

D. P. 213, 223. **Drawing and Painting.** (Credit: 3 semester hours).

A laboratory course in painting providing skills in the use of: oils, pastels, gouache, acrylics, pencil, charcoal, and ink. There are two hours of lecture and four hours of studio practice per week. Each course is an eighteen week course.

F. P. 133. **Freehand Perspective.** (Credit: 3 semester hours).

Elementary problems involving the principles of linear perspective; the achievement of the illusion of volume and space through tone and color. Two lectures and four hours laboratory per week for 18 weeks.

H. A. 133. **History of Art I.** (Credit: 3 semester hours).

This is a survey of the art of the world from prehistoric times to the Renaissance. Emphasis is placed on how the happenings of each age influence the art of that age. This course requires three lecture hours per week.

H. A. 143. **History of Art II.** (Credit: 3 semester hours).

This survey course studies the art of the world from the Renaissance through the present time. It emphasizes the impact of the happenings of each age on the art of each age. This course is independent of H. A. 133 and requires three lecture hours per week.

I. C. 133. **Introductory Crafts.** (Credits: 3 semester hours).

This course is a study of various areas of craftwork including the designing and construction of projects in the areas of: art metal, weaving, ceramics, papier mache, leather, etc. The class meets for two lecture hours and four laboratory hours per week. Prerequisite: none.

I. C. 143. **General Crafts.** (Credit: 3 semester hours).

This is a continuation of I. C. 133. Special emphasis is placed on design and development of projects in jewelry, leather, art metal, ceramics, and wood. It carries two hours of lecture and four hours of laboratory work.

### 3. THE DEPARTMENT OF BUSINESS ADMINISTRATION

The department of Business Administration of Alvin Junior College provides three plans for business students.

1. A pre-business administration course leading to a degree in business administration designed for students who plan to attend college four years.
2. A two-year secretarial and office occupations course leading to an associate in applied science degree.
3. A one-year secretarial and office occupations course.

Any business course may be taken as a refresher course.

Acct. 103. **Office Accounting.** (Credit: 3 semester hours).

Procedures and techniques used in recording business transactions and preparing financial statements. Journalizing, posting, statement preparation, controlling accounts, subsidiary ledgers. Course adapted to the needs of those training for secretarial positions. Two hours lecture and one hour laboratory each week.

Acct. 183. **Introduction to College Accounting.** (Credit: 3 semester hours).

Introductory course in accounting designed to serve as a foundation for advanced accounting and to furnish a knowledge of accounting principles that will be of value to students in other fields. Subject matter covers analysis and recording of transactions, use of journal and ledger, trial balance and working papers, adjusting and closing entries, accounting statements, introduction to single proprietorship, partnership, corporation and voucher system. Three hours lecture and one hour laboratory per week.

Acct. 193. **Introduction to College Accounting.** (Credit: 3 semester hours).

Introductory course in accounting with emphasis on cash items, internal control, accounting for inventories, fixed assets, liabilities, manufacturing operations and an introduction to cost accounting. Consideration is also given to accounting principles and concepts, interpretation and analysis of financial statements, departmental operations, consignment, installment sales, branch accounting. Three hours lecture and one laboratory hour per week.

Acct. 203. **Tax and Payroll Accounting.** (Credit: 3 semester hours).

This course includes the principles of Federal Income Tax procedure, social security taxes, unemployment taxes, and sales taxes. The course includes the preparation of returns for individuals, partnerships, and corporations. Prerequisite: Accounting 193 or consent of the department.

Acct. 273. **Cost Accounting.** (Credit: 3 semester hours).

Introductory cost course emphasizing accounting for material, labor, and manufacturing expenses. Special study given to cost elements and cost cycles; receiving, issuing, and inventorying of materials; and manufacturing expenses both actual and applied. Both job order and process cost systems considered at length. Three hours lecture and one hour laboratory per week. Prerequisite: Accounting 193 or the equivalent.

Acct. 283. **Intermediate Accounting I.** (Credit: 3 semester hours)

This course is designed for the student who has studied accounting principles and has some proficiency in this field. The course is designed to develop a better and a more comprehensive knowledge of accounting working papers and financial statements; income concepts; correction of prior year's earnings; corporation accounting procedures (in-

cluding capital stock, surplus, divided transactions and miscellaneous topics); generally accepted accounting principles; cash receivable; and investments in stock, bonds and subsidiaries. Prerequisite: Accounting 193

**Acct. 293. Intermediate Accounting II.** (Credit: 3 semester hours)

This work includes a comprehensive examination of accounting for tangible fixed assets, including acquisition, use, retirement, depreciation, depletion, and revaluations; intangible fixed assets; liabilities and reserves, interpretation of financial statements, analysis of working capital; analysis of operations; statement of application of funds; cash-flow statement; quasi-reorganizations, business combinations, and divisive reorganizations; price-level impact on financial statement. Prerequisite: Accounting 283.

**Acct. 213. Accounting Theory I.** (Credit: 3 semester hours).

Accounting course for BBA majors. Fundamentals of financial reporting with appropriate papers and business exercises. Prerequisite: DPT 103C (Computer Science I), Finite Math., and Analysis (Math. 193).

**Acct. 223. Accounting Theory II.** (Credit: 3 semester hours).

Second course for BBA majors. Analysis of financial data and business forms. Student may not count both Acct. 183-193 and Acct. 213-223. Prerequisite: Acct. 213. Three lecture and one lab-practice hour per week.

**B.A. 213. Statistics.** (Credit: 3 semester hours).

The objectives of the course are to acquaint the student with the theory of probability and to illustrate some applications of probability to statistical theory. The student will gain experience in associating and using mathematical models to interpret physical phenomenon and to predict, with reasonable certainty, the outcomes of experiments related to practical business problems. There will be computer exercises in the application of statistics to business problems. Methods of organizing and presenting data, and intelligent interpretation of statistics are emphasized throughout the course. Three hours lecture and one hour laboratory per week. Prerequisite: Algebra 113 or the equivalent.

**Bus. 113. Introduction to Business.** (Credit: 3 semester hours).

A survey of modern business organization, principles, procedures, and practices with emphasis on opportunities in the business field in Texas and the Southwest. This course is recommended for students in business administration. Three lecture hours per week.

**B. Eng. 173. Business English.** (Credit: 3 semester hours).

This course gives practice in the use of correct and forceful English in writing business letters and reports. It is preferable to take this course after taking English 113.

**Bus. 203K. Business Finance.** (Credit: 3 semester hours).

This course includes a study of the problems of business finance which are important to small business organization. It also includes a study of promotion, organization, financing, credit policy, expansion, financial difficulties and services provided by financial institutions. Prerequisite: Math. 103M or consent of department.

**Law 213, 223. Business Law.** (Credit: 6 semester hours).

Principles of law, of contracts applicable to bailments, innkeepers, carriers, sales, partnerships, corporation, property, deeds, bankruptcy, mortgages, landlord and tenant, torts and business crimes. Three hours of lecture per week. Prerequisite: Six hours of credit in business administration or business education or the consent of instructor. Formerly Law 153, 163.

**D.T. 203. Dictation and Transcription.** (Credit: 3 semester hours).

Intensive training designed to develop additional speed and accuracy in writing and transcribing shorthand to meet the demands for secretarial efficiency. Minimum speed dictation of 110 words per minute must be attained by the end of semester. (Usually transfers as a sophomore subject. Check with the senior college on exact transfer value). Prerequisite: Shd. 203 or approval of department.

**Mach. 183. Office Machines.** (Credit: 3 semester hours).

Introduction to operations of rotary calculator, ten key, full keyboard adding machine, printing calculator, keydriven calculator, book-keeping machine, posting machine, transcription machine, and accounting machine. Designed as a survey course to give the student an insight into the use of these machines and to develop sufficient skill for machines to be used later in offices. Two hours lecture and two laboratory hours each week.

**Math. 103M. General Business Mathematics.** (Credit: 3 semester hours).

This course includes a review of business arithmetic, arithmetic short-cuts, simple and compound interest, discounts, payrolls, sinking funds, stocks, bonds, brokerage, property taxes and an introduction to algebra that is applicable to commercial problems.

**OM 203. Office Management and Procedures.** (Credit: 3 hours).

A study is made of business etiquette, the handling of office mail, filing systems, preparation of business reports, and work flow.

**Shd. 153, (113). Beginning Shorthand.** (Credit: 3 semester hours).

Planned for beginners of Gregg System. Aims at mastery of the principles of Gregg shorthand with drills in the correct formation of work outlines and phrase forms; the study of word signs, phrasing, dictation, transcription, and speed building. Minimum speed dictation of 60 words per minute must be attained by the end of the semester. Prerequisite: Typing 153 or its equivalent.

Shd. 163 (123). **Intermediate Shorthand.** (Credit: 3 semester hours).

Continuation of Shorthand 153. Minimum speed dictation of 80 words per minute must be attained by the end of the semester. Prerequisite: Shorthand 153 or its equivalent.

Shd. 203. **Advanced Shorthand.** (Credit: 3 semester hours).

Improvement of shorthand speed and office efficiency through practice. Further emphasis is given to widening vocabulary. Accurate transcription is stressed. Minimum speed dictation of 100 words per minute must be attained by the end of the semester. Three hours lecture and practice time. Prerequisite: Shorthand 153-163 or the equivalent. (Usually transfers as a sophomore subject. Check with the senior college on exact transfer value).

S. Pr. 193. **Secretarial Practice.** (Credit: 3 semester hours).

A study will be made of secretarial occupations, handling of mail, filing, office practice and routine, and secretarial personality and grooming. Prerequisite: Shorthand 153 or Shorthand 163 or its equivalent.

T. 153 (113). **Beginning Typing.** (Credit: 3 semester hours).

Exercises planned to develop a proper wrist and finger movement leading to complete mastery of the keyboard by the touch method. Attention given to accuracy and concentration. Special effort made to attain speed at the typewriter. Practice in letter writing, use of carbon paper and miscellaneous typing. Minimum requirement of 30 credit words per minute must be maintained by end of semester.

T. 163. **Intermediate Typing.** (Credit: 3 semester hours).

Basic skills, rhythm, accuracy, speed, tabulation, letter and report forms are stressed. Minimum requirements of 40 words per minute must be attained by end of semester. Prerequisite: T. 153 or one year of high school typing.

T. 203. **Advanced Typing.** (Credit: 3 semester hours).

Emphasis on production typing with additional training given in letter writing, filing business papers, tabulation, stencil cutting, creation of office atmosphere. Minimum requirement of 60 words per minute must be attained by end of semester. Prerequisite: T. 163 or its equivalent.

#### TECHNICAL

Acct. 103. **Office Accounting.** (Credit: 3 semester hours).

Procedures and techniques used in recording business transactions and preparing financial statements. Journalizing, posting, statement preparation, controlling accounts, subsidiary ledgers. Course adapted to the needs of those training for secretarial positions. Two hours lecture and two hours laboratory each week.

D.T. 203. **Dictation and Transcription.** (Credit: 3 semester hours).

Intensive training designed to develop additional speed and accuracy in writing and transcribing shorthand to meet the demands for secretarial efficiency. Minimum speed dictation of 110 words per minute must be attained by the end of the semester. (Usually transfers as a sophomore subject. Check with the senior college on exact transfer value). Prerequisite: Shd. 203 or approval of department.

Math. 103M. **General Business Mathematics.** (Credit: 3 semester hours).

This course includes a review of business arithmetic, arithmetic shortcuts, simple and compound interest, discounts, payrolls, sinking funds, stocks, bonds, brokerage, property taxes and an introduction to algebra that is applicable to commercial problems.

OM 203. **Office Management and Procedures.** (Credit: 3 semester hours).

A study is made of business etiquette, the handling of office mail, filing systems, preparation of business reports, and work flow.

Shd. 203. **Advanced Shorthand.** (Credit: 3 semester hours).

Improvement of shorthand speed and office efficiency through practice. Further emphasis is given to widening vocabulary. Accurate transcription is stressed. Minimum requirement of 100 words per minute must be attained by end of semester. Prerequisite: Shd. 163 or its equivalent.

T. 203. **Advanced Typing.** (Credit: 3 semester hours).

Emphasis on production typing with additional training given in letter writing, filing business papers, tabulation, stencil cutting, creation of office atmosphere. Minimum requirement of 60 words per minute must be attained by end of semester. Prerequisite: T. 163 or its equivalent.

