

COLUMBUS TECHNICAL INSTITUTE



1984-1985
BULLETIN

Course Descriptions

Columbus Tech's Course Numbering System

To make scheduling move more smoothly, no two courses at Columbus Tech have the same number. The first two digits of a course's four digit number identify for you the department; the last two numbers identify the individual course within the department.

Listed below are the various departments in order of their course numbers. Refer to this chart to find in which department a given course can be found. For example, 7513 Family Counseling would be found in the Course Descriptions section under Social Services.

02xx ROTC	43xx Mechanical Engineering Technology
09xx General Courses	44xx Industrial Technology
10xx Communication Skills	45xx Heating and Air Conditioning
11xx Mathematics	47xx Welding
13xx Basic Science	51xx Architectural Technology
15xx Behavioral Science	52xx Construction Management
22xx Hospitality Management	53xx Civil Engineering Technology
24xx Graphic Communications	75xx Social Services
25xx Aviation Maintenance	76xx Safety
27xx Business Data Processing	77xx Interpreting/Transliterating
28xx Banking/Finance	78xx Law Enforcement
29xx Retail Management	79xx Fire Science
33xx Secretarial Science	80xx Medical Laboratory
34xx Insurance	81xx Dental Laboratory
35xx Public Administration	82xx Optometric Assisting
36xx Real Estate	83xx Emergency Medical Services
37xx Accounting	84xx Mental Health/Mental Retardation
38xx Business Management	85xx Nursing
41xx Automotive Maintenance	86xx Respiratory Therapy
42xx Electronic Engineering Technology	89xx Animal Health

Explanation of Course Description Codes

4 digit course number Technical course Class Hours

4226 Industrial Electronics (SP) Quarter Lab Hours Credits

Industrial devices and utilization concepts. Welders, photoelectric devices, timers, and ultrasonics; Magnetic systems, rotary devices, and servo and synchro systems. \$3.00 lab fee.

Prerequisites: 1214, 1234

Four digit course number - first two digits indicate the department; the second two identify the specific course. Two digits followed by XX, indicate an elective requirement for which only the department is specified; here the student may choose the specific course, subject to approval of his advisor. Where no digits appear, the elective may come from more than one department. It usually connotes a General Education course.

Technical Course - identifies courses within the student's major field. These may be used to work toward fulfilling departmental regulations that require students to take a certain number of technical courses.

Quarter - indicates which quarter or quarters the course is offered during the year. A-autumn, W-winter, SP-spring, SU-summer.

Prerequisites - identifies any course work that must be completed before the student is eligible to enroll for the course. For example, if the number 1002 were listed as a prerequisite for a course, then only students who have completed 1002 would be eligible to register for the course.

Concurrent Courses - identifies any course work that must be completed during the same quarter as the course in which you are enrolling. For example, of course 4205 is concurrent with course 4204, both courses must be taken during the same quarter.

Class Hours - tells the number of hours per week a particular course meets in a lecture classroom.

Lab hours - tells the number of hours per week a particular class meets in a laboratory situation. This is usually in addition to class hours.

Credits - identifies the number of credits awarded to students who successfully complete the course.

Lab Fee - identifies the amount of money (if any) required of students registering for the course. This fee is needed to help offset the cost of consumable materials used in lab situations. Examples are chemicals, glassware, booklets, manuals, and edibles.

Accounting Technology

- 3703 Intermediate Accounting I* (A)** 4-3-5
A continuation of accounting theory. An in-depth study of the accounting process and accounting records; the nature and content of accounting statements: balance sheets, income statements, statements of retained earnings; analysis of working capital; analysis and methods of valuations and statement presentation of the following items: cash and temporary investments, receivables, and inventories. Lab fee: \$3.00. Prerequisite: 3733.
- 3704 Intermediate Accounting II* (W)** 4-3-5
A continuation of course no. 3703 including analysis and methods of valuation and statement presentation of the following items: current liabilities - contractual and contingent items; investments in plant, and equipment - their acquisition, use, retirement, depreciation and depletion, and reevaluation; intangible assets, deferred charges and long-term liabilities. Lab fee: \$3.00. Prerequisite: 3703.
- 3712 Accounting Machines and Systems* (SP,SU)** 2-3-3
Systems fundamentals. Areas of systems activity within an organization; the systems department, its personnel and its operation, charting, systems communications and instruction manuals. Instruction and practice in setting up and using mini-computers. Lab fee: \$15.00.
- 3713 Data Processing for Accountants* (SP,SU)** 1-3-2
A survey of computer systems, hardware and software systems. The use and application of terminals and computer service centers. The application of micro-computers to accounting systems. Basic programming. Lab fee: \$15.00. Prerequisite: 3731.
- 3714 Cost Accounting* (A)** 4-3-5
A study of the field of job order cost accounting; the cost cycle; methods of handling materials, labor costs, and manufacturing overhead expenditures (controllable and uncontrollable); process cost accounting; byproducts and joint products; fundamental cost-volume-profit relationships (break-even analysis); flexible and standard costs. Lab fee: \$4.00. Prerequisite: 3733.
- 3716 Auditing* (W,SU)** 3-3-4
Independent and internal audits, professional ethics, legal liability, internal control, auditing standards and procedures. Evidential matter, auditors approach and techniques, reports, statistical sampling, management advisory services. Prerequisite: 3733.
- 3723 Business Finance* (A,SU)** 2-3-3
Forms of business organization; corporate securities; financing through securities; sources and management of working capital; administration of income; expansion and combination, reorganization, receivership, and dissolution. Lab fee: \$3.00 Prerequisite: 3733.
- 3725 Financial Statement Analysis* (SP,SU)** 2-3-3
Tools of analysis, percentages, comparisons - past performance, industry standards. Basic ratios-equity, current, quick, working capital, return on equity. Turnovers, inventories, receivables. Lab fee: \$3.00 Prerequisite: 3723.
- 3731 Principles of Accounting I* (A,W)** 5-0-5
An introductory course in accounting to include: the meaning and purpose of accounting, financial statements, the basic accounting cycle (theory of debits/credits, ledger accounts, trial balances, journalizing and posting, adjusting and closing entries, statement preparation, and source documents). Accounting for merchandising concerns, and the use of special journals.
- 3732 Principles of Accounting II* (W,SP)** 5-0-5
A continuation of course 3731 emphasizing accounting problems related to cost aggregate assets, current liabilities, and payroll. The course introduces partnership and corporate forms of organization. Special attention is given to reinforce those concepts developed in 3731 (Principles of Accounting I) through the introduction of a major practice set. Lab fee: \$5.00 Prerequisite: 3731.
- 3733 Principles of Accounting III* (SP,SU)** 5-0-5
A continuation of course 3732 with special emphasis on accounting problems peculiar to corporations (focusing on long-term liabilities and stockholders' equity sections). A major portion of this course is devoted to the analysis and interpretation of accounting information enabling management to plan their organizations financial destiny. Lab fee: \$7.00. Prerequisite: 3732.
- 3735 State and Local Taxation* (SP)** 2-3-3
Payroll taxes, withholding and reports. Unemployment, industrial insurance contributions, workmen's relief funds. Franchise taxes, personal property taxes. Classified and intangible taxes. City income taxes. Sales and use taxes. Real estate taxes. Vehicle and other taxes. Lab fee: \$5.00. Prerequisite: 3733.
- 3736 Federal Taxation* (W,SU)** 4-3-5
Individual income taxes; returns, income exemptions, deductions, gains and losses, rates, adjustments. Problems of proprietorship, partnerships, corporations - inventories, depreciation, accounting, installment and deferred sales treatment. Filing requirements, payments, refunds, claims. Tax planning techniques. Lab fee: \$5.00. Prerequisite: 3733.
- 3745 Advanced Accounting* (SP)** 3-3-4
Covers series of advanced topics such as partnership accounting, branch accounting, consolidations and installment sale accounting. These topics are such that they round out the students' knowledge of accounting for the most common organizational types. Prerequisite: 3704.
- 3746 Accounting Practice* (SP)** 3-3-4
A detailed study of accounting systems as applied to specific industries. Industries studied; retailing, construction, utilities, and government. Material from all previous courses applied. Accounts from local firms presented and developed in clinic approach. Lab fee: \$8.00. Prerequisite: 3704.
- 3747 Advanced Taxation* (SP)** 3-3-4
A continuation of federal taxation 3736, including non-liquidating distributions, accumulated earnings and undistributed income, sub-chapter s corporations, stock redemption and partial liquidations, corporate reorganization and estate and gift taxation. Prerequisites: 3704 and 3736.
- 3748 Controllership/CPA Review* (SP)** 3-3-4
Executive accounting problems of industrial accounting organizations; study and analysis of cost systems, accounting data and special problems of manufacturing industries that confront management accountants/practical accounting problems and questions on accounting theory, law and auditing as presented in C.P.A. Examinations. Prerequisite: 3704.
- 3749 Public Administration/Fund Accounting* (SP)** 3-3-4
Accounting principles, standards and procedures applicable to enterprises operated not-for-profit; covers governmental units, institutions such as universities and hospitals, charitable organizations, fraternal organizations, religious groups, clubs, etc. Prerequisite: 3704.
- 3751 Final Project* (SP)** 2-8-5
Systems design, programming, and testing of generalized audit packages to assess the fairness of client prepared financial statements and reports. Prerequisite: 3704, 3716, 2727, and 2755.
- 3752 Accounting Internship* (A,W,SP,SU)** 0-20-2
Supervised on-the-job application of knowledge and skills acquired in the classroom. The student who had adequate technical skills acquired in the previous 5 quarters of classroom work is provided a chance to become an active member of an area accounting office. The student is fully supervised and is responsible for professional conduct and regular work habits. Prerequisite: 3703. Concurrent: 3753.
- 3753 Internship Seminar* (A,W,SP,SU)** 2-0-2
This is the on-campus seminar for students enrolled in 3752-accounting internship. The course content is related to what is happening on the job to meet the needs of the participants. Students use this time to assess and correct weaknesses. Prerequisite: 3703. Concurrent: 3752.
- 3762 Financial Accounting (A,W,SP,SU)** 4-0-4
The first of a two quarter sequence introducing accounting to students with no bookkeeping or accounting background. The course is a fundamental study of principles and procedures of double entry accounting as applied to sole proprietorships, partnerships, and corporations. Concepts of this first course are continued and applied in the second course, managerial accounting. Students are advised to avoid any time lapse between these courses. Lab fee: \$2.00.
- 3763 Managerial Accounting (A,W,SP,SU)** 3-0-3
An extension of financial accounting applying introductory accounting techniques to business situations. It is designed to acquaint the student with the use of accounting information in the control of a business operation and the interpretation of such information for management's use. This course is an overview of the analysis of financial statements, cost and responsibility accounting, budgeting, cost volume profit analysis and decision making. Lab fee: \$2.00. Prerequisite: 3731 or 3762.
- 0911 Introduction to Military Establishment** 0-3-1
A comprehensive study of the purposes, organization, mission and functions of the ROTC programs, the military establishment, the U.S. Army reserve components. The course will also include a survey of basic fundamentals of leadership, drill and ceremonies, and the exercise of command.

Army ROTC

0912 Land Navigation 0-3-1
Interpretation of topographic maps, emphasizing terrain evaluation, including symbology, grid and polar coordinates, elevation and relief, scale and distance, azimuths, intersection, and aerial photographs. The course will also survey basic principles of leadership and drill and ceremonies.

0913 Military Weapons (Modern) 0-3-1
Examination and application of fundamentals of weapons in the U.S. Army arsenal. The course will also include a survey of basic principles and techniques of leadership, drill and ceremonies, and the exercise of command.

0921 National Security Policy 0-3-1
Survey of both the U.S. and Soviet army to include the principles of war, law of war, and UN/Soviet policy on use of nuclear, biological, or chemical weapons (first strike).

0922 American Military History 0-3-1
Survey of American military history; illustrated by selected campaigns and battles. History in the 20th century with special emphasis on organization, tactics, technology, campaigns, battles and commanders.

0923 Military Ethics and Leadership 0-3-1
Introduction to military leadership skills to include: oral/written communications, human relations, power, influence, and basic military management skills. Discuss military ethics and surveys of war and morality to include war crimes and moral codes vs. modern wars.

0924 Military Training/Communication 2-3-3
A study of military teaching principles to include the fundamentals of education as they pertain to the five stages of military instruction techniques; phase two presents radio and wire communications to include coding messages, instruction on CEOI, and study on the radios and telephone sets found in the U.S. Army. Lab: squad and platoon drill and physical training, and field training exercise.

0925 Military Skills Training 2-3-3
An indepth review in map reading to include practical exercises in a field environment. Also discussion of preventive medicing and first aid to include administering first aid to victims of nuclear or chemical agents. Lab: squad and platoon drill and physical training, and field training exercise.

0926 Military Tactics 2-3-3
An indepth review and survey of small unit tactics to include: analyze terrain camouflage, individual movements, reaction to flares, call for/adjust indirect fire, and principles of offensive and defensive operations. Lab: squad and platoon drill, physical training, and field training exercise.

0927 Military Logistics 2-3-3
Presentation of department of the army logistics system to include: accounting for property, classes of supply, organization of logistical units, and administrative investigations. Lab: physical training, staff meetings, and field training exercise.

0928 Military Justice 2-3-3
Introduction to the uniform code of military justice to include: jurisdiction, investigations, search and seizure, pretrial restraint, interrogations and the law of war. Lab: physical training, staff meetings, and field training exercises.

0929 Military Administration and Management 2-3-3
Unit of instruction will include the following: how to plan and conduct meetings, counseling personee on conduct, job performance, and disciplinary matters. Managment simulation program and writing in the military to include decision papers. Lab: physical trianing, staff meetings and field training exercises.

Animal Health Technology

8902 Animal Health Technology I* (A) 4-1-5
Introduction to the animal health technology including laws and ethics, duties and job opportunities. Medical terminology and nutrition requirements for various animals. Concentration on management, common diseases of and basic techniques used with common laboratory animals. procedures necessary for maintenance of an animal colony. Lab fee: \$55.00.

8904 Animal Health and Diseases* (A,W) 4-0-4
Study of normal physiological data, signs of disease, disease prevention and common diseases of canine, feline, equine and bovine species. Prerequisite: 8986.

8907 Animal Health Technology II* (W) 4-2-5
Business procedures used in a veterinary practice, including client records, billing and collection and client relations. Procedures of basic restraint, phlebotomy, injection and examination. Concentration on parasitology of various species. Lab fee: \$55.00. Prerequisite: 1321.

8916 Clinical Procedures I (Surgery)* (SP) 3-0-3
Fundamentals of routine surgery, including preparation of patient, identification of instruments, preparation of surgical packs, suture materials and patterns. Use of the autoclave and other methods of sterilization. Required preanesthetic laboratory tests and postoperative care of the patient. Prerequisites: 1322.

8917 Clinical Procedures II (Radiology)* (SP) 3-0-3
Study of elementary physics, atomic structure, x-ray physics in the production of x-rays, interaction of x-ray within the body, interaction of x-rays with x-ray film, radiation safety, patient preparation and positioning, special diagnostic radiographic procedures and equipment. Prerequisite: 1322.

8918 Clinical Procedures III (Pharmacology)* (SU) 3-0-3
Drugs commonly used in veterinary medicine, including brief history, terminology, source, dosage form and drug classification. Methods of administration, factors altering drug response, prescription terminology and metrology. Regulations for controlled substances. Lab fee: \$55.00. Prerequisite: 8916.

8919 Clinical Procedures IV (Anesthesiology)* (SP) 3-0-3
Study of systemic and inhalation anesthetic agents, premedication agents, ventilators, respirators and monitoring equipment. Emergency drugs and preanesthetic physical. Prerequisite: 1322.

8926 Clinical Laboratory I* (SP,SU) 2-6-5
Course designed to teach the use of equipment necessary to perform complete blood counts. Students learn to use the hemocytometer, pipet, centrifuge and spectrophotometer. Emphasis on the differential white blood counts and reticulocyte counts and most other tests utilized in a clinical hematology laboratory. Prerequisite: 8907.

8927 Clinical Laboratory II* (A,W) 2-6-5
Student performs tests on urine, including protein, glucose and ketones, and other tests performed in routine urinalyses laboratory. Students learn characteristics of and tests performed on transudates, exudates, and cerebrospinal fluid. Students perform blood chemistries, including glucose, bun, creatinine, bilirubin and enzymes. Prerequisite: 8926.

8929 Clinical Laboratory III* (A,W) 2-6-5
Processes necessary to identify causative agents of bacterial infections. Student performs susceptibility testing to identify chemical or antibiotic agents necessary for treatment. Basic bacteriological procedures which include isolation of colonies on culture plate and gram strain. Serilogic procedures, identification of leptospirosis and brucellosis by antigen antibody detections. Prerequisite: 8986.

8931 Clinical Application I* (SP) 0-6-3
Laboratory exercises for 8916, 8917, 8919. Techniques of surgery, anesthesia and radiology along with techniques of phebotomy and injection. Lab fee: \$55.00. Prerequisite: 1322.

8932 Clinical Application II* (A,W) 0-6-3
Laboratory experiences for students to practice skills of surgery, radiology, anesthesia and hematology. Practice in physical examination, client records. Lab fee: \$55.00. Prerequisite: 8986.

8986 Clinical Experience I* (SU,A) 0-30-6
Practical experiences in techniques used in veterinary medicine. Students are assigned to various departments of the teaching hospital of the college of veterinary medicine, Ohio State University under the supervision of technicians employed there. Lab fee: \$55.00. Prerequisite: 27 technical credits.

8987 Clinical Experience II* (W,SP) 0-30-6
Continuation of 8986 with selection possibilities for students to concentrate in clinical pathology, large animal and small animal techniques. Lab fee: \$55.00. Prerequisite: all 89xx courses.

8988 Research Report* (A,W) 1-0-1
Selected research projects for senior students which may include both library research and laboratory investigation under supervision of the faculty. Presentation of a formal research paper is required. Prerequisite: 36 technical credits.

Architecture Technology

- 5101 Architectural Graphics I* (A,W,SU)** 0-9-3
Lettering, line work, orthographic projections, isometric and oblique drawings, and preliminary drawing techniques used in the architect's office. Lab fee: \$15.00.
- 5102 Architectural Graphics II* (W,SP)** 0-9-3
Descriptive geometry with the objective of developing problem solving techniques in three dimensions including the intersection of lines and surfaces, the intersection of surfaces, the development of irregular shapes, and the intersection of solids. Lab fee: \$15.00. Prerequisite: 5101 or equivalent.
- 5103 Architectural Graphics III* (SP,SU)** 1-11-5
Site development requirements including coordination with local government authorities for right-of-way, utilities, zoning and codes, development of topography and meets and bounds of property, introduction of construction surveying and the use of the level and transit on the construction site. Lab fee: \$25.00. Prerequisite: 5102, 5111.
- 5104 Architectural Graphics IV* (A)** 1-9-4
Line presentation with: one, two, and three point perspective fundamentals and perspective chart techniques. Freehand and presentation drawing techniques used in the architects' office. Lab fee: \$15.00. Prerequisite: 5102.
- 5105 Architectural Graphics V* (W)** 1-9-4
Generation of selected details utilized by trade mechanics involved with wall construction, elevator construction, roof construction, multiple material floor and wall finish details, and the coordination of details within working drawings. Working drawing organization and specification notes. Overlay drafting techniques and CAD applications. Lab fee: \$15.00. Prerequisites: 5122.
- 5106 Architectural Graphics VI* (SP)** 0-15-5
Complete working drawing project with office procedures and requirements emphasized. Detailed coordination with consultants' drawings and manufacturer's literature. Independent use of office product files and technical information. Overlay drafting techniques and CAD applications. Lab fee: \$25.00. Prerequisite: 5105 & 5124.
- 5111 Materials and Processes of Construction I* (A,W,SU)** 2-4-4
The manufacturers specifications, unit measurements, production processes and economics of material systems. The materials considered are concrete, masonry, wood, steel, and non-ferrous metals and alloys. Introduction to materials construction details and overlay drafting techniques applications. Lab fee: \$15.00.
- 5112 Materials and Processes of Construction II* (W,SP)** 2-4-4
The manufacturers specifications, unit measurements, production processes and economics of materials and their use in buildings. The materials considered are plaster, acoustical finishes, waterproofing, roofing, flooring, wall coverings, doors, windows, hardware, glass, paints, and sealants. Details in overlay drafting technique applications. Lab fee: \$15.00.
- 5114 Mechanical Systems I (Heating and Ventilating)* (A,W)** 2-4-4
Fundamentals of comfort conditioning. Methods of heating, ventilating, and air conditioning; coordination with the elements of the building. Job construction techniques, detailing, schedules, trade association recommendations, shop drawings. Conventional symbols and nomenclature. Economic evaluations & research forecasts. Overlay drafting techniques and CAD application. Lab fee: \$15.00.
- 5115 Mechanical Systems II (Electrical Equipment)* (SP)** 2-4-4
Fundamentals of lighting, electrical systems equipment for buildings. Essentials of electrical code and association standards. Conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, fixture and equipment schedules, electrical work economics, and research forecasts. Overlay drafting techniques and CAD applications. Field trips. Lab fee: \$15.00.
- 5116 Mechanical Systems III (Plumbing and Sanitation)* (A,W)** 2-2-3
Plumbing codes and standards, layout techniques, conventional symbols and nomenclature, coordination with other elements of building, schedules, details, shop drawings, economics, research forecasts. Overlay drafting techniques and CAD applications. Lab fee: \$15.00.
- 5121 Survey of Architecture* (A,W,SU)** 3-2-4
A survey of architecture in America from 1600 to present. The men, their theories as they developed materials, tools, and construction techniques, in the evolution of modern architecture. Lab fee: \$5.00.

5122 Structural Systems I (Wood)* (A,SP) 1-5-3
Wood construction techniques and detailing of conventional, post and beam, panel, prefabrication, light and heavy truss, millwork and laminated plywood systems. Shop drawing techniques and checking. Lab fee: \$15.00. Prerequisite: 4644.

5123 Structural Systems II (Steel)* (A,W) 1-5-3
Drafting room use of steel construction handbook and steel detailing. Structural plan layout, details, schedules, shop drawing techniques and checking, coordination of steel elements with other parts of building. Overlay drafting techniques and CAD applications. Lab fee \$25.00. Prerequisite: 4645.

5124 Structural Systems III (Concrete and Masonry)* (W,SP) 1-5-3
Drafting room use of concrete reinforcing steel handbook and masonry handbook. Fundamentals of construction details and detailing, shop drawings, shop and job fabrication. Job layout and construction techniques, and economics of concrete and masonry construction. Overlay drafting techniques and CAD applications. Lab fee: \$25.00. Prerequisite: 4645.

5125 Estimating* (SP) 1-5-3
Building cost estimating methods, detailed materials and labor takeoff methods, contractors' overhead costs, wage withholding, and payroll deduction. Insurance, tax, bond, and economics of construction costs. Lab fee: \$15.00. Prerequisite: 5112.

5127 Specifications, Codes and Standards* (A) 2-4-4
The fundamentals of specifications organization into trade division, the content and referencing to other bidding and construction documents including contracts. Familiarization with building codes and regulations used in the drawing production process. Utilization of manufacturer's and association standards used in the drawing production process. Lab fee: \$15.00. Prerequisite: 5111 & 5112.

Automotive Maintenance Technology

4104 Automotive Management/Service & Parts* (A,SP,SU) 2-4-4
An automotive management course covering those management fields that are uniquely applied in the automotive service and parts industry. Prerequisite: 4105.

4105 Service Orientation* (A,W,SP,SU) 3-6-5
Will cover basic maintenance operations on cars and light weight trucks. The instructor will demonstrate all repair techniques, adjustments and perform necessary labor operations using approved procedures and tools. Lab fee: \$15.00.

4106 Shop Experience* (W,SP,SU) 1-8-4
Automotive service and troubleshooting, proper shop procedures, diagnosis and service techniques, new car preparation and eight N.I.A.S.E. Exam reviews are covered.

4109 Automotive Electricity I* (A,W,SP,SU) 2-5-4
An introductory course covering basic principles of electricity and magnetism; battery-theory, service and testing; routine electrical service operations; diagnosis, service and repair of power operated accessories. Lab fee: \$15.00. Prerequisite: 4105.

4111 Brake Systems* (A,W,SP,SU) 2-6-4
The course covers basic brake systems fundamentals. The course will include the theory, testing and service of current brake systems. Lab fee: \$15.00. Prerequisite: 4105.

4112 Automotive Powerplants I* (A,W,SP,SU) 2-5-4
An introductory course designed to provide students with the basic knowledge and skills in the areas of basic internal combustion engines, principles of operations, engine diagnosis and testing, engine construction, lubrication systems, cooling systems, in-car repair and service, and engine removal and installation. Lab fee: \$10.00. Prerequisite: 4105.

4114 Automotive Electricity II* (A,W,SP,SU) 2-5-4
The course covers inspection, diagnosis, and service of automotive starting and charging systems. Lab fee: \$10.00. Prerequisite: 4109.

4116 Manual Transmission and Rear Axle* (A,W,SP,SU) 1-5-3
Practical; experience in diagnosing and repairing manual transmissions, drive trains and rear axles. Theory, diagnosis and practical experience with manual transmissions, rear axles, drive shafts, clutch assemblies and transaxles. Lab fee: \$10.00. Prerequisite: 4105.

4121 Suspension and Steering Systems* (A,W,SP,SU) 2-4-4
Course covering basic suspension and steering systems. Course includes topics covering the theory, testing and service of current suspension and steering systems. Lab fee: \$15.00. Prerequisite: 4105.

4122 Automotive Powerplants II* (A,SP) 3-5-5
An advanced course designed to provide students with basic knowledge and skill in automotive engines machine shop procedures with emphasis on valve jobs, cylinder boring, cylinder honing, align boring, align honing and inspection and service of internal combustion engines. Lab fee: \$25.00. Prerequisite: 4112.

4124 Electrical and Vacuum Systems* (A,W,SP,SU) 2-6-4
An advanced electrical course designed to provide students with a knowledge of vacuum and electrical components, circuits, diagrams; including diagnosis and servicing of automotive computer systems. Lab fee: \$10.00. Prerequisite: 4109.

4127 Fuel and Ignition Systems* (A,W,SP,SU) 3-3-4
An introductory course designed to provide basic knowledge in the areas of fuel and ignition systems. Proper maintenance tune-up procedures are also covered. Lab fee: \$10.00. Prerequisite: 4105.

4128 Engine Diagnostics* (A,W,SP,SU) 2-4-4
An advanced course designed to provide basic engine diagnostic skills in the areas of fuel, air and ignition systems. Proper use of appropriate diagnostic equipment is also covered. Lab fee: \$5.00. Prerequisites: 4209, 4127.

4129 Advanced Engine Diagnostics* (W,SP,SU) 2-5-4
An advanced course designed to provide students with a working knowledge in the area of detailed engine diagnostics. Detailed testing of fuel, air and ignition systems is also covered. Lab fee: \$10.00. Prerequisite: 4128.

4133 Automotive Diesel* (A,W,SP,SU) 2-3-3
A basic course designed to provide students with basic knowledge and skill in automotive diesel engines and fuel injection systems. Lab fee: \$5.00. Prerequisite: 4105.

4135 Automatic Transmissions I* (A,W,SP,SU) 2-5-4
A course designed to provide students with a knowledge and skill in automatic transmission theory; diagnosis and light repair procedures. Lab fee: \$15.00. Prerequisite: 4105.

4136 Automatic Transmissions II* (W,SP,SU) 3-6-5
An advanced course in automatic transmission diagnosis and major repair procedures. Lab fee: \$15.00. Prerequisite: 4135 or equivalent experience.

4144 Air Conditioning* (A,W,SP,SU) 2-3-3
Basic course covering the theory and operation of automotive air conditioning systems. Diagnosis, charging and minor service techniques for currently found systems are covered. Lab fee: \$15.00. Prerequisite: 4105.

Aviation Maintenance Technology

2501 Aviation Theory* (A,W,SP,SU) 4-3-5
Basic science for the aviation maintenance technician, including aerodynamics of lifting and control surfaces, conditions for flight stability, weight and balance effects, center of gravity limits, reports, Federal air regulations. Lab fee: \$8.00.

2502 Aircraft Construction and Design* (A,W,SP,SU) 3-4-5
Blueprint reading and interpretation, fundamentals of drawing, drawing sketches of hardware and materials used in construction of aircraft. Lab fee: \$8.00.

2504 Basic Aviation Maintenance* (A,W,SP,SU) 4-6-6
Fabricating and installing fluid lines and fittings. Selecting and performing non-destructive testing methods. Aircraft cleaning and corrosion control. Lab fee: \$8.00.

2505 Aircraft Structures I (Welding)* (A,W,SP,SU) 2-3-3
Development of sufficient proficiency for the A and P maintenance technician's license. Practice in oxyacetylene welding and analyzing welding faults during routine inspection of airframe components. Lab fee: \$8.00.

2506 Aircraft Structures II* (A,W,SP,SU) 7-13-12
Identification of aircraft metals and plastics, properties of aircraft metals, heat treatment of fabricated parts, layout from blueprints, bending and bending allowances, protective finishes, identification, selection and use of inspection, and repair of wood structures, maintenance and repair of fabric and fiberglass. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2508 Aircraft Environmental Control Systems* (A,W,SP,SU) 3-3-4
Inspection and repair and cabin atmosphere control systems; inspection check, troubleshooting, service and repairing of ice and rain control systems. Maintenance of aircraft fire control system. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2509 Aircraft Fluid Systems* (A,W,SP,SU) 8-9-11
Basic hydraulic and pneumatic principles. Basic hydraulic systems. Brake systems. Hydraulic line, fittings, fluids, pumps, and actuating devices. Inspection, troubleshooting, repair. Vacuum systems; maintenance, inspection, and repair. Aircraft fuel systems. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2511 Aircraft Rigging, Assembly and Inspection* (A,W,SP,SU) 2-6-5
Airplane nomenclature. Disassemble and assemble sequence and procedure. Alignment procedures. Airplane overhaul. Fundamentals and methods of rigging. Stability in flight, control surfaces. Control cables; inspection, installation, splicing. Landing gear assemble; types, maintenance, repair. Fuel systems. Aircraft appliances and miscellaneous equipment. Servicing and handling of aircraft. Heating, pressurization, and other internal systems. Instrument installation and inspection. Weight and balance review. Inspection of complete aircraft. FAA report forms. Helicopter theory and maintenance. Aerodynamics of the helicopter. Lab fee: \$8.00. Prerequisites: courses 2501 through 2509, 2533, 2557.

