure of the various courts, pleadings, appellate work, and various criminal and civil practices procedures are presented. A general view of commercial law practice. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 133. Basic speaking principles for retail and wholesale management and future management personnel. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 135. A preparatory course in techniques of professional selling. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 221. Commercial law. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 222. Obligations and rights under legal agreement. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 223. Business mathematics. Percentages, discounts, interest computation and all the basic mathematics required in retail store operation. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 224. Procedures for the buyer or purchasing agent. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 225. Interior decoration for salespersons. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 226. A problem course in interior decoration for salespeople. Prerequisite: DED 225. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 227. Federal tax problems in business. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 228. Credit and collection procedures in a retail establishment. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 231. Interior design rendering. Layout and drawing techniques used in presenting scale drawings of proposed interior layouts are taught for salespeople. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 234. Hotel-motel management, accounting and control. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 235. Hotel-motel management, from office operation and house-keeping. Lec. 3 Hrs. Credit: 3 semester hours.

D. Edu. 326. Personnel management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 327. Basic principles of investments. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 328. An advanced course in charm and poise for business-women. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 329. Building material merchandising. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 421. Consumer finance management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 423. The economic growth and recent trends in business finance. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 424. Sales management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 426. Purchasing and merchandising in retail management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 427. Principles of retailing. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 428. Financial control and operations analysis in retail management. Lec. 2 Hrs. Credit: 2 semester hours.

D. Edu. 429. Advertising, public relations and customer service in retail management. Lec. 2 Hrs. Credit: 2 semester hours.

The following study courses lead to the Insurance Institute Certificate. These courses are set up in accordance with the standards recommended by the Insurance Institute of America, Inc.

Insurance 121. An introductory study of the general principle of insurance. An I.I.A. study course. Lec. 2 Hrs. Credit: 2 semester hours.

Insurance 122. Principle of fire, marine, and allied lines insurance. An I.I.A. study course. Lec. 2 Hrs. Credit: 2 semester hours.

Insurance 123. Principles of casualty insurance and surety bonding. An I.I.A. study course. Lec. 2 Hrs. Credit: 2 semester hours.

Insurance 131. General principles of insurance, including insurance office procedures. Lec. 3 Hrs. Credit: 3 semester hours.

Insurance 132. Accident and sickness insurance. Lec. 3 Hrs. Credit: 3 semester hours.

Insurance 221. Insurance claims and adjustments. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 222.** A problems course on the rating of fire coverage and its allied lines. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 223.** Casualty coverage and rating. Problems involved in the rating of casualty policies other than fire, homeowners and automobile policies. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 224.** Problems involved in the rating of insurance on automobiles and commercial carriers. Lec. 2 Hrs. Credit: 2 semester hours.

The following are study courses leading to the Chartered Property Casualty Underwriter designation. These courses are set up according to the standards of the American Institute of Property and Liability Underwriters, Inc.

**Insurance 333.** A review of general commercial law with a study of insurance law including construction of insurance contracts. C.P.C.U. study course. Lec. 3 Hrs. Credit: 3 semester hours.

**Insurance 334.** Commercial law with a study of insurance law including construction of insurance contracts. C.P.C.U. study course. Prerequisite: INS 333. Lec. 3 Hrs. Credit: 3 semester hours.

**Insurance 335.** A comprehensive study of accounting, finance and insurance agency management. C.P.C.U. study course. Lec. 3 Hrs. Credit: 3 semester hours.

**Insurance 336.** Accounting, finance, and insurance agency management. C.P.C.U. study course. Prerequisite: INS 335. Lec. 3 Hrs. Credit: 3 semester hours.

**Insurance 337.** General education, including economics, government, social legislation with emphasis on English usage. C.P.C.U. study course, Formerly INS 343. Lec. 3 Hrs. Credit: 3 semester hours.

**Insurance 338.** General education, including economics, government, social legislation with emphasis on English usage. C.P.C.U. study course. Formerly INS 343. Lec. 3 Hrs. Credit: 3 semester hours.