#### 4. THE DEPARTMENT OF COMPUTER SCIENCE TECHNOLOGY

C.S. 103C. **Introduction to Computer Science.** (Credit: 3 semester hours)

All data processing systems, regardless of size, type, or basic use, have certain common fundamental concepts and operational principles. This course is not an introduction to any specific machine, but is intended to provide a foundation for future detailed study of specific systems. It describes the evolution of computer systems—from manual methods to the stored program. Lectures include an introduction to problem organization, detailed coverage of storage media, fundamentals of input and output operations, and elementary programming techniques.

The last five weeks of the semester are devoted to training students in the writing of computer programs. Basic FORTRAN will be used as the programming language. Lectures in the areas of computer storage, calculation techniques, decision methods, and input-output facilities are also included. Three hours lecture and two hours laboratory per week. Prerequisite: Consent of the department.

**C.S. 114. Introduction to Computer Science.** (Credit: 4 semester hours).

This is an introduction to computers, algorithms, and computation. Lectures will include an introduction to problem organization, detailed coverage of storage media, fundamentals of flow charting and block diagramming, fundamentals of input and output operations, and elementary programming techniques. This course is intended to provide a foundation for future detailed study of specific systems. Basic FORTRAN will be used in solving problems on the computer. Three hours lecture and two hours laboratory per week. Prerequisite: An. 133, Math. 193, or Cal. 213.

**C.S. 113D. Computer Operation.** (Credit: 3 semester hours).

This course provides extensive hands-on experience with a third generation computer system. Operation of the central processor, input-output devices, and storage devices is included. Laboratory exercises are executed involving planning and operation of the equipment. Practical exercises offered are typical of those performed in data processing installations, using keypunch, verifier, sorter, interpreter, and computer. Two hours lecture and two hours laboratory per week. Prerequisite: Consent of the department.

**C.S. 113F. RPG Programming.** (Credit: 3 semester hours).

Report Program Generator is a compiler language that will process data into a printed report with a minimum of programming effort. The coding forms provided make the programmer's role principally clerical. Lecture will include a detailed description of the language, forms, and use. Several programs are constructed, run, and debugged as an aid to comprehending RPG and its capabilities. Three hours lecture and two hours laboratory per week. Prerequisite: C.S. 113D and C.S. 103C or C.S. 114.

**C.S. 113G. Computer Programming I.** (Credit: 3 semester hours).

This course provides the student who has basic knowledge of computing systems with further knowledge of the overall structure of the IBM 360 system. The student concentrates on the use of 360 assembler language programs by making case studies and writing programs. He studies the equipment in a typical system. The laboratory sessions further reinforce basic principles by providing "hands-on" training. Three hours lecture and two hours laboratory per week. Prerequisite: C.S. 103C or C. S. 114, C.S. 113D, and consent of the department.

**C.S. 103H. Technical Applications in Computer Programming.** (Credit: 3 semester hours).

This course provides the student with a basic knowledge of FORTRAN IV and its applications in the technical fields of electronics, physics, and chemistry. The student will learn the fundamental principles of operating and programming the IBM 360/30 computer. This course is designed for majors in electronics, physics, and chemistry and will not apply towards an Associate in Applied Science Degree in Data Processing. Three hours lecture and two hours laboratory per week. Prerequisite: Consent of the department.

**C.S. 113T. Keypunch and Office Procedures.** (Credit: 3 semester hours).

This course is designed to build speed and accuracy in the operation of the keypunch (models 26 and 29) and verifier. Fundamental principles of other punched card equipment, sorter, interpreter and accounting machines, are introduced along with control cards, organization of data, and its application in office procedures. Two hours lecture and two hours laboratory per week. Prerequisite: Consent of the department.

**C.S. 213C. Data Processing Applications.** (Credit: 3 semester hours).

This course is designed to acquaint the student with actual business data processing applications. Lectures will cover automatic processing of data with respect to a definite pattern of work flow from the original document to the final report. In addition to gaining a knowledge of integrated data processing and the reports needed by management, the student will acquire applicable skills in flow charting, forms design for accounting systems, methods of coding and condensing information and punch card design. Laboratory exercises will be executed that will apply the techniques necessary to implement the designed system using COBOL. Three hours lecture and two hours laboratory per week. Prerequisite: C.S. 103C or C.S. 114, C.S. 113F, ACCT. 193, and the consent of the department.

**C.S. 213D. Computer Programming II.** (Credit: 3 semester hours).

The course is designed to acquaint the student with the various languages that are commonly used for scientific computations. The course will specifically include a detailed study of FORTRAN IV. This course is not designed to teach the student detailed mathematical calculations involving mathematics beyond college algebra and technical mathematics. One of the basic objectives is providing the student with the tools to handle problems of an algebraic or statistical nature on a computer. Three hours lecture and two hours laboratory per week. Prerequisite: C.S. 103C or C.S. 114, C.S. 113D, Alg. 113 or Math. 183, and consent of the department.

**C.S. 213F. Computer Programming III.** (Credit: 3 semester hours).

The basic objective of this course is to acquaint the engineer or engineering student with various techniques that can be used to adapt engineering problems to computer solutions. The course will emphasize basic programming techniques, the FORTRAN language and other commonly used languages, principles of iteration, mathematical models, empirical relationships, and certain appropriate mathematical topics. The laboratory exercises will include writing programs in FORTRAN and various other commonly used languages as well as running the FORTRAN programs on an IBM 360 computer. Three hours lecture and two hours laboratory per week. Prerequisite: C.S. 103C or C.S. 114 and the consent of the department.

C.S. 203G. **Computer Programming IV.** (Credit: 3 semester hours).

The objective of this course is to provide the student with sufficient knowledge of programming systems concepts so that he may easily master any specific system with a minimum of instruction. Furthermore, he will be qualified to analyze, evaluate and make minor modification to such systems. It is not intended that the actual programming languages of the various systems be taught. However, individual phases of certain selected systems are treated in detail in order that the student may learn advanced programming and logic decision techniques that are applied in sophisticated systems. Three lecture and two laboratory hours per week. Prerequisite: C.S. 113G and C.S. 213D or the consent of the department.

## 5. THE DEPARTMENT OF EDUCATION AND PSYCHOLOGY

Ed. 113. **An Introduction to Education.** (Credit: 3 semester hours).

This course is designed to give the college student a comprehensive, unified grasp of the education system as it exists in the United States today. The extent, organization, administration, supervision, and support of the educational system is covered. It is not designed as an indoctrination for teacher candidates but as a cultural background course.

Normally, this is the first course in education which an Alvin Junior College student would take. It was offered for the first time in 1957-58.

Ed. 193. **Human Growth and Development.** (Credit: 3 semester hours).

Principles underlying the development of the young school child. This course will emphasize the physiological and sociological growth of the child and the meeting of the problems incident upon that growth. Three hours per week for 18 weeks.

O. 101. **College Orientation.** (Credit: 3 semester hours).

The aim of this course, required of all entering freshmen with fewer than 10 semester hours, is to make the student more effective in college through material and exercises which will stress: how to study, use of the library, curricular planning, success in college and in family living, and personal adjustments. One hour per week for 18 weeks.

O. 101E. **College Orientation for the Social Studies.** (Credit: 1 semester hour).

An orientation and remedial course which is required of every freshman student who enters with low grades and low national scores in social studies. One lecture - laboratory hour per week for eighteen weeks: 18 hours.

Psy. 113. **General Psychology.** (Credit: 3 semester hours).

A first course in general psychology. It is designed to give the student a broad view of the field and acquaint him with the fundamental laws of behavior that have to do with daily conduct in various life situations. Topics include: motivation, learning, thinking, and life adjustments. Formerly Psy. 213.

Psy. 123. **Psychology of Personal Adjustments.** (Credit: 3 semester hours).

Theories of personality; individual development and adjustment along with the dynamics of adjustment as applied to personality development and effective living. Prerequisite: Psychology 113.

Psy. 133. **Effective Reading and Studying.** (Credit: 3 semester hours).

This course is designed to improve the student's reading and studying effectiveness. Speed drills, vocabulary building, and comprehension exercises are included to build the student's skills in these areas. May not count as a required course in psychology or serve as a prerequisite to additional courses in psychology. May be required if student has a low English score on ACT or CEEB test scores. Three lecture-laboratory hours per week.

Psy. 253. **Business Psychology.** (Credit: 3 semester hours).

The applications of psychological principles in the various areas of business with particular emphasis on social interaction and leadership techniques. Prerequisite: Sophomore standing.

## 6. DEPARTMENT OF ELECTRONICS TECHNOLOGY

E.T. 104D. **D.C. Theory and Laboratory.** (Credit: 4 semester hours).

A basic course in direct current electricity. The course is designed with emphasis upon electric current, voltage, Ohm's law, circuits, magnetism, and the use of measuring devices. Intensive three hour laboratory experiments conducted each week over subject areas. A brief description of time varying circuits will be included. Three lecture and three laboratory hours per week. Corequisite: Alg. 113 or ETM 103D.

E.T. 104E. **A.C. Theory and Laboratory.** (Credit: 4 semester hours).

A basic course in alternating current theory and applications, with emphasis upon circuit parameters, wave shapes, vector algebra, circuit laws and theorems, coupled and resonant circuits, and measurements. Three lecture and three laboratory hours per week. Prerequisite: E.T. 104D. Corequisite: Trig. 123 or ETM 103E.

E.T. 104G. **Alternating Current Circuit Analysis.** (Credit: 4 semester hours).

Course content includes alternating current circuit analysis covering Ohm's Law for A.C. circuits, series and parallel inductive-capacitive-resistive circuits, and power considerations in A.C. circuits. Also covered are transformers with theory and application, impedance matching, ratings, and losses. Three lecture and three laboratory hours per week. Prerequisite: E.T. 104D, E.T. 104E, and Alg. 113 or Math. 103D.

E.T. 104K. **Vacuum Tubes and Transistors I.** (Credit: 4 semester hours).

A basic course of study in the theory and operation of electronic devices with emphasis on solid state diodes and transistors. Graphical and

equivalent circuit analysis is developed in preparation for advanced electronic courses. Three lecture and three laboratory hours per week. Co-requisite: ETM 103E or TRIG. 123 and ET 104E.

**E.T. 204L. Vacuum Tubes and Transistors II.** (Credit: 4 semester hours).

A continuation of ET 104K with a study in the theory and operation of electronic devices with emphasis on vacuum tubes, field-effect transistors and amplifiers. Three lecture and three laboratory hours per week. Prerequisite: ET 104K.

**E.T. 204R. Basic Electronic Systems I.** (Credit: 4 semester hours).

A study of radio frequency amplifiers covering voltage amplifiers, buffer devices, frequency multiplying devices, and radio frequency power amplifiers and their neutralization; also including the radio transmitter, radio frequency circuit design, amplitude modulation principles with circuits, and methods, and trouble-shooting procedures and practices. Transmission of radio waves, propagation theory, antenna fundamentals, transmission time theory, and a study of various antenna types are also covered. Three lecture and three laboratory hours per week. Prerequisite: Sixteen semester hours of electronics or the consent of the instructor.

**E.T. 204D. Basic Electronic Circuits.** (Credit: 4 semester hours).

Course includes power supply circuit analysis, the principles of rectification, principles of voltage dividers and voltage regulation. Basic amplifiers and their classification, distortion, special audio frequency considerations, the cathode follower, headsets, audio transducer devices, microphones, and phonograph pick-ups are also included. Other topics are basic oscillator circuits covering R-C and L-C action, R-C and R-L phase shifting, and various types of oscillators. Three lecture and three laboratory hours per week. Prerequisite: Sixteen semester hours of electronics or consent of the instructor.

**E.T. 204M. Vacuum Tubes and Transistors III.** (Credit: 4 semester hours).

An advanced course in vacuum tube and solid state circuits with emphasis on feed-back, oscillators and non-linear devices. Other topics covered are power supplies, silicon controlled rectifiers and micro-electronics. Three lecture and three laboratory hours per week. Prerequisite: ET 204L.

**E.T. 204S. Basic Electronic Systems II.** (Credit: 4 semester hours).

A second course in basic electronic systems, following E.T. 204R, consisting of reception and detection of radio waves, basic radio receivers, tuned radio frequency receivers, a typical T.R.F. circuit, superhetrodyne theory, alignment, and trouble-shooting. Also included are frequency modulation transmitter and receiver principles, A.M. and F.M. transmitter block diagram comparison, modulation techniques, and special transmitter considerations. Three lecture and three laboratory hours per week. Prerequisite: E.T. 204R.