2512 Powerplant Theory and Maintenance (Reciprocating Engines)* (A,W,SP,SU) 7-12-11
Principles, development, and design of internal combustion engines, engine maintenance, repair, and overhaul. Inspection and troubleshooting. Identification of aircraft materials, parts, and components. Calibration of tools and testing equipment. Engine run-in, testing, and maintenance. Hazards of aircraft engine operation. Lubrication systems. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2513 Powerplant Theory and Maintenance (Turbine Engine)* (A,W,SP,SU) 3-3-4
Principles, development, design and classification of turbine engines. Engine inspection, maintenance, repair and overhaul. Installation and removal of turbine engines. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2514 Magnetos and Ignition Systems* (A,W,SP,SU) 7-8-10
Basic electrical principles in ignition systems. Magneto theory, construction, operation, overhaul. Review of combustion principles. Types of magneto, distributor. Magneto timing; internal and external. Harness construction, inspection, overhaul, and testing. Booster systems. Low tension ignition systems. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2515 Carburetion and Fuel Controls* (A,W,SP,SU) 4-6-6
Float carburetors: theory, construction, operation, troubleshooting maintenance, and overhaul. Pressure injection carburetors: theory, construction, inspection, maintenance, and troubleshooting. Direct pressure injection systems. Fuel systems and requirements: gravity and pressure systems. Induction systems and supercharging. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2516 Propellers* (A,W,SP,SU) 5-6-7
Aerodynamic principles of propellers. Propeller types, construction and materials. Inspection, repair, and troubleshooting. Installation, removal, tracking and balancing. Controllable propellers. Constant speed governor control: construction, operation, maintenance, adjustment, troubleshooting. Reversible propellers. Hazards of propeller operation. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

2517 Powerplant and Systems Inspection* (A,W,SP,SU) 6-8-9
Condensation and coordination of previously accumulated knowledge. Inspection of power plants and power plant systems, use of inspection equipment and aids. Procedures for returning aircraft to active service. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553, 2512-2516.

2553 Basic Aviation Technology* (A,W,SP,SU) 5-8-9
Basic electricity for the aviation maintenance system including reading and interpreting electrical circuit diagrams utilized in troubleshooting aircraft electrical systems. Batteries and generators. Performing ground operation and servicing of aircraft. Understanding maintenance publications, forms and records. Lab fee: \$8.00.

2557 Aircraft Electrical Systems* (A,W,SP,SU) 6-10-10
Review of fundamentals of electricity. Generator control systems. Direct current motors. Electrical engine starting systems: types, inspection, maintenance, overhaul, troubleshooting. Review of basic alternating current principles. Alternating current motors. Alternating current instrument systems. Reading electrical blueprints. Wiring practices, bonding, shielding. Electrical systems. Electrical power units. Radio installations, and inspection. Lab fee: \$8.00. Prerequisites: 2501, 2502, 2504, 2553.

Banking/Finance Technology

- 2801 Introduction to Consumer Finance* (A,W,SP,SU)** 3-0-3
A study of the history of consumer credit institutions and operational aspects of consumer credit. Lab fee: \$1.00.
- 2802 Personal Finance* (A,W,SP,SU)** 3-0-3
This course presents a lifetime program of money management for the individual. The rudiments of such topics as: budgets, saving, job search, buying a house, insurance, mutual funds, stock market, real estate investments, taxes, and estate planning. Lab fee: \$7.00.
- 2803 Money and Banking* (A,W,SP,SU)** 3-2-3
A study of the control and operation of banking and monetary system with emphasis on governmental control and the federal reserve system. Lab fee: \$1.00. Prerequisites: 3806, 3762.
- 2805 Analyzing Financial Statements* (A,SP)** 4-0-4
This course is organized into two main sections. The first section serves as a useful review of basic accounting principles. The second section covers the techniques of financial statement analysis. Lab fee: \$1.00.
- 2806 Principles of Bank Operations* (A,W,SP)** 4-0-4
Presents the fundamentals of bank functions in a descriptive fashion so that the beginning banker may acquire a broad (and operational) perspective. The descriptive orientation is intentional. Banking is increasingly dependent upon personnel who have the broad perspective so necessary for career advancement.
- 2807 Financial Institutions and Markets* (W,SP)** 3-0-3
This course covers the spectrum of financial institutions and markets. This course presents current changes in laws, regulations, forms of organizations, markets, and institutions. Also covered is the development of new financial markets and new institutions. The recent erratic fluctuations of financial markets makes this a timely and interesting course. Lab fee: \$1.00.
- 2809 Bank Investments* (+)** 4-0-4
Because the bank's needs for primary reserves and loanable funds limit the funds available for investment, this course describes the nature of such funds and how their uses are determined. It also analyzes the primary and secondary reserve needs of commercial banks, the sources of reserves, and their random and cyclical fluctuations, and shows the influence of these factors on investment policy. This analysis is followed by a study of yield changes as they affect a bank's long-term holdings.
- 2811 Federal Reserve System* (+)** 4-0-4
Examines the operations and policies of the federal reserve system during critical periods over the past 60 years. The approach taken is topical rather than chronological, thereby enabling students to compare and contrast federal reserve policies dealing with similar problems at different periods in time. Attention is given to international monetary affairs and economic developments affecting the American fiscal system.
- 2813 Credit Administration* (W,SP)** 5-0-5
Analytical study of credit control, and management of collections. topics include: management and analysis of consumer credit, business credit, government credit, and foreign credit. Lab fee: \$1.00. Prerequisites: 3806, 3813, 3762.
- 2815 Business Financial Management* (On Demand)** 4-0-4
This new five-volume set's primary objective is to acquaint the student thoroughly with the principles of finance as applied to the operations of a profit-seeking (nonbank) firm. Active participation in the process of financial administration and decision making teaches the student to use the tools and techniques necessary for the efficient financial management of a modern business enterprise. An up-to-date overview of the activities of the modern business financial manager is provided.
- 2816 Agricultural Finance* (+)** 4-0-4
Reflective the rapid growth of the off-farm agribusiness sectors (the suppliers of farm inputs), this course emphasizes general principles associated with the evaluation of management and the use of capital, rather than stressing the examination of land and labor resources, which are more closely aligned with agricultural production. An understanding of agricultural finance should help the banker in satisfying the credit needs of modern agriculture.
- 2818 Installment Credit* (On Demand)** 4-0-4
In this course, the techniques of installment lending are presented concisely. Emphasis is placed on establishing the credit, obtaining and checking information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized. Other topics discussed are inventory financing, special loan programs, business development and advertising, and the public relations aspect of installment lending.
- 2819 Banking/Finance Seminar & Research* (W)** 1-2-2
The student receives exposure to current developments in finance and economics through class discussions and projects.
- 2821 Fundamentals of Investments* (W,SU)** 3-0-3
This course examines the role and scope of investments for the individual with emphasis on the stock market. Topics presented include: risk and return trade offs, sources of investment information, stocks, bonds, mutual funds, options, and tax considerations. Lab fee: \$7.00.
- 2822 Fundamentals of Investments II* (On Demand)** 3-0-3
This course is a continuation of 2821.
- 2823 Corporation Finance* (A,SP,SU)** 5-0-5
A study of business organization. Means of financing, financial management of working capital, administration of income, expansion and merger, reorganization, receivership, and dissolution. Lab fee: \$1.00. Prerequisites: 3806 and 3762.
- 2827 Trust Functions and Services* (+)** 4-0-4
Presents a complete picture of the services rendered by institutions engaged in trust business. Providing an introduction to the services and duties involved in trust operations, the course is intended for all bankers, not only those who are engaged in trust business. It endeavors to keep clear the distinction between business and legal aspects of trust functions.
- 2831 Savings and Time Deposits* (+)** 4-0-4
Reflects recognition of the fact that a knowledge of the historical development of savings institutions and an awareness of the basic economic function of the savings process are necessary to an understanding of the current operations and policies of these institutions. It begins with a review of the economics of the savings process in order to clarify important differences between financial savings by individuals or organizations and real savings that appear as capital formation. Different types of financial savings are reviewed in order to describe the system of financial flows of income to capital investment.
- 2834 Management of Commercial Bank Funds* (+)** 4-0-4
Those necessary principles from which the student can derive an adequate philosophy of funds management. Differences between practices in large banks and smaller institutions are spelled out so that this text is useful to bankers institutions of all sizes.
- 2836 International Banking* (On Demand)** 4-0-4
This course is an introduction to a vast field for those working in international departments, as well as for those involved in the domestic activities of their banks. The essential objective of this course is to present the basic framework and fundamentals of international banking: how money is transferred from one country to another, how trade is financed, what the international agencies are and how they supplement the work of commercial banks, and how money is changed from one currency to another.
- 2838 Law and Banking* (+)** 4-0-4
An introduction to basic U.S. Law, presenting the rules of law which underlie banking. Topics include jurisprudence, the court system and civil procedure, contracts, quasi-contracts, property, torts and crimes, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits and collections, documents of title, and secured transactions. Emphasis is on the uniform commercial code.
- 2881 Banking/Finance Internship I* (A,W,SP,SU)** 0-25-4
The internship provides students with valuable on-the-job work experience and training in the banking and finance field. Students will learn actual job skills under the supervision of an employer. This is an opportunity for students to earn money, acquire work experience and learn at the same time.
- 2882 Banking/Finance Internship II* (A,W,SP,SU)** 0-25-4
A continuation of 2881.
- 2883 Banking/Finance Internship III* (A,W,SP,SU)** 0-25-4
A continuation of 2882.
- 2885 Banking/Finance Special Problems I* (A,W,SP,SU)** 0-6-2
This course is to be taken concurrently with the internship. The job skills which the student is learning will be studied and reported in a term paper.
- 2886 Banking/Finance Special Problems II* (A,W,SP,SU)** 0-6-2
A continuation of 2885.
- 2887 Banking/Finance Special Problems III* (A,W,SP,SU)** 0-6-2
A continuation of 2886.

+ These course are offered by AIB and are open to CTI students, for credit, on a space available basis. See the on-campus AIB representative for information.

Basic Sciences

1301-1306 Special Topics In Biological and Physical Sciences (On Demand)

1-6

Selected materials from the regular course offerings, designed to meet specific needs. May be used for independent studies. Lab fee determined according to content.

1311 Inorganic Chemistry (A,W,SU)

4-3-5

An introductory course in fundamental chemical concepts and laboratory techniques. Topics include atomic structure, periodic classification of elements, chemical equations, chemical calculations, solutions, acids and bases, equilibria, and the gas laws. Lab fee: \$8.00. Prerequisite: high school algebra, 1341 or equivalent.

1312 Organic Chemistry (A,SP)

4-3-5

A course in fundamental organic chemistry. The study of carbon compounds: aliphatic hydrocarbons, alcohols, ethers, aldehydes, ketones, carbohydrates, lipids, and proteins. Related laboratory. Lab fee: \$8.00. Prerequisite: 1311 or equivalent.

1313 General and Biological Chemistry (A,W,SP,SU)

3-3-4

A review of basic inorganic chemistry and a study of the properties and nomenclature of carbon compounds, with emphasis on biological applications. An examination of the properties of biologically important carbohydrates, lipids, and proteins. Lab fee: \$8.00. Prerequisite: 1188 or equivalent, 1341 or equivalent.

1315 General Microbiology (A,W,SP,SU)

2-5-4

Use of a bright field microscope and demonstration and explanation of other types. A study of bacteria and bacteriological techniques for cultivation and isolation in pure culture. Use of various stains and certain reagents used in biochemical techniques for identification. Aseptic and anaerobic techniques. Susceptibility testing. Methods for physically and chemically controlling bacterial growth and contamination. Isolation techniques of human normal flora. Lab fee: \$20.00. Prerequisite: 1341 or equivalent.

1323 General Health Problems (W)

4-0-4

Emphasis is placed on contemporary problems associated with physical and social health within the community. The biologic causes as well as sociologic causes of the problems are discussed and analyzed. The scope of the course encompasses prenatal situations through old age.

1324 Human Genetics and Society (W)

3-0-3

A study of Mendelian genetics as it relates to the human organism. Special emphasis is placed upon human genetic anomalies and their social and psychological ramifications. The role of genetic counseling is discussed.

1331 Anatomy (A,SP)

0-6-3

All organ systems of the human are presented in anatomical detail. Except for the special senses, integumentary and endocrine systems, functioning is treated superficially. The cat and organs of the sheep are utilized as representative of mammalian anatomy. Lab fee: \$20.00. Prerequisite: high school biology or 1343 1331 is not open to students with credit for 1321 or 1361.

1332 Human Physiology (A,W,SP,SU)

4-0-4

Functional detail of all human organ systems (except special senses, integumentary and endocrine) are presented in detail. Basic function of the cell and tissues is also presented. Prerequisite: 1331 or concurrent with 1331. 1332 is not open to students with credit for 1321, 1322, 1366, 1367, or 1368.

1341 Survey of Chemistry (A,W,SP,SU)

3-3-4

Basic concepts of the physical sciences with an emphasis on the physical and chemical properties of matter. Related laboratory work and demonstrations. Lab fee: \$5.00. Prerequisite: 1105 or equivalent recommended 1341 is not open to students who have credit for 1311 or 1312.

1342 Survey of Physics (A,W,SP,SU)

3-3-4

A study of the basic concepts of physics with emphasis on energy in its various forms. Topics include mechanics, heat, electricity, and waves. Related laboratory work and demonstrations. Lab fee: \$3.00. Prerequisite: 1105 or equivalent recommended 1342 is not open to students who have credit for 1381, 1382 or 1383.

1343 Introduction to Biological Sciences (A,W,SP,SU)

4-0-4

Basic biological concepts are presented with emphasis on cell organelles, properties of the cell membrane, metabolic activities of the cell, basic biochemistry of DNA, RNA, and protein synthesis, and genetics. Fundamentals of chemistry including atomic structure, elements, compounds, basic chemical reactions, organic compounds, acids, bases, buffers and enzymes are presented. 1343 is not open to students who have credit for 1321, 1322, 1331, 1332, 1361, 1366, 1367, or 1368.

1344 Introduction to Anatomy and Physiology (A,W,SP,SU)

3-0-3

A general overview of normal human anatomy and physiology. Topics include the cell, tissues, musculo-skeletal, nervous, cardiovascular, genitourinary, digestive, respiratory and endocrine systems. 1344 is not open to students who have credit for 1321, 1322, 1331, 1332, 1361, 1366, 1367, or 1368.

1361 Human Anatomy (A,W,SP,SU)

2-4-4

Starting with cells and tissues, all the organ systems of humans are presented in anatomical detail. Functioning is treated superficially. The cat is utilized as a representative mammal in the laboratory. Lab fee: \$20.00. Prerequisite: 1343 or high school biology 1361 is not open to students who have credit for 1321 and 1322.

1362 Human Embryology (On Demand)

2-0-2

Starting with gametogenesis and reproduction, the embryological development of humans from fertilization to birth is presented for morphogenesis and organogenesis of the following: face, neck, pharynx, limbs, circulatory system, nervous system, respiratory system, digestive system, urinary system, and reproductive system. Prerequisite: 1361 and 1366 or permission of instructor.

1366 Human Physiology I (W,SP)

3-3-4

The functioning of the various systems of the human body is presented in detail. Topics include cell physiology, neural and endocrine regulation. Lab fee: \$5.00 Prerequisite: 1361 and 1313 1366 is not open to students with credit for 1332, or 1321 and 1322.

1367 Human Physiology II (SU,A)

3-3-4

A continuation of 1366. The major topic is regulation of the internal environment. This includes cardiovascular physiology, blood, renal physiology, fluid and electrolyte, acid-base balance, and regulation of respiration. Lab fee: \$5.00. Prerequisite: 1366 or equivalent 1367 is not open to students with credit for 1332 or 1321 and 1322.

1368 Human Physiology III (A,W)

3-3-4

A continuation of 1367. Topics include immunology, responses to external environment (sensory systems, body mechanics, and movement), digestion and nutrition, reproduction, and inheritance. Lab fee: \$5.00. Prerequisite: 1367 or equivalent 1368 is not open to students with credit for 1332, or 1321 and 1322.

1381 Physics I (Mechanics) (A,W,SP,SU)

3-3-4

A course in the basic principles of mechanics. Major topics include equilibrium of rigid bodies, particle motion, Newton's laws of motion, work and energy, conservation principles, and rotational motion. Related laboratory and demonstrations. Lab fee: \$3.00. Prerequisite: 1111 or equivalent.

1382 Physics II (Electricity and Magnetism) (W,SP)

3-3-4

A course in the basic principles of electricity and magnetism. Major topics include electric charge and fields, capacitance, current and resistance, DC circuits, magnetic forces and fields, magnetic properties of matter, and alternating current. Related laboratory and demonstrations. Lab fee: \$3.00. Prerequisite: 1111 or equivalent.

1383 Physics III (Properties of Matter) (A,W,SP,SU)

3-3-4

A course in the basic principles associated with the mechanical and thermal properties of matter. Major topics include elasticity, fluid mechanics, heat and temperature, energy transformations, heat transfer, ideal and real gases, thermodynamics, vibrations and wave motion. Related laboratory and demonstrations. Lab fee: \$3.00. Prerequisite: 1111 or equivalent.

1384 Physics IV (Light and Modern Physics) (W)

3-3-4

A course in the basic principles of electromagnetic waves, physical and geometric optics, and atomic theory. Special attention is given to lenses, mirrors, and optical instruments. Additional topics as required. Related laboratory and demonstrations. Lab fee: \$3.00. Prerequisite: 1181, 1111 or equivalent.

Behavioral Sciences

1501 Beginning Philosophy (A,W,SP,SU)

3-0-3

An introduction to the field of philosophy surveying a wide range of views by the great thinkers. The importance and applications of philosophy are addressed as related to values, reality, ethics, and truth. The relationship of philosophy to society, science, and religion are explored. Lab fee: \$2.00.

1505 Social Issues In Economics (A,W,SP,SU)

3-0-3

An introduction to the study of socioeconomic issues relative to supply, demand, and scarcity. The course is designed to familiarize students with capitalism, socialism, production, public funding, taxation, the labor force, inflation, business, financing, conservation, money and the banking system as they relate to the socioeconomic problems of our society. Lab fee: \$2.00.

- 1514 General Sociology (A,W,SP,SU)** 3-0-3
An introductory course dealing with the microscopic and macroscopic aspects of social reality: the issues of social change; the major components of social life; and the major social institutions. Emphasis is on the scientific method of approaching the fundamental concepts of human society. Lab fee: \$2.00.
- 1515 Human Behavior (A,W,SP,SU)** 3-0-3
A course designed to help the student develop his awareness of human behavior patterns, interpersonal communication and realization of self and other's interaction. Lab fee: \$2.00.
- 1516 Political Science (A,W,SP,SU)** 3-0-3
An introductory course emphasizing the relationship between citizens and government, and the roles played by each in policy making decisions. Lab fee: \$2.00.
- 1518 Sociology of Urban Life (A,W,SP,SU)** 3-0-3
An introductory course designed to give the student exposure to urban sociology and related areas. Covers both intellectual and practical natures of our cities and how urban areas have changed and what can be expected in the future. Analyzes early city growth, the influence of natural environment, technology, and population. Covers urbanization in the U.S.; planning and social questions relating to cities. Discusses the urban explosion in Latin America, Africa, the Middle East and Asia. Looks to the future with speculations on what cities should or will be like. Lab fee: \$2.00. Prerequisite: 1514.
- 1522 General Psychology (A,W,SP,SU)** 3-0-3
An introductory course requiring application of the scientific method in treatment of the following topics: research methodology; beginning statistic; and theories of physical, cognitive, moral and emotional development; sensation; perception; learning; motivation; intelligence; memory; personality; coping processes; abnormality and adjustment; and the individual within society. Lab fee: \$2.00.
- 1523 Child and Adolescent Psychology (A,W,SP,SU)** 4-0-4
A developmental psychology course covering human development from conception through the adolescent period. Research and theory will be utilized in describing and attempting to explain how the individual child develops. Emphasis will be placed on developmental norms and the wide variety of behavior in the "normal child". Lab fee: \$2.00.
- 1524 Adult Psychology (A,W,SP,SU)** 4-0-4
A developmental psychology course covering human development from young adulthood to old age. Research and theory will be examined in relation to: youth, young adult, middle-age, elderly, death, and dying. Lab fee: \$2.00.
- 1525 Marriage and Family Relations (A,W,SP,SU)** 3-0-3
An introduction to the impact of modern society upon the family as it relates to dating, courtship, size of family, member relationships, economic problems, and marital stability. The course compares alternative life styles and marriage and family relations throughout the life span. Lab fee: \$2.00.
- 1526 Abnormal Psychology (A,W,SP,SU)** 3-0-3
Abnormal psychology is a course which presents to the students the basic concepts of abnormalities as defined by the American Psychiatric Association's diagnostic and statistical manual of mental disorders (DSM III). The course illuminates the classification scheme of diagnoses listing descriptive terms and symptoms of all diagnoses. This course examines the myths, philosophies and major perspectives in the field of mental health. Lab fee: \$2.00. Prerequisite: 1522.
- 1528 Ethnic Studies (A,W,SP,SU)** 3-0-3
A course which explores the pluralistic nature of American society and focuses upon the experience, past and present, of major ethnic groups in the United States. Lab fee: \$2.00.
- 1531 Child Development I (A,W,SP,SU)** 3-0-3
A study of developmental patterns of children from conception to the chronological age of six. The traditional child development approach is utilized with emphasis upon physical, cognitive, social, emotional and language development. Observation of children is an integral part of the course. Lab fee: \$2.00.
- 1532 Child Development II (A,W,SP,SU)** 3-0-3
A study of developmental patterns of children from the age of six through adolescence. The traditional child development approach will be utilized with emphasis on cognitive, physical, social, and emotional development. Observation of children with the use of language and objective techniques will be an integral part of the course. Lab fee: \$2.00. Prerequisite: 1531.
- 1541 Community Sociology (A,W,SP,SU)** 4-0-4
A study of the institutions and community from the sociological imagination perspective. The influence that mores, education, employment, attitudes, history and motives have upon the individual as well as the community at large will be studied. Lab fee: \$2.00.

- 1542 Social Psychology I (A,W,SP,SU)** 4-0-4
A study of the human condition and human behavior through a scientific attempt toward explanation of how thoughts, feelings and actions of individuals are influenced by actual, imagined, or implied phenomena. The sampling of traditional and contemporary theory and empirical research is emphasized. Lab fee: \$2.00. Prerequisite: 1522.

- 1573 Adaptive Behavior I (A,W,SP,SU)** 3-0-3
A study of the depth and scope of stress and tension from a holistic approach. Research and theory will be examined in relation to: the problems and potential for achieving solutions; underlying causes from stress producing environments; methods for measuring stress; techniques for alleviating and managing stress and tension. Lab fee: \$2.00.

- 1575 Industrial Psychology (A,W,SP,SU)** 3-0-3
An examination of industrial organizational structure, group behavior, and individual adjustment. The application of psychological principles, perceptions, and methods to industrial and organizational behavior will be attempted. Areas addressed include employee selection, training, motivation, leadership, and the satisfaction of human needs in both work and living. Lab fee: \$2.00.

- 1593 Independent Study III (A,W,SP,SU)** 3-0-3
This is an individualized, student-structured elective course that permits the student to pursue his own interests within the context of a faculty guided program. Lab fee: \$2.00. Prerequisite: one course in psychology or sociology or related subject and approval by instructor.

- 1598 Black Culture (A,SU)** 3-0-3
A course designed to help the student understand the historical and cultural roots of black Americans and to illuminate the nature of the struggle of black people. Lab fee: 3.00.

Business Data Processing Technology

- 2714 BASIC Business Language* (A,W,SP,SU)** 2-3-3
Introduction to the BASIC programming language with business applications. Lab fee: \$25.00. Prerequisite: 2721.

- 2715 COBOL I* (A)** 2-8-5
Introduction to the concepts and techniques of the COBOL programming language using structured programming techniques. Lab fee: \$40.00. Prerequisite: 2722.

- 2717 RPG II* (W,SU)** 2-8-5
Study of the fundamentals of the report program generator (RPG) programming language, particularly as it applies to a small computer. Lab fee: \$40.00. Prerequisite: 2722.

- 2721 Assembler Language I* (A,W,SP,SU)** 2-8-5
Introduction to programming in assembly language. Proficiency in programming is achieved by the coding and running of lab problems on the computer. Lab fee: \$40.00. Prerequisite: 2720.

- 2722 Assembler Language II* (W,SP,SU)** 2-8-5
Introduction to magnetic disk properties and file organization concepts. Students code and run assembly language programs which process sequential disk files. Lab fee: \$40.00. Prerequisite: 2721.

- 2723 Assembler Language III* (A,SP,SU)** 2-8-5
The utility sort merge program is introduced and all aspects of programming random access files are studied in theory and in the lab environment using assembly language. Lab fee: \$40.00. Prerequisite: 2722.

- 2726 Systems Analysis I* (A)** 5-0-5
Introduction to the science of systems analysis and design to include explanation of systems flowcharting, documentation and detailed discussion of common business applications. Prerequisite: 2722.

- 2727 Systems Analysis II* (W)** 3-2-4
Continuation of 2726 with a case study which is used to apply the principles of systems analysis and design in a medium size business environment. The student is also introduced to the theory and design of various types of data base systems. Prerequisite: 2726.

2728 Advanced Topics In B.D.P.* (W,SU) 3-0-3
Selected topics of current interest will be presented, including a discussion of operating systems and OS job control. Prerequisite: 2723.

2729 Principles of Business Data Processing* (A,W,SP) 5-0-5
This course is designed to introduce the student to: (1) business data processing technology, (2) how computers are used in business, and (3) the flowcharting and problem solving process. Lab fee: \$5.00. Prerequisite: placement in math 1121 or completion of math 1108.

2755 COBOL II* (W) 2-8-5
A continuation of 2715, COBOL I. Advanced topics in the COBOL language are examined including the sort feature. Random and sequential access methods, and COBOL linkage conventions. Lab fee: \$40.00. Prerequisite: 2715.

2756 COBOL III* (SP) 2-8-5
A continuation of COBOL II covering advanced topics and on-line programming using terminals. Lab fee: \$40.00. Prerequisite: 2755.

2757 Final Project* (SP,SU) 2-8-5
This course is designed to assist the student in developing a challenging computer project. Lab fee: \$40.00. Prerequisites: 2755 & 2727.

2782 Computer Literacy - Business/Health 2-2-3
This course is designed to introduce the student to the fundamental concepts of computer literacy. The student will learn about computer hardware, software, systems analysis, and the impact of computers on society. In addition, the student will also get an opportunity to write some programs in basic as well as use some micro-based software packages. Lab fee: \$10.00.

2783 Micro-Computer Applications 2-2-3
This course is designed to introduce the student to the various business applications software packages that run on the IBM personal computer. The student will get to actually run software packages using this equipment. Lab fee: \$10.00. Prerequisite: 2782.

2791 Special Topics In BDP I* 1-0-1
2792 Special Topics In BDP II* 2-0-2
2793 Special Topics In BDP III* 3-0-3
2794 Special Topics In BDP IV* 4-0-4
2795 Special Topics In BDP V* 5-0-5
(Courses offered on demand). Special topics in BDP is a series of courses specifically designed to meet the needs of the constantly changing business community and student population. Courses will be designed with the advice of the particular group requesting the course and approval of the department chairman.

Business Management Technology

3801 Marketing* (A,W,SP,SU) 5-0-5
A study of marketing fundamentals, consumption and consumer behavior, retailing and wholesaling structures. The functions performed in marketing, marketing policies, and a critical appraisal of the field of marketing. Lab fee: \$2.00.

3804 Office Management* (A,W,SP,SU) 2-2-3
The course is designed to assist the student in understanding the flow of business, human relations, and general procedures in the office. Instruction will include problem solving; selecting, supervising, and training office personnel; budgetary control; along with the basic functions of the office. Lab fee: \$2.00.

3806 Macroeconomics (A,W,SP,SU) 3-0-3
An analysis of the basic functioning of the economic system, limited to aggregate concepts. The phenomena of inflation, unemployment and economic growth and the tools and techniques used for their control. Lab fee: \$1.00.

3807 Microeconomics (A,W,SP,SU) 3-0-3
An analysis of the fundamental economic principles that govern the operation of a single business firm. Lab fee: \$1.00. Prerequisite: 3806.

3808 Advertising* (W,SP,SU) 3-0-3
An in-depth exploration of advertising as a part of the "marketing mix". The course is designed to provide students with useful information about advertising either as a consumer, a career area or as a manager of a marketing business. Non-credit elective when 2902 is used for credit. Lab fee: \$1.00.

3809 Small Business Systems* (A,W,SP) 3-0-3
An overview of business management. How a business operates. Factors of production. Financial considerations. Personal supervision. Lab fee: \$1.00.

3812 Government and Business* (A,W,SP,SU) 3-0-3
Various government legislation and regulations and how they affect business, the consumer, and society as a whole. Lab fee: \$1.00.