The following are study courses leading to the Chartered Life Underwriter designation. These courses are set up according to the standards recommended by the American College of Life Underwriters.

**Insurance 421.** Life insurance and annuities. A C.L.U. study course. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 422.** Life insurance and annuities. A C.L.U. study course. Prerequisite: INS 421. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 423.** Business life insurance, accident, and sickness, group insurance and pensions. A C.L.U. study course. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 424.** Business life insurance, accident, and sickness, group insurance and pensions. A C.L.U. study course. Prerequisite: INS 423. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 425.** Law, trusts, and taxes with emphasis on the construction of the life insurance contract. A C.L.U. study course. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 426.** Law, trusts, and taxes with emphasis on the construction of the life insurance contract. A C.L.U. study course. Prerequisite: INS 425. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 427.** Financial institutions, corporation finance, and investments. A C.L.U. study course. Formerly INS 444. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 428.** Financial institutions, corporation finance, and investments. A C.L.U. study course. Formerly INS 444. Prerequisite: INS 427. Lec. 2 Hrs. Credit: 2 semester hours.

**Insurance 435.** The practice of life underwriting. A C.L.U. study course. Formerly INS 445. Lec. 3 Hrs. Credit: 3 semester hours.

**Real Estate 121.** Real estate contracts, terms, mathematics, deeds, land economics, principal-agency relationships, provisions of real estate Licensing Act and ethics of the business. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 122.** Building construction, appraising, and real property marketing. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 131.** Real Estate Fundamentals including Terminology, Land Economics, Building Construction, and Housing Problems and Effects. Lec. 3 Hrs. Credit: 3 semester hours.

**Real Estate 132.** Real Estate Practices including Law, Principal-Agency Relationship, Finance, Real Property Marketing, Instruments, and Mechanics of Closing. Lec. 3 Hrs. Credit: 3 semester hours.

**Real Estate 221.** Methods of appraising real property with emphasis on residential property. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 222.** An advanced course in appraising. The income approach to value through residual techniques. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 223.** Methods of financing real property. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 224.** Law as it pertains to real property transactions. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 225.** Problems that confront the broker in his daily work. Prerequisite: Real Estate 132. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 227.** Real estate management. Lec. 2 Hrs. Credit: 2 semester hours.

**Real Estate 228.** Principles and techniques of residential appraising. Lec. 2 Hrs. Credit: 2 semester hours.

The following courses lead to the American Savings & Loan Institute Achievement Award, Standard Diploma and Graduate Diploma.

**Savings & Loan 131.** A review of savings and loan fundamentals. Lec. 3 Hrs. Credit: 3 semester hours.

**Savings & Loan 231.** Savings and loan management. Lec. 3 Hrs. Credit: 3 semester hours.

**Savings & Loan 331.** Commercial Law and its application to the savings and loan business. Lec. 3 Hrs. Credit: 3 semester hours.

**Savings & Loan 333.** Economics from the viewpoint of the savings and loan business. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 121.** Shipping and receiving procedures. The day to day problems in transportation encountered by small business. Lec. 2 Hrs. Credit: 2 semester hours.

**Transportation 131.** Introduction to the fundamentals of transportation. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 132.** Principles of Traffic and Transportation. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 331.** Procedures in the rating of freight. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 332.** An advanced study in the rating of freight. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 333.** The process and procedure of analyzing freight rates. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 334.** Procedures in the classification of freight. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 335.** Procedures in freight loss and damage claims. Lec. 3 Hrs. Credit: 3 semester hours.

The following courses are designed primarily to prepare candidates for Certificate of Membership in the American Society of Traffic and Transportation.

**Transportation 431.** Economics and its application to production and distribution. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 432.** Principles of traffic and transportation management. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 433.** General education, including marketing, government, geography, business organizations and finance. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 434.** Interstate Commerce Law and Regulation. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 435.** The preparation of documented report of a specific aspect of transportation or traffic management. Lec. 3 Hrs. Credit: 3 semester hours.

**Transportation 436.** Principles and practices of foreign trade. Lec. 3 Hrs. Credit: 3 semester hours.

#### Short Courses

A number of short courses are offered for selling, service and management personnel of retail stores. Public announcement will be made of these institutes.