**E.T. 204G. Transistor Applications and Advanced Circuits.** (Credit: 4 semester hours).

Includes study of transistor applications to basic circuits, amplifiers and their application, transistor oscillators, transmission and reception of radio waves using transistor devices. Also included are basic single sideband communication concepts, electronic time measurement systems, electronic test instruments, and non-sinusoidal circuits. Three lecture and three laboratory hours per week. Prerequisite: Sixteen semester hours of electronics or consent of the instructor.

**E.T. 204T. Advanced Electronic Circuits and Systems.** (Credit: 4 semester hours).

Course content includes wave shaping circuits, R-C and R-L differential and integrators, saturable core reactor pulsing circuits; limiter, clamper, and counter circuits, and sweep generation. Also polyphase supplies, radio frequency supplies and voltage regulator circuits, and application of advanced circuits to typical television transmitter and receiver systems. Three lecture and three laboratory hours per week. Prerequisite: E.T. 204R and E.T. 204D.

**E.T. 104R. Instrumentation.** (Credit: 4 semester hours).

A course designed to afford knowledge in test instruments. A study of multimeters, VTVM, impedance bridges, tube and transistor checkers, power supplies, amplifiers, chart recorders, light sensing devices, ammeters, and voltmeters. The use of the oscilloscope in electronics, physics, chemistry, and biology will be undertaken. This course is not an integral part of the electronic technology curriculum because all of these topics are covered in different phases of the curriculum. Three lecture and four laboratory hours per week. Prerequisite: Consent of the instructor.

**E.T.M. 103D. Electronic Technical Mathematics I.** (Credit: 3 semester hours.)

A course designed for electronic technology majors providing a thorough review of algebra, equation and formula manipulation as applied to electronics, and the slide rule as a calculation aid. Three lecture hours per week.

**E.T.M. 103E. Electronic Technical Mathematics II.** (Credit: 3 semester hours.)

A continuation of E.T.M. 103D with emphasis on trigonometric functions, exponents, logarithms, complex numbers, vector algebra, and an introduction to calculus notations. Three lecture hours per week. Prerequisite: E.T.M. 103D or Algebra 113.

**E.T.M. 203G. Electronic Technical Mathematics III.** (Credit: 3 semester hours.)

A study of applied differential and integral calculus with emphasis on practical electronic applications of non-decimal number systems. Three lecture hours per week. Prerequisite: ETM 103E or Trig. 123.

## 7. THE DEPARTMENT OF ENGLISH AND JOURNALISM

### ENGLISH

E. 103 **Fundamentals of Writing.** (Credit: 3 semester hours terminal, non-transferable).

This course is required of all entering freshmen who receive a low score on the entrance examination in English. Emphasis will be placed on these studies: grammar, spelling, punctuation, developmental reading, and paragraph writing.

E. 113. **Composition and Rhetoric.** (Credit: 3 semester hours).

This course aims to promote clearness and correctness of expression through a review of grammar and through practice in writing. It includes the study of techniques of prose writing through a consideration of the essay, biography, satire, and short fiction. Standard freshman course.

**Advanced Placement in E. 113.** (Credit: 3 semester hours).

Credit for English 113 can be applied for by a prospective student with superior high-school grades who scores in the upper tenth percentile on the verbal section of an entrance test approved by the testing officer of the college. The student must also write a composition acceptable to the English Department. If he meets all requirements, he is then eligible to enroll in English 123. Cost: \$6.00. See Advanced Placement in catalog.

E. 123. **Composition and Rhetoric.** (Credit: 3 semester hours).

This course enlarges on the skills and concepts relating to composition and literature covered in English 113. It provides more intensive practice in theme writing, including a research paper, and emphasizes the techniques of longer prose fiction, drama, and poetry. English 113 and 123 are required for an Associate in Arts Degree. Prerequisite: English 113.

E. 133. **Report Writing for Technicians.** (Credit: 3 semester hours).

A course designed to emphasize purpose of reports, proper form, industrial uses, and gathering and evaluating material. Oral reports included. Emphasis is on exposition. This course is designed for Associate in Arts candidates. It is not a substitute for English 123. Three lecture hours each week. Prerequisite: English 113.

E. 213. **Survey of Literature.** (Credit: 3 semester hours).

This course is a study of masterpieces of literature of the classical style. An effort will be made to share through literature some of the ideas which have shaped our cultural heritage and to show how these ideas in literature are related to those expressed in other arts. Collateral reading, reports, and themes will be required. Prerequisite: English 113 and 123.

E. 223. **Survey of Literature.** (Credit: 3 semester hours).

This course is a continuation of English 213. The study includes romantic, realistic, impressionistic and expressionistic styles of literature. Collateral reading, reports, and themes will be required. Prerequisite: English 213.

J. 181-191. **Journalism Activities.** (Credit: 1 semester hour each).

This course is designed to give the basic training to journalism students who wish to work on the yearbook. Prerequisite: A "C" grade in English and the consent of the class instructor. Lectures and practice-lab hours required.

## 8. THE DEPARTMENT OF FOREIGN LANGUAGE

Span. 114, 124. **Beginner's Spanish.** (Credit: 8 semester hours).

This course is designed for students who have had no previous study in Spanish. It consists basically of a conversational approach emphasizing accurate pronunciation and oral work, but also includes considerable drill on grammar. Students are required to attend three lecture hours and two laboratory hours per week.

Span. 153, 163. **Elementary College Spanish.** (Credit: 6 semester hours).

While this course is definitely aimed toward proficiency in conversational Spanish, care is taken to give the student the necessary background in pronunciation, verb forms, and grammatical construction to enable him to take the following courses in Intermediate College Spanish. Three lecture hours and one laboratory hour per week.

Span. 183, 193. **Intermediate College Spanish.** (Credit: 6 semester hours).

This course includes more complex grammatical points. Reading of classical and contemporary literature with a view to furthering Good Neighbor relationships and gaining a better understanding of international affairs. Three lecture hours and one laboratory hour per week.

Span. 253, 263. **Advanced Conversation and Composition.** (Credit: 6 semester hours).

This course is designed to further the student's study and use of Spanish after the fourth semester of college study in the language. Since it is an advanced course, approval of the Department is necessary in order to register for credit. Three lecture hours and one laboratory hour per week.

Fr. 114, 124. **Beginner's French.** (Credit: 8 semester hours).

This course is designed for those students who have had no previous instruction in French. Stress is placed on conversational French though care is exercised to teach the essentials of grammar. Three hours of lecture and two hours of laboratory are required per week.

Fr. 183-193. **Intermediate College French.** (Credit: 6 semester hours).

French readings, grammar, and composition based partly on a formal text and partly on selected readings. Stress will be placed on oral work. Three hours lecture and one hour laboratory per week.

Span. 134. **Rapid Review of Beginner's Spanish.** (Credit: 4 semester hours).

Course designed for student who wishes to review quickly the essentials of two years of study. Grammar and conversation. Three lecture and two laboratory hours per week.

## 9. THE DEPARTMENT OF HOME ECONOMICS

Cl. 113. **Textiles and Clothing.** (Credit: 3 semester hours).

A course in elementary construction. This course is planned to help students meet simple clothing problems. Emphasis is placed on the five common textile fibers, selection of becoming and appropriate clothing, consideration of factors that influence price and suitability of fabrics for different uses.

One class and 4 laboratory periods per week.

Cl. 123. **Textiles and Clothing.** (Credit: 3 semester hours).

A continuation of clothing study that provides for developing skills in fitting, tailoring, and remodeling clothes. One class and four laboratory periods weekly. Required for homemaking majors.

Foods 183, 193. **Foods and Nutrition.** (Credit: 6 semester hours).

This course deals with nutrition and the selection, cost preparation of food, basic preparation of recipes and table service. One lecture period and four laboratory periods weekly. Required for homemaking majors.

Course may be taken for one semester only with the approval of the Dean and the Instructor.

F. L. 133. **Family Living.** (Credit: 3 semester hours).

This course covers the study of the history of the family, its changes, and its present characteristics. Home management, equipment and its care, management problems relating to family, social life and daily living, and ways of improving marriage and family life are included in this course.

## 10. THE DEPARTMENT OF INDUSTRIAL ARTS

W.W. 153, (113). **General Woodworking.** (Credit: 3 semester hours).

A course for the purpose of designing and constructing simple wood projects with hand tools by applying shop principles learned about hand tools, finishes and finishing materials, construction, wood fasteners, and cabinet hardware. Elementary construction with woodworking machines will follow the hand tool information. Meets for 2 theory classes and four hours of laboratory work per week. Prerequisite: none.

W.W. 163. **Cabinet Making.** (Credit: 3 semester hours).

A continuation of Woodwork 153, but centering around the use, care, and operation of machines. The course will include design, construction, factory methods, a study of lumber, and upholstery. Meets for 2 theory classes and four laboratory hours per week. Prerequisite: W. W. 153 or equivalent.

W.W. 183, 193. **Advanced Cabinet Making.** (Credit: 6 semester hours).

A course in advanced cabinet making and design based on factory methods. This course is designed to fit the student for employment or for specialization at a senior college in this field. Class meets for 2 theory lessons and 4 laboratory hours per week. Prerequisite: W.W. 163.

G. M. 153, 163. **General Metalwork.** (Credit: 6 semester hours).

This is an introductory course in metal work. Emphasis is given to the study and discussion of processes and procedures of working metals as utilized by industry. Students will complete laboratory work in: Bench metal, Welding (oxy-acetylene and arc), Forging and Heat-treat, Ornamental iron work, Basic sheetmetal work, Foundry and machine work (drill press, grinder, and engine lathe). Two lecture - four laboratory hours per week.

M. S. 183. **Machine Shop.** (Credit: 3 semester hours).

This course will consist primarily with the machining of metal. Emphasis is placed on the operations, safety and maintenance of metal working machines. Student laboratory work includes operating the grinder, drill press, engine lathe, shaper, and milling machine. Two theory classes and four hours of laboratory per week. Prerequisite: M. S. 163 or equivalent.

M. S. 193. **Advanced Machine Shop.** (Credit: 3 semester hours).

This course is designed to further the machine shop experience of the student who primarily is interested in this type of work. With the aid of the instructor, the student selects special projects involving machine shop experiences gained in the other machine shop courses and furthers his ability and knowledge as a learner in industry or production work. Two hours of lecture and four hours of laboratory per week. Prerequisite: M. S. 183.

E. D. 113. **Engineering Drawing.** (Credit: 3 semester hours).

Engineering drawing is designed for the student who plans to major in Engineering at a senior college. It offers drafting experiences and reproduction procedure comparable to industrial practices. Nine hours of lecture-laboratory-practice work per week.

E. D. 112-121. **Engineering Drawing.** (Credit: 3 semester hours).

Same course as Engineering Drawing 113, but divided into two semesters of work; six hours of lecture and laboratory the first semester and three hours of lecture and laboratory the second term.

D. G. 183. **Descriptive Geometry.** (Credit: 3 semester hours).

A course designed for those who plan to major in engineering in a senior college. Point, line and plane problems; tangent planes, intersectional and developed surfaces; auxiliary views; shade shadow, and perspective. Two lectures and seven hours of supervised problem work per week. Prerequisite: Engineering Drawing and entrance credit for Solid Geometry.

D. G. 183A. **Descriptive Geometry.** (Credit: 1½ semester hours).

First half of D.G. 183 plus selected review of Engineering Drawing 112. Four lecture-laboratory hours per week.

D.G. 183B. **Descriptive Geometry.** (Credit: 1½ semester hours).

This course constitutes the second half of D.G. 183. Four lecture-laboratory-practice hours per week.

A. D. 132, 141. **Architectural Drawing.** (Credit: 3 semester hours).

This course is set up as a beginning course in Architecture involving some basic principles of design and composition; free hand sketching, techniques of presentation and simple practice problems. Nine hours of lecture-laboratory-practice hours per week. Permission of instructor is necessary to take the course.

G. A. M. 183. **General Automotive Mechanics.** (Credit: 3 semester hours).

A study of the fundamental principles of operation of the various units of the automobile and engine; care and safety of operation, and preventative maintenance; with some emphasis placed on methods of teaching by the use of visual aids in the form of cut away units, mock ups, films, charts, tune up equipment, and operational automobile units in the shop. Class meets for two hours theory and four hours of laboratory per week.

#### **TECHNOLOGY**

Dft. 113. **Fundamentals of Drafting.** (Credit: 3 semester hours).

A course designed with exercises in the use of drawing instruments, freehand lettering, geometric construction, projections, isometric drawings, oblique drawings, graphs, and freehand sketching. Required three hours lecture and six hours laboratory each week.