3813 Management* (A,W,SP,SU) 3-0-3
A study of the principles and practices of management. Lab fee: \$1.00.

3814 Organizational Behavior for Management* (On Demand) 3-0-3
A human relations course in management that uses a job-oriented approach. The perspective of the course is written from the standpoint of the individual manager who must deal with peers, superiors and large organizations. Lab fee: \$1.00. Prerequisite: 3813.

3815 Promotion* (A,W,SP,SU) 5-0-5
A survey of the promotional efforts contributing to economic exchange in today's distributive business. Personal selling, advertising, sales promotion and publicity are analyzed. Lab fee: \$2.00.

3818 Consumer Behavior* (A,SU) 3-0-3
Consumer behavior is designed to assist the student in developing a fuller understanding of the influences, both internal and external, that determine consumer behavior. It augments and compliments 3815 Promotion, 3111 Tech. Selling, and 3808 Advertising. Lab fee: \$1.00.

3819 Tech Selling* (A,SP) 3-0-3
Practical application of selling theory in a variety of personal selling situations. Lab fee: \$1.00.

3821 Introduction to Business (A,W,SP,SU) 3-0-3
A general introduction to business activities, the capitalistic system, and business terminology. Personnel, finance, managerial controls, law, regulated industries, and taxation. Lab fee: \$1.00.

3822 Sales Management* (A,W) 1-2-2
Techniques of good instruction. The organization of sales meetings, including location, time props and promotion. Each student to organize product and service presentations, and develop the lesson plans and visual aids necessary for the various presentations. Lab fee: \$1.00.

3823 Business Law I (A,W,SP,SU) 3-0-3
Survey of the legal framework of business, the nature of legal systems and the law, including contracts, criminal, and the law of torts. Lab fee: \$1.00.

3824 Business Law II (A,W,SP,SU) 3-0-3
A continuation of Business Law I covering sales, negotiable instruments, bankruptcy and partnerships, trusts, and insurance. Lab fee: \$1.00. Prerequisite: 3823.

3831 Personnel Interviewing* (W,SP,SU) 3-0-3
Personnel interviewing is an in depth study of the various types of interviews which are conducted in business from the employer and employee frame of reference. Lab fee: \$1.00. Prerequisite: 3832.

3832 Personnel Management* (A,W,SP,SU) 3-0-3
The philosophy, principles, and methods of personnel management: organizational structure, areas of responsibility and authority, policy making, procurement, and placement, training, evaluation, wage and salary administration, and benefit programs. Lab fee: \$1.00.

3833 Management Decisions* (A,W) 3-0-3
A practical presentation of the concepts underlying steps in the process of decision-making. Simulations are used in the decision-making process. Lab fee: \$10.00. Prerequisite: 3763.

3835 Industrial Relations* (A,W,SP,SU) 3-0-3
A survey of industrial relations, including the history of the labor movement labor legislation, collective bargaining, daily contract administration, and grievance procedures. Lab fee: \$1.00.

3842 Business Management Internship I* (A,W,SP,SU) 0-25-4
Supervised on-the-job application of knowledge and skills acquired in the classroom. This course is to be taken concurrently with 3843. Advisor approval required.

3843 Special Problems In Business Management I* (A,W,SP,SU) 0-6-2
Application of business management knowledge to specific areas of on-the-job internship. This course is to be taken concurrently with 3842. Advisor approval required.

3846 Business Management Internship II* (A,W,SP,SU) 0-25-4
Continuation of 3842. This course is to be taken concurrently with 3847. Prerequisite: 3842 advisor approval required.

- 3847 Special Problems In Business Management II* (A,W,SP,SU)** 0-6-2
Continuation of 3843. This course is to be taken concurrently with 3846. Advisor approval required.
- 3852 Principles of Transportation* (W,SP)** 3-0-3
A course designed to acquaint you with the domestic transportation system. Emphasis is placed on the movement of cargo and people by rail, air, sea, and pipeline. Regulatory laws, agencies and enforcement are studied. Lab fee: \$1.00. Prerequisite: 3801.
- 3854 Information Management Principles*** 3-0-3
This course is designed to teach the basics of records management. Students will be provide the latest, most current information available in the information management field of today. This course covers such topics as productivity in the office, records management development, responsibilities of the records manager, records systems, inventory analysis and cost saving systems. This course is the first in a series of two.
- 3855 Forms Management*** 3-0-3
This course emphasizes procedures to follow in order to implement a program within an organization. A second emphasis is on the basic concepts of analyzing and designing business forms, forms printing, and purchasing.
- 3856 Managerial Word Processing*** 2-3-3
This course will familiarize students with several different types of word processing packages. Students will learn the basic processes available, their purposes and limitations. This course will be conducted from a management approach rather than an operator. A portion of this course will be taught through self study and the management portion will be classroom instruction.
- 3857 Office Automation*** 3-0-3
Intensive study into present and future technological resources used to facilitate the handling of office information. Emphasis will be placed on equipment and systems used in micrographics, records management, word processing, and other areas of how to plan for assimilating these technologies into the office.
- 3858 Information Management Practicum*** 0-7-2
This course will consist of an on or off campus work experience that will be integrated with academic instruction. This observation will assist the student in applying learned concepts to practical situations within the occupational field of information management systems.
- 3859 Advanced Information Management*** 3-0-3
This course will emphasize: records inventory, inventory analysis, scheduling, vita records systems, record centers, archival management, and security.
- 3861 Planning*** 1-0-1
To decide in advance what is to be done in the future - how to establish goals and objectives with plans to achieve them - organize operations effectively staff and supervise employees - control activities. Without plans and objectives confusion may well exist. Lab fee: \$2.00.
- 3862 Directing*** 1-0-1
How to best issue instructions, assignments, orders, and guiding and overseeing employees - how to build an effective work force and motivate each worker to accomplish the organization's objectives. Lab fee: \$2.00.
- 3863 Leadership Styles*** 1-0-1
Recognition of leadership styles must take place before coherence in positive supervisory growth and development can be achieved. participants will actively identify their own productivity within the organizational environment and will determine the circumstance under which a particular style would be appropriate. Lab fee: \$2.00.
- 3864 Organizing*** 1-0-1
How to design an "activity - authority network"; how to build, develop and maintain working relationships that will contribute to the objectives of the organization - to know what it means to organize. Lab fee: \$2.00.
- 3865 Controlling*** 1-0-1
How to control any differences between what should be done and what is being done - keep informed of actual performance through observation reports, discussion, charts and other techniques - to take necessary corrective steps. Lab fee: \$1.00.
- 3866 Management by Objectives*** 1-0-1
This course will identify components that should be included in a MBO program - key phases of planning will be identified, implemented, and the controlling processes in the supervisor's operation will be emphasized practice in formulating sound objectives will be accomplished and evaluation of relative success and settings of new objectives will be exercised. Lab fee: \$2.00.
- 3867 Effective Time Management*** 1-0-1
You will study the concepts and skills that successful executives apply in managing their time effectively. Emphasis will be on identifying ways to minimize time spent on unproductive tasks and developing an action plan for increasing time effectiveness. Lab fee: \$2.00.
- 3868 Budgeting*** 1-0-1
For most supervisors, budgeting is a special form of planning. In the course the process of setting goals and objectives is related to income and expenses. Time management, training, maintaining performance standards and inventory control will be related to the budgeting process. It also covers the broad function of projecting income and expenses and operating under a budget for a department or work unit. Lab fee: \$2.00.
- 3869 Staffing*** 1-0-1
The responsibilities of staffing - the evaluation and appraisal of performance - the orientation, training and development required for employee increased responsibilities and operational efficiency - the staffing considerations necessary to include equal employment opportunity requirements. Lab fee: \$2.00.
- 3871 Equal Employee Opportunity is Good Business*** 2-0-2
Understand the theories of proof of unlawful discrimination and the legality of specific employment practices so as to make recommendations for improvement and correction in the employment scene. Lab fee: \$2.00.
- 3872 Internal Investigation EEO Complaint*** 2-0-2
A practical, advanced course for personnel specialists and managers designed to prepare for state and federal EEO investigations. Learn skills and gain practical experience in analyzing the charge affidavit, determining issues, interviewing witnesses, preparing affidavits and evidence, fact finding will be discussed. Lab fee: \$2.00.
- 3873 EEO Employee Selection*** 2-0-2
The entire employee selection process as it relates to current state and federal equal employment opportunity laws, as well as career counseling, disciplinary and exit interviews will be discussed. Lab fee: \$2.00.
- 3874 Management Training for Supervisors*** 3-0-3
A comprehensive examination of management functions and techniques and of the role of a supervisor. This course will increase awareness of the role and give proven methods and techniques to do a better job. Major areas covered include: setting objectives, problems identification techniques, decision making, time management, management styles, motivation, training subordinates, performance evaluation, verbal and non-verbal communications, interviewing techniques, and a look at the challenge of leadership in an organizational setting. Emphasis will be placed on actual on-the-job problems. Lab fee: \$2.00.
- 3875 Motivation of Subordinates to Achieve*** 1-0-1
This seminar addresses one of the most challenging questions of supervision: how can we better understand each employee and draw out his/her capabilities? three theories of motivation will be analyzed, and contrasted and a variety of practice exercises will be employed to assist in the application of motivation theory to supervisory decisions. Lab fee: \$2.00.
- 3876 Delegation*** 1-0-1
Probably the easiest way to determine the overall effectiveness of a supervisor is to observe his or her ability to delegate work and responsibility to others. This course explores the fears and rewards of delegation with emphasis on techniques to delegate effectively. Lab fee: \$2.00.
- 3877 Stress Management*** 1-0-1
Methods and techniques of handling tension and stress - your own pattern of stress - how to live with reasonable amounts of stress - how stress can be advantageous - how to control stress at the supervisory level. Lab fee: \$2.00.
- 3881-3889 Studies in Contemporary Business I-IX* (On Demand)** Arr
Studies in contemporary business is a specially designed series of courses to meet the needs of the constantly changing business community and student population. Instructional methods may include seminar, travel, field experience, research, lecture series, and video tapes. all students work with an instructor assigned by the department chairperson. Advisor approval required. Lab fee: varies according to course.
- 3891-3893 Studies in Contemporary Business X-XII* (On Demand)** Arr
A continuation of 3881-3899.

Civil Engineering Technology

- 5301 Engineering Graphics I* (A,W)** 2-6-4
Use of basic drafting instruments, tools and equipment. Geometric constructions. Line work with emphasis on lettering, symbols and conventions. Mapping and construction details. Graphical problem solutions. Emphasis on precision. Orthographic, oblique and isometric projections. Lab fee: \$15.00.
- 5303 Construction Materials* (A,W)** 1-5-3
A study of the properties, form and use of basic construction materials and products by means of laboratory examination and elementary testing and through field trips to manufacturing facilities and construction projects. Lab fee: \$10.00.
- 5306 Construction Methods and Estimating* (W,SP)** 1-5-3
Computation of basic quantities for labor and material costs. Utilization of general detail data for cost analysis. Preparation of bills of material. Measurement of contract quantities for acceptance and payment. Lab fee: \$10.00. Prerequisites: 5205 & 5303.
- 5307 Geotechnical Engineering* (A,W)** 2-3-3
Analysis of soil behavior, and the design and construction of substructures, those parts of structures that transmit loads of structures into the earth. Investigation of the principles of excavation, tunneling and building earth supported structures. Lab fee: \$10.00. Prerequisite: 4644.
- 5311 Surveying I* (SP,SU)** 2-6-4
Full scale application of field methods. Collection of record data. Conversion of field data for use in maps and plats. Preparation of plats and incidental drawings. Emphasis on precision in use of tools and equipment. Computation to determine precision of field work. Boundary descriptions, resolution of conflicts, replacement of missing data. Lab fee: \$25.00. Prerequisites: 1111 & 5301.
- 5312 Survey II* (SU,A)** 2-6-4
Advanced surveying and mapping problems including introduction to celestial observation, establishment of meridians, parallels of latitude, section and subdivision lines; horizontal and vertical curvature, transition curves, introduction to photogrammetry, legal considerations for boundary description. Lab fee: \$25.00. Prerequisite: 5311 & 5321 or permission of instructor.
- 5313 Materials and Testing I* (A,W)** 1-5-3
Methods of manufacture and properties of commonly used construction materials. Standard methods for conducting tests of physical properties, direct observation of production processes and plant fabrication. Visits to operating laboratories and construction projects. Lab fee: \$20.00. Prerequisite: 5303 or permission of instructor.
- 5315 Highway Construction* (A)** 2-6-4
Elements of route location construction materials, methods and procedures. Relation of design standards to topography and prospective traffic. Earthwork measurement. Physical design standards. Financing. Lab fee: \$15.00. Prerequisite: 5311 concurrent: 5312.
- 5316 Elementary Hydraulics* (SP)** 2-2-3
Study of water at rest and in motion; criteria for measurement of pressure, velocity, friction and capacity of open channels, pipe lines and metering devices. Lab fee: \$10.00. Prerequisite: 1111.
- 5321 Advanced Civil Engineering Graphics* (W,SP)** 2-6-4
Advanced drawing procedures and methods for contract drawings with emphasis on ink work, formality and accuracy. Lab fee: \$20.00. Prerequisite: 5301 or permission of instructor.
- 5323 Materials Testing II* (W,SP)** 1-5-3
A study of the properties, testing methods and manufacture of construction material. Standard methods and procedures for conducting laboratory tests of physical properties are introduced. Field trips to manufacturing and testing facilities. Lab fee: \$15.00. Prerequisite: 5313.
- 5325 Townsite and Urban Development* (W)** 1-5-3
Municipal subdivision planning, calculations and preliminary cost considerations. Public and private interest conflicts. Lab fee: 15.00. Prerequisite: 5312 or permission of instructor.
- 5327 Water Supply Systems* (W,SP)** 2-3-3
A study in design and planning of water supply, storage, treatment, transmission and distribution systems. Lab fee: \$10.00. Prerequisite: 5316 or permission of instructor.

- 5328 Storm and Wastewater Systems* (A,W,SP)** 2-3-3
A study in planning and design of storm water and sanitary collection systems and treatment processes. Lab fee: \$10.00. Prerequisite: 5316 or permission of instructor.
- 5333 Structural Steel* (W)** 1-5-3
Sizing, layout and selection of structural steel component found in civil engineering structures such as building frames, bridges, tanks and piling. Technical usage of steel reference manuals and detailing standards. Computer techniques in structural selection and steel construction economics. Lab fee: \$15.00. Prerequisite: 4645. Concurrent: 5313.
- 5334 Structural Concrete* (SP)** 1-5-3
Sizing, layout and selection of structural concrete components found in civil engineering structures such as building frames, bridges, highways, marine structures, tanks and piling. Technical usage of concrete reference manuals and detailing standards. Computer techniques in structural selection and structural economics. Lab fee: \$15.00. Prerequisite: 4645. Concurrent: 5313.
- 5335 Mass Transit Systems* (SP)** 2-2-3
This course will provide an overview of surface transportation system including planning, implementation, operation and marketing. Lab fee: \$5.00. Prerequisites: 5325 or permission of instructor.
- 5337 Civil Engineering Project* (SP)** 2-8-5
The participant will plan, design and prepare detailed drawings for a project thereby integrating knowledge gained in preceding civil engineering courses. Professional civil engineering office atmosphere, techniques and procedures will be simulated to provide the student with design-draw experience. Lab fee: \$20.00. Prerequisite: 2nd year or permission of instructor.
- 5338 Engineering Environmental Analysis* (W)** 1-5-3
A study in environmental considerations which enter into the civil engineering planning process. Lab fee: \$20.00.
- 5339 Engineering Economics* (SP)** 2-2-3
A study in: decision-making; development of the skills, principles and techniques needed for alternative evaluation based on economic factors. Lab fee: \$10.00.

Communication Skills

- 1001 Language Development (A,W,SP,SU)** 3-0-3
Skills for developing confidence in writing, reading and listening. Concentration on English essentials for writing sentences to paragraphs. Prerequisite: 1831 or placement as a result of essay placement test.
- 1002 Beginning Composition (A,W,SP,SU)** 3-0-3
An introduction to the skills required for writing clear, concise expository paragraphs and themes. Prerequisite: 1001 or placement.
- 1003 Essay and Research (A,W,SP,SU)** 3-0-3
A continuation of communication skills 1002, expanded to include exposition and argumentation, research techniques and research papers. Lab fee: \$1.00. Prerequisite: 1002.
- 1004 Technical Writing (A,W,SP,SU)** 1-2-2
Principles and practice in writing required of engineering and scientific technicians, including resumes, letters, memos, and various technical reports as required of a student's technology. Lab fee: \$1.00. Prerequisite: 1003 and at least two quarters or equivalent in the technology.
- 1007 Creative Writing (SP)** 3-0-3
A discussion and in-depth study of the techniques of creative writing, and the actual writing of short stories, plays, or articles. Prerequisite: 1002.
- 1014 Business Communications (A,W,SP,SU)** 1-2-2
Emphasis on learning to write business letters by doing. Grammar and mechanics of writing are integrated with instruction and practice in writing business letters and other business communication. Business etiquette, written and/or reports. Lab fee: \$1.00. Prerequisite: 1002 and at least two quarters in a technology or equivalent.
- 1024 Speech (A,W,SP,SU)** 1-2-2
Emphasis on communications, verbal and nonverbal, in group situations using role playing and interview techniques. At least three prepared speeches required. Opportunity to be audio and video recorded during the quarter in various situations. Lab fee: \$3.00.

1027 Conference and Group Discussion (A,W,SP) 3-0-3
Designed to develop the attitudes, skills, and knowledge of methods necessary to effectively participate in discussion by conferences, committees and other small groups. Role playing using various conference and group forms and parliamentary procedure. Prerequisites: 1002 and 1024.

1035 Introduction to Science Fiction (SP) 3-0-3
Introduction to modern science fiction short stories. Emphasis is upon the interaction between technology (in each story) and society. Lab fee: \$1.00. Prerequisite: 1002.

1037 Twentieth Century American Literature (W) 3-0-3
The study of modern essays, short fiction, poetry, and novel with emphasis on appreciation of literature. Prerequisite: 1002.

1039 Survey of World Literature (A) 3-0-3
Survey course in literature of African, Asian and European countries. Emphasis on the beauty of literature of these countries and how it reflects the history and culture of the people. Prerequisite: 1002.

1054 Basic English As Second Language (A,SU) 8-2-9
Basic spoken and written English. Reading, writing, speaking, listening are integrated with idiom practice and vocabulary building.

1055 Developmental English As A Second Language (A,W) 9-0-9
Designed for the non-native speaker of English who has some knowledge of the language but who needs further work on vocabulary, intonation, idiom, and structure of American English. Emphasis on reading and writing. Lab fee: \$1.00. Prerequisite: 1054 or placement.

1056 English As A Second Language: Conversation & Composition (W,SP) 9-0-9
Selected readings from current English prose. Fundamentals of writing. Practice with sentence structure and the idiom. Daily practice with the spoken and written language. Lab fee: \$1.00. Prerequisite: 1055 or placement.

1057 English As A Second Language: Theme and Research (SP,SU) 9-0-9
A continuation of 1056 in conversation and composition with emphasis on composition and reading. Library work and research techniques. Students go on to 1831 or take placement test. Lab fee: \$1.00. Prerequisite: 1056 or placement.

1063 Film Appreciation (On Demand) 2-2-3
Development of skills necessary to view film critically as artistic expression and social document. Lab fee: \$3.00. Prerequisite: 1002.

Construction Management Technology

5202 Managing a Construction Company* (A,W,SP) 2-3-3
An overview of the operations of a construction firm with a simulation of the operation by teams demonstrating the skills and competencies required. Lab fee: \$5.00.

5203 Construction Company Financial Management* (SP) 2-3-3
A review of the records required and the methods of producing these records as applied to the medium size contracting firm. The course summarizes the financial records required for operations and government reporting. Lab fee: \$10.00.

5205 Building Construction Drawings* (A,W,SP,SU) 0-9-3
Construction drawing reading and interpretation as related to residential commercial & industrial construction projects. Interpretation of the relationships of plan, elevation, sections and details, and the coordination with specifications. Determination of basic material quantity takeoffs. Lab fee: \$15.00.

5211 Construction Field Supervision* (W,SP) 2-3-3
An overview of the principles of field supervision which includes leadership skills, motivation techniques, problem solving processes, communication methods and useful supervisory aids for construction projects. Lab fee: \$5.00.

5215 Heavy Highway Construction Drawings* (W,SP) 2-3-3
Construction drawing reading and interpretation as related to highway and public works construction projects. Interpretation of the relationships of plan, elevation, sections and details, and the coordination with specifications. Determination of material quantity take-offs. Lab fee: \$15.00. Prerequisite: 5205.

5221 Construction Contract Documents* (W,SP) 2-3-3
Intensive study of all documents related to a project with emphasis on the important legal aspects of each, and the role of the contractor in the project. Lab fee: \$5.00.

5222 Managing Construction Equipment* (W) 2-3-3
An intensive study of equipment management as it relates to the construction industry. Provides methods to calculate the production rates, operation costs, and value of the types of equipment for use in effective bidding. Lab fee: \$15.00.

5223 Construction Quantity Surveys (W,SP) 2-3-3
Computation of basic material quantities to be used in a construction project. Lab fee: \$15.00. Prerequisite: 5205.

5233 Construction Cost Estimating* (A,SP) 0-6-2
Development of topics such as material price extensions, equipment requirements, labor requirements, time requirements, overhead & profit requirements, and basic bidding procedures. Lab fee: \$15.00. Prerequisite: 5223.

5234 Construction Methods & Strategies* (W,SP) 2-3-3
A study of the methods used in work-site preparation, materials handling systems, the assembly of construction materials and systems, and the strategies employed to control and coordinate these activities. Lab fee: \$10.00.

5235 Construction Work Experience* (SU) 0-4-2
Work experience off-campus in construction or construction related paid employment required of all students in the technology to augment the formal instruction of the technology. Prerequisites: 5233 or permission of instructor.

5241 Construction Planning and Scheduling* (A) 2-3-3
A study of project control and coordination through systematic planning and scheduling, including operational adjustments for resource changes and alterations. On-line computer usage of CPM analysis. Lab fee: \$20.00. Prerequisite: 5234 or permission of instructor.

5242 Construction Safety and Loss Prevention* (A,W,SP) 2-3-3
Identification of work hazards and unsafe practices, safety programs and training, and the role of O.S.H.A. And insurance companies in safety. Red cross first aid and CPR training are included. Development of theft reduction programs with the aid of law enforcement officers and insurance companies. Lab fee: \$20.00.

5244 Marketing Construction Services (A,SP) 2-3-3
Application of data analysis principles to the area of finding business projects, contract negotiation, financial and contract packaging. Study techniques of written and oral communication to include recording on-site activities to prospective clients. Lab fee: \$15.00.

5245 Construction Bidding Strategy* (A) 2-3-3
Extended study of how bids should be analyzed, how overhead and profit can be calculated and how to determine the financial objectives of the construction company. Lab fee: \$20.00. Prerequisite: 5233.

5251 Construction Process Controls* (W) 2-3-3
Analysis of methods and techniques of cost analysis to develop skills in controlling production operating costs. Lab fee: \$20.00. Prerequisite: 5241 or permission of instructor.

5252 Construction Contract Law* (W,SP) 2-3-3
Analysis of the special conditions of construction law as applied to contracts on-site conditions, document usage, negotiations of disputes, change orders, and master contracts. Lab fee: \$5.00.

5253 Construction Labor Law* (A,W) 2-3-3
Investigation of the legal areas of labor contract, project contracts, NLRB regulations, insurance, fringe benefit collection, dispute resolution, arbitration and litigation as related to construction labor disputes. Lab fee: \$5.00.

5254 Construction Quality Assurance* (W) 2-3-3
A study of the techniques and methodology used in controlling quality on the construction job, including records keeping. Lab fee: \$10.00. Prerequisite: 5234.

5261 Construction Project Management* (SP) 2-3-3
Tracking of a project through a construction firm emphasizing job start, control assignments, control structures, organization, and move-out phases of construction. Computer simulation of project activities and management. Lab fee: \$20.00. Prerequisite: 5251 or permission of instructor.

5262 Construction Productivity Analysis* (SP) 2-3-3
Developing and testing methods of production from analysis of project histories, equipment analysis, and manpower utilization studies. Utilization of time-lapse photography for methods analysis. Lab fee: \$20.00. Prerequisite: 5234 or permission of instructor.

5263 Construction Claims* (SP) 2-3-3
A study of the techniques of resolving contract disputes and methods of preparing for or resolving construction claims. Lab fee: \$5.00. Prerequisite: 5252.

5274 House Construction* (A,W,SP) 2-3-3
 The basic construction of a single family residence from the ground up, emphasizing construction methods, equipment, structure, materials and terminology. Lab fee: \$10.00.

Dental Laboratory Technology

8108 Dental Materials I* (A) 3-0-3
 This course involves a comprehensive study of the chemical and physical properties of materials used by the dental technician.

8109 Dental Materials II* (W) 2-0-2
 This course is a continuation of the study of materials begun in 8108.

8121 Complete Dentures I* (A) 1-6-3
 This course involves an introduction to complete dentures and includes a study of the procedures from preliminary impressions through wax contouring, with special emphasis upon artificial tooth arrangement.

8122 Complete Dentures II* (W) 1-3-2
 This course is a continuation of the study of complete dentures and includes procedural material from flasking through patient remount and occlusal adjustments. Lab fee: \$70.00.

8123 Complete Dentures III* (SP) 1-6-3
 This course involves a study of procedures required to solve specific postinsertion problems, e.g. repair, rebase, and reline. In addition, the student is introduced to the immediate denture technique. Lab fee: \$70.00.

8124 Complete Dentures IV* (SU) 1-3-2
 In this course, the student will fabricate an overdenture and will concentrate upon characterization of complete dentures. Lab fee: \$70.00.

8125 Dental Morphology and Anatomy* (A) 2-3-3
 This course provides the student with an introduction to the masticatory system. The student will be exposed to the significant structures and landmarks of the oral cavity, with extensive study of the permanent dentition. Lab fee: \$70.00.

8132 Occlusion* (W) 1-6-3
 This course will entail a study of occlusal morphology, the temporomandibular joint and mandibular movements.

8142 Removable Partial Dentures I* (W) 1-6-3
 This course is a basic study of removable partial dentures, and presents principles such as survey, design, and fabrication.

8143 Removable Partial Dentures II* (SP) 1-3-2
 This course will involve an intensification of the study of survey, design and fabrication of removable partial dentures.

8144 Removable Partial Dentures III* (SU) 1-6-3
 During this course, the student will apply acquired knowledge and skills by fabrication of removable partial dentures. The didactic portion will encompass the specialized designs such as stressbreakers, precision attachments and the RPI technique.

8153 Fixed Partial Dentures I* (SP) 1-6-3
 This course will introduce the student to the fixed appliance. The content will be limited to the single unit crown.

8154 Fixed Partial Dentures II* (SU) 1-6-3
 This course is designed to extend the students' experiences in construction of fixed appliances and will contain material related to fixed partial denture assembly for soldering. In addition, the student will fabricate a three unit bridge using the single casting technique.

8155 Fixed Partial Dentures III* (A) 1-6-3
 This course will extend the students' experiences in fixed partial dentures construction by introducing the acrylic veneer, resin crown, and Steel's facings. Lab fee: \$70.00.

8156 Fixed Partial Dentures IV* (W) 2-6-4
 This course will involve a study of fixed partial denture cases and procedures not covered previously. The student will study precision attachments, temporary appliances, and die-lok trays. In addition, the student will fabricate a crown for an abutment tooth with an existing removable partial denture. Lab fee: \$70.00.

8164 History and Ethics* (SU) 2-0-2
 This course deals with the history of dental technology and its effect upon dentistry. In addition, the course will explore current problems and situations a dental technician must cope with.

8175 Dental Ceramics I* (SU) 1-6-3
 This course is an introduction to dental ceramics and will involve a study and construction of porcelain fused to metal restorations.

8176 Dental Ceramics II* (A) 2-6-4
 This course will entail a continuation of the study of porcelain fused to metal restorations and will introduce the porcelain jacket crown for study.

8185 Othodontics and Pedodontics* (A) 1-3-2
 This course will entail a basic introduction to the laboratory skills necessary to provide services in the areas of orthodontics and pedodontics.

8196 Applied Laboratory I* (W) 0-8-3
 This course consists entirely of laboratory and is intended to simulate a working laboratory. The student will fabricate fixed and removable appliances for a full mouth rehabilitation case which is patterned after the Dentroll technique case.

8197 Applied Laboratory II* (SP) 0-20-7
 This course consists entirely of laboratory and is intended to simulate a working laboratory situation with regard to work schedules, case flow, and coping with real problems. Lab fee: \$70.00.

Electronic Technology

4201 Electrical/Electronic Drafting* (A,W,SP,SU) 1-3-2
 An introductory drawing course incorporating the use of instruments, instructions and practice to produce quality schematics, and pictorial diagrams using lettering, electronic and electrical symbols. The student will be able to demonstrate free hand sketching and will be taught industrial standards and practices used in the fields of electronic and electricity. Lab fee: \$10.00.

4211 DC Fundamentals* (A,W) 4-0-4
 An introduction to direct current fundamentals, electron physics, current and voltage, work, power, series and parallel resistances, network theorems, magnetic circuits, electrical measurement devices, inductance and capacitance. Concurrent: 1111, 4261.

4212 AC Fundamentals* (W,SP) 4-0-4
 Analysis of alternating current fundamentals, complex algebra, reactance, impedance, networks and power, transformers, coupled circuits and polyphase systems. Prerequisite: 4211, 4261. Concurrent: 4262, 1112.

4213 Introduction to Electronic Devices* (SP,SU) 4-0-4
 Introduction to electronic devices, JFET and bipolar auxiliary components. Rectifiers, filters, and regulators. Basic amplifiers. Prerequisites: 4212, 4262. Concurrent: 1113, 4263.