#### Industrial Supervision

This series of courses is planned for business and industrial supervisory personnel. The contents of the courses offered cover the entire range of supervisory responsibilities. Each class meeting is carefully planned to be of maximum usefulness on the job. Employment in business or industry in a supervisory or leadership position is a prerequisite to registration in supervisory courses.

A Certificate in Supervision is awarded upon completion of eighteen credit hours from the following list of courses:

**Industrial Supervision 722.** Supervisory Leadership. The incident process as used in this course provides experience in handling case problems and in analyzing real supervisory situations. Motivation of employees, development of leadership qualities, utilization of authority, and handling of labor relations problems are studied. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 726.** Industrial Economics. The function of tools, workers, management, and investors in the American industrial system. The course also includes discussions of the place of government in the economy, the significance of profits, costs, wages, and money and a study of personal financial planning. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 727.** Written Communications. The course provides practice in the areas of writing involved in the supervisors job. The purpose is to develop clarity in written communications, such as memos, reports, letters, orders and records. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 728.** Industrial Relations. A survey of the industrial relations functions in an industrial organization. Topics include employment, merit rating, job placement, public relations, counseling and training. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 731.** Fundamentals of Supervision. Methods and techniques of supervision; included are basic skills for the beginning supervisor as well as new ideas and broader concepts for the more experienced. Topics included are new employees, interviewing, job methods, training, safety, human relations, grievances, motivation and discipline. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 732.** Effective Speaking. This is a participation course where one learns to overcome fear and self-consciousness in addressing a group, and gain knowledge of basic speaking principles, and experience in effective speaking. Lec. 3 Hrs. Credit: 3 semester hours.



**Industrial Supervision 733.** Supervisory Methods in Municipal Administration. Modern methods and techniques of supervision within the various departments, divisions, and offices of city government, etc. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 734.** Management Course in Supervision. Methods and techniques of supervision from the executive viewpoint. Topics included are organizations and management, control of waste, manpower, machines and material, getting cooperation, communications, human relations, controlling accidents and selected management problems. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 735.** Labor Relations. Company policy, labor history, legislation and labor unions, the labor contract, grievances and arbitration are included in this course. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 736.** Personnel Management. The principles and practices of personnel management with emphasis on the procurement, development, maintenance and utilization of the labor forces. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 737.** Industrial Organization and Management. An advanced course in management. The course presents management functions in detail, so that inter-relationships of functions of the organization are revealed. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 738.** Industrial Sociology. A study of the social structure of modern large-scale industry and its relation to society. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 739.** Industrial Communications. Basic information and techniques for effectively communicating with employees, management, customers and the public. Some of the topics covered in the course are logical and creative thinking, making a speech, dictating, telephoning, writing, and letter and report writing. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 7311.** Industrial Communications. Basic information and techniques for effectively communicating with employees, management, customers and the public. Some of the topics covered in the course are logical and creative thinking, making a speech, dictating, telephoning, writing and letter and report writing. Prerequisite: Industrial Supervision 739. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 821.** Conference Leadership. Techniques of conference leadership. Active participation in conducting a conference provides each student with an opportunity to practice these techniques. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 825.** Wages and Salary Administration. Problems involved in wage and salary administration including labor legislation, wage criteria, wage payment plans and job evaluation. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 826.** Job Evaluation. Job evaluation systems and techniques. Problems of installing a program of job evaluation. Actual cases are studied. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 828.** Effective Speaking. The second of two courses to further develop poise, self-confidence, and skills in effective speaking. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 829.** Techniques of Job Instruction. Methods of instruction based on the laws of learning which enable the supervisor to teach others the related technology and manipulative skills of his job or trade. Lec. 2 Hrs. Credit: 2 semester hours.

