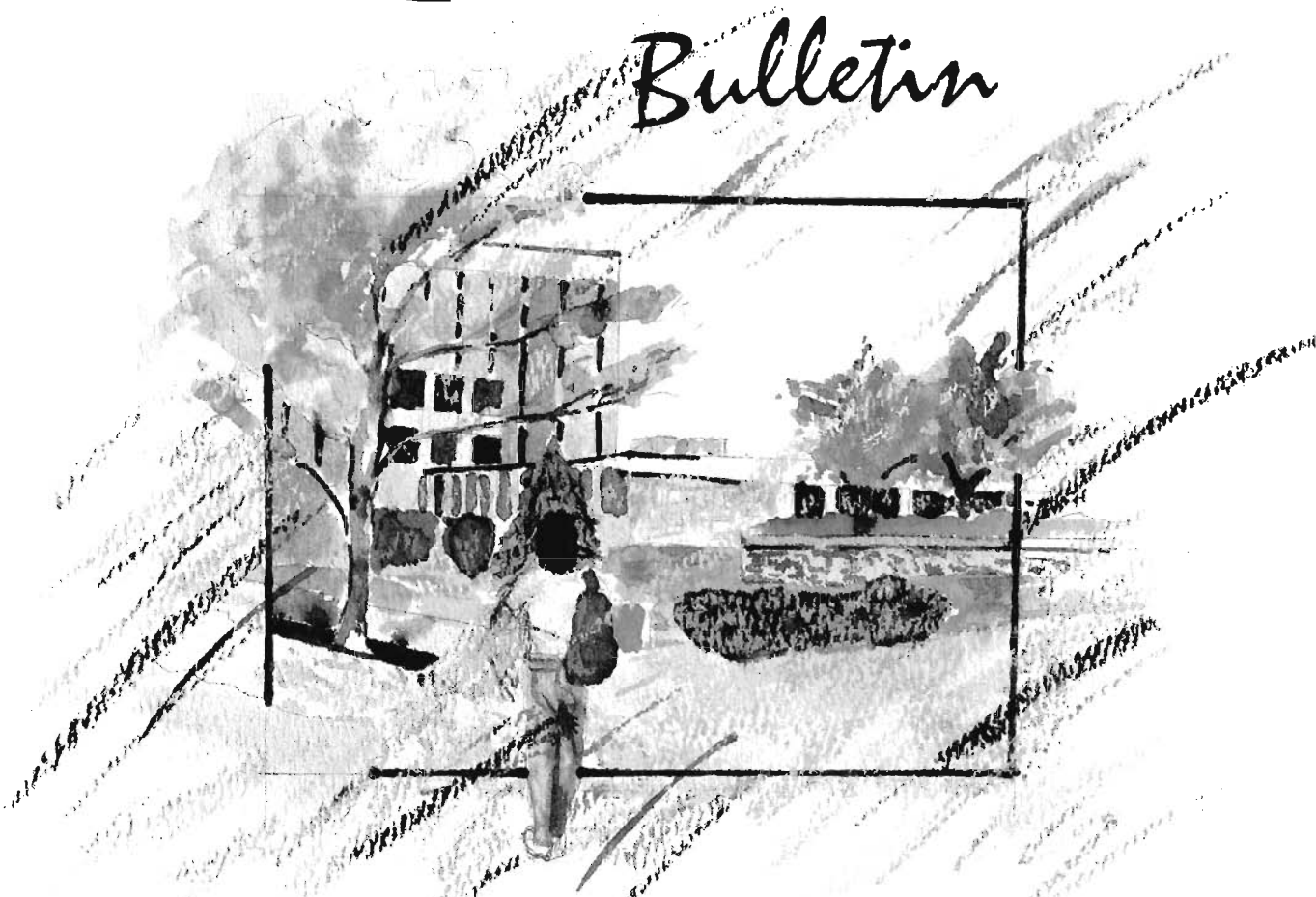


Bulletin



1987-88

General Information/Programs of Study
Course Descriptions



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: \$1.00 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: \$1.00 Prerequisite: 3703
- 3712 Accounting Machines and Systems* (SP,SU)** 2-5-5
An introduction to systems fundamentals including flowcharting and internal control. A comprehensive application of accounting principles studied in 3731 and 3732 using microcomputers. Lab fee: \$12.00 Prerequisite: 3713 and 3732
- 3713 Data Processing for Accountants* (W,SP)** 2-4-4
A survey of software packages most often used by accountants. Practice using lotus spreadsheet software on microcomputers. Lab fee: \$12.00 Prerequisite: 2782
- 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: \$1.00 Prerequisite: 3733
- 3716 Auditing* (SP,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 Financial Statement Analysis I* (A,SU)** 2-3-3
Forms of business organization; sources and management of working capital; tools of analysis, percentages, of working capital; tools of analysis, percentages, comparisons - past performance, industry standards; basic ratios including working capital. Lab fee: \$1.00 Prerequisite: 3733
- 3725 Financial Statement Analysis II* (W,SU)** 2-3-3
A continuation of 3723, ratios of equity, return on equity and return on assets; corporate securities; financing through securities; sources and management of long-term assets, debt, and equity including capital budgeting; expansion and combinations, reorganization, receivership and dissolution. Lab fee: \$1.00 Prerequisite: 3723
- 3731 Principles of Accounting I* (A,W)** 5-0-5
An introductory course in accounting. Course emphasis is on: 1) the accounting cycle as applied to a service organization; 2) adaptations in accounting for a merchandising concern, and 3) recording through use of specialized journals.
- 3732 Principles of Accounting II* (W,SP)** 5-0-5
A continuation of principles of accounting I. Course emphasis is on problems related to cost aggregate assets, current liabilities and payroll. This course also begins to introduce the accounting concepts of partnership business organizations. 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 stockholder's equity sections). A major portion of this course is devoted to the analysis and interpretation of accounting information enabling management to plan their organization's financial destiny. Prerequisite: 3732
- 3735 State and Local Taxation* (SP,SU)** 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: \$2.00 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: \$2.00 Prerequisite: 3733
- 3745 Advanced Accounting* (SP)** 3-3-4
Covers series of advanced topics such as partnership accounting, branch account-

ing, 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: \$5.00 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
A structured employment situation in which the student is introduced into an actual accounting office. The student is expected to perform many of the accounting procedures studied in conjunction with their other classes (I.E. - bank reconciliations, payroll, journal entries, etc.) and to gain relevant experience and a limited work record. Weekly supervision of the intern is used to solve any job-related problems and to attempt to develop a sense of responsibility and a professional attitude within the student/intern. Prerequisite: 3703 Concurrent: 3753