4214 Electronic Devices Circuit Analysis* (A,SU) 4-0-4
 Analysis of linear circuits. Small signal and large signal methods. special amplifiers, feedback, linear IC's and oscillators. Prerequisites: 4213, 4263. Concurrent: 4264.

4215 Electronics Communications I* (W) 4-0-4
 An introduction to electronic communication circuits and systems. Basic AM, FM, and TV, transmitter and receiver systems are discussed. Digital communication techniques. Prerequisites: 4213, 4263.

4216 Digital Computer Circuits* (W) 4-0-4
 Digital computer operations and applications. Boolean algebra. Logic circuits and design. Computer systems. Digital architecture. Memories, use of digital I.C. (i.e., one shots, multiplexers, demux memories, counters, shift registers, flipflops, etc.) and interfacing. Prerequisite: 4225. Concurrent: 4266.

4217 Calculus for Electronics I* (A) 3-0-3
 Practical application of differential calculus to electronic circuitry. Functions, limits, algebraic differentiation, differentials, higher derivatives, maxima and minima, and introduction to integrals. Prerequisite: 1113. Concurrent: 4225.

4218 Calculus for Electronics II* (W) 3-0-3
 A continuation of Calculus for Electronics I. Define integrals, trigonometric functions, logarithmic and exponential functions, hyperbolic functions. Prerequisite: 4217.

4219 Calculus for Electronics III* (SP) 3-0-3
 A continuation of Calculus for Electronics II. Partial derivatives, integration techniques, double integrals. MacLaurin's series, Taylor's series, Fourier series. Introduction to differential equations. Prerequisite: 4218.

4225 Pulse and Logic Circuits* (A) 4-0-4
Nonsinusoidal circuits. Pulse amplification and wave-shaping, multivibrators. Time-base and logic circuits. Transient analysis. Basic digital concepts. Pulse generation circuits. Prerequisite: 4213. Concurrent: 4275.

4226 Industrial Electronics* (SP) 4-0-4
Industrial devices and utilization concepts. Timers, welders, photoelectric devices and ultrasonics. Magnetic systems, rotary devices, and servo and synchro systems. This course includes microprocessor interfacing. Prerequisite: 4216. Concurrent: 4276.

4235 Microprocessor Programming* (A,W,SP,SU) 2-2-2
An introduction to computer programming using assembly language. 6800 base MP are available for student to use throughout the program. Lab fee: \$5.00. Prerequisite: 4212, 4262.

4236 Electronic Communications II* (SP) 3-3-4
A continuation of Communications I. Ultra-high frequency, transceiver, microwave principles, systems, antennas, wave guides, use of smith charts, impedance matching. Lab fee: \$5.00. Prerequisite: 4215.

4246 Analog Computers* (SP) 1-3-2
Fundamentals of analog computers covering circuits and equipment, control theory, laplace transform, introduction to differential equations. Lab fee: \$5.00. Concurrent: 4219.

4261 DC Laboratory* (A,W) 0-6-2
Laboratory study of DC fundamentals, electrical measurement devices, network theorems. Lab fee: \$15.00. Concurrent: 4211.

4262 AC Laboratory* (W,SP) 0-6-2
Laboratory study of signal sources, oscilloscopes, reactance, AC networks, transformers and filter circuits. Lab fee: 15.00. Prerequisites: 4211, 4261. Concurrent: 4212.

4263 Electronic Devices Laboratory* (SP,SU) 0-6-2
Laboratory study of electronic devices transistor characteristics and amplifiers. Lab fee: \$15.00. Prerequisites: 4212, 4262. Concurrent: 4213.

4264 Electronic Devices Circuit Analysis Laboratory* (A,SU) 0-6-2
Laboratory study of amplifiers, oscillators, special purpose devices, frequency response, and feedback. Lab fee: \$15.00. Concurrent: 4214.

4265 Communications I Laboratory* (W) 0-6-2
Laboratory study of communication circuitry, AM, FM, TV and commercial systems. Lab fee: \$15.00. Concurrent: 4215.

4266 Digital Computer Laboratory* (W) 0-6-2
Laboratory study of digital circuits found in several sections of a computer and subsequent integration into a computer concept. Use of a digital I.C.'s to build systems. Lab fee: \$20.00. Concurrent: 4216.

4275 Pulse and Logic Laboratory* (A) 0-6-2
Laboratory study of pulse characteristics, circuit transients, wave shaping, and logic circuits. Lab fee: \$10.00. Concurrent: 4225.

4276 Industrial Laboratory* (SP) 0-6-2
Analysis and design study of components, circuits and systems used for industrial control. Lab fee: \$20.00. Prerequisite: 4216. Concurrent: 4226.

Emergency Medical Services Technology

8301 Emergency Victim Care* (A,W,SP,SU) 3-6-6
This course provides a first phase of training in the career structure of the emergency medical technician (EMT); the course covers all the knowledge and skills required to take the state certification examination. Lab fee: \$20.00.

8302 Advanced EMT-A* (A,W,SP,SU) 2-3-3
In depth study into a patient assessment, shock physiology, fluid and intravenous therapy is the direction of this course. Training in these areas takes place in the classroom and clinical areas. Lab fee: \$23.00. Prerequisite: 8301.

8305 EMT-P I* (A) 4-2-5
This course encompasses the training of the paramedic in the areas of their role, triage and assessment of victims, care of the victim in the areas of shock, respiratory system, intravenous therapy. The training includes the care for involvement due to medical or traumatic emergencies communications and telemetry. Lab fee: \$33.00. Prerequisite: 8301, program acceptance concurrent 8313.

8306 EMT-P II* (W) 4-2-5
This course encompasses the training of the paramedic in the areas of: the evaluation and care of the cardiovascular system, specific medical situations, and emotional emergencies. Lab fee: \$15.00. Prerequisites: 8305. Concurrent: 8314 & 8361.

8307 EMT-P III* (SP) 4-2-5
This course encompasses the training of the paramedic in the areas of: central nervous system, musculoskeletal system, soft tissue injuries, obstetric and gynecologic, neonatal and pediatric, rescue. Lab fee: \$15.00. Prerequisites: 8306. Concurrent: 8315 & 8362.

8313 Hospital Clinical I* (A) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8305. Concurrent: 8305.

8314 Hospital Clinical II* (W) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8306. Prerequisite: 8313. Concurrents: 8306 & 8361.

8315 Hospital Clinical III* (SP) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8307. Prerequisite: 8314. Concurrents: 8307 & 8362.

8323 Advanced Care for E.M.T.-P* (SP) 2-2-3
This course will encompass in-depth patient assessment and monitoring. The course will also provide training and up-date on the newest methods and expansions of treatment in the area of pre-hospital care. Lab fee: \$10.00. Prerequisite: 8306.

8324 River Rescue* (Su 1st Term) 2-2-3
This course deals with rescuing victims from the water. It will include, but not be limited to, self-rescue, rescue from shore, boat assisted rescues, rescue from boats and repelling. Lab fee: \$5.00. Prerequisite: 8301, intermediate swimmer.

8325 Advanced Rescue* (SU 2nd Term) 3-2-4
This course deals with getting the EMT to an entrapped victim and removing the victim from the entrapment. Special rescue techniques will be covered in the areas of: vehicle, fire, building, farm, water, wilderness and electrical. Lab fee: \$15.00. Prerequisite: 8301.

8326 E.M.S. Systems* (A) 3-0-3
This course deals with the history, development, organization, funding, and control of E.M.S. It will involve the student in planning and coordination of an E.M.S. System. Prerequisite: 8301.

8334 Legal Principles for E.M.T.* (A) 1-0-1
This course encompasses the laws and regulations which govern the EMT and their actions. The course also deals with the rights of the patient and professionalism of the E.M.T. Prerequisite: 8301.

8344 Emergency Psychiatric Intervention* (W) 2-2-3
This course deals with the E.M.T.'s approach to victims exhibiting abnormal behavior and provides an in-depth look into methods of evaluation and management of these people. Prerequisite: 8301.

8351 Special Topics for Paramedics* (SU) 0-0-3
In this course the paramedic will be required to develop and present an in-depth study in an area of their individual interest. Prerequisite: 8301.

8354 Disaster Aid* (SP) 3-0-3
This course will familiarize the EMT with disaster planning, community needs assessment, organization and control in development of a community disaster plan, and in developing testing procedures for this plan. Prerequisite: 8301.

8355 Public Health Education* (W) 3-0-3
This course will involve the paramedic in the role of public health educator from needs assessment, organizations involved to implementation, and the student will be required to do some practical public health education. Prerequisite: 8301.

8356 Handling Hazardous Materials Situations* (SU) 3-2-4
This course encompasses the safety factors and care the paramedic must consider when dealing with victims exposed to hazardous materials, (i.e. Toxic fumes, radioactive materials, electrical, explosive and flammable materials). Prerequisite: 8301.

8357 Pediatrics for The Paramedic* (W) 2-2-3
This course involves the paramedic in detailed evaluation and treatments specific to the pediatric patient. Included in the course format are the differences in approach, assessment, physical-physiological activities as compared with the adult. Prerequisite: 8305.

8361 Vehicle Clinical I* (W) 0-5-1
Vehicle clinical, observation & experience. Prerequisites: 8305 & 8313. Concurrents: 8306 & 8314.

8362 Vehicle Clinical II* (SP) 0-5-1
Vehicle clinical, observation & experience. Prerequisites: 8306, 8314 & 8361. Concurrents: 8307 & 8315.

Fire Science/Safety Technology

7601 Introduction to Occupational Health and Safety* (A,SP,SU) 4-0-4
An introduction to the principles of occupational health and safety. A survey course covering basic principles and techniques.

7602 Motor Fleet Safety* (On Demand) 3-0-3
A basic introduction to problems and practices of motor fleet safety programming with emphasis on regulatory requirements. Lab fee: \$2.00.

7605 Human Factors In Safety* (On Demand) 3-0-3
Designed to acquaint the serious student with the physiological and psychological factors that contribute to accident causation, and exploration of theoretical and research findings.

7606 Safety Program Management* (W) 3-0-3
Designed to acquaint the student with the common elements of a modern safety program.

7611 Safety and Health Standards, Codes and Regulations* (On Demand) 4-0-4
A review of the important occupational safety and health standards and codes with particular emphasis on application of these codes to typical work situations. Lab fee: \$2.00.

7612 Physical Hazards Control I* (On Demand) 4-0-4
An examination of physical hazards in the work environment and methods of control.

7613 Physical Hazards Control II* (On Demand) 4-0-4
A continuation of Physical Hazards Control I. An examination on the control of physical hazards in the work environment. Prerequisite: 7612.

7614 Elements of Industrial Hygiene* (On Demand) 4-0-4
A basic introduction to the field of industrial hygiene. A survey of the effects of toxic agents on the body and general methods of control.

7615 Techniques of Industrial Hygiene* (On Demand) 4-0-4
Exploration of basic categories of field instruments for detection of toxic substances with explanation of underlying theoretical principles. Prerequisite: 7614.

7616 Product Safety* (On Demand) 3-0-3
A course aimed chiefly at product and processes and the hazards inherent in them. Particular attention is given to new chemical, plastics and their processes. Lab fee: \$2.00.

7901 Introduction to Fire Protection* (A) 3-0-3
Survey of fire protection; the role, history and development of the fire service. Organization of the fire service. Other topics: fire equipment and apparatus, communications, records and reports, insurance rating systems, and the law as it pertains to the fire service.

7902 Fire Prevention Practices* (A) 3-0-3
A study of buildings and other structures with emphasis on fire protection procedures and practices. Fire ratings of materials. Inspection practices, explosive flammable storage, and codes and fire ordinances.

7903 Fire Prevention Codes* (SU) 4-0-4
A study of important building construction and fire safety codes with emphasis on fire prevention and enforcement.

7904 Fire Hydraulics* (SP) 3-2-4
An introduction to hydraulic theory. Drafting of water, velocity and discharge, friction loss, engine and nozzle pressure, fire streams, and pressure losses in flowing hydrants. Practice in application of hydraulic principles. Flow and pump testing as well as study of water distribution. Lab fee: \$2.00. Prerequisite: 1105.

7905 Fire Investigation Methods* (SP) 3-2-4
A study of the principles of fire investigations including recognition, preservation, collection, and presentation of arson evidence. Arson laws, interrogation of witnesses, application of photography, preparation of reports and adjustment of insured losses. Estimation of loss due to fire, smoke, and water. Lab fee: \$5.00.

7906 Administration of a Fire Department* (SU) 3-0-3
The contemporary fire protection agency, its functions, structure, and operational techniques. Principles of organization, staffing, budgeting, controlling, coordinating, planning, research in fire protection. The development and maintenance of liaison and cooperation between fire and police departments.

7909 Chemistry of Hazardous Materials I* (A) 3-2-4
Concepts of chemistry needed to understand hazardous materials. Lab fee: \$6.00. Prerequisite: 1341.

7912 Fire Protection Systems* (A) 3-0-3
The design and operation of fire protection systems, including water distribution, direction, alarm and watchman services and protection systems for special hazards. Carbon dioxide, dry chemical, foam and water spray systems studied in detail. Standpipes and sprinkler systems and methods of reestablishment after use.

7913 Chemistry of Hazardous Materials II* (W) 3-2-4
An analysis of chemical reaction as the causative agent of fire. Topics discussed: redox reactions, reaction rates, toxic compounds, and hazardous combinations of chemicals. Hazards of radioactive materials, poisonous gases and lp gases. Methods of transportation of hazardous materials. DOT regulations and markings. Lab fee: \$6.00. Prerequisite: 7909.

7914 Fire Fighting Command I* (W) 4-0-4
Group operations and command strategy at the company officer level. The training of the company to operate as a team. Methods of implementing plans developed at the chief level.

7915 Fire Fighting Command II* (SU) 3-0-3
Group operations and command strategy at the chief officer level. Preplanning of firefighting operations, employment of personnel and equipment. Specific tactical problems analyzed. Operations and tactics including mutual and outside aid in fire fighting. Lab fee: \$3.00. Prerequisite: 7914.

7916 Legal Aspects of Fire Protection* (SU) 3-0-3
Introduction to law, civil and criminal actions, the judicial system. Municipal liability for acts of the fire department and its members. Pensions, salary and compensation, and termination. Duty owed by the public to members of the fire department. The initiation, operation, liability, and legal aspects of mutual aid, primary response contracts, and private contracts.

7917 Community Affairs I-Local Government (W) 3-0-3
The role of local government in the community; its structure, organization, responsibility. Local government politics and the community. Methods and principles of local budgeting. Urban, suburban, rural and community structure.

7919 Personnel Training Methods (SP) 3-0-3
Methods of instruction, application of audio visual equipment, testing and evaluation, and preparation of materials are introduced. Special emphasis is placed upon planning an organizational training program. Methods of evaluation. Lab fee: \$3.00.

7921 Fire Fighting Practices* (SU) 4-0-4
Techniques and procedures of fire fighting with emphasis on the role of the individual firefighter. Methods of extinguishing fires, life saving procedures, special fire fighting equipment, salvage, prevention rekindling and overhauling. Experienced firefighters having graduated from a fire department academy may receive credit for this course upon recommendation by the local fire department. Lab fee: \$5.00. Concurrent: 7961.

7923 Fire Safety Education* (SU) 3-0-3
A course designed to generate methods and techniques for providing an education program in fire safety for a community, for a school, or for a municipality. Lab fee: \$5.00.

7926 Fire Protection Seminar* (A) 2-0-2
Discussions of the particular problems related to the fire fighting services. Students research and report on areas of special interest. Authorities invited to present special interest programs. Lab fee: \$5.00.

7927 Supervisory Methods (SP) 3-0-3
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, report, oral and written directions, work evaluation, and conference leadership. Methods of instruction effective in teaching and motivating personnel.

7928 Public Relations (W)	3-0-3
The psychology of relations between public service employees and the general population. Policies and practices of community relations as they apply to public service agencies. Current national and local community problems.	
7933 Fire Fighting Problems* (A)	3-0-3
Methods of fighting aircraft and marine fires. Methods of fighting fires in industrial processes involving hazardous or unknown materials. Lab fee: \$3.00.	
7934 Fire Insurance* (W)	2-0-2
The history and principle of fire insurance. The principles and practices of inspection for the purpose of determining premium rates.	
7935 Building Construction (SP)	4-0-4
An introduction to the present practices of building construction. Local and state building codes and laws applied to fire protection. An insight into the contents of concealed space, location of ventilation equipment, plumbing and electrical cut-offs. Relationships between construction materials and fire damage of a building. Lab fee: \$2.00.	
7941 Fire Code Blueprint Analysis* (A)	2-2-3
A course designed to allow a fire prevention officer to read, understand, and analyze construction blueprints so that he may be able to enforce fire safety codes.	
7961 Fire Fighting Practices Laboratory* (SU)	0-4-2
Laboratory to accompany 7921 Fire Fighting Practices. Lab fee: \$2.00. Concurrent: 7921.	

General Studies Department

1811 Reading Improvement (S,A,W,SP)	3-0-3
A course designed for students to improve reading comprehension and develop word recognition skills. Lab fee: \$5.00.	
1812 Reading and Study Skills (S,A,W,SP)	3-0-3
For development of reading speed, comprehension and study skills to become more effective students. Lab fee: \$5.00.	
1815 Speed Reading (S,W,SP)	3-0-3
A course designed to help the student acquire the maximum amount of reading flexibility by developing perceptual skills and advanced reading techniques with emphasis on speed and comprehension. Lab fee: \$10.00.	
1823 Spelling and Vocabulary (S,A,W,SP)	2-0-2
For development of spelling skills through the use of phonics, personal word lists and basic spelling rules. Lab fee: \$5.00.	
1824 Advanced Vocabulary Skills (W,SP)	2-0-2
The course is designed to provide students with the information, strategies and skills that are most likely to ensure them a lifetime of vocabulary growth.	
1831 Writing Skills (S,A,W,SP)	2-2-3
For development of basic writing skills to include grammar review and sentence structure procedures. A variety of individualized approaches will be used. Lab fee: \$2.00.	
1841 Arithmetic Skills (S,A,W,SP)	4-0-4
For development of basic arithmetic skills in addition, subtraction, multiplication, division, percents, decimals and fractions. A modular approach will be used for each area. Lab fee: \$10.00.	
1881 Career Life Planning (A,W,SP)	3-0-3
A course designed to help the individual student to identify and examine his/her abilities, interests, values, personality and financial means relative to education and career choices. Lab fee: \$5.00.	
1882 Career Options for Women (As Needed)	3-0-3
A course designed to assist women explore career opportunities that have traditionally been closed to them, as well as the educational opportunities necessary for support of these careers.	
1883 College Survival Skills (A,W,SP)	2-0-2
An orientation to the college emphasizing its purpose, programs and services. Basic "survival" skills such as "how to study", test taking, note-taking, library skills, and time management will be detailed towards the development of skills for academic success. Lab fee: \$5.00.	

1884 Student Coping/Roles (A,W,SP)	2-0-2
This course is designed to facilitate a student's ability (primarily women) to cope with being a student and handle other life roles, i.e., parent, spouse, employee, and homemaker. The course will focus on self-esteem, goal-setting, problem-solving, time management and assertiveness. Lab fee: \$5.00.	

Graphic Communications Technology

2402 Survey Photo Offset* (A,W,SP,SU)	2-5-4
A basic study of the technique of the various operations and processes of printing and duplication and their application and impact in the graphic communication industry. Lab fee: \$10.00.	
2403 Offset Press Operation* (SP,SU)	2-5-4
Techniques of offset press operation, press design, register systems, dampening systems, cylinder preparation and operational procedures. Lab fee: \$10.00.	
2404 Printing Production Management* (A)	4-0-4
A comprehensive study of printing management, practices and procedures. An analysis of job components, from layout to bindery and shipping department. Practical application of above by work in the laboratory. Lab fee: \$5.00.	
2407 Estimating & Costing* (A)	2-5-4
Principles of estimating and pricing printing. Analysis of specifications, determination of material and use of production data for assigning time to personnel and machines. Theory and practice of cost determination in the graphic arts industry. Lab fee: \$10.00.	
2408 Photography I* (A,W,SP,SU)	2-4-4
An introduction to the principles of continuous tone photography emphasizing the manipulative functions, operative settings, shutter speed and focus control of cameras and enlargers; elements of composition and lighting and applied practice of film development and print processing. Lab fee: \$25.00.	
2409 Photography II* (A,W,SP,SU)	2-5-4
Advanced applied still photography of small format (35mm) black and white, with emphasis on problem solving and visual communications. This course exposes the student to more extensive use of lighting, filter, films and printing papers. It is required that each student have a 35mm camera with variable shutter speeds, aperture and light meter. Lab fee: \$25.00. Prerequisite: 2408 or permission of instructor.	
2411 Photography III* (A,SP)	2-4-4
Advanced and applied techniques in professional photography under studio and location conditions. Main emphasis is placed on lighting, subject treatment and camera manipulation. The student will experience black and white continuous tone photography with medium and large format cameras. Lab fee: \$50.00. Prerequisite: 2409.	
2412 Copy Preparation* (W)	2-5-4
An introduction to drawing board composition and the fitting of copy, selection of type and paste-up of mechanicals for the camera. Lab fee: \$15.00.	
2413 Design and Typography* (SP)	2-5-4
A study of the theory and practice of layout and design for production of the printed message. The development of efficient procedures in the preparation of roughs, layouts and comprehensives. Lab fee: \$15.00.	
2417 Lithographic Stripping* (W,SU)	2-5-4
A study of stripping operations. The assembly of photographic film for sequence and position. Preparation of masks, screens, surprints and reverses. Proofing system, contacting and duplicating film. Lab fee: \$50.00.	
2418 Basic Video Production* (A,W,SP,SU)	2-4-4
An introduction to basic video production (with audio), using black and white video equipment to give students a working knowledge of video cameras, tape recorders, microphones, videotape, editing equipment, tape formats, and transfer of film to videotape. Lab fee: \$25.00.	
2419 Video Production II* (SP)	2-4-4
An intermediate course in video production, following basic video production, and covering multicamera color TV studio production, along with umatic video cassette editing, character generation, special effects generation, video test equipment setup and operation, multisource audio recording and editing, set design and graphics for television. Lab fee: 25.00. Prerequisite: 2418 or permission of instructor.	

2423 Printing Papers* (SP) 1-2-2

A study of the manufacture and selection of paper used in printing operations; sizes, colors, characteristics, limitations and packaging of printing papers. Field trips to a paper mill and a paper distributor.

2432 Copy Preparation II* (SU) 2-4-4

An intensive study of techniques and procedures used in the preparation of mechanicals involving art assembly, close register, multiple colors, reverses, screens, spreads, chokes, newsletters and keyline work. Lab fee: \$10.00. Prerequisite: 2412.

2433 Design II* (SU) 2-5-4

Designed as a sequential follow-up to 2412 design and typography this elective course will build upon basic principles of design and place emphasis on synthesizing solutions drawn from these principles. Lab fee: \$10.00. Prerequisite: 2413.

2434 Lithographic Stripping II* (SU) 2-4-4

Advanced and applied techniques and procedures of lithographic stripping, introducing to the student chokes and spreads, various contact methods, multiple page stripping and emphasizing 4 color stripping. Lab fee: \$50.00. Prerequisite: 2417.

2435 Lithographic Camera* (A,W) 2-5-4

A study of film, film development, camera optical systems, camera calibration and exposure determination for line and halftone. Litho darkroom procedures. Lab fee: \$50.00.

2436 Photo Typesetting Systems* (A,W) 2-5-4

A study and application of photo-typesetting equipment, autotape keyboards, video display terminals for editing, corrections and storing of formats, and programs. Output and processing procedures. Lab fee: \$25.00.

2437 Introduction to Color Separation* (SP) 2-4-4

An introduction to the basic principles of color separation photography for the graphic arts industry. The techniques of dealing with reflection and transmission copy, masking, and the direct and indirect methods of separating colors. Lab fee: \$50.00. Prerequisite: 2435.

2438 Silk Screen* (SP,SU) 2-4-4

Theory and practice of the silk screen process. Frame construction; stencil making, hand and film; screen fabric materials. Screening on paper, fabrics, and metal. Decal printing, electronic circuit, and metal decorating. Lab fee \$50.00.

2439 Photo Typesetting II* (SP) 2-5-4

A continuation of increasingly difficult lab projects for direct preparation of job placement in the photocomposition industry. Techniques in the following areas are covered: total composer manipulation, tabulation, floppy disk memory, programming of typesetter, trouble shooting and machine maintenance. Lab fee: \$25.00 Prerequisite: 2436 or permission of instructor.

Heating and Air Conditioning Technology

4511 HAC Graphics I* (A,W,SP,SU) 0-6-3

A course designed for the student with no previous experience in reading or drafting HAC blueprints. The course is structured toward drafting HAC residential systems and leads to understanding the heat loss/gain calculations performed in 4522. Lab fee: \$15.00.

4512 Basic Piping* (A,W,SP,SU) 2-4-4

Selection of the proper pipe, consideration of the joining method, and sizing will be combined with a study of symbology used in piping diagrams Lab fee: \$15.00.

4513 Survey of HAC* (A,W,SP,SU) 3-4-4

A course designed to introduce students to the various people within the HAC engineering, sales, contracting and service community. The course also deals with various business aspects including; bidding, contracting, bonding, purchasing, designing, and in plant procedures. Lab fee: \$10.00.

4521 HAC Graphics II* (A,W,SP,SU) 0-6-3

A follow-up course to HAC Graphics I, this course concentrates on commercial equipment, ductwork and systems. Projects in piping layouts, diffuse schedules and typical notes used on large job blueprints will be assigned lab fee \$15.00. Prerequisite: 4511 or equivalent.

4522 HAC Load Calculations* (W,SP) 2-4-4

A course covering residential heat gain/loss calculations, design of systems, and selection of equipment. ACCA design manuals will be used and subjects such as heat transmissions factors, external static pressure, infiltration, enthalpy and ductwork sizing will be included. Lab fee: \$20.00.

4531 Air Distribution Systems* (A,SP) 3-4-5

A course covering commercial heat gain/loss calculations, design of systems, and selection of equipment. The systems used in commercial applications will be discussed and compared, along with correct balancing procedures. The factor of sound as it applies to these types of systems will also be included. Lab fee: \$10.00. Prerequisite: 4522.

4532 Heating and Cooling Equipment I* (W,SP) 3-2-4

A course discussing the components used to make up environmental conditioning systems in buildings. Chillers, unit heaters and furnaces, radiant heating devices, boilers, and backup equipment required to properly operate the components with emphasis placed on the theory of operation of the equipment, selection parameters and attention given to preventative maintenance. Lab fee: \$10.00.

4541 Principles of Refrigeration* (W,SP) 2-3-3

A basic refrigeration cycle theory course covering heat thermodynamics, temperature - pressure relationships, mechanical operations of refrigeration equipment and representative application and selection data for Class I refrigerants. Lab fee: \$10.00.

4542 Industrial Safety and Code Compliance* (A) 2-3-3

A basic introduction to first aid, and CPR as well as emergency procedures for on the job safety. Also, an introduction to the various codes that affect the workplace and jobsite, such as OSHA, NFPA, state and local building codes. Lab fee: \$30.00.

4551 Electric Power* (W) 3-3-4

A course designed to discuss major power systems in buildings and factors involved in the electrical devices. The major areas to be covered are: wiring diagrams, power distribution, service panels, overload protection, power surge, cost considerations, codes, and controls wiring. Lab fee: \$15.00.

4552 HAC Instrumentation* (W) 2-4-4

A course reviewing basic combustion and refrigeration processes and the instruments used to test these processes. Instruments used in energy auditing are then explained and utilized in student exercises. Lab fee: \$20.00.

4553 Automatic Controls* (W) 2-2-3

A course introducing HAC control systems and the components that make up the systems. Emphasis will be placed on operations, sensors, and various pneumatic and electric devices used in modern control systems. Lab fee: \$20.00.

4561 Hand Tools Laboratory* (SP) 2-4-4

A course building elementary skills in welding, brazing, soldering, threading, cutting, swaging, and other skills that relate to hand tools, installation and maintenance processes in the HAC field. Lab fee: \$20.00.

4563 Energy Management* (SP) 2-3-3

An overview of the world energy supply, consumption and waste. Attention will be given to building energy survey and calculation techniques. Analysis and decision making on energy policy, computer simulations, and conservation measures utilized. Lab fee: \$20.00.

4566 Advanced Problem* (SP) 0-8-4

A simulation that will allow the student to use the knowledge gained in a problem that emphasizes the design or practical service aspects of a heating and cooling system. Lab fee: \$10.00.

Hospitality Management Technology

2201 Survey of Hospitality Industry* (A) 3-0-3

Introduction to management of restaurants, and of institution food services and lodging facilities to provide an overview of the industry. The role of related professional associations is studied, as well as trade journals and publications. Field trips and industry speakers provide a background of organization, operation and management.