D.G. 183. **Descriptive Geometry.** (Credit: 3 semester hours).

A course designed for those who plan to major in engineering in a senior college. Point, line and plane problems; tangent planes, intersectional and developed surfaces; auxiliary views; shade shadow, and perspective. Two lectures and seven hours of supervised problem work per week. Prerequisite: Engineering Drawing and entrance credit for Solid Geometry.

Dft. 104D. **Machine Drafting.** (Credit: 4 semester hours).

A course designed for the assembly drawings of small machines. Special emphasis is put upon detail drawings and manufacturing specifications. Two lecture hours and four laboratory hours per week. Prerequisite: Dft. 113.

A.D. 113. **Architectural Drawing.** (Credit: 3 semester hours).

This course is set up as a beginning course in architecture involving some basic principles of design and composition; freehand sketching, techniques of presentation and simple practice problems. Nine hours of lecture-laboratory-practice hours per week. Permission of instructor is necessary to take the course.

Dft. 204D. **Construction Drafting.** (Credit: 4 semester hours).

A course designed to gain insight into all types and methods of construction, the nature of various building materials and their use. Two lecture hours and six laboratory hours each week. Prerequisite: Dft. 104D.

Dft. 204E. **Pipe Drafting.** (Credit: 4 semester hours).

A course designed for the study of engineering standards, pipe and fitting designs, symbols and specifications, designing and sizing process systems. Drafting of flow diagrams, vessels, pumps, heat exchangers, instruments, compressors, and other equipment. Two lecture and three laboratory hours each week. Prerequisite: Dft. 104D.

Dft. 203F. **Structural Drafting.** (Credit: 3 semester hours).

A course designed to cover A.I.S.C. specifications and standards, structural data and theory, and design and detail of structural members and connections. Emphasis upon design and detail and specifications for light industrial structures to include structural steel, pipe, and reinforced concrete rods. Three lecture and six hours laboratory per week. Prerequisite: Engineering Drafting, Descriptive Geometry, and Architectural Drawing.

E.D. 102. **Surveying.** (Credit: 2 semester hours).

A course designed to emphasize the principles and fundamentals of surveying, including use of the tape, level, transit, tabulation of field data, boundary surveys, and topographic mapping. Prerequisite: Adequate math background and/or consent of the instructor. One lecture and three laboratory hours each week.

See Art Department offerings for description of Crafts Course

## 11. DEPARTMENT OF LAW ENFORCEMENT & POLICE SCIENCE TECHNOLOGY

P. Ad. 113. **Introduction to Law Enforcement.** (Credit: 3 semester hours).

An introductory course to law enforcement. Covers the history of the police profession and the development of the English and American police systems. Organization of federal, state, and local law enforcement agencies, their authority, duties, and responsibilities. Includes career opportunities, personnel requirements, and standards. Three lecture hours per week for 18 weeks.

P. Ad. 123. **Criminalistics.** (Credit: 3 semester hours).

Application of scientific techniques and apparatus to collections, preservation and identification of physical evidence. Facilities and methods of major crime laboratories are studied and evaluated. Two lecture and two lab hours per week for 18 weeks.

P. Ad. 133. **Legal Aspects of Law Enforcement.** (Credit: 3 semester hours).

Covers crimes against property, crimes against persons, parties to crimes, laws of arrest, search and seizure, laws of evidence, criminal procedure, indictment and information, arraignment and pleas, the trial and verdicts, and the Texas Penal Code. Three lecture hours per week for eighteen weeks.

P. Ad. 183. **Criminology.** (Credit: 3 semester hours).

Current trends, nature and causes of crime. Indexes of crime, perspectives and methods in criminology, psychopathy and crime, culture areas and crime, processes in criminal behavior. Sociological aspects of criminal law and procedure. Three lecture hours per week for 18 weeks.

P. Ad. 193. **Penology.** (Credit: 3 semester hours).

Punishment, treatment and prevention of criminality. Sociological analysis of probation, parole and prison administration. Three lecture hours per week for 18 weeks.

P. Ad. 213. **Elements of Police Supervision.** (Credit: 3 semester hours).

Duties and problems of the police supervisor; recruitment, training, promotion, discipline and morale, duty assignments and shift supervision, human relations and leadership problems, essentials of organization, types of organizations, planning the work of the department. Three lecture hours per week for 18 weeks.

P. Ad. 223. **Police Administration I.** (Credit: 3 semester hours).

An analysis of the duties and responsibilities of police administrators. Application of administrative principles to problems of patrol duty. Police administration: past and present; police organization; police management;

coordination; personnel management; training; the juvenile problem; and the patrol function. Three lecture hours per week for 18 weeks.

P. Ad. 233. **Police Administration II.** (Credit: 3 semester hours).

Crime investigation, traffic supervision, vice control, crime prevention, personnel practices and training, communication, records, the police and the public, police administration of the future. Three lecture hours per week for 18 weeks.

P. Ad. 243. **Problems in Police Administration.** (Credit: 3 semester hours).

A study of police-community relations and the sociological-psychological aspects of modern police administration. Three lecture hours per week for 18 weeks.

P. Ad. 253. **Legal Aspects of Corrections.** (Credit: 3 semester hours).

Legal problems from conviction to release; pre-sentence investigation, sentencing, probation and parole, loss and restoration of civil rights. Court system of U. S. is explained at all levels.

P. Ed. 263 **Probation and Parole.** (Credit: 3 semester hours).

Probation as a judicial process and parole as an executive function are examined as to development and organization.

P. Ad. 273. **Juvenile Delinquency.** (Credit: 3 semester hours).

The nature and extent of delinquency. The environments in which juvenile delinquency develops, delinquent sub-cultures and peer groups; evaluation of prevention, control and treatment programs. Prerequisite: Soc. 113 or 123 or approval of instructor.

P. Ad. 283. **Understanding Human Behavior.** (Credit: 3 semester hours).

Deviant behavior in infancy, childhood, adolescence, and the adult; psychodynamic processes, diagnostic and therapeutic procedures. Prerequisite: Psy. 113 or approval of instructor.

P. Ad. 293. **Interviewing and Counseling.** (Credit: 3 semester hours).

Emphasis on principles and procedures. Review and analysis of the various approaches and techniques used with individuals and groups.

## 12. THE DEPARTMENT OF MATHEMATICS

(A student may not count more than one Algebra course on transfer to a Senior College).

**Alg. 113. College Algebra.** (Credit: 3 semester hours).

This course includes a review of the properties of real numbers followed by a more intensive study of polynomials, rational exponents, radicals, open sentences in one variable, relations and functions, exponential and logarithmic functions, systems of equations, matrices and determinants, complex numbers and vectors, theory of equations, sequences and series, and probability.

**Alg. 113E. College Algebra for Engineers.** (Credit: 3 semester hours).

This course is for pre-engineering and science majors. It includes only a brief review of elementary topics followed by a more intensive study of advanced topics in quadratic equations, systems of quadratic equations, inequalities, progressions, complex numbers, elementary theory of equations, permutations, combinations, mathematical induction and other selected topics as time permits. Prerequisite: Two years of high school algebra or consent of department.

**Alg. 103. Introduction to College Algebra.** (Credit: 3 semester hours (T)).

Students who have a poor academic foundation should enroll for this course which gives review topics in elementary algebra and moves on to more advanced topics such as fractions, linear equations in one unknown, systems of equations, graphs, exponents and radicals. Credit may be counted on the A.A. diploma, but credit is not recommended for transfer to a senior college. Formerly Alg. 133.

**E. P. 111. Engineering Problems.** (Credit: 1 semester hour).

This is a course for pre-engineers and if selected should be taken concurrently with Physics 184. It is designed to introduce the student to elementary problems from all fields of engineering. Particular emphasis is placed on learning to manipulate the slide rule with speed and accuracy. Two lecture-laboratory hours per week for 18 weeks. (Prerequisite: Alg. 103 or 113, and Trig. 123).

**Trig. 123. Plane Trigonometry.** (Credit: 3 semester hours).

Mastery of trigonometry functions with applications; functions of acute angles; functions of obtuse, and multiple angles; identities; derivation of formulas; logarithms; solution of both right triangles and obtuse triangles; practical problems involving heights and distances; graphical representation of trigonometric functions and geometric applications. Prerequisite: Algebra 113 and High School Plane Geometry.

**An. 133. Analytic Geometry.** (Credit: 3 semester hours).

A course in the solution of geometric problems through applied algebra by the graphical representation of points, lines, curves and the transformation of coordinates, polar coordinates, transcendental curves, vectors, parametrics and space formulas, with special emphasis on rapid curve sketching. Three lecture and one laboratory hour per week. Prerequisite: Algebra 113E and Trig 123 or permission of instructor.

**Cal. 215, 225. Differential and Integral Calculus.** (Credit: 10 semester hours. 5 semester hours each semester).

This course is designed to meet the needs of engineering and science students. Differentiation and integration of algebraic functions with applications, followed by a similar treatment of transcendental functions, formal integration by various devices, series, expansion of functions, partial derivatives and multiple integrals constitute the course. Five lecture hours and one laboratory hour per week. Prerequisite: An. 133.

**Cal. 213, 223. Differential and Integral Calculus.** (Credit: 6 semester hours).

These courses are designed to meet the needs of engineering and science majors. These two courses, followed by a course in calculus applications, are fully equivalent to Calculus 215, 225. A study of limits, differentiations, rates, maxima and minima, curvature, elementary integrals, definite integrals, areas, lengths, and volumes constitute the material in the course. Prerequisite: Analytic Geometry 133.

**Cal. 233. Calculus Applications.** (Credit: 3 semester hours).

A study of centroids, moments of inertia, pressure, work, partial differentiation, series, multiple integrals, and hyperbolic functions constitute the material in this advanced course. Prerequisite: Calculus 223 or 225.

**T. E. 213. Theory of Equations.** (Credit: 3 semester hours).

This course will include complex number system, remainder theorem, factor theorem, synthetic division, solutions of polynomial equations, determinants, matrices, symmetric functions, and discriminants. Prerequisite: Analytic Geometry 133.

**D. E. 213. Differential Equations.** (Credit: 3 semester hours).

This course is made to meet the needs of engineering students. The following topics are included in the course study: equations of the first order, singular solutions, linear equations with constant coefficient, miscellaneous methods of solving equations of higher order than the first, with geometric and physical applications. Three lecture hours per week for 18 weeks. Prerequisite: Calculus 223 or 225.

Math. 153. **Foundations of Mathematics.** (Credit: 3 semester hours).

Modern methods will be used to develop skill and understanding in the use and meaning of sets, number symbols, operations, properties, equivalence and number relations, modular systems and bases, scientific notation, measurements, coordinate systems, equations, and various number systems. A survey of modern programs will be made with particular emphasis on the elements of SMSG material. Offered for the first time at Summer Session, 1963.

Math. 163. **Modern Topics in Mathematics.** (Credit: 3 semester hours).

Topics will include studies in modern geometry, sets, relations and functions, ratio and percent, systems of logic, statistics and graphs, probability, systems of equations, and problem solving with practical applications.

Math. 173. **Modern Algebra.** (Credit: 3 semester hours).

Modern Elementary Algebra is an extension of Topics in Modern Mathematics for elementary teachers (Math 153-163). Systems of numeration and the basic concept of sets will be reviewed quickly but thoroughly. Thereafter, major emphasis will be placed on mathematical logic, the nature of proof, algebraic structure and the derivation of algebraic processes from postulates. A study of number systems beginning with the natural numbers will proceed through the successive extensions of the number systems with repeated reference to the basic postulates. Three hours of lecture per week per semester.

Math. 111. **College Arithmetic.** (Credit: 1 semester hour).

The acquisition in precise form of those ideas or concepts in terms of which the quantitative thinking of the world is carried out. This course will stress understanding and correct use of whole numbers, fractions, percentage, and measurements. Short methods of calculation will be stressed throughout the course. One hour of lecture and one hour of laboratory per week.

Math. 183. **Finite Mathematics.** (Credit: 3 semester hours).

This course is designed to meet the needs of students majoring in business and other related fields. The course includes a review of the elementary topics of Algebra followed by a study of logic, sets, equations, relations, functions, linear systems, vectors, matrices, linear programming, and non-linear functions. Three lecture hours per week. Prerequisite: Two years of high school Algebra.

Math. 193. **Analysis.** (Credit: 3 semester hours).