**Industrial Supervision 830.** Management for Engineers. Industry and business firms decision-making processes in the day-by-day workings of an industry or business both as an economic organization and as a coordinate institution made up of individual participants. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 832.** Job Methods Improvement. Basic principles and procedures necessary to improve the method of doing a job. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 833.** Cost Reduction. Methods for carrying out a comprehensive, continuing cost reduction and control program. It owes much of its effectiveness to the fact that it shows how to get all levels of supervisory management solidly behind the cost reduction effort—how to get supervisors to think of cost control as an integral part of the overall job, rather than a short term project. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 834.** Safety for Supervisors. Safety costs, cause of accidents, the function of safety inspections, the elimination of specific hazards, fire prevention, investigation of accidents and methods for minimizing their frequency and severity. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 835.** Labor Law. The Taft-Hartley and other federal and state laws in the field of labor-management relations and how they affect the foreman and supervisor in industry and business. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 836.** Industrial Psychology. Human differences, methods of applying practical psychology to the handling of men, the use of testing methods, and such factors as morale, group attitudes, motivation, frustration, fatigue and application of psychological studies to human behavior on the job. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 837.** Industrial Psychology. Human differences, methods of applying practical psychology to the handling of men, the use of testing methods, and such factors as morale, group attitudes, motivation, frustration, fatigue and application of psychological studies to human behavior on the job. Prerequisite: IS 836. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 838.** Human Relations. This course develops in a practical way the skills and techniques of personnel supervision. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Supervision 839.** Human Relations. This course develops in a practical way the skills and techniques of personnel supervision. Prerequisite: IS 838. Lec. 3 Hrs. Credit: 3 semester hours.

**TRADE EXTENSION**

Trade Extension Courses for Journeymen. These courses are designed to satisfy the needs of specific groups of workers from the trades and may cover one or several blocks of related information, skills and processes. All trade extension courses are planned for workers of journeyman grade and enrollment is confined to that group of tradesmen. Certificates will be given for the successful completion of certain courses or series of courses that pertain to the same subject.

Trade extension courses which may be offered are listed below:

**Appliance Service & Repair 731, 732.**

**Automatic Controls 731.**

**Blueprint Reading 741, 742.**

**Carpentry 741.**

**Compressors 731.**

**Drafting 733, 734, 741, 742.**

**Industrial Electronics 731, 741, 742, 743.**

**Industrial Instruments 741, 742, 743.**

**Law Enforcement 761.**

**Layout 741, 742.**

**Medical Assisting 731, 732.**

**Metallurgy 731.**

**Pipefitting 741.**

**Plant Maintenance 731.**

**Plant Operations 741.**

**Pumps 731.**

**Refinery Operations 731.**

**Welding 741, 742.**

**Appliance Service & Repair 731.** Repair and service of the small household appliances. Lec. 3 Hrs. Credit: 3 semester hours.

**Appliance Service & Repair 732.** Repair and service of major home appliances. Lec. 3 Hrs. Credit: 3 semester hours.

**Automatic Controls 731.** Installation, service and repair of air conditioning controls. Lec. 3 Hrs. Credit: 3 semester hours.

**Blueprint Reading 741.** A study of lines, views, symbols and dimensions involved in reading blueprint and shop sketches. Practice in making free-hand sketches of simple objects. Lec. 4 Hrs. Credit: 4 semester hours.

**Blueprint Reading 742.** Reading blueprints for a specific trade. Lec. 4 Hrs. Credit: 4 semester hours.

**Carpentry 741.** Blueprint reading and mathematics of the carpentry trade. Sectional views, details, bills of material and estimating cost of jobs will be stressed. Lec. 4 Hrs. Credit: 4 semester hours.

**Compressors 731.** The application, operation and maintenance of air and gas compressors, proper installation and power requirements. Lec. 3 Hrs. Credit: 3 semester hours.

**Drafting 733.** A course in drafting technology. Covers use of slide-rule and strength of materials. AISC & ASMe codes are used. Lec. 3 Hrs. Credit: 3 semester hours.

**Drafting 734.** Trigonometrics solution of right triangles using Smöley's Tables and geometric projection principles. Lec. 3 Hrs. Credit: 3 semester hours.

**Drafting 741.** Principles of drafting with stress on correct use of instruments. Lec. 4 Hrs. Credit: 4 semester hours.