- 2202 Food Service Equipment* (W)** 5-3-6
A study of equipment used in the storage, preparation, and service of food. Proper operation, cleaning, and maintenance are discussed. Purchase considerations are presented for major production and nonproduction equipment. Lab fee: \$10.00.
- 2203 Bar Management and Wine Technology* (A,SP,SU)** 3-2-4
Classification, history, and control of wines and spirits. The Ohio laws and regulations of alcohol control. The art of mixology. Lab fee: \$25.00.
- 2205 Records and Cost Control* (A,SP)** 3-2-4
Record keeping and controls needed in food service operations. Consideration given to: preparation of budgets, determination of selling prices of operations, ratio analysis of existing operation's income statements and balance sheets. This course is the equivalent of course 464 from the EIAHMA.
- 2208 Food Preparation I Laboratory* (SU)** 0-6-2
A field experience food preparation laboratory stressing preparation terminology, use of standardized recipes and preparation of protein foods, identification and proper use of knives and utensils, under the direction of a professional chef to satisfy the requirements of the chef apprenticeship training program. This is the laboratory portion only of course no. 2211. Prerequisite: 2209.
- 2209 Food Preparation I Lecture* (SU)** 3-0-3
An introductory foods course including basic chemistry and physics of foods; definitions and terminology of food preparation; detailed study of protein foods—eggs, milk and dairy products, meats, seafoods and poultry and fats used in food preparation. This is the lecture portion only of course no. 2211, and offered to chef apprentices.
- 2211 Food Preparation I* (W)** 3-6-5
A laboratory course in basic food preparation including basic chemistry and physics of foods, definitions and terminology of food preparations, use of standardized recipes, detailed study of protein foods, egg, milk and dairy products, meats, seafoods and poultry, and fats. Preparation of small quantities of a variety of foods in order to master basic skills required for all types of food preparation. Lab fee: \$50.00.
- 2212 Food Preparation II* (SP)** 3-6-5
A laboratory course in quantity food preparation. Detailed study of fruits, vegetables, starches, baked goods and desserts; use of equipment required for quantity food production; preparation and evaluation of the quality of standardized quantity recipes; estimation of raw material needs and management of the lab. Lab fee: \$50.00. Prerequisite: 2211.
- 2214 Gourmet Cooking* (SP)** 1-8-4
The principles of preparation and proper presentation of gourmet foods including classical cuisine and international specialties. Lab fee: \$50.00.
- 2215 Food Preparation II Lecture* (W)** 3-0-3
A continuation of 2209 including detailed study of fruits, vegetables, starches, baked goods and desserts. Standardized quantity recipes, standards of quality food products, and estimation of raw material needs for various recipes will be discussed. This is the lecture portion of course no. 2212, and offered to chef apprentices.
- 2216 Food Preparation II Laboratory* (W)** 0-6-2
A field experience laboratory under the direction of a professional chef utilizing the principles of quantity food production, equipment required for the preparation of large quantity recipes, evaluation of the quality of products, estimation of raw material needs and costing of recipes, to satisfy the requirements of the chef apprenticeship training program. This is the laboratory portion only of course no. 2212. Prerequisite: 2215.
- 2217 Food Specialties I (Garde Manger)* (SP)** 1-3-2
Special garde manger techniques such as vegetable carvings, appetizers, aspic, chaudfroids, terrines and galantines are studied. Buffet showpieces will be included, as well as boning and carving of poultry and meats. Manipulation of the tools which are used is stressed. Open to chef apprentices. Lab fee: \$40.00.
- 2218 Food Specialties II (Baking)* (W)** 1-3-2
Fundamentals of baking including preparation of yeast breads, puff pastries, cakes, pies, cookies, puddings and specialty desserts. Open to chef apprentices. Lab fee: \$40.00.
- 2221 Food Service Manager/Certification Course* (A,W,SP)** 2-0-2
A course designed for managers/supervisors. Discussions and practical application of material related to Ohio sanitation laws and regulations, accident prevention, causes of foodborne illnesses, proper food handling practices, procedures for conducting a food service sanitation inspection, methods used when cleaning and sanitizing, developing an effective insect and rodent control program, and disaster planning. Offered in cooperation with the Ohio department of health and student receives national institute for the food service industry certificate. Lab fee: \$24.00.
- 2222 Sanitation and Safety* (A)** 3-2-4
Detailed study of the Ohio and federal laws and regulations related to food service sanitation, safety, and fire. Discussion of food related microorganisms and illnesses. Good practices in housekeeping, sanitary food handling, storage, and personnel cleanliness. Practical problems concerned with protection of health, prevention of food spoilage and contamination, first-aid, and disaster planning. Student receives national institute for the food service industry certificate. Lab fee: \$10.00.
- 2223 Food Purchasing and Specifications* (SP)** 5-3-6
Provides a working knowledge of procurement methods and procedures and recordkeeping when purchasing and receiving food. Special emphasis is given to writing specifications, determining quantities to order, controlling portion cost, evaluating product quality, and determining availability. Field trips allow the student to see food processing and wholesale food markets. Lab fee: \$10.00.
- 2224 Hospitality Personnel Management* (A,SU)** 3-2-4
Supervisory techniques applied to hospitality management. A study of organizational structures, job descriptions and specifications, employee application forms, and interviewing techniques used for the selection of employees. Improving communication and job performance with the development of orientation, training, and work simplification programs. Prerequisite: 3813.
- 2225 Restaurant Menu Planning* (W)** 2-2-3
Historical background of menus. Principles of menu making. Sample menus. Merchandising the menu. Food, labor, and overhead costs in determining prices.
- 2231 Orientation to Institutional Housekeeping* (On Demand)** 1-0-1
An introduction to institutional housekeeping as a career. Emphasis is upon the general areas of responsibility in housekeeping and personal qualities required. Included are field trips to hotel, health care and commercial or industrial institutions.
- 2232 Budgeting, Purchasing & Records* (On Demand)** 3-0-3
To orient the student to budgeting and the necessity of maintaining accurate records within the housekeeping department. To examine the function of institutional purchasing and the use of proper purchasing and inventory procedures when dealing with housekeeping operations.
- 2233 Work Controls* (On Demand)** 2-0-2
Presents a variety of work production and quality control measurement techniques and applies them specifically to housekeeping management.
- 2234 Housekeeping Techniques* (On Demand)** 2-0-2
An exploration of the basic tools required in institutional housekeeping. Includes the selection of equipment and supplies and accepted basic cleaning techniques.
- 2235 Basic Interior Design* (On Demand)** 2-0-2
Develop an appreciation for colors, textures and design as they relate to function and desirability for institutional interiors. The student will learn to plan color schemes and select suitable furnishings, draperies, lighting and accessories.
- 2237 Food Service Layout and Planning* (SP)** 2-5-4
Food service layout, planning and analysis. Space requirements. Layout flow line charts. Receiving and storage facilities. Time and motion studies. Consideration given to convenience food production. Prerequisite: 2202.
- 2241 Hotel-Motel Management Survey* (SP)** 2-2-3
Covers the history of the lodging industry and club management. Internal operations and management skills are studied. This course follows the guidelines for courses 103 and 106 from the Educational Institute of the American Hotel and Motel Association. EIAHMA certificates will be awarded to those who successfully complete the challenge examination.
- 2242 Food and Beverage Management Survey* (W)** 3-0-3
Surveys entire food and beverage operations from purchasing, receiving and storage to preparation and service. It follows the guidelines of course 240 from the Education Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2243 Hotel-Motel Law* (A)** 3-0-3
Provides a general knowledge of the law as it applies to the hotel-motel industry. This course follows guidelines of course 390 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.

- 2244 Hotel-Motel Accounting* (W)** 2-2-3
Correlates basic accounting principles to the accounting activities relevant to the lodging industry. This course follows guidelines of course 402 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2245 Front Office Procedure* (W)** 3-0-3
The principles required to organize, operate and manage a front office in a hotel or motel. Guest needs, salesmanship and procedures used in different types of front office operations. This course follows guidelines of course 331 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2246 Hospitality Sales* (W)** 2-2-3
Selection of an advertising media to convey a particular message to a selected market. Preparation of advertisements (layouts and copy). Market analysis and consumer surveys. Customer relations. This course follows guidelines of course 405 from the Educational Institute of the American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2247 Tourism and The Hospitality Industry* (On Demand)** 3-0-3
Provides a comprehensive study of tourism principles, practices and philosophies. Illustrates how and why the various components of tourism integrate with other segments of the hospitality industry. This course follows the guidelines of course 324 from the Educational Institute of AH&MA. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2248 Hospitality Security Management* (On Demand)** 3-0-3
An introduction to the security field as it relates to the lodging industry and the challenges facing it, such as crime, natural disasters, terrorism and fires. This course follows the guidelines of course 330 from the Education Institute of American Hotel and Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination.
- 2253 Nutrition (A,SU)** 4-2-5
A study of normal nutrition and its role in promoting good health. Includes composition and functions of foods, nutritional needs throughout the life cycle, and contemporary concerns, as well as a computerized diet and energy analysis for each student. Lab fee: \$16.00.
- 2261 Dietetic Technician Clinical Experience I* (A)** 0-6-2
Practical application of information presented in the classroom from 2201, 2253, and 2222 to related health-care facilities. Skills are developed through supervised learning situations to evaluate food-services systems, to maintain established standards of sanitation and safety, and to determine and meet the nutritional needs of selected persons. Lab fee: \$10.00. Concurrent: 2201, 2222, & 2253.
- 2262 Dietetic Technician Clinical Experience II* (W)** 0-6-2
Practical application of information presented in the classroom from 2202 and 2211 to related health-care facilities. Skills are developed through supervised learning situations to operate, maintain and select equipment, to assist in food production and service, and to maintaining food quality and portion control Lab fee: \$10.00. Prerequisite: 2261 concurrent 2202 and 2211.
- 2263 Dietetic Technician Clinical Experience III* (SP)** 0-6-2
Practical application of information presented in the classroom from 2223 and 2212 to related health-care facilities. Skills are developed through supervised learning situations to procure and store food, supplies, and equipment used, to calculate food costs, to participate in quantity food production, and to develop and/or test products. Lab fee: \$10.00. Prerequisite: 2262. Concurrents: 2223 & 2212.
- 2264 Menu Planning* (SP)** 2-2-3
Principles and practices of menu planning related to schools and industries, hospitals and health care institutions. Consideration of costs, utilization of employees, equipment, purchasing, inventory, and storage. Prerequisite: 2275.
- 2265 Dietetic Technician Seminar* (SP)** 1-0-1
An in-depth study of management related problems and recent developments in health-care food service departments. Specific areas of study include nutritional assessment, development of dietary department budgets, employee motivation, computer assisted programs for inventory and menu planning, and new concepts in the preparation and serving of food. Individual student project to be selected and presented. Lab fee: \$10.00. Prerequisite: 2268. Concurrent: 2269.
- 2267 Dietetic Technician Clinical Experience IV* (A)** 0-9-3
Practical application of information presented in the classroom from 2205, 2224, and 2273 to related health-care facilities. Skills are developed through supervised learning situations to maintain and develop cost control systems, to select, train, schedule, and supervise employees, to supervise food production, and to evaluate employee performance. Lab fee: \$10.00. Prerequisites: 3813 & 2263. Concurrents: 2205, 2224 & 2273.
- 2268 Dietetic Technician Clinical Experience V* (W)** 0-6-2
Practical application of information presented in the classroom from 2275 to related health-care facilities. Skills are developed through supervised learning situations to interview patients, to evaluate nutritional data collected, to understand the rationale for dietary modifications and associated medical terminology, and to assist in the preparation and service of special diet meals. Lab fee: \$10.00. Prerequisites: 2253 & 2267. Concurrent: 2275.
- 2269 Dietetic Technician Clinical Experience VI* (SP)** 0-9-3
Practical application of information presented in the classroom from 2264 and 2265 to related health-care facilities. Skills are developed through supervised learning situations to assess patient nutritional status, to assist in developing a nutritional care plan for patients, to plan regular and modified menus considering nutritional needs, budget, employee skills, and equipment available. Lab fee: \$10.00. Prerequisites: 2275 & 2268. Concurrents: 2264 & 2265.
- 2273 Food Service and Catering* (A)** 2-4-4
Determination of the type of service best suited for an operation. Planning, implementing, and evaluating meals served for special activities. Course includes table placements, napkin folds, tableside cookery, wine service and ice carving. Lab fee: \$10.00.
- 2275 Diet Therapy* (W)** 4-3-5
Ways in which variations in caloric content, consistency and nutrient composition may be employed to meet individual dietary requirements. Rationale for dietary modifications and related medical terminology. Special diet meals prepared and tasted. Lab fee: \$10.00. Prerequisite: 2253.
- 2283 Hospitality Field Experience I* (A,W,SP,SU)** 0-24-2
A practical application of principles taught in the classroom. Hotel and restaurant students will take part in actual supervised work experience in the hospitality industry. A minimum of 24 hours per week will be spent in employment and bi-weekly classroom discussion of experiences and observation will be included.
- 2284 Hospitality Field Experience II* (A,W,SP,SU)** 0-24-2
A continuation of 2283. Students will have job experiences to be better prepared for obligations in hospitality management upon completion of the educational program. A minimum of 24 hours per week will be spent in employment and bi-weekly classroom discussions of experiences and observation will be included. Prerequisite: 2283.
- 2285 Special Problems in Hospitality Management* (A,W,SP,SU)** 2-0-2
A problem of special interest to the student, requiring library and/or on-the-job study selected and reported by the student with advice from a faculty member.
- 2291 Dietetic Assistant Seminar I* (A)** 3-0-3
A study of the types of health-care facilities, typical health-care organizational structures, role of the dietetic assistant, regulations and how they affect food-service in health-care facilities. Discussions concentrating on food service safety and sanitation principles, utilization and care of equipment. Concurrent: 2294.
- 2292 Dietetic Assistant Seminar II* (W)** 3-0-3
Explanation of methods and records used in procurement, receiving, and storage of food and related items. Survey of control measures for maintaining quality, quantity, and cost of food production. Menu planning techniques. Prerequisites: 2291 & 2294. Concurrent: 2295.
- 2293 Dietetic Assistant Seminar III* (SP)** 3-0-3
Develop an ability to interview patients or residents to identify food preferences and to assess nutritional needs. Modify regular or house menus to prevent or treat specific diseases. Introduction to the techniques used to improve supervisory skills, improve employee efficiency and evaluate job performance based on written objectives, special project with emphasis in developing problem solving skills. Prerequisites: 2292 & 2295. Concurrent: 2296.
- 2294 Dietetic Assistant Clinical Experience I* (A)** 0-5-2
Supervised work related learning experiences to be performed on the job following material presented in the classroom from Dietetic Assistant Seminar I - 2291. Lab fee: \$15.00. Concurrents: 2291 and employment.
- 2295 Dietetic Assistant Clinical Experience II* (W)** 0-5-2
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from Dietetic Assistant Seminar II - 2292 and employment. Lab fee: \$15.00. Prerequisite: 2291 & 2294. Concurrents: 2292 & employment.

2296 Dietetic Assistant Clinical Experience III* (SP) 0-5-2
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from Dietetic Assistant Seminar III - 2293. Lab fee: \$15.00. Prerequisite: 2291, 2292, 2294 & 2295. Concurrent: 2293 & employment.

4346 MP Applications I (I/0)* (SU) 3-6-5
This course will teach the basic understanding of a microprocessor similar to those commonly found in industrial applications as well as teaching the functions of the hardware and how to communicate with it by using machine language commands. Lab fee: \$20.00. Prerequisite: 4345.

4347 MP Application II* (A) 3-6-5
A continuation of 4346, more advanced problems and applications are assigned. Specifically hardware interfacing with the outside world using the microprocessor as a closed loop control element. Lab fee: \$10.00. Prerequisite: 4346.

4401 Machine Shop I* (A,W,SP,SU) 3-6-5
Instruction in this course is based upon selected operations performed on the bench, drill press, engine lathe, vertical milling machine, pedestal grinder and metal saws. The primary objective of the instruction is to present problems of preparing tooling, holding work, removing metal to required sizes, and selecting the machine for processing the work. Lab fee: \$20.00.

4402 Machining Practices II* 3-6-5
The machine families of shapers and planers, grinding machines and the horizontal boring, drilling and milling machines are studied. Emphasis is placed on types and major components, operations and the cutting tools tool and work holding devices and safety on the machines. Speed and feed calculations as applied to those machine families are also discussed to give the student a better understanding of the machines. Lab fee: \$20.00. Prerequisite: 4401 or permission.

4403 Machine Shop III* (A,W,SP,SU) 3-6-5
Designed to acquaint the student with technical developments that are occurring in industry, such as thread and gear rolling, chemical milling, electrolytic, electrical discharge machining, tape controlled machines, tracer lathes, duplication milling, broaching, centerless grinding and thread grinding. Lab fee: \$25.00. Prerequisites: 4402.

4421 Principles of Supervision I (A) 3-0-3
A study of management with emphasis upon the student as the manager. Topics covered include self development with special attention to leadership, attitudes, morale, motivation and communications. Students will participate in group dynamics, role playing, case studies and class projects/discussions.

4422 Principles of Supervisions II (W) 3-0-3
A study of managing in a dynamic environment. The science of getting results through others. Techniques for managing yourself, managing others and managing the business. Prerequisite: 4421.

4424 Industrial Organization & Management* (A) 4-0-4
A basic study of supervisory management principles, functions and their application at the front-line supervisory level. Management principles and practices, leadership functions, and methods of improvement are covered in an introductory manner.

4425 Purchasing Inventory & Control* (W) 4-0-4
The purchasing function, inventory control and maintenance, material handling and management for production. Supervisor's responsibility.

4426 Time & Motion Study* (SP) 4-2-5
The principles and practices of time study are stressed using time and motion standards with mathematical analysis. Prerequisite: 1111.

4427 Production Scheduling & Control* 3-2-4
Investigation, evaluation and coordination of manufacturing capabilities and requirements to assure timely production of products through efficient use of facilities, manpower, and material. Determination of production steps, where and when to perform them. Prerequisite: 4425.

4431 Die Design I* (A,W,SP) 2-3-3
The student is introduced to the profession of laying out working drawings for dies used in the manufacturing of sheet metal stampings. He is taught the basics of preparation of plans, designs, drawings, and other specifications which are used as complete guides by the manufacturer who does the actual building of these devices. Covers blanking, single, double, multiple group dies, cut off and shearing dies, trimming and cutoff dies. Lab fee: \$10.00. Prerequisite: 4601 or permission.

4432 Die Design II* (A,W,SP) 2-3-3
The continues study of preparing working drawings, plans of designs for the manufacturing or production of sheet metal stampings. It continues with (shear type) cut-off dies incorporating notching and punching operations in several different applications commonly used in industry today. Lab fee: \$10.00. Prerequisite: 4431.

Industrial Technology

4321 Industrial Electricity (DC/AC)* (SU) 4-4-6
This course will provide the basic knowledge of electrical circuits. OHM's law, kirchoff's law, electro-magnetism, power, inductance, capacitance, impedance, and circuit components. Theory will be enforced in the lab by offering specific hands-on applications related to the theory presented. Lab fee: \$20.00. Concurrent: 1105.

4322 Motors & Generators (DC)* (A) 4-4-6
This course covers the principles of magnetic fields as applied to D.C. shunt, series, and compound motors. Also covered are methods of acceleration, deceleration, speed and torque control and reading D.C. controller schematics. Theory will be reinforced in the lab, by offering specific hands-on applications related to the theory presented. Lab fee: \$20.00. Prerequisite: 4321. Concurrent: 1108.

4323 Motor & Generators (AC)* (W) 4-4-6
This course covers the principles of rotating magnetic fields as applied to single-phase and three-phase motors, reduced voltage starting, fundamentals of manual and electromagnetic control. Theory will be reinforced in the lab, by offering specific hands-on applications related to the theory presented. Lab fee: \$20.00 Prerequisite: 4322. Concurrent: 1111.

4331 Computer Applications (MP)* (SP) 2-2-3
This course presents the opportunity for the student to become familiar with the computer, its capabilities, kinds of functions they can perform and what they can do and cannot do. It presents a full picture of how it effects our lives, both present and future. Prerequisite: 4321. Concurrent: 1111.

4332 "BASIC" Computer Language* (SU) 2-2-3
This course will teach students the 'BASIC' computer language, with emphasis on program structures for machine control. Lab fee: \$5.00. Prerequisite: 4331.

4333 Computer Assisted Logic* (A) 2-2-3
A continuation of 4332 utilizing a series of tapes to develop modern ladder logic diagrams. The student will be able to write programs for logic circuits. Lab fee: \$5.00. Prerequisite: 4332.

4334 Industrial Control Devices I* (SP) 3-6-5
This course is a study of basic semi-conductor theory. This includes rectifier diodes, LED's, variable capacitance diodes, (bi-polar, J-FET, MOS-FET transistors), SCR's, TRIAC's, and OP-Amps. The circuit applications of these devices is stressed, as well as trouble-shooting procedures in the laboratory. Lab fee: \$20.00. Prerequisite: 4321.

4335 Industrial Control Devices II* (SU) 3-6-5
This is a continuation of the study and application of solid-state devices as used in industrial controls. Additional study of OP-Amps and SCR's interfaced with motors and control relays and the building of electronic control circuits leading to the development of a complete system concept. Lab fee: \$20.00. Prerequisite: 4334.

4336 Instrumentation* (A) 3-6-5
Provides the application of electronics to the measurement, recording and control of temperature, pressure, light, intensity, position, flow, tension and rotation as applied to industrial conditions and devices. Uses a variety of transducers and converters to relate analog signals to digital processing. Lab fee: \$15.00. Prerequisite: 4335.

4345 Digital Logic* (SP) 3-6-5
The student will study boolean algebra, logic gates, counters, registers, flip-flops, and the application of digital electronics in programmable controllers and micro-processors. He will gain experience in building and interfacing digital circuits. Lab fee: \$15.00. Prerequisite: 1111.

- 4433 Jig & Fixture Design* (A,W,SP)** 2-3-3
This course introduces the basic fundamentals of plastic and die cast mold construction and operations. The mold dies of single and multicavity design are covered in lecturer-discussions correlated with the machinery of the molds employing various production machine techniques. Lab fee: \$10.00. Prerequisite: 4432.
- 4434 Introduction to Die Making I* (A)** 2-6-4
Covers the basic details, techniques and theory of stamping dies. Includes practices that a beginning die maker must learn and acquire. Essential facts of cutting and forming operations are described results. Discusses primary die components such as punches, punch plates, die blocks and stippers and individual entities in addition to their function as a part of the complete die. Field experience credit available. Lab fee: \$25.00. Prerequisite: 4403.
- 4435 Die Maintenance* (W)** 2-6-4
A continuation of related theory in Tool and Die Making I progressing to the more advanced stages of complete dies. Students are presented subject areas developed to the point where the die maker can understand completely the particular type of die discussed. Covers inverted and compound dies using the "blank-through principle", the "chop off" principle; the "parting" principle using secondary operations drawing operations. Field experience credit available. Lab fee: \$25.00. Prerequisite: 4434.
- 4436 Tool Making* (SP)** 2-6-4
Continues the study of the principles of dies; the operation, construction, use and design for the more complex dies used in the fabrication of sheet metal parts in presses. Field experience credit available. Lab fee: \$25.00. Prerequisite: 4435.
- 4438 Industrial Numerical Control* (A)** 3-4-5
The student is introduced to numerical control, commonly referred to as n/c. He will make plant visitations to inspect equipment, tooling, fixtures and methods of machining. Actual programming is done in the following class but he will be provided all the basic essentials to understand automated manufacturing processes. Lab fee: 6.00. Prerequisites: 4403, 1111.
- 4444 Maintenance Welding*** 3-3-4
A welding program for maintenance people who will be presented with the basics of laying out steel, burning with a hand torch, introduced to heating, soldering, brazing and gas welding skills. The fundamentals of electrical arc welding skills will be presented utilizing several common types of electrodes on various thicknesses of steel and various joint designs. Lab fee: \$25.00. Prerequisite: 4608.
- 4467 Job Relations and Safety* (SP)** 2-2-3
A course designed to acquaint the student in his role in the metal removal (machinist/tool and die) industry. Emphasis is directed to his personal habits and attitudes, safety and motivation. Communications and responsibilities of the individual in the work environment is stressed using class room and group discussions covering a description of jobs in terms of job performance requirements, skills and knowledge.
- 4476 Quality Control (W)** 2-2-3
This course presents a study of the theory and application of inspection practices and procedures of the common equipment used in tool rooms and inspection divisions within most industrial plants. Field experience credit available. See course 4491.
- 4478 Industrial Machines I*** 3-4-5
This is a continuation of skills and theory presented to students who have completed the three machining practice courses. Concentration is oriented toward the specific needs and task to meet the third year requirements as outlined in the national machining, tool & die association testing and evaluation. Lab fee: \$15.00. Prerequisites: 4403.
- 4479 Industrial Machines II*** 3-4-5
Review of requirements necessary to satisfactorily complete the fourth year requirements as outlined in the National Machine Tool & Die and Precision Making Association. Also incorporates cost analysis and the importance of economics of production practices as it applies to the various machine tools. Lab fee: \$15.00 Prerequisites: 4478.
- 4491-4495 Special Topics in Industry IV* (As Needed)** Arr
Special Topics in Industry I is a specially designed course to meet the needs of the constantly changing industrial community and student population. Instructional methods may include seminar, travel, field experience, research, lecture series, and video tapes.
- 3401 Principles of Insurance* (A,W,SP,SU)** 3-0-3
An introduction to the general principles of insurance and the basic principles that underlie the entire field of insurance. The course can be used as an elective for other technologies.
- 3402 Life Insurance* (A,SP)** 3-0-3
An examination of the role of the consumer and the producer in life insurance coverages. Materials covered will include analysis of needs, insurance contracts, rates, legal aspects and estate planning.
- 3403 Property Insurance* (W,SU)** 3-0-3
Coverages, policy provisions and concepts common to property insurance including the standard fire policy, extended coverage endorsement, dwelling forms, crime insurance, business interruption forms, inland and ocean marine coverages, and the property coverages of various personal and commercial multiple line contracts.
- 3404 Casualty Insurance* (W,SU)** 3-0-3
Coverages, policy provisions, and concepts common to liability insurance policies, suretyship, the liability insurance aspects of multiple-line contracts and life, health and social insurance coverages.
- 3405 Social Insurance* (W)** 3-0-3
Coverages of insurance programs that deal with the problems of premature death, old age, occupational and non-occupational disability, health care and unemployment. Emphasis will be placed on the federal social security program, medicare, state workers compensation plan and the state/federal unemployment compensation plans.
- 3406 Agency Operations* (W)** 3-0-3
A producers approach to all kinds of insurance with a broad coverage of materials designed to give the student a perspective of what is involved in agency operations. Activities and special problems of work with an insurance agency are covered.
- 3407 Agency Practicum I* (A,W,SP,SU)** 1-14-3
The student is placed in an agency working four hours a day, three days a day, three days a week. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: permission of instructor.
- 3408 Agency Practicum II* (A,W,SP,SU)** 1-14-3
A continuation of 3407. The student is placed in an agency working four hours a day, three days a week. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: permission of instructor.
- 3409 The World of Insurance* (SP)** 3-0-3
A study of the integration of people with technology, organizational structure and the demands of insurance organizations. Particular emphasis is placed on the relationship of the individual and requirements of insurance type organizations.
- 3415 Human Resource Management (A,SP)** 3-0-3
This course is designed to develop the knowledge and understanding of manpower needs in both public and private organizations. The impact upon the organization (i.e. Laws, regulations, social norms, hiring, training and compensation). The primary emphasis will be to present an organization focus from the employee's and manager's point of view.
- 3421 Company Operations* (SP)** 3-0-3
This course will examine insurance marketing, underwriting, reinsurance, rate making, claims adjusting, loss control, activities and other insurer functions and activities. Prerequisite: permission of instructor.
- 3422 Company Practicum I* (A,W,SP,SU)** 1-14-3
The student is placed in an insurance company working four hours a day, three days a week. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: permission of instructor.
- 3423 Company Practicum II* (A,W,SP,SU)** 1-14-3
A continuation of 3422. The student is placed in an insurance company working four hours a day, three days a week. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: permission of instructor.

3425 Insurance Law* (W) 3-0-3
A study of the legal environment of insurance, and interaction of law and insurance activities. Additionally, directions for the proper application of general legal principles to factual patterns common in insurance transactions are covered.

7722 Patterns of Language Development (A) 3-0-3
Compares the normal patterns of language development of hearing children, prelingual deaf children, and postlingual deaf children.

7723 Speech and Audiology (W) 3-0-3
A study of the distinction between speech, hearing, and language. An emphasis is placed on speech patterns and hearing patterns that can occur with various types of losses. The course also surveys basic hearing tests, types of aids, types of losses, and terminology used in the field.

Interpreting/Transliterating Technology

7731 Voice to Sign Interpreting/Transliterating I* (SP) 1-4-3
Self analysis; utilizes video taping situations so the student can see himself as the deaf person sees him; builds from the sentence to the short story level. Lab fee: \$5.00.

7701 Introduction to Interpreting/Transliterating (A) 3-0-3
Covers the difference between interpreting, translating, and transliterating; also introduces kinds of interpreting/transliterating situations; surveys the various sign systems; and discusses the role of the interpreter.

7732 Voice to Sign Interpreting/Transliterating II* (SU) 1-4-3
Practice techniques of orally expressing what is being signed in formal and informal situations; uses video practice tapes. Lab fee: \$5.00. Prerequisite: 7731.

7702 English for the Interpreter* (W) 3-0-3
Covers the principles of grammar and vocabulary development that an interpreter needs in a variety of situations.

7733 Sign to Voice Transliterating I* (SU) 1-4-3
Practice techniques of orally expressing what is being signed in formal and informal situations; uses video practice tapes. Lab fee: \$5.00.

7703 Physical Aspects of Interpreting/Transliterating* (SP) 2-0-2
Identifies auxiliary factors of interpreting that can convey meaning or hinder meaning or comfort for the deaf consumer; course covers dress, physical appearance, lighting, background, seating, mouthing, and positioning. Prerequisite: 7701.

7734 Sign to Voice Transliterating II* (W) 1-4-3
Continues to develop techniques of orally expressing what is being signed; emphasis is on a more technical level of material; uses video practice tapes and live signers. Lab fee: \$5.00. Prerequisite: 7733.

7704 Special Problems in Interpreting/Transliterating* (A) 3-0-3
Utilizes various techniques to help the interpreter develop the skills and poise needed to handle the frustrations and problems that arise in interpreting situations; deals with the non-human entity of interpreting. Prerequisite: 7701.