This course is designed to meet the needs of students majoring in business management, science, quantitative analysis or other related fields. The course includes a review of the real number system, relations and functions, sequences and series, and then follows these topics with a study of the differential and integral calculus. Three lecture hours per week. Prerequisite: Finite Mathematics (Math 183) or the equivalent.

L.A. 213. **Linear Algebra.** (Credit: 3 semester hours).

Systems of linear equations, vector spaces, linear dependence, bases, dimensions, linear mappings, matrices, determinants, quadratic forms, orthogonal reduction to diagonal form, eigenvalues, applications. Prerequisite: Enrollment in or credit for Calculus 223 or approval of instructor.

M. 143. **Elementary Functions and Coordinate Geometry with Algebra and Trigonometry.** (Credit: 3 semester hours).

A study of elementary functions, their graphs and applications, including polynomials, rational and algebraic functions, exponential, logarithmic and trigonometric functions; an introduction to three dimensional analytic geometry. Prerequisite: Basic high school mathematics.

Note: A student may not receive credit for both Analytics 133 and Elementary Functions 143

### TECHNOLOGY

Math 103D. **Technical Mathematics I.** (Credit: 3 semester hours).

A course designed to offer a thorough review in the fundamental operations of algebra, with added emphasis upon the solution of quadratic and linear equations, radical operations, negative and fractional exponents, curve plotting and the function idea. Three hours of lecture each week.

Math 103E. **Technical Mathematics II.** (Credit: 3 semester hours).

A math course with emphasis upon logarithms and the slide rule, trigonometric functions, solutions of equations involving trigonometric functions as well as solutions of triangles, complex numbers, and vector algebra. Three lecture hours each week.

E.T.M. 203G. **Electronic Technical Mathematics III.** (Credit: 3 semester hours).

A study of applied differential and integral calculus with emphasis on practical electronic applications of non-decimal number systems. Three lecture hours per week. Prerequisite: E.T.M. 103E or Trig. 123.

## 18. DEPARTMENT OF MUSIC

### MUSIC APPRECIATION, LITERATURE AND THEORY

Mu. 112. **Survey of Music Literature.** (Credit: 2 semester hours).

A required course for music majors studying the fundamentals of music terminology and standard instrumental and vocal forms. Representative composers and compositions from secular and sacred music of most major eras are studied by means of records, lecture, and reports. Prerequisite: none. Two class hours and one lab hour per week.

Mu. 122. **Survey of Music Literature.** (Credit: 2 semester hours).

A continuation of Music 112. Prerequisite: Music 112. Two class hours and one laboratory hour per week.

Mu. 133. **Introduction to Music.** (Credit: 3 semester hours).

This course is designed to familiarize students with the meaning of musical notation through the study of scales, chords and rhythm. Especially adapted for students preparing to become teachers and other students who wish to gain working knowledge of music. Three class hours per week.

Mu. 173. **Music Appreciation.** (Credit: 3 semester hours).

The aim of this course is to provide a foundation for the enjoyment and understanding of music. Representative composers and their works are studied through recorded music. This course is a general survey for the non-music major. Three class hours per week.

Mu. 132. **Music Theory—First Year.** (Credit: 2 semester hours).

A study of the fundamentals of musicianship. Includes a study of scales, intervals, diatonic triads, inversions, written and keyboard harmony and a study of the dominant seventh chords and inversions. Prerequisite: approval of instructor. Three class hours per week.

Mu. 142. **Music Theory—First Year.** (Credit: 2 semester hours).

A continuation of Music 132. Prerequisite: a grade of "C" or better in Music 132. Three class hours per week.

Mu. 232. **Music Theory—Second Year.** (Credit: 2 semester hours).

A continuation of the first year course with advanced aural and written study with emphasis on chromatic harmony and harmonic analysis. Prerequisite: grade of "C" or better in Music 142. Three class hours per week.

Mu. 242. **Music Theory—Second Year.** (Credit: 2 semester hours).

A continuation of Music 232. Prerequisite: grade of "C" or better in Music 232. Three class hours per week.

Mu. 152. **Ear Training & Sight-Singing.** (Credit: 2 semester hours).

A first year course which provides basic aural, visual, and vocal experiences in dictation and sight-singing. Prerequisite: approval of instructor. Two class hours and one laboratory hour per week.

Mu. 162. **Ear Training & Sight-Reading.** (Credit: 2 semester hours).

A continuation of the first semester course with more advanced work in dictation and sight-singing. Prerequisite: grade of "C" or better in Music 152. Two class hours and one laboratory hour per week.

### ORGANIZATIONS

Choir 111, 121, 211, 221. **Concert Choir.** (Credit: 1 semester hour each).

This choir presents in concert many selections of the world's fine literature. In addition to local concerts, this group will participate in campus activities and will make several concert tours to other cities. In order to obtain credit, members are to attend all called rehearsals and public performances. Prerequisite: high school choir experience is desired, although others may be admitted by audition. Five rehearsal hours per week.

Choir 151, 161, 251, 261. **College Singers.** (Credit: 1 semester hour each).

This organization is limited in membership. Students are selected through auditions from the membership of the college choir. Prerequisite: previous experience in choral music, a member in good standing of the college choir with ability to sight-read well. Three rehearsal hours per week.

Choir 131, 141, 231, 241. **Grand Chorus.** (Credit: 1 semester hour each).

Membership in this chorus is open to all students. A course in choral singing designed to acquaint the student with some of the better choral literature. At least one public concert is given each semester. Two hours per week.

### APPLIED MUSIC

**Note:** The name of the instrument or voice will be given by an initial listed **after** the course number for all applied music: A.M. 111-V will indicate voice; A.M. 111-O will indicate organ; A.M. 111-P will indicate piano, etc. (Piano, Voice, Harp, and Organ).

A.M. 111-V, 121-V, 211-V, 221-V, 112-V, 122-V, 212-V, and 222-V. **Applied Music-Voice.** (Credit: 1 or 2 semester hours each course).

Private lessons in **voice.** Student takes one lesson per week per semester-hour of credit.

A.M. 111-P, 121-P, 211-P, 221-P, 112-P, 122-P, 212-P, and 222-P. **Applied Music-Piano.** (Credit: 1 or 2 semester hours each course).

Private lessons in **piano.** Student takes one lesson per week per semester-hour of credit.

A.M. 111-O, 121-O, 211-O, 221-O, 112-O, 122-O, 212-O, 222-O. **Applied Music-Organ.** (Credit: 1 or 2 semester hours each course).

Private lessons in **organ.** Student takes one lesson per week per semester-hour of credit.

A.M. 111-H, 121-H, 211-H, 221-H, 112-H, 122-H, 212-H, and 222-H. **Applied Music-Harp.** (Credit: 1 or 2 semester hours each course).

Private lessons in **harp.** Student takes one lesson per week per semester-hour of credit.

Mu. 131. **Class Piano.** (Credit: 1 semester hour).

Class piano is designed for four to six students per class with little or no previous experience. A study of basic techniques, scales, chords and basic repertoire. Meets two hours per week. One semester hour credit.

Mu. 141. **Class Piano.** (Credit: 1 semester hour).

A continuation of Music 131. The prerequisite of this course is Music 131.

Mu. 151. **Class Voice.** (Credit: 1 semester hour).

This course is designed for four to six students per class with little or no previous vocal music experience. Basic techniques of voice production are studied. Meets two hours per week. One semester hour credit.

#### 14. THE DEPARTMENT OF NURSING

Nursing 118. **Introduction to Nursing.** (4-12) (Credit: 8 semester hours).

Applies nutrition, pharmacology, basic mental health concepts, communications, and manual skills to nursing care. History of nursing and the privileges and responsibilities of the nurse are also considered. Four lecture hours; twelve laboratory hours.

Nursing 128. **Maternal and Child Health.** (3-16). (Credit: 8 semester hours)

Approaches the family at the establishment phase and follows the family through the expectant, childbearing, pre-school, school, and teenage phase. The inter-relatedness of the family is considered throughout each phase with major emphasis on the normal aspects. Selected deviations from normal are also considered. Content is focused on the implications for nursing. Continued study of the related pharmacology and nutrition. Prerequisite: Nursing 118. Three lecture hours, sixteen laboratory hours.

Nursing 135. **Medical-Surgical Nursing I.** (9-18). (Credit: 5 semester hours).

A study of nursing care of adult medical-surgical patients, including the progressive steps in treatment and recovery. Study of patients includes abnormal conditions of the body, complex nursing techniques, psychological impact, socio-economic factors. Clinical laboratory experience includes care of the geriatric and adult medical-surgical patient. Team membership and medication administration experience given. Prerequisite: Nursing 118. Nine lecture hours, eighteen laboratory hours.

Nursing 256. **Medical-Surgical Nursing II.** (3-9). (Credit: 6 semester hours). (9 weeks)

A study of nursing care during surgical intervention, recovery from anesthesia, and the immediate post operative period. Includes problems in care of chest surgery patients, amputees, and other specified conditions. Related pharmacology, psychological and socio-economic factors are presented. Clinical laboratory experience is in operating room, recovery room, and surgical intensive care. Prerequisite: Nursing 118, 135. Three lecture hours, nine laboratory hours.

Nursing 266. **Medical-Surgical Nursing III.** (3-9). (Credit: 6 semester hours).

A study of adult medical-surgical patients with emphasis on long term conditions which result in limitation of function. Rehabilitation concepts, related pharmacology and diet therapy, socio-economic and community problems are considered. Clinical laboratory experience is in rehabilitation centers, clinics, emergency room. Prerequisite: Nursing 118, 135, 256.

Nursing 246. **Psychiatric Nursing.** (3-9). (Credit: 6 semester hours). (9 weeks)

A study of principles and techniques involved in prevention and treatment of mental illness. Psychiatric team approach used. Rehabilitative methods are stressed. Study of drugs used in psychiatric therapy included. Clinical laboratory experience entails working with mentally ill patients, individually and in groups. Emphasis is placed on the community approach. Prerequisite: Nursing 118, 135, Psychology 113. Several hospitals provide facilities for clinical experiences.

#### 15. THE DEPARTMENT OF PHYSICAL EDUCATION

P. E. 111, 121. **Physical Education for Women.** (Credit: 1 semester hour each term).

P. E. 131, 141. **Physical Education for Men.** (Credit: 1 semester hour each term).

P. E. 231, 241, 211, 221. **Physical Education for Sophomore Students.** (1 ea.)

## 16. THE DEPARTMENT OF SCIENCE

### A. Biology

### B. Chemistry

### C. Physics

#### A. BIOLOGY

Bio. 114. **Elementary Zoology.** (Credit: 4 semester hours).

A basic course in zoology with special reference to the vertebrate types. Also included are considerations pertaining to the morphology, physiology, embryology, and taxonomy of selected invertebrate phyla representatives. The chemical, physical and biological organization of cells is discussed in detail, with special reference to molecular and cellular biology. Comprehensive laboratory work will be stressed. This course serves as a foundation for advanced work in the field of zoology. Three hours of lecture and three hours of laboratory per week.

Bio. 124. **Elementary Botany.** (Credit: 4 semester hours).

A basic course in botany which includes the morphology, physiology, taxonomy, and ecology of selected phyla representatives. New understandings of the biochemical processes of living cells are incorporated in the course, such as metabolic pathways and their enzymatic transformations, as well as energy storage and utilization. A natural evolutionary sequence leading up to the structure, function, and reproduction in Angio-sperm is presented. Special emphasis is given to the seed plants along with comprehensive field and laboratory exercises. This course serves as a foundation for advanced work in botany. Three hours of lecture and three hours of laboratory per week. Prerequisite: Biology 114.

Bio. 214. **Comparative Anatomy of the Vertebrates.** (Credit: 4 semester hours).

The morphology, physiology and phylogenesis of the vertebrates (craniates). Extensive laboratory work includes the study of selected lower chordates and at least five vertebrates class representatives. Lecture two hours per week and laboratory six hours per week. Prerequisite: Biology 114, 124, or their equivalent and the consent of the department.

Bio. 234. **Introductory Microbiology.** (Credit: 4 semester hours).

The morphology, physiology, and classification of microorganisms. Relation of bacteria to man in agriculture, industry, sanitation, and disease. Laboratory work involving sterilization and pure culture techniques for laboratory culture of bacteria. Three lecture and three laboratory hours per week. Prerequisite: Bio. 114, 124.

Bio. 244-254. **Human Anatomy and Physiology.** (Credit: 8 semester hours).