- 3753 Internship Seminar* (A,W,SP,SU)** 2-0-2
A practical work experience in which the student is expected to perform several operational auditing procedures (i.E. - flowcharts, organization charts, analysis of existing internal control, recommendations, etc.) related to an accounting internship position. Emphasis is placed upon analyzing and further understanding the students' working environment. 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: \$1.00
- 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: \$1.00 Prerequisite: 3731 or 3762
- ## Animal Health Technology
- 8902 Animal Health Technology I* (A)** 4-2-5
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: \$60.00
- 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 food animal species. Prerequisite: 8986
- 8908 Animal Parasitology* (W)** 2-2-3
An introduction to the common internal and external parasites of domestic ani-

mals including scientific nomenclature, life cycles, common methods of identification and the treatment and/or prevention of these parasites. Lab fee: \$60.00 Prerequisite: 1331

8909 Client Relations* (A) 2-0-2
Exploration of the procedures used in veterinary practices, in client and public relations, including office procedures and computers. Prerequisite: admission Concurrent: 8902

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: 1332

8917 Clinical Procedures II (radiology)* (W) 2-0-2
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: 1331

8918 Clinical Procedures III (Pharmacology)* (W) 3-2-4
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. Prerequisite: 1181

8919 Clinical Procedures IV (Anesthesiology)* (SP) 4-0-4
Study of systemic and inhalation anesthetic agents, premedication agents, ventilators, respirators and monitoring equipment. Emergency drugs and preanesthetic physical. Prerequisite: 1332

8926 Clinical Laboratory I* (SP,SU) 3-6-6
Course designed to teach procedures required to perform a complete blood count. Students use hemocytometer, pipet, centrifuge and spectrophotometer. Emphasis on the differential white blood cell counts including abnormal and immature red blood cells and white blood cells. Most other tests performed in a clinical hematology laboratory are presented. Prerequisite: 1332

8927 Clinical Laboratory II* (A,W) 3-6-6
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, 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. Serologic procedures, identification of brucellosis by antigen/antibody detection. 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 venipuncture and injection. Lab fee: \$60.00 Prerequisite: 1332

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: \$60.00 Prerequisite: 8986

8986 Clinical Experience I* (SU,A) 0-30-6
Practical experiences in techniques used in veterinary medicine. Students are assigned to veterinary facilities: the Veterinary Teaching Hospital in the College of Veterinary Medicine at The Ohio State University, and other facilities including research, private practices and the Zoo. Lab fee: \$60.00 Prerequisite: 27 technical credits.