7735 Sign to Voice Interpreting I* (A) 1-4-3
Practices the techniques of conceptually expressing what is being signed in formal and informal situations; uses video practice tapes. Lab fee: \$5.00.

7705 Legal and Ethical Aspects of Interpreting/Transliterating* (A) 3-0-3
Analysis the RID code, "professional" ethics, confidentiality vs. privilege, legal liability, and the role of the interpreter. Prerequisite: 7701.

7736 Sign to Voice Interpreting II* (SP) 1-4-3
Continues to develop techniques of orally expressing what is being signed; emphasis is on voicing for persons who use ASL or persons with minimal English skills. Lab fee: \$5.00. Prerequisite: 7735.

7706 Signs Systems Vocabulary* (W) 3-0-3
Compares signs used in codes, systems, and in ameslan; analyzes signs from both conceptual and philosophical viewpoints. Prerequisite: 7701.

7741 Interpreting/Transliterating Practicum Seminar I* (A,W,SP,SU) 1-0-1
Group discussions of experiences arising during field experiences. Concurrent: 7743.

7707 Specialized Interpreting/Transliterating* (SP) 3-0-3
Discussions, demonstration, and field trips designed to acquaint the student with the special skills needed for legal interpreting, deaf/blind and oral deaf persons, educational, and medical situations. Prerequisite: 7701.

7742 Interpreting/Transliterating Practicum Seminar II* (A,W,SP,SU) 1-0-1
Group discussions of experiences arising during field experiences. Prerequisite: 7741. Concurrent: 7744.

7711 Introduction to Ameslan (A) 2-2-3
Covers the development of ASL as a visual language as it progresses from non-verbal communication to structured language. Lab fee: \$5.00 for videotapes.

7743 Interpreting/Transliterating Practicum I* (A,W,SP,SU) 0-20-4
Using in the field the concepts learned in the classroom, students will be assigned to work in a variety of situations on a part-time basis. Concurrent: 7741.

7712 Ameslan I* (W) 2-2-3
Course expands upon basic ASL principles and develops conversational competence by focusing on the major grammatical features of ASL, further study of the cultural aspects of the deaf community, and the acquisition of additional sign vocabulary. Lab fee: \$5.00 for videotapes. Prerequisite: 7711.

7744 Interpreting/Transliterating Practicum II* (A,W,SP,SU) 0-20-4
Using in the field the concepts learned in the classroom, students will be assigned to work in a variety of situations on a part-time basis. Prerequisite: 7743. Concurrent: 7742.

7713 Ameslan II* (SP) 2-2-3
Course continues to expand upon the principles covered in 7712; vocabulary acquisition focuses on how to conceptually sign English idioms/phrases; more intense work on expanding receptive skills. Lab fee: \$5.00 for videotapes. Prerequisites: 7711, 7712.

7765 Introduction to Sign English (A,W,SP,SU) 3-0-3
Course emphasizes the use of signs in the straight English context. In addition to fingerspelling, numbers, and a sign vocabulary of 350 words, this course covers the basic principles of manual communication through nonverbal techniques and concept development. Lab fee: \$5.00 for videotapes.

7714 Ameslan III* (SU) 2-2-3
Continues to expand upon principles covered in 7712 and 7713; a more in depth look at principles such as pronominalization, sentence types, and locatives; vocabulary acquisition focuses on ASL idioms. Lab fee: \$5.00 for videotapes. Prerequisites: 7711, 7712, 7713.

7766 Sign English I (A,W,SP,SU) 3-0-3
Course emphasizes the use of signs in straight English context. The course covers an additional vocabulary of 500 words. In addition to vocabulary building, course concentrates on signing idioms and increasing receptive skills. Lab fee: \$5.00 for videotapes. Prerequisite: 7765.

7715 Linguistics of ASL* (W) 3-0-3
Ties together all the linguistic principles studied in ameslan; particular attention is given, not to the signs, but to the properties and morphological analysis of ameslan. Prerequisites: 7711, 7712, 7713, 7714.

7716 Artistic Interpreting* (A) 3-0-3
Covers conceptually signing songs, poems, etc., as these relate to platform and performing arts interpreting; opportunities are provided for group glossing, individual glossing, and critiques.

7721 Orientation to Deafness (A) 3-0-3
Discusses the psychological, social, and cultural aspects of deafness; looks at population, employment, and marriage patterns.

Law Enforcement Technology

7801 Introduction to Law Enforcement* (A,W) 3-0-3
A survey of law enforcement, its role, history, and development of English common law. An introduction to modern police practices and the functions of other agencies involved in the administration of criminal justice and the law enforcement officer's ethics. An introduction to local, state, and federal court procedures.

- 7802 Crime Prevention Techniques* (W)** 3-0-3
Survey of the use of patrol procedures in crime prevention. Included are the purpose and types of patrol, deviant behavior, police communications including radio, teletype and computerized communication systems. Observation and perception, identification and description of individuals and property, a summary of the use and types of weaponry and techniques by call, required by requests for police service.
- 7803 Traffic Administration* (On Demand)** 3-0-3
An orientation to highway traffic administration. Discusses the responsibilities of agencies involved in the highway transportation system with emphasis on the police function. Included are supervision enforcement definitions and rates, accident prevention and control problems, basic principles of traffic law enforcement, and the federal standards for highway safety that have a direct bearing on police operations.
- 7804 Juvenile Procedures* (A,SU)** 4-0-4
Organization, functions, and jurisdiction of juvenile agencies. Processing and detention of juveniles. Statutes and court procedures relating to juveniles. Police services for juveniles and neglected children. Rights and liabilities of minors and their parents.
- 7805 Ohio Criminal Code* (W,SU)** 5-0-5
The study of the statutes of Ohio to crime and criminal procedures with emphasis on the specific elements necessary to constitute individual crimes. An introduction to civil law as it relates to the law enforcement officer.
- 7811 Criminal Evidence and Procedures I* (A,SU)** 4-0-4
Analysis of statutes and court decisions on the accumulation, presentation, and admissibility of criminal evidence. The origin, development, and philosophy of the rules of evidence. Concurrent: 7861.
- 7812 Criminal Evidence and Procedures II* (W,SU)** 4-0-4
Tests for admissibility of evidence and types of evidence. Arrest, search, entrapment, and opinion testimony. Prerequisite: 7811. Concurrent: 7862.
- 7813 Traffic Accident Investigation* (SP)** 5-0-5
An in depth study of the procedure and objectives in accidents, gathering facts from road, vehicle and witnesses, hit and run investigation, measurements and diagrams, utilization of skid marks evidence, proper methods of recording accident data, use of accident template and a practical application of the recommended method of submitting the Ohio state traffic crash report. Lab fee: \$3.00.
- 7816 Case Preparation* (SP)** 3-2-4
A study of the necessary reports, review of case and conference with prosecutor, witnesses and technical reports. Proper submission of physical evidence, psychology of courtroom testimony. Participation in mock trials followed by actual courtroom trial visitations.
- 7819 Supervision of Public Service Personnel* (W)** 3-0-3
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, reports, oral and written directions, work evaluation, conference leadership. Methods of instruction effective in teaching and motivating personnel.
- 7821 Local Government (A,W)** 3-0-3
The role of local government in the community; its structure, organization, and responsibility. Local government politics and the community. Methods and principles of local budgeting. Urban, suburban, rural and community structure.
- 7822 Police Community Relations (W)** 3-0-3
The psychology of relations between law enforcement officers and the general population. Policies and practices of community relations as they apply to law enforcement agencies. Current national and local community problems.
- 7824 Investigation and Interviewing (A)** 3-0-3
An analysis of the use of interviewing as a tool in investigation. Covering preparation of an interview, types of interviews, interview techniques and their psychological application to obtaining accurate and admissible statements.
- 7825 Constitutional Law* (A,SU)** 5-0-5
A study of federal and state constitutional law and the bill of rights with emphasis on the rights to due process of law, equal protection of the law, jury trial, and assistance of counsel. Interpretation of the constitution by the United States Supreme Court as given in their decisions.
- 7826 Police Administration (SP)** 3-0-3
The contemporary local law enforcement agency, its functions, structure, and operational techniques. Principles of organization, staffing, budgeting, controlling, coordination, planning and research. The development and maintenance of liaison between agencies.
- 7827 Criminology (W)** 3-0-3
A sociological approach to the crime problem. Some of the topics are: crime and the population, the handling of the problem, the role of the victim, explanation of crime, treatment methods.
- 7828 Municipal Finance* (On Demand)** 3-0-3
An administrative view of municipal finance. A summary of budgeting, cost accounting, salaries, taxes, monthly allocation, balance sheets, operating expenses, purchasing and requisitioning are studied. Prerequisite: 7819 or 7826.
- 7831 Police Photography* (SP)** 1-4-3
Photography at specific crime scenes. Photography of criminal evidence. Micro and macro photography. Preparing the court exhibit. Darkroom techniques. Use and care of photographic equipment. Lab fee: \$4.00.
- 7832 Fingerprinting* (W)** 3-0-3
A study of fingerprinting recognition and classification procedures. Analysis of distinguishing features of fingerprint patterns. Instruction in photography of latent prints prior to lifting. Proper methods of lifting and preserving evidence. Lab fee: \$1.00.
- 7833 Police Department Intelligence* (W)** 3-0-3
The collection and evaluation of information dealing with security and safety of the municipality. Methods of observation of criminal and subversive organizations, checking on rumors, intro-police communications, and the use of informants.
- 7834 Police Department Organization* (SP)** 3-0-3
An introduction to the principles governing the organization and administration of law enforcement organizations. Included for study are: functions and activities, development of policy, significance of community relations in effective police work, and training and control of police forces.
- 7835 Family Crisis Intervention* (W)** 3-0-3
An analysis of the changing role of the law enforcement officer. Police have historically dealt with family problems on the basis of keeping the peace. The police officer must resolve more than just the disturbance. A study of the methods and procedures of family crisis intervention.
- 7836 Juvenile Delinquency* (SP)** 3-0-3
The philosophy and methods of police programs for the prevention and control of juvenile delinquency and youth crime. Emphasis on specific techniques and consideration of the issues and problems to be resolved by police.
- 7838 Vice Squad Operations I* (SP)** 3-0-3
Methods of law enforcement related to illegal traffic in liquor, gambling morals, and prostitution.
- 7839 Vice Squad Operations II* (A)** 3-0-3
A study of narcotics and hallucinogenics, with emphasis on the addict, the drugs, controls, local, state, and federal and United Nations efforts to control drugs. The illegal sale and use of drugs, and drug addiction.
- 7841 Major Crime I* (SU,A)** 3-0-3
Principles and techniques of investigation and prosecution of major crimes. Emphasis on methods involving homicide, suicide, assault and rape. Human physiology as applied to police investigation.
- 7842 Major Crime II* (W)** 3-0-3
Principles and techniques of investigation and prosecuting of major crimes. Emphasis on methods, involving auto theft, burglary, and grand larceny. "Methods of operation" techniques.
- 7843 Techniques of Instruction (W)** 3-0-3
Methods of instruction, application of audio visual equipment, testing, and evaluation, and preparation of materials are introduced. Special emphasis is placed upon planning an organizational training program. Methods of evaluation. Lab fee: \$3.00.
- 7844 Safety Education* (A)** 3-0-3
Methods of motivation and instruction of children and adults with emphasis on the subject of safety education. Principles of automobile, bicycle, motorcycle, pedestrian and firearm safety. Lab fee: \$5.00.
- 7845 Penology* (SP)** 3-0-3
A study of the admitting, quartering, and releasing of prisoners, emphasis on city and county systems for handling prisoners.
- 7846 History of Law Enforcement* (SP)** 3-0-3
A study of law enforcement from early civilization through the modern police department. Reference to notable crimes in history, their particulars, and results in law enforcement procedures change. Scientific advances and their role in law enforcement. An appreciation for the profession of law enforcement.

7847 Police Records* (SU) 3-0-3
The necessity, techniques, and details of keeping records in a police department. Criminal records, filing, and cross-reference system. Officer report writing.

7849 Crime Laboratory Techniques* (TBA) 3-0-3
A study of special chemical and physical procedures used in the crime laboratory. The use of specialized instrumentation; microscope and microphotography, x-ray equipment, and spectrophotometers. Lab fee: \$4.00.

7851 Correctional Internship I* (TBA) 0-10-1
On-the-job training in the field of corrections. The student will work for the parole authority of the state of Ohio. The course includes the interviewing of convicted felons, verification of the information received, and various other duties connected with probation. Prerequisite: 7872. Concurrent: 7852.

7852 Corrections Seminar I* (TBA) 1-0-1
This seminar will cover the pre-sentence investigation report, purpose and how compiled. Members of the internship program will be able to discuss the problems and events that they have encountered during their work at the probation office with each other and the instructor. Prerequisite: 7872. Concurrent: 7851.

7853 Correctional Internship II* (TBA) 0-10-1
On-the-job training in the corrections setting. The student will work for the parole authority of the State of Ohio. The course will consist of making background investigations for parole board, checking of inmates at various halfway houses, and interviewing persons on parole. Prerequisite: 7851. Concurrent: 7854.

7854 Corrections Seminar II* (TBA) 1-0-1
This course is run in conjunction with 7853 in corrections. A discussion of what has occurred on the job and clarification of problems. Assignment of project and explanation of reason for the project. Prerequisite: 7852. Concurrent: 7853.

7861 Criminalistics I* (SU,A) 9-4-2
The laboratory include the recognition, collection, and preservation of evidence and its preparation for court presentation. An introduction to fingerprint comparison. Lab fee: \$5.00. Concurrent: 7811.

7862 Criminalistics II* (W,SU) 0-4-2
The laboratory includes examination techniques for blood, hair and fiber, firearms identification, toolmark comparison, latent fingerprints, questioned document examination and trace evidence. Lab fee: \$5.00. Prerequisites: 7811 & 7861. Concurrent: 7812.

7871 Correctional Law* (A) 4-0-4
This course will cover the various supreme court rulings that deal with the care and treatment of prisoners confined in institutions. It will include the use of force, the right to have visitors, receive mail, attend religious functions, and the right to treatment. It will cover the due process of law that the prisoner is entitled to in confinement.

7872 Contemporary Corrections* (A) 3-0-3
This course covers the history of corrections, including the various philosophies that influenced correctional behavior, the development of the penitentiary system, the effect of court rulings on the operation of the institutions, and an insight into the future of the correctional system.

7873 Community Based Corrections* (W) 3-0-3
This course will investigate alternative models of corrections in place of institutionalizing the offender. Several leading authors will discuss various alternatives and the benefits that will derive from the placing of the offender back in the community rather than in an institution.

7874 Institutional Corrections* (W) 3-0-3
This course will cover some of the problems of corrections today and their solutions. It will deal with the treatment of offenders, past and present, and with future trends in this field.

7875 Counseling - Probation & Parole* (SP) 4-0-4
This course covers the responsibilities and duties of the correctional counselor and case worker. Emphasis is placed upon the application of professional standards of casework in the correctional setting. Extra stress is placed on the functions of the parole and probation officers.

7876 Correctional Administration* (SP) 3-0-3
This course will cover the various phases of administration as they relate to corrections. Three basic stages are covered: executive, midmanagement, staff line operations. Each of these levels will be discussed as they relate to institutions, community-based institutions, and operation of probation and parole. The problems and possible solutions to them will be covered for each division of corrections.

7881 Introduction to Security* (A) 3-0-3
This course is designed to provide a general background in security for the beginner. It covers some of fundamental systems used for loss prevention, fire destruction, and personnel safety. It covers the basic idea of construction for security reasons as well as beauty and functionalism. It helps to relate security to all members of a company and the responsibility each has to the prevention of loss, both material and human.

7882 Security* (W) 3-0-3
This course will combine the practical with the theoretical as it examines the nature of crime, criminals, and selected criminal offenses; major security concerns; and the techniques, sophisticated hardware, and personnel utilized to reduce or eliminate security problems.

7883 Industrial Security* (W) 3-0-3
A study of the various types of security available to the business community. It covers the development of a proprietary security system, internal controls and external threats and special problems. Special emphasis will be placed on the use of electronic aid in security communications, and automatic access controls.

7884 Collateral Duty and Safety* (SP) 4-0-4
A basic introduction to problems and practices of collateral duty and safety personnel.

7885 Development of A Security Program* (W) 3-0-3
This course is designed to inform the student how to conduct various surveys of a corporation to determine its vulnerability to theft and other hazards. It describes the various methods of conducting these surveys by questionnaires, study of procedure manuals and survey forms. Demonstrates how procedures and standards are prepared.

7886 Security Management* (W) 3-0-3
Introduction of the dynamics of corporate crime prevention. An in depth analysis of the techniques of risk management in the formulation of definitive corporate security policies and examines the impact of crime on corporate productivity and profits.

7887 Security & Guard Services* (On Demand) 3-0-3
This course is divided into two sections. The first covers retail store security, particularly shoplifting, shopping services and search laws. The second part of the course covers industrial security, guard services, alarm systems and premise protection.

7888 Security Research* (On Demand) 3-0-3
This course covers the writing of reports, the locations of sources of information on individuals, and the types of information needed for various investigations conducted by the private security sector.

Mathematics

1105 Introduction to Algebra (D & E-A,W,SP,SU) 4-0-4
Transition from arithmetic to algebra; the real number system; signed numbers; elementary algebraic operations; linear equations and formulas; problem solving by equation; factoring; the rectangular coordinate system and graphs of linear equations.

1108 Intermediate Algebra (D & E-A,W,SP,SU) 4-0-4
Systems of linear equations; operations with algebraic fractions; special products and factoring; exponents, radicals, and radical equations; solving quadratic equations by factoring, completing the square, and by formula; inequalities and their graphs. Prerequisite: 1105 or placement by algebra placement test I.

1111 Technical Mathematics I (D & E-A,W,SP,SU) 3-2-4
An introduction to computer programming in BASIC; operations with algebraic expressions; rectangular coordinates; solving linear equations in one variable; right triangle trigonometry and graphing of the sine and cosine functions. Lab fee: \$5.00. Prerequisite: 1108 or placement by algebra placement test I.

1112 Technical Mathematics II (D & E-A,W,SP,SU) 3-2-4
Solutions to systems of linear equations by graphing, by algebra, and by determinants; exponents and radicals; complex numbers (the j-operator); exponential and logarithmic functions; variation; vectors and oblique triangles; computer application using BASIC. Lab fee: \$5.00. Prerequisite: 1111.

1113 Technical Mathematics III (D & E-A,W,SP,SU) 3-2-4
The straight line, circle, parabola, ellipse, hyperbola; quadratic equations; polar coordinates; trigonometric identities and trigonometric equations; computer applications using BASIC. Lab fee: \$5.00. Prerequisite: 1112.

1114 Differential and Integral Calculus I (D & E-SP,SU) 3-2-4
An introduction to differential and integral calculus with related applications; curvilinear motion; related rate; maxima and minima; areas under curves and volumes of revolution; derivatives of trigonometric, logarithmic, and exponential functions. Prerequisite: 1113.

1115 Differential and Integral Calculus II (On Demand) 3-2-4
Differentiation and integration in polar coordinates. Infinite Malaurin, Taylor, and Fourier series. First order differential equations. Partial derivatives and double integrals. Integration; logarithm forms; tables; power rule; trigonometric substitution; by parts; exponential form; and inverse trigonometric forms. Prerequisite: 1114.

1121 BDP Math I (D & E-A,W,SP,SU) 4-0-4
A study of the real numbers system; basic algebraic operations: linear equations and inequalities in one and two variables; quadratic equations: definitions and operations in set theory; a comparison of the decimal, octal, and hexadecimal number systems including conversion principals and procedures; an introduction to logic with truth tables and flowcharts.

1122 BDP Math II (D & E-A,W,SP,SU) 4-0-4
Relations and functions; quadratic, exponential, and logarithmic; systems of equations and solutions by algebraic, matrix, and determinant methods; linear programming by graphing, algebraic, and simplex methods; boolean algebra. Prerequisite: 1121.

1126 Probability and Statistics (D & E-A,W,SP,SU) 3-2-4
An introduction to programming using basic and micro-computer; the description of sample data; numerical methods analyzing data; percentiles, quartiles and 2-scores; probability; the binomial distribution and the normal distribution; linear correlation and regression; sampling, including the central limit theorem. Lab fee: \$5.00. Prerequisite: 1122.

1131 Business Mathematics (D & E-A,W,SP,SU) 4-0-4
Fundamental arithmetic processes emphasizing common and decimal fractions. Percentage methods are applied to cash and trade discounts, commissions, markup and depreciation. Simple interest on promissory notes and unpaid balances. Bank discount, compound interest, tables and formulas. Payroll computations. Income statement and balance sheet analysis.

1141 Business Statistics (D & E-A,W,SP) 3-2-4
An introduction to the basic language; descriptive statistics; probability distributions; sample statistics; statistical inference; estimation with application to business problems. Lab fee: \$5.00. Prerequisite: 1108 or placement by algebra placement test 1.

1151 Intro to Microcomputers 2-2-3
An introduction to computers to include: the historical development for perspective, the impact and role of computers in society, and future directions. Hardware components: input/output devices, storage devices, and data flow. Computer software: an introduction to various languages and who uses them, COBOL, FORTRAN, PASCAL, a discussion of operating systems, and programming in BASIC. Applications to engineering and to spreadsheets, word processing, and data bases. Lab fee: \$5.00.

1154 Survey Closures By Computer (D-W,SP) 2-2-3
Instruction in the application of microcomputer to programmed solution to algebraic and trigonometric problems frequently encountered in civil engineering and surveying operations, with special reference to geometric relationships. The computer language, BASIC, is taught. Lab fee: \$5.00.

1155 Computer Application to Mathematics (D-A,W,SP,SU) 3-0-3
BASIC language, using microcomputers, writing computer programs in BASIC, solving typical mathematical problems, and writing programs related to the student's own technology. Lab fee: \$5.00.

1181 Mathematics for Health Technologies (D & E-A,W,SP,SU) 3-2-4
An introduction to computer programming in BASIC: a review of algebraic expressions and operations; the metric system; functions and their graphs; ratio and proportion; logarithms; an introduction to descriptive statistics. Lab fee: \$5.00.

Mechanical Engineering

4601 Mechanical Drafting I* 0-6-3
A beginning course including principles of orthographic, isometric, and oblique projection. Dimensioning, sectioning, and applied descriptive geometry. Emphasis on making complete detail and assembly drawings. Lab fee: \$10.00. Prerequisite: 4608.

4602 Mechanical Drafting II* 0-6-3
A continuation of mechanical Drafting I, including advanced drafting practices, industrial standards, and the drawing of machine elements. Lab fee: \$10.00. Prerequisite: 4601.

4603 Computer Aided Drafting* 0-6-2
Computer aided drafting will introduce the student to the current means of generating graphic designs with computers. The major part of the course will be devoted to solving graphic problems with the computer. Lab fee: \$10.00. Prerequisite: 4602.

4604 Basic Mechanisms* 0-9-4
A study of the basic mechanisms used in the construction of industrial machinery, such as linkages, cams, and gear trains. Lab fee: \$6.00. Prerequisites: 4602, 4607, 1113.

4605 Machine Design* 0-8-4
A study of the design of machine elements; beams, bearings, shafts, gears, clutches, power screws, and fasteners. Emphasis on loading and stress considerations in the design. Lab fee: \$8.00. Prerequisites: 1113, 4602.

4606 Tool Design* 0-9-4
A study of the principles of design of production tooling, including jigs, fixtures, and various types of dies. Lab fee: \$10.00. Prerequisite: 4602.

4607 Descriptive Analysis* 1-2-2
The course is designed to give the students preliminary work towards problems in numerical control, statics, and strength of materials. Prerequisite: 1112.

4608 Introduction to Manufacturing Technology* 2-3-3
An introductory course in the study methods and science of interpretation of orthographic drawings, tolerances, castings, slides, bearing, gears, fasteners, springs, etc.

4611 Machine Tools* 3-6-6
A study of the operation of the basic machine tools and the related theory. Cutting tool materials, cutting tool geometry, machining time, indexing, and helical milling. Lab fee: \$20.00. Prerequisite: 4612.

4612 Manufacturing Process I* 2-2-3
A course in the basic manufacturing processes used in production of machine parts. Study of the extraction and refinement of metals, production machining methods and production machine tools, precision dimensional inspection methods, hotforming methods, coldworking methods, and foundry methods.

4613 Manufacturing Processes II* 2-2-3
Continuation of Manufacturing Process I. Laboratory work in welding and visits to manufacturing plants. Further study of cast metals. Welding equipment and procedures, welds, and weld inspection. Injection molding and powdered metals, plus quality control.

4615 Materials Science* 2-3-3
A basic course in the structure, properties and use of various materials used in the engineering discipline. Prerequisite: 1112.

4626 Hydraulics and Pneumatics* 4-2-5
A course in the elementary theory of fluid flow and power transmission in hydraulic machines. Emphasis on the design, the principles of operation, and the use of hydraulic components in hydraulic and pneumatic circuits. Lab fee: \$10.00. Prerequisites: 1113, 4607.

4634 FORTRAN IV* 1-2-2
Elementary computer science concepts. The language rules of FORTRAN. writing programs. Testing on the IBM 370/138. Lab fee: \$7.00. Prerequisites: 1113, 4607.

4635 N C & Other Computer Applications* 2-4-4
A fundamental course, including principles of numerical control, operation sheets, transfer of references, programming manuscript, tape preparation, and basic numerical control systems. Programming of a machine part requires a point-to-point application, and production of the part on the numerical control machine tool. Programming and production of a more complex machine part on the numerical control machine. An introduction to the apt programming. Study of advanced applications of numerically controlled manufacturing equipment. Numerical control aspects of tooling. Lab fee: \$10.00. Prerequisites: 1111, 1113, 4607.

4644 Statics* 3-2-4
The study of loads as applied to structures, including study of reactions, shears, and bending moments by analytical and graphical methods. Study of centroid location and moments of inertia. Prerequisites: 1113, 4607 (Mech. Tech only).

- 4645 Strength of Materials*** 3-2-4
A continuation of statics, including stresses in beams, deflections of beams, statically indeterminate beams, columns, eccentrically applied loads, combined stresses and stress concentrations. Prerequisite: 4644.
- 4661 Plant Mechanical Systems*** 2-2-3
The course is designed to familiarize students in facilities design and plant maintenance.
- 4662 Basic Electricity** 3-2-4
Principles and practices used in industrial electrical equipment control in theory and components.

Medical Laboratory Technology

- 8001 Medical Technology I* (A,SP)** 0-6-3
Orientation to the field of medical technology; defining the role of the medical laboratory technician, overview of working conditions and places of employment, medical terminology, reporting methods, medical ethics, medical legal responsibilities and the collection of blood specimens. Lab fee: \$35.00. Prerequisite: admission to program.
- 8002 Medical Technology II* (W,SU)** 2-4-4
A study of laboratory safety, spectrophotometry, quality control and the use and maintenance of laboratory equipment including the bright field and dark field microscopes, spectrophotometer, autoanalyzer, centrifuge, analytical balance, pH meter and other instruments. Emphasis is also placed on laboratory mathematics, particularly in solution preparation and dilutions. Lab fee: \$35.00. Prerequisite: 8001 or permission of chairperson.
- 8005 Blood Banking* (A,SP)** 3-15-8
Procedures are stressed in ABO and RH typing, antibody screening, and cross-matching of patient and donor bloods. Studies and laboratory techniques also include discussion of most all blood group systems, phenotyping, identification of atypical antibodies, and the selection of proper donor blood in cases of crossmatching incompatibilities. Sufficient time is also spent studying transfusion therapy, the problems concerning fetal-maternal blood incompatibilities, and various other immunological procedures. Lab fee: \$70.00. Prerequisite: 8019 or permission of chairperson.
- 8017 Microbiology I* (W,SU)** 0-20-7
Includes the study of bacteriology, mycology, and parasitology. Bacteriology includes the cultivation and identification of organisms through the utilization of primary and secondary culture techniques, staining techniques, anaerobic techniques, biochemical techniques, serological techniques, and microscopic examination. Other methods studied include antibiotic sensitivity testing, staining of mycobacteria, processing of various cultures such as throats, urines, blood and stools, and the preparation of culture media and stains. Parasitology includes the study of host-parasite relationships, and microscopic examination of the various helminths and protozoa. mycology includes the study of various types of fungi. Lab fee: \$70.00. Prerequisite: 8005 or permission of chairman.
- 8018 Coagulation* (W,SU)** 2-6-4
Mechanisms of hemostasis are studied which include the evaluation of platelet number and function, vascular integrity, and the four stages of the coagulation system. Disorders of hemostasis are studied and the procedure used to identify and evaluate these disorders. Examples of procedures are as follows: tourniquet test, bleeding time, clot retraction, prothrombin times, partial thromboplastin times, substitution testing, protamine sulfate test, euglobulin clot lysis, and slide agglutination testing for fibrin degradation products. Lab fee: \$35.00. Prerequisite: 8025 or permission.
- 8019 Cellular Hematology* (W,SU)** 3-12-7
The origin, formation, and differentiation of blood formed elements are studied. This includes techniques in counting the following: red cells and white cells both automated and manual, platelets, reticulocytes, and eosinophils. The preparation of stained blood smears for the identification of blood cells which aid in the diagnosis of anemias, leukemias, hemoglobinopathies, and infectious states. Hemoglobin studies are performed to evaluate both quantity and types. Lab fee: \$35.00. Prerequisite: 8023 or permission of chairperson.
- 8021 Phlebotomy* (On Demand)** 1-6-3
The study of blood, its collection both by venipuncture and fingerstick, preservation, and preparation for the hospital laboratory. Lab fee: \$25.00.

- 8023 Urinalysis* (A,SP)** 2-4-4
The study of this course includes the complete laboratory procedures, qualitative and quantitative for the routine examination of urine chemically, physically, and microscopically. The theory and application of kidney function are included. Lab fee: \$35.00. Prerequisite: admission to program.