The study of the anatomy and physiology of the human body in a course of two semesters. During the first semester human anatomy will be stressed with some emphasis placed on histology and cytology. The second semesters' work involves the physiological processes in the body with some emphasis given to bio-chemical pathways. Recommended for

nursing, home economics, and physical education majors. Three hours of lecture and three hours of laboratory work each week of the course. Prerequisite: Bio. 114 or consent of the department.

#### B. CHEMISTRY

Chem. 134-144. **Introductory Chemistry.** (Credit: 8 semester hours).

A general course which is designed for those students who do not plan to do further work in science or engineering. First semester: atomic-molecular theory, valence, formulae, chemical equations, gas laws, and solutions.

The second semester: an introduction to the various organic functional groups, systematic organic nomenclature, elementary biochemistry, polymer chemistry, and heterocyclics. Three lecture and three laboratory hours per week.

Chem. 114-124. **General Chemistry and Analysis.** (Credit: 8 semesters hours).

The topics presented in Chemistry 114 include: atomic structure; the periodic classification; the gas laws; reactions involving oxygen and hydrogen; acids, bases, and salts; solutions of electrolytes; ionization, and the halogens. Students with little background in mathematics and the use of the slide-rule are urged to enroll concurrently in E.P. 111. Prerequisite: High School Chemistry or the equivalent, or consent of the department.

**Chemistry 124** will emphasize the study of systems involving chemical equilibria and the qualitative analysis of the common cations and anions, using semi-micro techniques in the laboratory. Prerequisite: Chemistry 114. Three lecture and four laboratory hours per week.

Chem. 214. **Quantitative Analysis.** (Credit: 4 semester hours).

The fundamental principles of quantitative analysis are emphasized. Determinations are made involving gravimetric and volumetric methods. Acid-base titrations are carried out. Some of the more modern techniques are utilized, which include spectrophotometric and electroanalytical procedures. Two hours of lecture and six hours of laboratory per week. Prerequisite: A minimum grade of C in Chemistry 124.

Chem. 284. **Organic Chemistry I.** (Credit: 4 semester hours).

The chemistry of aliphatic hydrocarbons, mono- and poly-functional aliphatic compounds, amino acids, proteins, and carbohydrates is studied. Emphasis is placed on the preparation, interrelations, nomenclature, properties, and uses of various compounds. Prerequisite: Chemistry 114-124. Three lecture and four laboratory hours per week.

Chem. 294. **Organic Chemistry II.** (Credit: 4 semester hours).

The chemistry of aromatic compounds, heterocyclic compounds, dyes, terpenes, organo-metallic compounds, and polymers is studied, using the general plan that is followed in Chemistry 284. Prerequisite: Chemistry 284. Three lecture and four laboratory hours per week.

## C. PHYSICS

Phy. 114-124. **Physics.** (Credit: 8 semester hours).

A survey course of the physical science fields. Topics are selected from physics, chemistry, geology, astronomy, metrology, and a brief summary of mechanics and heat to illustrate the philosophy and methods of science. This course is designed and taught for the non-science majors providing a working knowledge of the topics covered. A two semester course consisting of three lecture and three laboratory hours per week. Prerequisite: None.

Phy. 184L. **Mechanics and Heat.** (Credit: 4 semester hours).

Open to freshmen. This is a technical course designed to meet the needs of science and engineering students. Topics covered include: vectors and vector products, equilibrium, moments of a force, motion, Newton's second law, . . . and the first and second law of thermodynamics. Prerequisite: Cal. 213 or consent of department. Three lecture and four laboratory hours per week.

Phy. 214. **Electricity and Magnetism.** (Credit: 4 semester hours).

This course is a technical course in electricity and magnetism designed especially for science, engineering, and technical students. Prerequisite: Physics 184L. Class meets for three lecture and four laboratory hours per week.

Phy. 224. **Wave-Motion, Sound, Light.** (Credit: 4 semester hours).

A technical course for students in science, engineering, and other technical fields. Topics covered include: nature and propagation of light, reflection, interference, diffraction, lens, polarization, atomic model of Rutherford and Bohr, natural radioactivity, and nuclear energy. Prerequisite: Physics 184L. Three lecture and four laboratory hours per week.

Phy. 134. **General Physics.** (Credit: 4 semester hours).

An elementary course with materials selected with reference to the needs of premedical, pre-dental, and pharmacy students and students of architecture and education. This course is also designed for those students who need a two semester technical course in physics but who do not intend to take additional courses in physics. Fundamentals of classical mechanics, heat, and sound will be covered. Prerequisite: Alg. 113 taken concurrently.

Phy. 144. **General Physics.** (Credit: 4 semester hours).

A continuation of Physics 134. Consists of the study of electricity and magnetism, light, and atomic and nuclear physics. Prerequisite: Physics 134 or consent of the instructor.

Phy. 154. **Introductory Physics.** (Credit: 4 semester hours).

A one semester, 4 hour credit course that is designed for electronic technology students. The topics considered are kinematics, dynamics, vector analysis, heat magnetism, light, atomic and nuclear physics. Em-

phasis will be placed on those topics which will benefit the electronic student. Electricity will not be discussed since the student will be concurrently enrolled in E. T. 104D. Corequisite: E. T. 104D and Alg. 113, or previous electronic and mathematical experience. Three lecture and three laboratory hours per week.

## 17. THE DEPARTMENT OF SOCIAL SCIENCE

A. Geography B. Government C. Economics and Sociology

D. History

### A. GEOGRAPHY

Geog. 183. **Principles of Geography.** (Credit: 3 semester hours).

Students are introduced to the natural and cultural features within the world scene. Interpretations and descriptions offered into world-wide climatic regions, man's habitat, and adjustments to this habitat. Total world scene studied in text, lectures, selected readings, and field trips. Prerequisite: Sophomore standing or consent of department.

### B. GOVERNMENT

Govt. 213, 223. **American National and State Governments.**

Govt. 213. (Credit: 3 semester hours).

A study of the origin and development of our federal system of government; analysis of **federal and state constitutions** with special attention to the **Texas Constitution**; federal-state and inter-state relations; and special emphasis on problems of citizenship in a modern democratic society. Three hours per week for 18 weeks. Prerequisite: Sophomore standing.

Govt. 223. (Credit: 3 semester hours).

A study of the functions and services of the government of the United States, the states in general, and Texas in particular. Three hours per week for 18 weeks. Prerequisite: Sophomore standing.

Govt. 113. **Political Ideas and Institutions.** (Credit: 3 semester hours).

A comparative treatment of the present-day governmental systems and conflicting political ideas of some of the foreign states; consideration of the leading democratic and dictatorial regimes. Designed primarily for pre-law, government, and public service majors. Three lecture hours per week for 18 weeks.

### C. ECONOMICS AND SOCIOLOGY

Eco. 153. **Consumer Economics.** (Credit: 3 semester hours).

How to make the most efficient use of business goods and services; and insight into buying problems such as use and evaluation of adver-

tising; consumer financial problems such as banking, credit, personal accounting and budgeting, and installment buying. Three hours per week for 18 weeks.

**Eco. 183. Principles of Economics I.** (Credit: 3 semester hours).

Analysis of the economy as a whole (its organization and basic forces influencing its growth and development); supply - demand relationships; national income, employment, and fiscal policy; money, monetary policy, and economic stability.

**Eco. 193. Principles of Economics II.** (Credit: 3 semester hours).

Economics of the firm and resource allocation (price and output determination - pure competition, monopolistic competition, oligopoly, monopoly); economic problems (business, agriculture, labor, etc.); international economic relations. Prerequisite: Economics 183.

This course and Economics 183 are recommended for those who plan degrees in law, teaching, and business administration. Prerequisite: Economics 183.

**Soc. 113. Principles of Sociology.** (Credit: 3 semester hours).

The study of social groups, culture and personality with emphasis on the relationship of man to his institutions, social interaction, social changes, and pattern of behavior.

**Soc. 123. Social Problems.** (Credit: 3 semester hours)

Specific conditions, problems, and issues; poverty, unemployment, old age, health, family, crime, juvenile delinquency, race, and nationality. Prerequisite: Sociology 113.

**Soc. 213. Marriage and Family Relationships.** (Credit: 3 semester hours).

A cultural and practical approach to the problems of courtship, marriage, and parenthood with emphasis on the understanding of the problems and methods of adjustment used by a society undergoing rapid social change.

**Soc. 223. Contemporary Social Problems.** (Credit: 3 semester hours).

Preparation for well-informed participation in public affairs through objective examination of existing social arrangements and traditional social institutions. Three hours per week for 18 weeks.

#### D. HISTORY

**H. 113. Western Civilization to 1660.** (Credit: 3 semester hours).

The chief political, social and intellectual developments of occidental civilization from the earliest human cultures to 1660. The origins of languages, literature, governments, and economic and social practices are included.

**H. 123. Western Civilization since 1660.** (Credit: 3 semester hours).

This course is a continuation of H. 113. Prerequisite: None.

**H. 133, 143. History of Latin America.** (Credit: 3 semester hours each semester).

**H. 133.** Spanish and Portuguese colonies from discovery to independence.

**H. 143.** Latin American republics since independence. (Formerly offered as **History of the Americas, 1949-64.**)

**H. 153. History of England and the British Empire.** (Credit: 3 semester hours).

A survey course of the history of England and the British Empire; covers the origins of language and literature; the growth of the British constitution; the rise of Parliament; the emergence of the Anglican Church; and the acquisition of overseas colonies.

**H. 163. History of England and the British Empire.** (Credit: 3 semester hours).

This course centers upon the decline of the royal authority and the development of cabinet government; the problems of imperialism and the maintenance of the Pax Britannica; the Industrial Revolution; the Reform Movement; and the growth of democracy.

(Both English history courses are especially designed to aid pre-legal students and those majoring in English, government, and American History.)

**H. 173L. History of Texas to 1865.** (Credit: 3 semester hours).

A study of the growth and development of the Texas area from 1500 until 1865: the Spanish colonial period; the French influence; the end of Spanish rule; the Mexican colonial period; and analysis of the Revolution; the Republic era; the Statehood years; and the role of Texas in the Civil War.

**H. 173M. History of Texas since 1865.** (Credit: 3 semester hours).

An analysis of cultural, social, industrial, and political developments in Texas from 1865 to the present. Emphasis will be placed on the Reconstruction period, political history since the Civil War, and the emergence of the modern state of Texas. Studies of governors and their administrations will be made.

**H. 184, 192. History of Texas.** (Credit: 6 semester hours).

This is the same course as History 173L and 173M. It was divided as follows: History 184, **History of Texas to 1890** and History 192, **History of Texas Since 1890.** Richardson, *The Lone Star State* is used as a text; readings, reports, research paper, interpretative assignments, and current happenings.

**H. 183. The United States to 1865.** (Credit: 3 semester hours).

European forces; Spanish and Portuguese conquest in the Americas; English, French, and Dutch beginnings; accomplishments of nationalistic groups; revolution in British colonies; War of Independence; establishment of the new nation; westward movement and frontier influence; problems of the formative period; cultural and constitutional growth; internal and international relations. This course is required for graduation from all state colleges in Texas. Open to Freshmen with departmental permission.

**H. 193. The United States since 1865.** (Credit: 3 semester hours).

Continuation of History 183. Growth of national ideals; movement for individual freedom; party government and public interests; industrial development; labor problems and agrarian unrest; changing international policies; war and peace; problems of agriculture, business, and government; cultural progress and attempts at social cooperation; current world problems and trends. This course is required by all state colleges in Texas for graduation. Open to Freshmen with departmental approval.

## 18. THE DEPARTMENT OF SPEECH

### SPEECH

**S. 113. Fundamentals of Speech.** (Credit: 3 semester hours).

Speech 113 is the prerequisite to Speech 123. The Fundamentals of Speech consists of the study of the importance of speech as an aid in social adjustment; the study of the vocal mechanism and techniques of voice control, including a brief study of common speech defects and the attitude of the lay person toward these defects; the improvement of articulation and pronunciation; the study of the use of bodily activity and its relation to effective speaking; vocabulary development; the study of the general ends of speech and preparation toward the achieving of these ends.

**S. 123. Public Speaking.** (Credit: 3 semester hours).

Public Speaking is devoted to the methods of organization and the techniques of delivery of the platform speeches. Prerequisite: Speech 113.

**S. 173. Oral Interpretation.** (Credit: 3 semester hours).

Oral Interpretation is the study of platform interpretation of literature. Emphasis will be placed upon improvement in voice, pronunciation, and enunciation for interpreting lyric poetry, narrative prose and poetry, descriptive essay, monologue, and dramatic scenes. This course is particularly recommended for English and elementary majors. Prerequisite: Speech 113.