**Drafting 742.** Methods and practice in drafting for journeymen workers in specific trades. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Electronics 731.** Circuits and components used in electronic communication equipment. Lec. 3 Hrs. Credit: 3 semester hours.

**Industrial Electronics 741.** Functions of tubes, resistors, capacitors and inductances in basic circuits or rectifiers, amplifiers and relays for industrial application. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Electronics 742.** Circuits and special components involved in the electronic control of industrial power. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Electronics 743.** Transistor circuits and their commercial application. Prerequisite: Industrial Electronics 741 and 742. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Instruments 741.** A study of the physical and chemical laws affecting pressure and temperature measuring and recording instruments. The operation and application of instruments for controlling manufacturing processes is covered. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Instruments 742.** The basic control theory and methods for obtaining various control effects are studied. Practical industrial installations of control systems, controller adjustments and checking and testing procedures are stressed. Lec. 4 Hrs. Credit: 4 semester hours.

**Industrial Instruments 743.** A review of basic electricity including components and basic laws. A study is made of electron tubes, elementary electronic circuits, and some of the more generally used electronic instrument circuits. Lec. 4 Hrs. Credit: 4 semester hours.

**Law Enforcement 761.** Orientation of the police officer, police service as a career, community relations, police ethics, arrest, search and seizure, rules of evidence, criminal law, criminal investigation, field interrogation and interviews, case preparation, court appearance and conduct, handling juveniles, patrol methods and procedures, mechanics of arrest, crowd control, defensive tactics, firearms training, traffic supervision, field trip to

Texas Prison System, Huntsville, Texas, field trip to State Department of Public Safety. Prerequisite: Persons enrolling in this course must be employed as law enforcement officers. Lec. 13 Hrs. Lab 27 Hrs. Credit: 6 semester hours.

**Layout 741.** A study of the tools, materials and procedures of sheet-metal and plate layout work. Geometric construction used in layout work will be studied and applied. Lec. 4 Hrs. Credit: 4 semester hours.

**Layout 742.** The use and application of Smoley's Tables in layout work. Lec. 4 Hrs. Credit: 4 semester hours.

**Medical Assisting 731.** Professional ethics, duties and procedures for the medical assistant. Lec. 3 Hrs. Credit: 3 semester hours.

**Medical Assisting 732.** Terminology of medical offices, record keeping, use and care of equipment will be stressed. Lec. 3 Hrs. Credit: 3 semester hours.

**Metallurgy 731.** The welding characteristics of various metals and alloys. Lec. 3 Hrs. Credit: 3 semester hours.

**Pipefitting 741.** Methods of fabricating pipe are studied. The use of layout tools, full scale layout methods and practices, layout of miters and saddles and the use of the steel square in pipe layout is stressed. Lec. 4 Hrs. Credit: 4 semester hours.

**Plant Maintenance 731.** A study of modern plant maintenance procedures. Lec. 3 Hrs. Credit: 3 semester hours.

**Plant Operation 741.** Efficient use of modern refinery and petrochemical plant processing equipment. Lec. 4 Hrs. Credit: 4 semester hours.

**Pumps 731.** The application, care and operation of centrifugal, rotary and reciprocating pumps and the study of direct and belt drives, reduction gears and special increases is covered in this course. Lec. 3 Hrs. Credit: 3 semester hours.

**Refinery Operation 731.** A course covering the operating procedures involved in the modern refinery and chemical plant. Lec. 3 Hrs. Credit: 3 semester hours.

**Welding 741.** Correct use of welding equipment. Arc welding in all position. Lab 4 Hrs. Credit: 4 semester hours.

**Welding 742.** Arc welding in all positions on plate and pipe. Horizontal and overhead positions are stressed. Lab 4 Hrs. Credit: 4 semester hours.

#### SHORT COURSE

A two-day short course on Industrial Instruments is held each Spring. The leading instrument companies display their newest equipment and outstanding men in this field give lectures and demonstrations in the installation, operation, maintenance and repair of industrial instruments.