- 8025 Clinical Chemistry* (A,SP)** 0-20-7
This is a basic course in clinical chemistry. Introduction is given to the student in the analytical techniques used in a hospital laboratory. This course will contain information about the methodology used in a clinical chemistry laboratory as to principle, reagents, specimens, controls, procedure, instruments, normal and abnormal tests results, and the correlation of these results with clinical conditions. Lab fee: \$70.00. Prerequisite: 8017 or permission of chairperson.

- 8031 Special Topics in Medical Laboratory* (A,W,SP,SU)** 1-0-1
8032 Special Topics in Medical Laboratory* (A,W,SP,SU) 2-0-2
8033 Special Topics in Medical Laboratory* (A,W,SP,SU) 3-0-3
Advanced study for the medical laboratory student in the areas of laboratory management, laboratory instrumentation of technical areas of hematology, immunology, blood banking, microbiology, clinical chemistry and urinalysis. Prerequisite: permission of chairperson.

- 8082 Clinical Experience I* (W,SU)** 0-20-5
Two-quarter internship providing a practical application of the skills and abilities learned during the previous five quarters. The students are assigned to an accredited hospital laboratory as a trainee. Students will apply their talent as members of the laboratory department. The student will be involved for three weeks each in the hematology section; four weeks each in the bacteriology and serology section; clinical chemistry section and the blood banking section of the laboratory; and will spend one week each in urinalysis and immunology. Prerequisite: 8025. Concurrents: 8018, 8084.

- 8083 Medical Laboratory Clinical Experience II* (A,SP)** 0-36-9
Continuation of 8082. Lab fee: \$70.00.

- 8084 Medical Technology Case Studies* (W,SU)** 1-3-2
Review of all technical areas immediately prior to clinical placement through the use of case study presentations and accompanying laboratory work. Lab fee: \$35.00. Prerequisite: 8025 or permission of chairperson. Concurrent: 8018.

- 8085 Special Problems in Medical Laboratory Technology I* (W,SU)** 1-0-1
8086 Special Problems in Medical Laboratory Technology II* (A,SP) 1-0-1
During the internship period, the student will keep a weekly log indicating scope and degree of activity in the laboratory. A copy of this work will be filed with the hospital and a copy filed with the institute. A problem of special interest to the student, requiring library and/or laboratory study will be selected by the student and the faculty coordinator. This course includes open discussion of other related problems, lectures on laboratory management, demonstration of other employment opportunities, interviewing techniques and case studies. Prerequisite: all medical laboratory courses.

Mental Health and Mental Retardation Technology

- 8401 Principles of Human Services* (A,W,SP)** 2-0-2
Overview of history and development of mental health services. Theories of mental health. Mental health care delivery system. Roles and functions of the traditional and nontraditional mental health worker. The mental health needs of residents of Columbus and Franklin county. Contemporary legislation. Medical model vs. human service model. A survey of agencies employing MHT's, field trips, and guest lectures. Lab fee: \$4.00.

- 8405 Introductory Skills for Helping* (A,W,SP)** 2-2-3
This is a 2 hour lecture/2 hour lab course focusing on the beginning helping skills necessary for work with the MH/MR population. The student will develop a basic understanding of communication and listening skills; a data gathering, assessment, treatment model; and effective helping relationships. Lab fee: \$4.00. Prerequisite: 8401, 8411, & 8421. Concurrent: 8401, 8411 & 8421.

- 8411 Introduction to Mental Retardation and Developmental Disabilities* (A,W,SP)** 3-0-3
This is an introductory course covering terminology, history, assessment, legal rights, classifications, normalization, and community resources in relation to mental retardation and developmental disabilities. The student will visit several community agencies serving the MR/DD population. Beginning concepts related to working with families of persons who are mentally retarded or developmentally disabled are also covered. Lab fee: \$5.00.

8416 Helping Skills III The Group* (On Demand) 3-2-4

This is an intensive course in the theoretical and practical aspects of effective helping using group as the unit of attention. The classroom focus is on formation process and content, stages of development, leadership role(s), problematic issues of the group. The student participates as a group member in a 2-hour living laboratory. Lab fee: \$5.00. Prerequisite: second year standing or permission. Concurrent: 8495 or 8496 or 8497 or 8598.

8421 Values and Attitudes for the MHT* (A,W,SP) 2-0-1

Focus on the values, beliefs, and attitudes necessary for effective helping relationships. Values clarification and exploration for the beginning student. Conducted through a small group experience to facilitate interpersonal understanding. Lab fee: \$4.00.

8422 Helping Skills I* (On Demand) 4-0-4

This is one of a three-part modular series of intermediate courses designed to provide the trainee with knowledge of key concepts and theories as well as some specific skills related to a particular area. Introduction to helping skills; interviewing, taking social histories, client assessment, action program planning, referrals, and crisis intervention. Lab fee: \$5.00. Prerequisite: 8401, 8405, 8411, & 8421. Concurrent: 8492.

8423 Residential Treatment* (On Demand) 4-0-4

This is one of a three-part modular series of intermediate courses designed to provide the student with knowledge of key concepts and theories as well as some specific skills related to this particular area. Contemporary concepts of 24-hour-a-day care, treatment, and rehabilitation; therapeutic programming, the treatment team, impact of institutionalization, and problems of community acceptance will be taught. Lab fee: \$5.00. Prerequisite: 8401, 8405, 8411 & 8421. Concurrent: 8493.

8424 Principles of Behavior Management* (On Demand) 4-0-4

This is part of a series of intermediate courses designed to coordinate clinical (practical) experiences with theoretical and academic knowledge in a particular area. This course will focus on behavior management, in-depth application in a variety of settings. Emphasis is on skill development at an intermediate level as well as knowledge of theory. This course will also focus on data collection, assessment, and treatment planning with an MR/DD population. Lab fee: \$4.00. Prerequisite: 8401, 8405, 8411 & 8421. Concurrent: 8494.

8426 Social Policy* (On Demand) 4-2-5

Social policy and its relationship to mental health and work of the MHT. Overview of U.S. Social welfare institutions; family, church, government, economic institutions. In-depth examination of social welfare policies/programs at national, state, and local level in areas of housing, health care, and income maintenance. Skills in use of model for agency analysis and social action for social change. Lab fee: \$6.00. Prerequisite: 2nd yr standing or permission. Concurrent: 8495 or 8496 or 8497 or 8498.

8434 Helping Skills II - The Individual* (On Demand) 4-0-4

This is an intensive course in the theoretical and practical aspects of effective helping through the counseling relationship. There is a heavy emphasis on practice of data gathering, assessment and treatment planning skills using the laboratory, videotape, small study groups and role-play sessions. Lab fee: \$5.00. Prerequisite: 2nd yr standing or permission. Concurrent: 8495 or 8496 or 8497 or 8498.

8435 Basic Course In Residential Childcare* (On Demand) 2-2-3

A practice and theory course, teaches workers how to create an environment fostering productive growth and development for resident populations in a wide variety of settings; concentrates on the development of skills and knowledge workers need most; understanding behavior and personality development, self-awareness, problem solving, disciplinary management and communication with clients.

8438 Chemical Dependency; Alcohol and Other Drugs* (On Demand) 4-0-4

Explores the nature, prevention, and treatment of chemical addiction. Covers the physiological aspect of intoxication and addiction, sociological issues, special problems of families, women, and youth, and intervention strategies.

8492 Clinic In Community Mental Health* (On Demand) 2-12-4

This is one of a three-part series of clinical experiences, designed to give the trainee a broad overview of modalities of delivery of mental health services. To give the trainee an opportunity to observe all service components of a facility which gives a range of mental health services and to practice basic skills under close supervision. Prerequisite: 8401, 8405, 8411, 8421. Concurrent: 8422.

8493 Clinic In Residential Treatment* (On Demand) 2-12-4

This is one of a three-part series of clinical experiences designed to give the trainee a broad overview of modalities of delivery of mental health services. To give the trainee an opportunity to observe all the service units of a residential treatment facility and to practice basic skills under close supervision. Prerequisite: 8401, 8405, 8411, 8421. Concurrent: 8423.

8494 Clinic In Mental Retardation* (On Demand) 2-12-4

This is one of a three-part series of clinical experiences designed to give the trainee a broad overview of modalities of delivery of MH/MR services. To give the trainee an opportunity to observe all service components of a facility which gives a range of services to mentally retarded individuals. Provides opportunities to practice basic skills under close supervision. Prerequisite: 8401, 8405, 8411, 8421. Concurrent: 8424.

8495 Advanced MH/MR Clinic I Lab Fee: \$7.00 (On Demand) 0-15-5**8496 Advanced MH/MR Clinic II (On Demand) 0-18-6****8497 Advanced MH/MR Clinic III (On Demand) 0-18-6**

Three advanced clinical experiences for the second year student which take place in settings that will match the student's interest and training needs. The student has solid grounding in the fundamental skills requisite for being an effective helper and works with a minimal to moderate amount of supervision. The student plans an extended placement of 2 or 3 consecutive quarters in the same agency in order to carry a small caseload and become involved in on-going work with clients. The student acts as part of the agency staff and is responsible for professional conduct and regular work habits.

8498 Field Placement Elective (On Demand) 0-12-4

A specifically arranged clinical experience for students desiring to a) pursue in-depth training in special areas, b) strengthen areas of clinical performance as recommended by faculty, or c) enhance their program with additional practical experience. Application must be made during the prior quarter. Permission of chairperson is required.

Nursing Technology

8541 Introduction to Nursing* (A,W) 2-9-5

The student is introduced to the role of the associate degree nurse within the health care system. An overview of the nursing process is presented, as well as the wellness/illness continuum. The human needs focus for all ages will be safety, activity, rest, sleep, and love and belonging. Learning experiences focus on skills used to promote health in the elderly client in an extended care setting. Lab fee: \$25.00. Prerequisite: admission to nursing. Concurrent: 8542, 1313, 1361.

8542 Development Through The Life Span* (A,W) 2-0-2

The student is introduced to concepts of growth and development of man as an individual and as a member of society. This will provide a conceptual foundation for nursing practice through an understanding of growth and development as it affects the fulfillment of human needs. Lab fee: \$5.00. Prerequisite: admission to nursing. Concurrent: 8541, 1313, 1361.

8544 Nursing Concepts of Wellness I* (W,SP) 2-12-6

The student is introduced to the role of the associate degree nurse within the acute health care facility. Human needs of air, food, fluids and neurological function are related to psychological, sociological, and spiritual aspects of all age groups. Focus of the nursing process is on the assessment phase. Learning experiences focus on skills used to promote wellness in the adult client and the family. Lab fee: \$25.00. Prerequisite: 8541, 8542, 1313, 1361. Concurrent: 8545, 1315, 1366.

8545 Concepts of Pharmacology* (W,SP) 2-0-2

The student is introduced to the general principles of pharmacology as related to man and his basic needs. Major drug classifications and their relationship to the concepts of health, society and nursing will be emphasized. Lab fee: \$5.00. Prerequisite: 8541, 8542, 1313, 1361. Concurrent: 8544, 1315, 1366.

8547 Nursing Concepts of Wellness II* (SP,SU) 2-12-6

The student is introduced to the role of the associate degree nurse in providing nursing care for families during the normal or altered reproductive process. The student will continue to utilize the nursing process in promoting wellness of holistic man during the childbearing years. Lab fee: \$25.00. Prerequisite: 8544, 8545, 1315, 1366. Concurrent: 1002, 1514, 1522.

8549 Nursing Concepts of Health Alterations I* (SU,A) 3-15-8

The students is introduced to the role of the associate degree nurse in relation to clients with common recurring health alterations. The needs for food, fluid, and regulation of internal environment are addressed as they relate to illness. The nursing process is expanded by broadening the assessment base to include pathophysiology and the emphasis shifted to the planning, implementing and evaluating phases. Learning experience emphasizes nursing skills that promote adaptation and optimum wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$25.00. Prerequisite: 8547, 1514, 1522. Concurrent: 1003, 1367.

8551 Nursing Concepts of Health Alterations II* (A,W) 3-15-8
The student will continue to focus on the role of the associate degree nurse in relation to clients with common recurring health alterations. The needs of air, activity, and rest are addressed as they related to illness. All aspects of the nursing process are incorporated in care of the client. Learning experiences emphasize nursing skills that promote adaptation and optimum wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$25.00. Prerequisite: 8549, 1367, 1003. Concurrent: 1368, 1004, or 1014.

8553 Nursing Concepts of Mental Health* (W,SP) 3-9-6
The student is introduced to the role of the associate degree nurse in relation to clients experiencing mental health alterations. The needs of safety (trust), self esteem, and love and belonging are addressed as they relate to the mental health-illness continuum. Each phase of the nursing process is utilized in providing holistic care for clients. Clinical and laboratory experiences are provided in community and in-client care settings. Students are encouraged to explore own adaptive behaviors in order to enhance personal and professional growth. Lab fee: \$15.00. Prerequisite: 8551, 1368, 1004 or 1014. Concurrent: 1541, 1024 elective.

8555 Role and Function of the Associate Degree Nurse* (SP,SU) 2-21-9
The purpose of the course is to incorporate principles for nursing practice from previous courses in realistic client - care situations. At the end of the course, students are expected to demonstrate the competencies expected of a beginning associate degree nurse. Learning opportunities include providing technical nursing care to clients of all ages with common recurring health alterations. A variety of acute health care settings will be utilized. Lab fee: \$20.00. Prerequisite: 8553, 1541, 1024 elective. Concurrent: 8556 elective.

8556 Perspectives in Nursing* (SP,SU) 2-0-2
The course will focus on contemporary trends and issues, in historical perspective, that influence the future of nurses and nursing. The student will synthesize concepts of man, society, health, and nursing in relation to the CTI nursing technology philosophy and knowledge gained during the past six quarters. This synthesis will lead the student to development of a personalized philosophy of associate degree nursing. Lab fee: \$5.00. Prerequisite: 8553 or permission of instructor.

Optometric Assisting Technology

8201 Introduction to Optometric Technology* (A) 3-0-3
Overview of the optometric technician program, optometric and vision care terminology, history and development of optometry, the scope of optometric services, education of the optometrist and optometric technician, sources of vision information. Prerequisite: program acceptance.

8202 Optometric Technology I* (W) 4-4-6
Course includes properties of light, basic visual optics, eye defects, perception, color and eye movements. The mathematics of optics will also be covered. Lab fee: \$25.00. Prerequisite: 8201.

8203 Optometric Technology II* (SP) 4-6-6
Techniques for gathering preliminary patient information such as case history, visual acuity, visual fields, tonometry and similar procedures. The laboratory portion will deal with applying these procedures in a clinical setting. Lab fee: \$25.00. Prerequisite: 8202.

8204 Ophthalmic Optics I* (SP) 4-4-6
Measurement and inspection of ophthalmic lenses with emphasis on use of the lensometer will be presented. Spectacle repair and adjustments will be covered. Lab fee: \$25.00. Prerequisite: 8202.

8205 Anatomy and Physiology of the Eye and Orbit* (SP) 3-2-4
A study of the anatomy and physiology of the eye and orbit. Related laboratory exercises are included. Lab fee: \$25.00. Prerequisites: 1332, 8202.

8206 Ophthalmic Optics II* (A) 4-4-6
Course includes advanced theory and practice in fitting spectacles along with the cosmetic aspects of frame styling. Complete prescription verification is also covered. Lab fee: \$25.00. Prerequisite: 8204.

8208 Contact Lenses* (A) 3-3-4
Course includes contact lens terminology and instrumentation, verifying and modifying contact lenses, patient instruction on the care and handling of contact lenses, and special contact lens procedures. Lab fee: \$25.00. Prerequisites: 8203, 8205.

8209 Orthoptics* (W) 1-3-2
The study of orthoptics (vision training) including instrumentation and procedures for orthoptics, assisting in the orthoptics evaluation and clinical training procedures. Prerequisite: 8203.

8211 Clinical Observation* (A) 0-3-1
Laboratory section of 8201. Time is spent observing in the various clinics at the Ohio State University College of Optometry. These clinics include the general clinic, aniseikonia clinic, strabismus clinic, orthoptics clinic, contact lens clinic, low vision clinic and pathology clinic. Concurrent: 8201.

8212 Optometric Personal and Professional Development* (A) 2-2-3
This course will emphasize a program of personal and professional self-improvement to help the optometric technician function in optometric practice.

8213 Optometric Office Procedures* (W) 3-0-3
The study of management of an optometric practice. The course includes: patient management, records management, office procedures and finances, and laboratory control. Also discussed are the legal and ethical responsibilities in an optometric practice. Prerequisite: 8203.

8214 Optometric Special Techniques and Emergency Procedures* (SP) 0-2-1
A study of special techniques and instruments used in the optometric field. This will also include the module on cardiopulmonary resuscitation. Lab fee: \$25.00. Prerequisite: 8282.

8281 Optometric Clinical Experience I* (A) 0-12-4
Clinical experience in the dispensary verifying spectacle lenses, preexamination screening, and office duties. Lab fee: \$25.00. Prerequisite: 8203.

8282 Optometric Clinical Experience II* (W) 0-12-4
Clinical experience in style design of eye wear, verification of eye wear, pre-examination screening, contact lens clinic, pediatric clinic and office duties. Lab fee: \$25.00. Prerequisite: 8281.

8283 Optometric Clinical Experience III* (SP) 0-18-6
Clinical experience in the contact lens clinic, the orthoptics clinic, general clinic and the office and dispensary. Student duties include teaching patients insertion and removal of contact lenses, orthoptics training, office and dispensary duties and pre-examination screening. Lab fee: \$25.00. Prerequisite: 8282.

Public Administration Technology

3501 Public Administration I* (A,W,SP,SU) 3-0-3
An introductory study of the basic principles of public administration and the relationship between levels of government, national, state, regional, and local.

3502 Public Administration II* (A,SP) 3-0-3
An examination of inter-governmental relations among national, state, and local governments with emphasis on both federal and non-federal systems and centers of various jurisdiction interacting in the government.

3503 Public Personnel Administration* (W,SU) 3-0-3
Methods, practices, and applications of the personnel functions and administration to the personnel affairs of the public enterprise.

3504 Public Law* (A,SP) 3-0-3
Constitutional law as an intricate blend of history and politics. The economic and political climate in which judicial decisions are rendered and examined. Emphasis is placed upon the concepts of due process and the role of the public administrator in that process.

3505 Public Financial Administration* (W,SU) 3-0-3
How political decisions are fed into a public economy which attempts the satisfaction of human wants and the allocation of economic resources.

3506 Political Bureaucracy* (SP) 3-0-3
An in depth study of the type of organization that dispenses goods and services (whose policies are made by politicians) of all three levels of government, national, state, and local. The origin of the bureaucracy, types, influence and authority are among the issues studied.

3507 National Administration* (W) 3-0-3
A description and analysis of public administration in the United States from a federal perspective with an emphasis on the presidency, Congress and the Supreme Court and their relationships.

3508 State and Local Government* (A,SU) 3-0-3
A study of the government of Ohio and local units with emphasis on authority, influence, accountability and power structures. The relationships of the executive, legislative and judicial branches of these governmental units.

3509 Media Politics* (SP) 3-0-3
An examination of the uses and effects of the media in the processes of public administration and the effect of the media on the relationship of making and implementing public policy.

3511 Public Decision Making* (A,SU) 3-0-3
A study and application of the processes of decision making. Emphasis is placed on decision making in the public sector and its many constraints.

3512 Community Planning & Development* (A) 3-0-3
Major considerations required in urban community planning and development. Analysis of how, why, and by whom decisions of such planning are made.

3513 Public Labor Relations* (A) 3-0-3
The interaction of labor and the public sector decision-makers in the process of wage and benefit allocations. The role of participants in this process are examined to show the effects and influence each play.

3514 Social Services Planning* (W) 3-0-3
How societal goals and priorities (social policy) are translated into actions towards the achievement of these goals and the solution of social problems. Emphasis is placed on subsystems such as health, education, welfare, family services, vocational rehabilitation, correction, etc.

3515 Public Administration Seminar* (SP) 3-0-3
A seminar approach to learning the present current problems and issues of the discipline. Field trips, class discussion, and guest speakers will be utilized to serve as methods of bringing reality to previously learned theory and to prepare the student for practicums. Also, the course will aid in the student's selection of a practicum assignment. Prerequisite: by permission.

3516 Public Administration Practicum I* (A,W,SP,SU) 3-0-3
Students are placed on the job in an agency under the supervision of a qualified person for four hours a day, three days a week. The on-the-job experience is monitored by the practicum coordinator to aid in the student's growth and development. Prerequisite: by permission.

3517 Public Administration Practicum II* (A,W,SP,SU) 3-0-3
A continuation of 3516. The student is placed on the job in an agency under the supervision of a qualified person for four hours a day, three days a week. The on-the-job experience is monitored by the practicum coordinator to aid in the student's growth and development. Prerequisite: by permission.

3518 Public Sector Management* (W,SU) 3-0-3
The analytical, behavioral, and informational techniques required for successful attainment of reaching goals in the public sector.

3519 Public Safety Planning 3-0-3
A study of the many considerations required for planning and administration of services that enhances the safety of citizens. These services include fire, police, street lighting, streets and highways, forest and game, etc. Prerequisite: 3501.

Real Estate Marketing/ Management Technology

3601 Real Estate Principles and Practices I (A,W,SP,SU) 3-0-3
An introduction to the language of real estate, the economics of the real estate business and the general practices performed in the listing and selling of real estate. Provides a basic knowledge of the real estate business. Course covers the physical, legal, locational and economic characteristics of real estate, real estate markets, regional and local economic influences on real estate values, evaluation, financing, licensing and professional ethics. Meets all state requirements for licensing and graduate Realtor's Institute designation. (see 3621) Lab fee: \$2.00.

3602 Real Estate Law (A,W,SP,SU) 3-0-3
Real estate law includes all of the areas of law of common concern to the typical real estate practitioner and investor-consumer. Among topics covered are the law of agency as applied to real estate brokers and salesmen, law of fixtures, estates (including leases), conveyancing of real estate, real estate managers, license laws of Ohio, zoning, cooperatives and condominiums. Meets state requirements for licensing and graduate Realtor's Institute designation. (see 3621) Lab fee: \$2.00.

3603 Residential Sales Practices (A,W,SP,SU) 3-0-3
A "how to" course providing a step-by-step approach for success as a real estate professional based on sound principles and acceptable techniques. Course sets forth basic fundamentals which must be mastered by real estate practitioners regardless of their specialization or type of property involved. Underlying theme is communication. Lab fee: \$2.00. Prerequisites: 3601 & 3602 or real estate license.

3604 House Style and Design (A,W,SP,SU) 3-0-3
An in depth look at communities, neighborhoods and sites, land use planning and fair housing regulations. Studies house types by structural configuration and the fundamentals of good and bad design. Provides a visual description of nine fundamental or basic styles, 75-100 substyles and historical influences relating directly to American house styles since the 17th century. Lab fee: \$2.00.

3605 Real Estate Advertising* (SP) 3-0-3
A look at effective advertising as a necessity especially for real estate profession. Emphasizes the need for strengthening broker-buyer communication lines; covers advertising concepts, objectives whether properties or services are offered, use of specific advertising techniques and media such as radio, TV, public relations, signs, brochures, billboards, logo's and provides ideas for real estate advertising. Lab fee: \$2.00. Prerequisite: 3601 or real estate license.

3606 Real Estate Brokerage (SP) 3-0-3
Emphasizes the business and management aspects of running a real estate brokerage office or company. Covers relationship between broker and client and broker and salesperson. Views the brokerage as an industry having characteristics that lead to unique business practices. Trends are reviewed and developments in the industry are discussed. Office management, selection and training of personnel. Salesperson-manager relationship, policy and procedure manuals and money management activities are discussed. Meets state requirements for licensing and GRI designation. Lab fee: \$2.00. Prerequisite: 3601 or real estate license.

3607 Real Estate Finance* (A,W,SP,SU) 3-0-3
Covers 4 major concerns of real estate financing: 1) financing instruments and creative financing techniques; 2) in depth mortgage payment patterns and concepts, economic characteristics and standards, and financing of single and income-producing properties; 3) sources and availability of mortgage money and credit and the impact of various factors on the mortgage market; and 4) special government activities having an impact on real estate financing. Meets requirements for licensing and GRI designation. Should not be taken before sales license exam. Lab fee: \$2.00. Prerequisite: 3601 or real estate license.

3609 Condominium Communities* (A) 3-0-3
A guide to condominium ownership and legal obligations assumed by purchase into the condominium community. Condominium ownership is defined and responsibilities are discussed in detail from the condominium association that governs the community to management, maintenance problems and costs, rights, restrictions, social interdependence and self government.

3611 Real Estate Appraisal* (A,W,SP,SU) 3-0-3
Stresses the methodology of appraising the single family residential property and the theory underlying appraisal techniques. The three basic techniques of appraising; market comparison; penalized cost of replacement; and income approach (GMRM) are covered. A term appraisal project is assigned to give the student practical experience in applying these techniques. Meets state requirements for licensing and GRI designation. Should not be taken before sales license exam. Lab fee: \$2.00. Prerequisite: 3632 & 3601, or real estate license.

3612 Income Property Appraisal* (W) 3-0-3
A selective research into specific income producing property for applying appropriate analytical techniques. Studies the principles of anticipation and use of the capitalization process, and translates income projection into a present capital value indication. A term appraisal project is required. Lab fee: \$2.00. Prerequisite: 3611.

3613 Essentials of Real Estate Investments* (W) 3-0-3
An overview of the scope and nature of real estate investments; discusses advantages and disadvantages, individual versus group forms of realty ownerships, financing investments, tax ramifications and mathematical analysis. Different types of opportunities are discussed from vacant lots to land, houses, apartments, shopping centers, industrial developments and government sponsored projects. Lab fee: \$2.00. Prerequisite: 3611, 3612 (3612 may take concurrently).

3614 Marketing Investment for Real Estate (SP) 3-0-3
An analysis and guide for investigating real estate opportunities, covering the problems of residential, office and retail properties. Details of conducting market and feasibility studies, analyzing materials and data collected and evaluating the relevancy of the studies are studied. A term project is to prepare a detailed market investment analysis for a user-client. Lab fee: \$2.00. Prerequisite: 3613.

3615 Real Estate Special Topics* (SP) 3-0-3
A complex, open-ended course serving as a 'capstone' offering to review, coordinate and synthesize the subject matter of the prerequisite courses. Presents new material not covered in other offerings, or expands some areas not given sufficient depth. Provides exposure to more technical aspects of real estate and advanced subject matter beyond introductory principles addressed in brokerage management, appraisal and finance. The instructor is free to conduct the class as he deems appropriate. Meets requirements for GRI designation. Lab fee: \$2.00. Prerequisites: 3601, 3602, 3606, & 3607.

3617 Professional Property Management* (A,SP) 3-0-3
A course studying decision-making as it affects management of residential commercial and industrial property. The emphasis shall be on the practical application of theory to actual management problems. Specific topics include: Ohio Tenant Landlord Act, forcible entry and detainer, typical leases, office management, hiring, merchandizing, advertising, collection problems, taxes, insurance and maintenance. An alternate course for licensing as a real estate broker (see advisor). Lab fee: \$2.00. Prerequisite: 3601.

3618 Real Estate Leasing (On Demand) 3-0-3
An introduction to the language of office, industrial, and retail real property leasing, the economics of the leasing, general practices performed in listing, advising, and the leasing of available lease space. Provides a basic knowledge of the building owner's goals and objectives and fundamentals relating to characteristics of office, industrial, and retail real property. The impact of real estate markets, economic influences on real estate values, evaluation, financing, and professional ethics on leasing activities is also covered. Lab fee: \$2.00. Prerequisite: 3601 or real estate license, 3612, or 3617.

3621 Real Estate Principles & Practices, Real Estate Law* (A,W,SP,SU) 6-0-6
A combined course which includes material from 3601 and 3602. An introduction to the language of real estate, the economics of the real estate business and the general practices performed in the listing and selling of real estate. The course also covers real estate law commonly associated with the typical real estate practitioner. The course uses team teaching with practicing realtors and attorneys. It is designed to meet state requirements for licensing and the G.R.I. Designation. Lab fee: \$4.00.

3632 Real Estate Mathematics* (A,W,SP,SU) 3-0-3
A review of arithmetic processes including common fractions, decimal fractions, and percentage. Topics include sale, list, net prices and commissions, unique problems in area and volume, principal, interest, and points computed on mortgages, taxes and transfer tax stamps, prorations of insurance, mortgage interest, and taxes to date of sale and preparation of closing statements. Lab fee: \$2.00.

3681 Real Estate Today Seminar I* (On Demand) 1-0-1
A specially designed course which offers to meet the needs of the constantly changing real estate community, industry and the student population. Creative seminar topics are relative to today's market, and will provide flexibility in meeting a variety of needs.

3682 Real Estate Today Seminar II* (On Demand)
Continuation of 3681.

3683 Real Estate Today Seminar III* (On Demand)
Continuation of 3682.

Respiratory Therapy Technology

8602 Introduction to Respiratory Therapy Equipment* (W,SU) 4-4-6
A survey of the apparatus utilized in providing respiratory care, including manufacture, storage and safe handling of medical gas cylinders, regulators, flowmeters, nebulizers, humidifiers and intermittent positive pressure breathing equipment. Also to include the administration of oxygen; aerosol and IPPB therapy. Lab fee: \$25.00. Prerequisite: 1181, 1311, 1331 or 1344, 8621 or permission.

8603 Respiration Health and Disease* (SU) 4-0-4
This course is a study of the anatomy and physiology of the lungs and the heart. Also a study of cardiopulmonary diseases commonly seen in clinical practice. Prerequisite: 1344, 8621.