**S. 133. Business Speech.** (Credit: 3 semester hours).

Business Speech is devoted to the study of the techniques of technical reporting (i.e., speeches to instruct, speeches of special reporting, and speeches for general information and guidance for personnel); the study of techniques of problem-solving through public discussion (i.e., panel discussion, symposium, etc.); the study of the techniques of parliamentary law for purposes of learning to preside at various meetings and conducting business. Prerequisite: Consent of the department.

**S. 181. Theatre Activities.** (Credit: 1 semester hour).

Students are given the opportunity to participate in campus entertainment activities. In addition, he is given a brief survey of the dramatic arts. He must complete activities in two stage presentations, one "on stage" and one in production. He must also do an investigation project chosen from the history of costume, a type of drama and the playwrights, make-up projects or other approved projects.

**S. 191. Speech Activities.** (Credit: 1 semester hour).

Students are given an opportunity to participate in public speaking programs. He must appear in two such programs and do investigation on one famous successful platform speaker.

## VII. ADULT EDUCATION

### A. OBJECTIVES

The Department of Adult Education has been created as a service department for the adults of Alvin and the surrounding territory. The prime objective of the department is to offer educational opportunities to enable adults to meet the constantly changing requirements for successful community living. A program of services in these areas is proposed:

Advanced adult academic education of a secondary and post-secondary level including technical and collegiate education.

General education in the fields of intercultural and international understanding through conferences, courses, forums, lectures and suitable media.

Basic elementary education for the foreign and native born, including training for naturalization and citizenship.

Education in the fields of homemaking and family relations.

Education in vocational and prevocational training.

Opportunities of recreational and hobby type nature conducive to enriched personal and community living.

Education in economic, social and civic problems.

Other pertinent areas.

To assure a close tie with the community, the Board of Education has appointed a Community Advisory Committee drawn from thirty related organizations and interests. This Community Advisory Committee meets upon need to determine the interests, needs, facilities, and opportunities for adult education and recreation and how the program is to be financed.

In addition, a Resource Committee is drawn from the college faculty to provide professional and technical advice and assistance.

### B. FOUR AREAS

The program of educational services to adults has been implemented under four presentations:

#### 1. Academic Program

Adults may acquire academic work and collegiate credit through the regular day or evening program of the college.

Tuition for academic work done during the evening hours is the same as for that done during the day. (See tuition chart.)

It is advised that students with full time employment not carry more than nine semester hours of work per term.

All departments of the college represented in the curriculum offer courses as requests are expressed. A minimum of ten students is required for an academic class.

#### 2. High School Equivalency

Adults may earn an Alvin High School Equivalency Diploma through the Adult Education Department of the Alvin Junior College. This program does not attempt to take the student through a complete high school program but it does (a) establish academic ability equivalent to twelfth grade graduates and (b) provide review and additional background in subject-matter areas practical to adult life. Briefly, the student shows high school education equivalency by successfully passing 1) entrance tests 2) four courses, (English, mathematics, government and reading) and 3) the same comprehensive tests taken by high school graduates.

#### Entrance Requirements

The applicant must:

- 1) Be at least 21 years old. Exception: He may be less than 21 years of age if he has completed the Alvin Junior College Basic Education Equivalency Program or if he is a veteran.
- 2) Be a United States citizen.
- 3) Have completed at least the 8th grade.
- 4) Spend approximately 10 clock hours (3 evenings) in taking General Education Development Tests and make a score of at least 35 on each test or an average of at least 45 on the set of 5 tests.

#### Program

- 1) Time required:  
1 academic year of 2 semesters—beginning with either Fall or Spring semester—2 nights a week, 3 hours a night.

2) Course:

Fall semester, English and mathematics.  
Spring semester, government and reading.

3) Tests:

General Education Development Tests (for entrance)  
Covering four courses taken

Cooperative Tests (scores to equal norm established by 12th grade graduates)

4) Diploma:

Completion of the program will be certified by a high school diploma with the notation "having completed in a satisfactory manner the prescribed high school equivalency program for adults and having attained scores equivalent to that of Alvin High School seniors on American Council on Education general achievement tests."

5) Graduation:

Both Fall and Spring semester high school equivalency graduates will be recognized at Alvin's annual graduation exercises in May.

Costs (payable by semester)

- 1) \$4.00 Tests fee; activity fee \$3.00, annual included.
- 2) \$30.00 Tuition (\$15.00 per course)—Total per year, \$60.00
- 3) \$8.00 Books and supplies (estimate)
- 4) Diploma \$4.25—Payable at beginning of semester of graduation.

3. BASIC (ELEMENTARY) EDUCATION EQUIVALENCY

Arrangements have been made for adults desiring to establish educational equivalency in elementary school subject matter. Upon entrance to the program the applicants will be given standardized achievement tests in order to determine their grade level. The students will be advanced as rapidly as they complete levels of training. Having completed the requirements for basic (elementary) equivalency, the students will be recommended for the Certificate of Basic Education Equivalency. They will then be eligible to enter the Alvin Junior College program for high school equivalency. Applicants must be at least 18 years old.

The fees include: \$3.00 for the testing program, tuition of \$18.00 per three month period, and payment for books and supplies. Advance application is necessary.

4. SHORT UNIT COURSES

These courses are designed for those adult students wishing to give only a short time to the certain studies and activities of practical or avocational value. Most of the classes meet once or twice a week for four or six weeks. The registration fees vary according to the number of actual clock hours of instruction.

Because the registration fees are low and classes are often continued on the basis of the number of students in the early enrollment, there are no refunds or transfers of fees. Equipment is usually provided by the college and students furnish their own materials unless other arrangements are agreed to. Where expensive materials, equipment or services are required for certain classes, a special fee per student has been charged. No grades are given; however, certificates of completion are issued to those who have been in full attendance and who have successfully completed projects during the allotted class time. Each course of 18 clock hours length carries with it 1 semester hour terminal credit with the college, provided it meets the approval of the Dean and the Registrar of the college.

If a short course other than those that are offered through the year is desired, it will be arranged if requested by as many as ten students, provided an instructor and facilities are available.

**TECHNICAL DIVISION**

**PART VIII**

**ALVIN**

**JUNIOR**

**COLLEGE**

Alvin, Texas                      9/1/70  
Published at Alvin, Texas, for  
use by students, faculty, education-  
al institutions, and business firms.

**For:  
1970-71**

## AREAS OF TRAINING IN TECHNOLOGY

In our rapidly expanding technological era, the community junior college has accepted the responsibility of offering educational training for a great number of students in the technical education fields. This type of training, offering students a program that will lead into an entry into a vocation and full citizenship responsibilities after the two years of formal education, is a necessity for many students, and therefore is felt to be an outstanding service in these areas.

Technical education is most often thought of as a highly organized post-high school training program designed to prepare men and women for work in occupations between that of the craftsman and the professional engineer, and most closely linked to the engineer. The technician is an important member of the industrial team and works with both groups.

The chief purpose of the training program is to prepare men and women for responsible positions in the semi-professional occupations. Also the program endeavors to offer intellectual breadth and personal enrichment as well as occupational proficiency. The total curricula is organized on a high quality level, with the aim in mind of providing needed services to those many students interested in the technical education professions.

### A. OBJECTIVES

#### GENERAL:

The technical curriculum at Alvin Junior College aims to:

- (1) Prepare the graduate of the program to be employable and immediately productive in one of six fields: Computer Technology, Nursing, Police Administration Technology, Secretarial Science, Drafting Technology, Electronics Technology.
- (2) Advance the student to positions of increasing responsibility by means of work experience and the taking of advanced technical studies.
- (3) Develop within each individual proper attitudes and responsibilities relative to his chosen field of work.
- (4) Develop and encourage the individual to participate in government on the local and state level and to assume other community responsibilities.

#### CRITERIA:

The Technical Division at Alvin Junior College has based the criteria for establishing technical training for its students on those which were outlined in seven regional conferences by the Bureau of Educational Assistance Programs. U. S. Office of Education.

- (a) **Facility with mathematics:** The student in the technical division should develop an ability to use algebra and trigonometry as tools in the application of ideas that make use of scientific and engineering principles. In addition, he should gain an understanding of, though not necessarily facility with, higher mathematics thru analytical geometry, calculus, and differential equations, according to the requirements of the technology
- (b) **Proficiency in the application of physical science principles:** Studies will include basic concepts and laws of physics and chemistry that are pertinent to the individual's field of technology.
- (c) **Understanding materials:** This will include also an understanding of processes commonly used in the technology in which the student is enrolled for studies.
- (d) **Knowing fields of specialization:** The course should give each student an understanding of the engineering and scientific activities that distinguish the technology of the field. The degree of competency and the depth of understanding should be sufficient to enable the individual to do such work as detail design using established procedures.
- (e) **Communication skills:** The student must learn definitely to interpret, analyze, and transmit facts and ideas graphically, orally, and in writing.
- (f) **A citizen's role:** Our democracy depends on informed citizens who take an active part in their community and serve whenever they can to further the better life in their home communities. The core of studies will include studies which are designed to make the student proud of advancements made in the United States and in the heritage of our country. In addition, a special effort will be made to equip the student to be a contributing citizen.

### I. COMPUTER SCIENCE TECHNOLOGY

This program is designed to develop a technician capable of progressing to such positions as Senior or Chief Tabulator, Tabulating Supervisor, Systems Analyst, or Programmer. On completion of the total program the student will receive a Certificate of Technology in Data Processing, in addition to the Associate in Applied Science Degree.

#### COURSES: First Year

Introduction to College Accounting, Acct. 183	(3)
Composition and Rhetoric, English 113	(3)
College Algebra, Alg. 113	(3)
The United States to 1865, History 183	(3)
Introduction to Data Processing, C.S. 103C, or C.S. 114	(3)
Unit Record Equipment Operation, C.S. 113D	(3)
Introduction to College Accounting, Acct. 193	(3)
The United States since 1865, Hist. 193	(3)

- Advanced Control Panel Wiring, C.S. 113F (3)
- Computer Programming I, C.S. 113G (3)
- Electives (3)

**Second Year**

- Finite Mathematics, Math. 183 (3)
- Analysis, Math. 193 or accounting elective (3)
- Principles of Economics, Eco. 183 (3)
- American National and State Government, Govt. 213 (3)
- Data Processing Applications, C.S. 213C (3)
- Computer Programming II, C.S. 213D (3)
- Technical Report Writing, Eng. 133 (3)
- Fundamentals of Speech, S. 113 (3)
- Elective (6)

**CREDIT:** 60-66 semester hours      **DIPLOMA:** Associate in Applied Science Degree

Suggested Electives: Economics 193, Government 223, C.S. 113T, C.S. 213F, Law 213, Accounting 283, C.S. 203G.

**II. DRAFTING TECHNOLOGY**

The drafting technician is an essential member of the technician-engineering team. He should be proficient in both technical knowledge and skills involving drawing instruments as schematics, working drawings, and blueprints are developed. This program provides an opportunity for students to specialize in several phases of drafting, with proper qualifications for employment as Junior Draftsman in the fields of drafting technology.

**COURSES: First Year**

- Fundamentals of Drafting, Dft. 113 (3)
- General Engineering Problems, E.P. 113 (3)
- Composition and Rhetoric, Eng. 113 (3)
- Technical Mathematics I, Math 103D (3)
- General Physics 134 (4)
- Descriptive Geometry, D.G. 183 (3)
- Machine Drafting, Dft. 104D (4)
- Report Writing for Technicians, Eng. 133 (3)
- Technical Mathematics II, Math 103E (3)
- General Physics 144 (4)

**Second Year**

- Architectural Drawing, A.D. 113 (3)
- Construction Drafting, Dft. 204D (4)

- Government 213 (3)
- History 183 (3)
- Pipe Drafting, Dft. 204E (4)
- Surveying, E.D. 102 (2)
- History 193 (3)
- Elective \* (9)

**CREDIT:** 60-65 semester hours      **DIPLOMA:** Associate in Applied Science Degree

\*Suggested Electives: Dft. 203F, Structural Drafting; Machine Shop 183; Psychology 113; Sociology 113; Economics 183; Speech 113 or 123; Geography 183; Government 223.