8604 Cardiopulmonary Physiology* (SP) 3-0-3
A study of the anatomy and physiology of the cardiovascular and pulmonary systems. Topics included are pulmonary anatomy, mechanics of breathing, transport of oxygen and carbon dioxide, acid-base balance, heart anatomy, and cardiac mechanics. Prerequisite: 1331, 1332 or permission.

8605 Pharmacology* (SU,A) 3-0-3
A study of the general principle of pharmacology, including drug types, dispensing, dosage, effects including contraindications and regulation. Drug groups relating to respiratory therapy will be emphasized to include bronchodilators, wetting agents, mucolytics, proteolytics, antibiotics, and aerosol solutions. Prerequisite: 8603 or 8604.

8606 Clinical Specialties* (SU) 3-0-3
This course deals with the evaluation and treatment of pulmonary diseases. The etiology, pathophysiology and prognosis of various pulmonary diseases will be covered. A section of the course will be devoted to pulmonary rehabilitation and home care of chronic pulmonary disease. Prerequisite: 8604 or permission.

8608 Pulmonary Function and Blood Gas Analysis* (A) 3-0-3
This course will deal with the evaluation of pulmonary function. Procedures and equipment used in this evaluation will be covered as well as guidelines for interpretation of results. Prerequisite: 8606 or permission. Concurrent: 8683.

8609 Organization and Administration* (SP) 2-0-2
A study of procedures of record keeping, budgeting, cost finding, personnel management, and policies and organization of a respiratory therapy department. Job descriptions and interviews will be discussed. Prerequisite: 8634 or permission.

8611 Therapeutic Procedures I* (A) 2-0-2
A study of the goals, indication, contraindications and hazards associated with oxygen, aerosol and IPPB therapy and chest physiotherapy. Other topics include basic EKG's, incentive spirometry, suctioning and airway care. Prerequisite: 8602, 8603, 8641. Concurrent: 8642.

8612 Therapeutic Procedures II* (W) 3-0-3
The course includes the study of mechanical ventilators and mechanical ventilation. Other topics include pulmonary functions, blood gas analysis and the study of respiratory therapy applied to the pediatric patient. Prerequisite: 8605, 8611, 8642. Concurrent: 8643, 8644.

8621 Patient Care for Respiratory Therapy* (A) 3-4-5
An introduction to respiratory therapy including discussion of the role of respiratory therapy in current medical practice, and duties, responsibilities, and professional liabilities of the therapist. Also a study of the procedures and skills of patient care as they apply to the respiratory patient in a clinical setting, including approach, rapport, and explanation of treatment to the patients. Laboratory instruction includes body mechanics, medical asepsis, and cardiopulmonary resuscitation. Lab fee: \$20.00. Prerequisite: acceptance into the technology.

8631 Respiratory Procedures I* (SP) 2-0-2
A discussion of the goals, indications, and hazards of oxygen and aerosol therapy. Other topics include basic EKG's, incentive spirometry, suctioning procedures, and airway care. Prerequisite: 8602, 8621. Concurrent: 8681, 8604.

8632 Respiratory Procedures II* (SU) 2-0-2
A study of the goals, indications, contraindications, and hazards associated with IPPB therapy and chest physiotherapy. Course content also covers electrocardiogram study and artificial airways, including types, hazards, and care of these airways. Prerequisite: 8631, 8681, 8604. Concurrent: 8682, 8606, 8605.

8633 Respiratory Procedures III* (A) 3-0-3
A study of mechanical ventilatory support including types of ventilators, principles of operation, and indications, and hazards associated with their use. Course content also covers weaning parameters, IMV, cardiovascular monitoring, and fluidics. Prerequisite: 8632, 8605, 8606, 8682. Concurrent: 8683.

8634 Respiratory Procedures IV* (W) 3-0-3
This course deals with neonatal and pediatric pulmonary disease and their treatment. Prerequisite: 8633, 8683, 8608. Concurrent: 8684.

8641 Clinical I* (SU) 0-16-4
An introduction in the clinical setting for the respiratory technician, practical application of oxygen and aerosol therapy and incentive spirometry; also, to include maintenance and sterilization of equipment. Prerequisite: 8621, 8603. Concurrent: 8603, 8602.

8642 Clinical II* (A) 0-24-6
Practical application of IPPB and chest physiotherapy; also, to include airway management and emergency procedures. Prerequisite: 8641, 8602, 8603. Concurrent: 8611.

8643 Clinical III* (W)	0-8-2
Instruction and practical application of mechanical ventilation. Prerequisite: 8642, 8611, 8605. Concurrent: 8612, 8644.	
8644 Clinical IV* (W)	0-24-6
This clinical affiliation will allow the student to experience the practical application of skills presented during the previous three quarters. The student will be assigned to an accredited hospital to work 24 hours per week, and the student will have the responsibilities of a department member during this affiliation. Prerequisite: 8642, 8611, 8605. Concurrent: 8643, 8612.	
8681 Clinical Practice I* (SP)	0-12-6
An introduction in the clinical setting for the respiratory therapist. Practical application of oxygen and aerosol therapy and incentive spirometry, also to include maintenance and sterilization of equipment. Prerequisite: 8602. Concurrent: 8631, 8604.	
8682 Clinical Practice II* (SU)	0-12-6
Practical application of IPPB and chest physiotherapy. Also to include airway management and emergency procedures. Lab fee: \$20.00. Prerequisite: 8681, 8631, 8604. Concurrent: 8632, 8606, 8605.	
8683 Clinical Practice III* (A)	0-12-6
Instruction and practical application of mechanical ventilation. Clinical practice in the operation and maintenance of pulmonary function equipment and the drawing and analysis of blood gases. Lab fee: \$20.00. Prerequisite: 8682. Concurrent: 8633 & 8608.	
8684 Clinical Practice IV* (W)	0-12-6
A continuation of Clinical Practice III, with additional clinical rotations for pediatric respiratory care. Lab fee: \$20.00. Prerequisite: 8683, 8633, 8608. Concurrent: 8634.	
8685 Clinical Experience* (SP)	0-38-6
The clinical experience will allow the student to experience the practical application of the skills presented during the previous quarters. The student will be assigned to accredited hospitals to work 38 hours per week. During this clinical affiliation the student will gain experience needed to develop clinical judgment in preparation for employment. Prerequisite: 8684.	

Retail Management Technology

2901 Introduction to Retailing* (A,W,SP,SU)	4-0-4
Principles and methods of retail management, including organization policy making, and a survey of the functions of merchandising, sales promotion, finance and control, store operations and personnel. Lab fee: \$1.00.	
2902 Sales Promotion* (W)	4-0-4
A study of the various sales promotion activities, including advertising retail display and the coordination of an effective sales promotion program. Lab fee: \$1.00. Prerequisite: 3801, 3815, 2901.	
2904 Retail Store Operations and Control* (SU)	4-0-4
The operation and control of retail establishments: receiving stock, marking, warehousing, repair and alteration, delivery and customer service, maintenance, accounts payable and receivable, credit and collection, inventory control, auditing, cash and payroll and statistical analysis. Lab fee: \$1.00. Prerequisite: 3762.	
2913 Retail Buying I* (W)	5-0-5
A study of the nature, functions, and terminology of merchandising, merchandise information and decisions required in buying. Lab fee: \$2.00. Prerequisites: 2981, 2985.	
2914 Retail Buying II* (SU)	4-0-4
Buyer's methods of handling special merchandise and working with the other divisions within a retail organization. Lab fee: \$1.00. Prerequisite: 2951-2985.	
2981 Retail Internship I* (A,SP,SU)	0-25-4
Supervised on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: successful completion of first year curriculum.	
2982 Retail Internship II* (A,SP,SU)	0-25-4
A continuation of 2981. Prerequisite: 2981.	
2983 Retail Internship III* (A,SP,SU)	0-25-4
A continuation of 2982. Prerequisite: 2982.	

2985 Special Problems in Retailing I* (A,SP,SU)	0-6-2
The first of three courses in which the student applies his practical knowledge of retailing to specific areas on his job and submits reports to his coordinator-supervisor. Prerequisite: successful completion of first year curriculum.	
2986 Special Problems in Retailing II* (A,SP,SU)	0-6-2
A continuation of 2985. Prerequisite: 2985.	
2987 Special Problems in Retailing III* (A,SP,SU)	0-6-2
A continuation of 2986. Prerequisite: 2986.	

Secretarial Technology

3301 Business Grammar Review (A,W,SP,SU)	2-3-3
This course is a structured program of grammar review for business students. It is designed to assist the student to become skillful in word choice, punctuation, vocabulary, capitalization, number expression, and spelling, with particular emphasis on areas pertaining to the business office.	
3311 Accounting Basics (A,W,SP,SU)	3-2-4
This course is designed to provide students with a basic understanding of accounting principles and procedures including journalizing, posting, and statement preparation. Also included are banking, payroll, petty cash, and the typing of reports and financial statements. Lab fee: \$5.00.	
3314 Introduction to Information Management* (W,SP,SU)	2-3-3
This course is designed to provide knowledge of efficient handling of business records, filing methods and systems, and principles for the selection of records equipment and supplies.	
3325 Typing 1 (Keyboarding)* (A,W,SP,SU)	2-3-3
Introduction to the touch keyboarding system with emphasis on correct techniques. Development of speed and accuracy on keyboard operations. Lab fee: \$6.00.	
3328 Typing 2 (Production I)* (A,W,SP)	2-3-3
Application of keyboarding operations with emphasis on development of proficiency in letters, reports, tabulations, and business forms. Lab fee: \$6.00. Prerequisite: 3325.	
3329 Typing 3 (Production II)* (SP,SU)	2-3-3
Development of proficiency in the use of machine transcription equipment and further development of the student's ability to type letters, tabulations, reports, and other business forms. Lab fee: \$6.00. Prerequisite: 3328.	
3341 Shorthand (Beginning)* (A,W,SP)	3-2-4
A foundation course in shorthand theory with emphasis on phonetics, word families, brief forms and phrases, and penmanship. Practice for speed and accuracy. Lab fee: \$4.00.	
3342 Shorthand (Intermediate)* (W,SP,SU)	3-2-4
A course designed to perfect basic shorthand theory, with emphasis on phonetics, word families, brief forms and phrases, and penmanship. Practice for speed and accuracy. Introduction to typewritten transcription. Lab fee: \$4.00. Prerequisite: 3341.	
3343 Shorthand (Advanced)* (A,SP,SU)	3-2-4
A continuation of shorthand (intermediate) intended to build accuracy and speed. Shorthand theory in several technical areas. Development of typewritten transcription skill. Lab fee: \$4.00. Prerequisite: 3342.	
3355 Word Processing I* (A,W,SP,SU)	2-3-3
Introduction to blind, menu-driven, and command-driven text editing equipment and to word processing concepts. Lab fee: \$35.00. Prerequisite: 3329.	
3356 Word Processing II* (A,W,SP,SU)	2-3-3
In-depth experience on a selected type of word processing equipment. Lab fee: \$30.00. Prerequisite: 3355.	
3365 Office Simulation I* (W)	2-3-3
This is an on-campus work-experience program under simulated office conditions. Course provides development and refinement of office skills. Lab fee: \$12.00.	
3366 Office Simulation II* (SP)	2-8-5
This course is designed to approximate office conditions, standards, and secretarial functions. The student will perform business responsibilities in a simulated office setting. Students learn to work as an office team, set priorities, plan time, apply skills, and understand the office as an operating system. Lab fee: \$16.00.	

3374 Executive Office Procedures I* (A) 5-5-7
Development of skills pertaining to secretarial work to include a complete review of typing and transcription and an introduction to job seeking skills and office procedures. Lab fee: \$20.00. Prerequisite: 3343 & 3329.

3375 Executive Office Procedures II* (W) 5-5-7
Development of skills pertaining to secretarial work including typing and transcription, telephone usage, handling mail, composing correspondence, and assisting with travel and conference arrangements. Lab fee: \$20.00. Prerequisite: 3374.

3376 Executive Office Procedures III* (SP) 5-5-7
Continuation of executive secretarial skill development with emphasis on mailability of written, machine, and oral input. To receive credit for this course students must have also met the following minimum skill competencies: shorthand: 80 WPM 3 minute speed takes, passed twice with 12 or fewer errors. Typing: five-minute timings at a minimum speed of 60 WPM, passed twice with 5 or fewer errors. Lab fee: \$20.00. Prerequisite: 3375.

3378 Executive Secretarial Internship I* (W) 0-20-5
The student is placed in a secretarial position in a business that will provide application of as many phases of the theory taught in the secretarial science program as is practical for each individual. Students work four hours a day in an on-the-job experience supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3374.

3379 Executive Secretarial II* (SP) 0-20-5
A continuation of 3378. The student is placed in a secretarial position in business working four hours a day. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3378.

3384 Legal Office Procedures I* (A) 5-5-7
Introduction to skills peculiar to law offices and legal ethics; complete review of typing, shorthand, and transcription skills. Introduction to court systems, types of law, civil and criminal procedures, and applicable legal terminology. Lab fee: \$20.00. Prerequisite: 3343 & 3329.

3385 Legal Office Procedures II* (W) 5-5-7
Continuation of legal secretarial skill development; study of domestic relations, probate, corporate, bankruptcy, and real estate law and applicable terminology. Lab fee: \$20.00. Prerequisite: 3384.

3386 Legal Office Procedures III* (SP) 5-5-7
Continuation of legal secretarial skill development including grammar, vocabulary, and spelling; study of appellate procedures and appellate courts; study of legal filing, records management, timekeeping and billing procedures. To receive credit for this course students must have also met the following minimum skill competencies: shorthand: 80 WPM 3 minute speed takes, passed twice with 12 or fewer errors. Typing: five-minute timings at a minimum speed of 60 WPM, passed twice with 5 or fewer errors. Lab fee: \$20.00. Prerequisite: 3385.

3388 Legal Secretarial Internship I* (W) 0-20-5
The student is placed in a secretarial position working four hours a day. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3384.

3389 Legal Secretarial Internship II* (SP) 0-20-5
A continuation of 3388 Secretarial Internship I. The student is placed in a secretarial position working four hours a day. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3388.

3394 Medical Office Procedures I* (A) 5-5-7
Development of skills pertaining to work as a medical secretary to include a review of typing, shorthand, machine transcription, and proofreading. Also to include medicolegal responsibilities, receptionist duties, telephone procedures, appointment scheduling, job-seeking skills, and medical terminology. Lab fee: \$20.00. Prerequisite: 3343 & 3329.

3395 Medical Office Procedures II* (W) 5-5-7
Continuation of skill development pertaining to work as a medical secretary to include typing, shorthand, machine transcription, and proofreading. Also to include patient records, professional reports, filing, office maintenance and management, medical communications, mail processing, medical terminology, and medical reports transcribed on word processing equipment. Lab fee: \$20.00. Prerequisite: 3394.

3396 Medical Office Procedures III* (SP) 5-5-7
Continuation of skill development pertaining to work as a medical secretary to include typing, shorthand, transcription, and proofreading. Also to include health insurance records; travel arrangements; drugs and prescriptions; fees, credit, and collection; payroll, banking, and bookkeeping procedures; medical

terminology; and medical reports transcribed on word processing equipment. To receive credit for this course students must have also met the following minimum skill competencies: shorthand: 80 WPM 3 minute speed takes, passed twice with 12 or fewer errors. Typing: five-minute timings at a minimum speed of 60 WPM, passed twice with 5 or fewer errors. Lab fee: \$20.00. Prerequisite: 3395.

3398 Medical Secretarial Internship I* (W) 0-20-5
The student is placed in a secretarial position working four hours a day. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3394.

3399 Medical Secretarial Internship II* (SP) 0-20-5
A continuation of 3398. The student is placed in a secretarial position working four hours a day. The on-the-job experience is supervised by an internship coordinator to aid in the student's growth and development. Prerequisite: 3398.

Social Services Technology

7503 Family Planning Services* (W) 3-0-3
Instruction in the broad lines of family planning with special emphasis on development of resource personnel and resource information and the giving of immediate help to families who seem to present immediate problems. Lab fee: \$2.00.

7504 Case Work Practices* (A,SU) 3-0-3
A study of the varying and most appropriate methods by which the social worker investigates problem situations. Case studies and practicums in the areas of personal problems and family maladjustments. Studies of local casework agencies. Lab fee: \$2.00.

7505 Categorical Disabilities* (W) 3-0-3
A study of the many areas of disabilities as they may affect individuals of all ages. Research into the causation of psychological, social and physical trauma; extent of manifestations within the general population; and examination of available services for those so afflicted. Lab fee: \$2.00.

7506 Mental Hygiene Services* (SP) 3-0-3
Recognition and early identification of mental hygiene problems with special emphasis on general counseling aids and ways of transmitting the information to appropriate mental health resources for early intervention. Lab fee: \$2.00.

7508 Family Ecology* (A,SU) 3-0-3
Family ecology views the family as an ecosystem and examines its interrelationships with the environment (biophysical, psychosocial, and technological) through the decision-making process. Emphasis is placed on family organization, family members, and their roles. Lab fee: \$2.00.

7509 Family Health Care* (A) 3-0-3
An introduction of the family in relation to wellness, illness, and prevailing treatment, the health care delivery system, health care providers, the methods for planning long range preventative care, and the social worker as a member of the health care delivery system. Lab fee: \$2.00.

7512 Concepts of Counseling* (W,SU) 3-0-3
An introduction to the field of counseling. A broad approach which involves how best to advise others to deal with their problems. Areas include health, education, economic, and social approaches. Lab fee: \$2.00.

7513 Family Counseling* (SP) 3-0-3
An in-depth approach on how to advise families to deal with specific problems. Students use resource materials to counsel actual families. A special emphasis on how one gains specific information to meet emergent needs: how to put this into action. Lab fee: \$2.00. Prerequisite: 7512.

7515 Case Recording* (W,SU) 3-0-3
Exercise with and study of agency forms currently in use. Practice in the use of recording equipment. Lab fee: \$2.00. Prerequisite: 7504.

7516 Current Issues In Social Services* (SP) 2-0-2
A seminar course which includes an introduction on how events become social issues, recognition of these issues, and assessing probable impact upon client system. Lab fee: \$2.00.

7517 Aid-In-Crisis* (W) 3-0-3
Course designed to acquaint the student with practical and innovative strategies of crisis intervention required for the social service occupations. Areas covered are personal trauma, legal jeopardy, property conservation and techniques on how to assist families experiencing life threatening events. Lab fee: \$2.00.

7518 Basic Food Facts* (W,SP) 3-0-3
This course is designed to present basic food facts with a consideration of nutritional needs for different age groups. Emphasis is placed on the importance of nutrition to total health. Planning and purchasing techniques to provide nutritionally adequate diets on low to moderate incomes are included. Lab fee: \$2.00.

7519 Family Spending* (SP) 3-0-3
A course designed to acquaint students with the problems of budgeting and spending the family income. Areas covered are planning, buying, borrowing, sharing and protecting. Lab fee: \$2.00.

7521 Interview Techniques* (A,SU) 3-0-3
How to interview, how to effectively use listening skills in gaining specific information, how to ask questions, how to observe, how to gain rapport and confidence in the families being contacted. Lab fee: \$2.00.

7522 Introduction to Social Work and Social Welfare* (A,SU) 3-0-3
A basic orientation course for the total program, designed to introduce students to the field of social welfare, to prepare them for future social work courses, and to provide the framework for working with people and arriving at policy decisions. Lab fee: \$2.00.

7523 Theories and Treatment Methods In Social Work* (A,SU) 3-0-3
A course designed to introduce to the advanced student the basic essentials of theoretical approaches required for the understanding of social work practice and its many treatment modalities. Lab fee: \$2.00.

7524 Basic Gerontology* (A,SP) 3-0-3
This course is designed as a general introduction to the field of aging. Students will acquire knowledge of the aging process and its consequent problems both with respect to their personal concerns as well as to their vocational interests. Lab fee: \$2.00.

7525 Health Needs of the Elderly* (W) 3-0-3
An examination and study of the health needs that arise in connection with the aging process; illnesses and diseases connected with the aging process; programs and facilities available for health care of the aged. Lab fee: \$2.00. Prerequisite: 7524.

7526 Legal, Housing, and Recreation Needs of the Elderly (SP) 3-0-3
A course designed to study the laws which are of significance to elderly citizens. A look at the housing situation and recreation facilities and programs available to the aged. Lab fee: \$2.00.

7527 Therapeutic Recreation for the Elderly* (A,SP) 4-0-4
A survey course which includes an introduction to the philosophy of recreation; play and leisure; principles of program planning, assessment and documentation; activity modification; specific disabilities; volunteerism and community resources; budgeting. Lab fee: \$2.00.

7533-34 Field Experience Seminars III, IV* (A,W,SP,SU) 1-0-1
Group discussions of experiences arising during field experience. Integration of theory and practice. Individual reports. These seminars run concurrently with social services field experience III, IV. Prerequisite: third quarter standing and/or 30 qtr. hrs. Concurrent: 7583, 7584.

7541 CDA Overview and Physical Environment* (A,W,SP,SU) 4-0-4
This course provides an overview of the CDA credentialing procedure and a description of the courses offered by CTI to assist the CDA candidate meet the competencies established by the CDA consortium. The course also discusses planning, organizing, and arranging the physical environment for optimal use by the children and staff. It also studies health, safety, and nutrition within the child-care center. This course requires an internship. Must have: access to child-care center for 3 to 5 year-old children in a group setting. Lab fee: \$10.00.

7542 Cognitive, Language, and Motor Activities Development* (W) 4-3-5
Theoretical foundations for child development in cognitive, language, and motor skills will be provided. Various programs, materials, equipment, and instructional approaches to use in facilitating child growth will be examined and experimented within the center setting. Students will be directed in the development of their own materials, equipment, instructional approaches to reach self-selected objectives which will enable them to demonstrate the necessary competence in the center to achieve the CDA competencies identified. The instructor will evaluate the curriculum and instruction in action in the center and provide feedback for improvement. Must have: full-time or part-time work in day-care center or access to one. Lab fee: \$10.00. Prerequisite: 7541.

7543 Fine Arts, Science, Social Studies Activities Development* (SP) 5-0-5
The course will build on the foundations of 7546 in terms of cognitive learning and appropriate methods of teaching children aged 3 to 5. Materials will be examined for science and social studies curriculum and development; materials and activities will be developed and demonstrated. Basic musical, artistic, and

dramatic play principles will be explored, demonstrated, and practiced in the classroom by the CDA candidates. They will also develop appropriate materials, objectives, and experiences for these areas and will demonstrate them in their day care centers. Must have: full or part-time work in a day-care center or access to one. 7546 or demonstrated competence in its CDA competencies. Lab fee: \$10.00.

7544 Self-Concept and the Individual Child* (W) 4-0-4
Instruction, training, and experience in individualizing an early childhood program to meet the needs of the children in a manner which develops a positive self-concept and individual strength. Proficiency in the recognition of the need to make a referral to a community resource to assist with the normal developmental stresses or the development of a program for a special-need child. Recognizing the value of play and play therapy for the young child. Must have: access to a child-care center. Lab fee: \$10.00. Prerequisite: 7541.

7545 Managing Children In Groups* (SP) 4-0-4
This course deals with group management and the planning and implementation of the daily schedule in a child-care center. Emphasis is placed on social development, encouraging children and adults to work together, sharing both experiences and responsibilities in a social atmosphere where children may express both positive and negative feelings. The course also discusses the management of the child-care center to facilitate establishment of a system of limits, regulations, and rules for both children and adults. Must have: access to a child-care center for children aged 3 to 5 in a group setting. Lab fee: \$10.00. Prerequisite: 7541.

7546 Parent Involvement-Child Care* (A) 4-0-4
Instruction, training, and experience in working effectively with parents of children aged 3 to 5. Proficiency in involving parents in the center according to how they view their parenting role, their cultural heritage, and skills they possess from their professional life. Must have: access to a child-care center for children aged 3 to 5 in a group setting. Lab fee: \$10.00. Prerequisite: 7541.

7547 Child-Care Administration* (SP) 4-0-4
Instruction, training, and experience in the supervisory roles required to administer a school for young children. Becoming proficient in planning for the child, the program, the staff, parents and community involvement. Lab fee: \$10.00.

7583-7586 Social Services Field Experience III, IV* (A,W,SP,SU) 0-9-3
7585-7586 Social Services Field Experience V, VI* (A,W,SP,SU) 0-12-4
These courses involve the student in applying his classroom studies in the field. Students are accepted by local social service agency administrators and supervisors on a part-time volunteer basis. These professionals guide and evaluate the student performance. Lab fee: \$5.00. Prerequisite: 3rd quarter standing. Concurrent: 7533-7536.

Welding Technology

4701 Blueprint Reading 2-2-3
Designed to review such fundamental principles of drawing interpretation as may be required by the lay-out welder and set-up man. To accomplish this objective, basic lines and their functions are studied. Basic views as illustrated by orthographic projection are considered. Other views such as full and half sections, cut away sections, notes, specifications and dimensions are presented with additional supplementary drawings and assembly prints.

4703 Welding Fabrication I* 2-4-4
Presents the theories and practices in developing and/or interpreting working drawings of steel fabrication and construction design considerations. Presentation and operation of metal fabrication equipment, preparing a bill of material ready for assembly as per specifications, using mild steel sheet and plate. Lab fee: \$25.00.

4704 Welding Fabrication II* 2-4-4
Directs the theory and understanding in the field of structural steel construction. The course provides typical arc-welded joints such as butt, lap, joint, groove, fillet, gusseting utilizing flat, horizontal and over head welding applications. Lab fee: \$25.00.

4721 Oxyacetylene Fuel Welding & Cutting* 3-6-5
Classroom theory and manipulative welding skills are developed in the use of "open flame" welding concepts. Typical operations such as bead, butt, lap and fillet welds are performed. Instruction is also given in manual and machine oxyacetylene cutting of mild steel. Lab fee: \$25.00.

- 4722 Fundamental Arc Welding** 3-6-5
Instruction in the processes of shielded metal arc welding. The student develops fundamental understanding and skill in the safe use of manual arc welding equipment. Typical operations such as bead, butt, lap, and fillet welding are performed, using mild steel plate in the flat and horizontal positions. Lab fee: \$25.00.
- 4723 General Arc Welding** 3-6-5
Continuing theory and instruction in the shielded metal-arc processes. More emphasis on procedures governing a quality weld in verticals up and down plus introduction to overhead applications. Lab fee: \$25.00.
- 4724 Advanced Arc Welding*** 3-6-5
Advanced practical welding instruction is offered to develop skills in welding steel plates in all positions. Additional skills are developed in cutting and preparing steel plates for single vee-groove, butt, fillet and groove welds using stringer and weave beads. Typical test plates are cut, beveled and welded, then tested in the metals testing lab to meet certification test procedures and standards that apply. Lab fee: \$25.00.
- 4725 Gas Metal Arc Welding (Mig)*** 1-4-3
Instruction and manipulative welding skill is developed using semi-automatic arc welding gun feeding using coiled wire, and using CO₂ and argon as a gaseous shield. A general coverage of basic service and maintenance concepts are stressed relating to the equipment. Lab fee: \$25.00.
- 4726 Inert Gas Welding (Tig)*** 3-6-5
Student is introduced to the tungsten inert gas welding concept. The student will weld, using ferrous and nonferrous materials utilizing mild steel carbon steel and light aluminum. A general coverage of some of the basic service and maintenance problems peculiar to the equipment is also presented as well as the technical concepts. Lab fee: \$25.00. Prerequisite: 4721.
- 4727 Advanced Inert Gas Welding (Tig)*** 1-6-3
Advanced welding instruction with inert gas is offered to develop student's skills in inert gas welding. Students will develop their skills in welding pipe, ferrous and nonferrous materials in all positions. Lab fee: \$25.00. Prerequisite: 4726.
- 4731 General Metals*** 2-2-3
A review of ferrous and non-ferrous metals normally found in the metal removal and metal joining trades. A study of the various cast iron, cast steel, wrought iron, mild and alloy steels plus common aluminum and stainless steels. Provides a better understanding of the physical properties and classifications.
- 4732 Electrical Principles** 2-3-3
A course presenting understanding of the electrical equipment the student is using, covering the interior controlling devices, resistance, capacitances, electromagnetism, AC-DC series and parallel circuit analysis and power distribution. Lab fee: \$3.00.
- 4733 Sheet Metal Layout*** 2-2-3
Offers the fundamentals of typical drafting for sheet metal parts. Students are instructed how to use calculated dimensions for flat sheet metal, necessary in the fabrication of welded parts. Formed, sheet metal parts are developed as flat patterns prior to bending, folding or forming. Lab fee: \$10.00. Prerequisite: 4701.
- 4734 Welding Codes/Quality Assurance*** 2-4-4
Classroom instruction in understanding the general specifications and or standards of most common (AWS) American Welding Society, (API) American Pipe Institute, (ASME) American Society of Mechanical Engineers codes. Also includes welding terminology used in industry. A study of concept and principals of inspection practices and procedures in destructive and nondestructive testing, visual, ultrasonic, radiographic, guidebend, tensile, dye penetrant and other quality assurance applications used in the welding field today. Lab fee: \$15.00.
- 4744 Safety Standards for Welders*** 2-2-3
Covers the ever present dangers that are encountered by the welder in industry today, the steps to eliminate these hazards, and the part the welder plays in the industry.
- 4745 All Purpose Welding Qualification*** 3-6-5
This is a skill training course consisting of additional welding experiences offering the student the opportunity to become proficient and qualified to pass the (AWS) American Welding Society minimum operation qualification, in accordance with the AWS b3.0-77 test. Welding is directed to beveled butt joints in the flat, vertical, horizontal and overhead positions using $\frac{1}{8}$ to $\frac{1}{4}$ " coupons, using shielded arc processes only. Lab fee: \$25.00.
- 4746 Special Project*** 1-4-3
A project will be selected by the student and the instructor. Research and understanding of new welding practices, equipment and techniques that are rapidly being developed and expanded will be completed and a term paper presented.



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