**III. ELECTRONICS TECHNOLOGY**

The electronics technician prepares himself for employment in the area of production and maintenance, research, medical laboratory work, and as assistants in the engineering fields of radio, television, communication, and electronic equipment sales. The curriculum is so designed to provide a basic general education in mathematics, science, English, and human relations; specialized instructions in electronics theory and circuits, vacuum tubes, transistors, amplifiers, power supplies, transmitters and test equipment applications; and practical demonstrations of industrial electronic central equipment. This program may lead to a bachelor's degree in technology.

**COURSES**

		Freshman Year	
		First Semester	Second Semester
E.T. 104D	4 hrs.	E.T. 104E	4 hrs.
E.T.M. 103D	3 hrs.	E.T. 104K	4 hrs.
English 113	3 hrs.	E.T.M. 103E	3 hrs.
Drafting 113	3 hrs.	History 183	3 hrs.
Physics 154	4 hrs.	DPT. 103H	3 hrs.
		Sophomore Year	
		First Semester	Second Semester
E.T.M. 203G	3 hrs.	E.T. 204M	4 hrs.
E.T. 204L	4 hrs.	E.T. 204T	4 hrs.
E.T. 204D	4 hrs.	E.T. 204G	4 hrs.
Speech 113	3 hrs.	Govt. 213	3 hrs.
E.T. 204R	4 hrs.	E. 133	3 hrs.

**CREDIT:** 60-72 semester hours      **DIPLOMA:** Associate in Applied Science Degree

Suggested Electives: Analytic Geometry 133, Differential Calculus 213, Integral Calculus 223.

#### IV NURSING TECHNOLOGY

The aim of the Associate degree program in nursing is to prepare the graduate to give direct patient care, under supervision in beginning staff positions, in hospitals and other health-care facilities. The program, technical in nature and terminal in design, includes a background in general education and skills related to patient care.

The graduate is competent to function independently in nursing situations involving hygienic, comfort, and safety measures, interpersonal relations and problem-solving skills. He performs delegated medical activities. In complex nursing situations, the practitioner must have the leadership and guidance of the professional nurse. (He is not prepared for leadership positions.)

At the completion of the twenty-four calendar month program, the graduate is qualified to take the State Board Test Pool Examination to become a Registered Nurse (RN) in Texas.

The program is fully accredited by the Board of Nurse Examiners for the State of Texas. Interested students must be accepted by Alvin Junior College, through the Dean of Admissions. If accepted in the college, the applicant will be referred to the Nursing Department.

**Cost:** Approximately two hundred dollars per semester will cover the college tuition, laboratory fees, books, and uniforms.

Hospitalization insurance and transportation to and from the various health agencies are the responsibility of the students.

Loans are available for the nursing students.

#### ASSOCIATE IN APPLIED SCIENCE DEGREE IN NURSING

	Lec. Hrs.	Lab. Hrs.	Cr. Hrs.
<b>FRESHMEN SUMMER SESSION I</b>			
Eng. 113. Composition and Rhetoric	3	0	3
Soc. 113. Principles of Sociology	3	0	3
			6

#### FALL SEMESTER

Nsg. 118. Introduction to Nursing	4	12	8
Psy. 113. General Psychology	3	0	3
Bio. 244. Human Anatomy and Physiology	3	3	4
Eng. 123. Composition and Rhetoric	3	0	3
			18

#### SPRING SEMESTER

Nsg. 128. Maternal and Child Health	3	16	8
Ed. 193. Human Growth and Development	3	0	3
Bio. 254. Human Anatomy and Physiology	3	3	4
			15

#### SUMMER SESSION II

Nsg. 135. Medical-Surgical Nursing I	9	18	5
			5

#### SOPHOMORE FALL SEMESTER

Nsg. 246. Psychiatric Nursing (9 wks.)	3	9	6
Nsg. 256. Medical-Surgical Nursing II (9 wks.)	3	9	6
Bio. 234. Introductory Microbiology	3	3	4
			16

#### SPRING SEMESTER

Nsg. 266. Medical-Surgical Nursing III Electives	3	9	6
			9
			15

TOTAL CREDIT NURSING HOURS — 43

TOTAL CREDIT LIBERAL ARTS HOURS — 32

## V. LAW ENFORCEMENT & POLICE ADMINISTRATION

THE ASSOCIATE IN SCIENCE DEGREE program in **Police Administration** is designed to meet the needs of persons seeking employment with or promotion in public or private agencies concerned with maintaining public safety, preventing crime, apprehending and rehabilitating criminals, and social welfare.

Urbanization is fast becoming a fact of life in the United States. It is already a fact which underscores not only a growth of population, with its many problems but also developments in social welfare agencies, transportation, communications, and in science. The growth of population centers has had a profound impact on police work of all types.

This program is being planned by the administration of Alvin Junior College to fill an apparent need in Brazoria County and in the counties which adjoin it. The program is outlined for a two-year period of study. Credit may or may not transfer to a senior college.

### A. POLICE ADMINISTRATION

COURSES: First Year	Credit
P. Ad. 113, Introduction to Law Enforcement	(3)
P. Ad. 133, Legal Aspects of Law Enforcement	(3)
P. Ad. 183, Criminology	(3)
E. 113, Composition and Rhetoric I	(3)
E. 123, Composition and Rhetoric II	(3)
H. 183, The United States to 1865	(3)
H. 193, The United States Since 1865	(3)
Soc. 113, Principles of Sociology	(3)
Soc. 123, Social Problems	(3)
Psy. 113, General Psychology	(3)
P. E. 131, Physical Education for Men	(1)
P. E. 141, Physical Education for Men	(1)
O. 101, Freshman Orientation	(1)
COURSES: Second Year	
P. Ad. 123, Criminalistics	(3)
P. Ad. 193, Penology	(3)
P. Ad. 213, Elements of Police Supervision	(3)
P. Ad. 223, Police Administration I	(3)
P. Ad. 233, Police Administration II	(3)
P. Ad. 243, Problems in Police Administration	(3)
Govt. 213, American and State Government	(3)
Govt. 223, American and State Government	(3)
Chem. 134, General Chemistry or	
Bio. 114, Elementary Zoology	(4)
Chem. 144, General Chemistry or	
Bio. 124, Elementary Botany	(4)
E. 213, Survey of Literature or	
S. 113, Fundamentals of Speech	(3)
CREDIT: 60-66 semester hours DEGREE: Associate in Science	

## B. CRIMINOLOGY AND CORRECTIONS

The Correctional Program is offered for students interested in work with the Texas Department of Corrections and with juveniles in institutions. This program is provided on both a terminal and transfer basis. It is designed to lead to an Associate of Arts Degree in Correctional Science. The program is outlined for a two-year period of study.

Courses: First Year	Credit
P. Ad. 113, Introduction to Law Enforcement	3
P. Ad. 133, Legal Aspects of Law Enforcement	3
P. Ad. 183, Criminology	3
E. 113, Composition and Rhetoric I	3
E. 123, Composition and Rhetoric II	3
H. 183, The United States to 1865	3
H. 193, The United States Since 1865	3
Soc. 113, Principles of Sociology	3
Soc. 123, Social Problems	3
Psy. 113, General Psychology	3
P. E. 131, Physical Education for Men	1
P. E. 141, Physical Education for Men	1
O. 101, Freshman Orientation	1
Courses: Second Year	
P. Ad. 193, Penology	3
P. Ad. 253, Legal Aspects of Corrections	3
P. Ad. 263, Probation and Parole	3
P. Ad. 273, Juvenile Delinquency	3
P. Ad. 283, Understanding Human Behavior	3
P. Ad. 293, Interviewing and Counseling	3
E. 213, Survey of Literature	3
E. 223, Survey of Literature II or	
S. 113, Fundamentals of Speech	
Govt. 213, American and State Government	3
Govt. 223, American and State Government	3
Elective	3

## C. CRIMINOLOGY AND CORRECTIONS

### CERTIFICATE PROGRAM

A Certificate is offered in Criminology and Corrections, and represents the completion of thirty hours of approved course work. The Certificate program is designed for mature persons on the job working in the area of corrections. This student earns no degree and his registration records are stamped "Certificate only"-non-transferable credit. In the event that any student who has first enrolled in a "Certificate only" program desires to thereafter enter a degree program, he must meet all prerequisites and requirements met by the degree student.

A certificate student will take seven courses from Group I and three courses from Group II. Course selection will be determined by consultation with the Department Chairman, after he is familiar with the student's background, abilities, and goals.

#### GROUP I

Penology  
 Probation and Parole  
 Legal Aspects of Corrections  
 Introduction to Law Enforcement  
 Criminology  
 Legal Aspects of Law Enforcement  
 Principles of Sociology  
 Social Problems  
 Juvenile Delinquency  
 Introduction to Social Work

#### GROUP II

Composition and Rhetoric  
 General Psychology  
 Abnormal Psychology  
 Counseling  
 American and State Government

## VI. SECRETARIAL SCIENCE & OFFICE OCCUPATIONS

The student who is interested in secretarial science and office occupations is offered a two-year program leading to an associate in applied science degree as well as a one-year terminal certificate.

The curriculum is designed to offer a background in general education courses which will prepare the student to adequately discharge the responsibilities of secretarial work, clerical occupations, and general business employment. The program has been developed in response to the needs of office workers in the fast-growing Gulf Coast area. The demand for adequately prepared secretaries with competency in shorthand and typing skills, as well as knowledge of current office equipment, well exceeds the supply.

Classes are open also to those who wish to do refresher work in a specific course or two rather than to pursue a full college program.

#### ONE-YEAR PROGRAM

First Semester	Credit	Second Semester	Credit
English 113	3	Business English 173	3
Introduction to Business 113	3	Business Math 103M	3
Office Accounting 103	3	Office Machines 183	3
Shorthand 153 or Shorthand 163	3	Shorthand 203	3
Typing 153 or Typing 163	3	Typing 203	3
Physical Education	1	Physical Education	1

#### TWO-YEAR PROGRAM

##### Freshman

First Semester		Second Semester	
English 113	3	Business English 173	3
Introduction to Business 113	3	Business Math 103M	3
Office Accounting 103	3	Office Machines 183	3
Shorthand 153 or Shorthand 163	3	Shorthand 203	3
Typing 153 or Typing 163	3	Typing 203	3
Physical Education	1	Physical Education	1

##### Sophomore

First Semester		Second Semester	
Business Speech S. 133	3	Business Law 213	3
Dictation and Transcription DT 203	3	Introduction to Computer Science Tech C. S. 103C	3
Economics 183	3	Office Management and Procedures OM 203	3
Secretarial Practice 193	3	Electives	6
Government 213	3	Physical Education	1
Physical Education	1		

## VII. POST-SECONDARY VOCATIONAL - TECHNICAL EDUCATION

Voc. Ed. 001. **Pre-vocational and Technical English I.** (3-0) Credit: 0 semester hours).

A course designed for students with deficiencies in English. Objective is to prepare the student for vocational or technical studies in the college program.

Voc. Ed. 002. **Pre-vocational and Technical Math I.** (3-0) (Credit: 0 semester hours).

A course of study for students who are deficient in mathematics. Objective is to prepare the student for vocational and technical studies in the college program.

Voc. Ed. 003. **Pre-vocational and Technical Reading I.** (3-0) (Credit: 0 semester hours).

A course of study for students who are deficient in reading. Emphasis upon speed reading, vocabulary, and comprehension, using Science Research materials and reading laboratory. Objective is to prepare the student for vocational and technical studies in the college program.

Voc. Ed. 004. **Pre-vocational and Technical Government and Social Studies I.** (3-0) (Credit: 0 semester hours).

A course of study for students who are deficient in social studies and government. Objective is to prepare the student for vocational and technical studies in the college program.

## TECHNOLOGY

### TUITION AND FEES

For tuition purposes, the students who enroll in Alvin Junior College will be classified as follows:

1. **In-District**—Students who are residents of the Alvin Independent School District.
2. **Out-Of-District**—Students whose homes are not in the Alvin Independent School District but who are residents of Texas.
3. **Out-Of-State**—Students whose homes are outside the State of Texas.

#### Tuition:

##### **In-District Student:**

Tuition is \$5.00 per semester hour; maximum tuition is \$50.00.

##### **Out-of-District Student:**

Tuition is \$8.00 per semester hour; maximum tuition is \$65.00.

##### **Out-Of-State Student:**

Tuition is \$17.00 per semester hour; maximum tuition is \$200.00.

**Summer School Tuition:** Ten dollars per semester hour. (\$10.00).  
Auditors pay same tuition.

**Laboratory Fees:** Courses in the Technical Division carry a laboratory fee of \$5.00 per semester each for fall and spring terms.

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