8987 Clinical Experience II* (W,SP) 0-30-6
Continuation of 8986. Lab fee: \$60.00 Prerequisite: all 89xx courses

8991 Clinical Seminar I* (SU,A) 0-2-1
Course conducted seminar style to discuss issues relating to clinical experience including euthanasia, problem solving models and change strategies. Prerequisite: 8919 Concurrent: 8986

8992 Clinical Seminar II* (W & SP) 0-2-1
Continuation of course 8991 seminar course to address issues emanating from clinical experience. Strategies for job hunting. Simulation interviews with veterinarians. Prerequisite: 8986 Concurrent: 8987

Architecture Technology

5112 Finish Materials/Installation (A,SP) 2-4-4
This course is intended to follow basic construction materials (5072 and expose the student to those materials which are specifically associated with the construction of buildings. Topics covered include interior finishes, window and door openings, moisture and thermal protection, acoustical treatments, and mechanical conveyance systems. Lab fee: \$15.00 Prerequisite: 5072

5114 Mechanical Systems (HVAC)* (A,SP) 2-2-3
This course identifies the elements that affect the comfort of interior spaces. It stresses the fundamentals of comfort conditioning, heat loss and heat gain calculations, methods of heating, ventilation and air conditioning. The student will learn how to incorporate the necessary elements of HVAC into the building envelope. Lab fee: \$15.00 Prerequisite: 5142, 5074

5115 Mechanical Systems (electrical)* (W,SU) 2-2-3
This course deals with the fundamentals of light and lighting in buildings. Essentials of electrical code, electrical systems and standards. Conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, and fixture and equipment schedules. Lab fee: \$15.00 Prerequisite: 5142, 5074,

5116 Mechanical Systems (plumbing)* (SP,A) 2-2-3
This course emphasizes water supply and sanitation. Deals with plumbing codes, standards, equipment, and techniques. Conventional symbols, nomenclature, details, schedules and other representation on drawings. Lab fee: \$15.00 Prerequisite: 5142, 5074

5122 Structural Systems* (wood) (A,W,SU) 1-5-3
This course involves the structural design and detailing of various systems used in wood construction, including conventional light framing, post and beam, trusses, and various plywood panel systems. Additional topics discussed include installation, insulation and protection of wood structures. Lab fee: \$15.00 Prerequisite: 1111 or 1146

5127 Building Construction Standards* (A,SP) 3-2-4
This course familiarizes the student with building codes and regulations. It introduces the student to office practices and standards and deals with contractual relationships within the building industry. The course also identifies fundamentals of specification organization and their relationship to other contract documents. Lab fee: \$15.00 Prerequisite: 5072, 5074

5135 Field Co-op Experience (SU) 0-40-4
Off campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. "N" credit will not be allowed for this course. Permission of instructor will be required. Lab fee: \$25.00 Prerequisite: 5236

5142 Architectural Graphics I (W,SU) 2-6-4
This course follows construction basic drafting with the emphasis on advanced orthographic projection and basic descriptive geometry as found in the construction of buildings. Problems are designed to develop the students ability to think three dimensionally and solve problems involving the intersection of surfaces and lines. Computer aided drafting (CAD) is also used. Lab fee: \$15.00 Prerequisite: 5071

5143 Architectural Graphics II* (A,SP) 2-8-5
This course introduces the student to basic free hand line drawing techniques used in the architect's office. The student is briefly introduced to shades and shadows and learns how to construct one and two point perspectives. The student then applies his knowledge and prepares a set of architectural presentation drawings. Lab fee: \$15.00 Prerequisite: 5071, 5142

5144 Architectural Graphics III* (W,SU) 1-9-4
This course deals with the generation of selected schedules and details utilized by trade mechanics in multiple material construction of walls, floors, roofs, stairs, windows and doors. It will introduce the student to working drawing organization and the coordination of details with the rest of the drawings and specifications. Lab fee: \$15.00 Prerequisite: 5122, 5143, 5023, 5024

5145 Architectural Graphics IV* (SP,A) 1-11-5
This course uses all of the knowledge obtained from the previous architectural courses. A complete set of working drawings is created as a team effort. The student learns to incorporate consultant information in the final set of working drawings. Independent search for and use of information is encouraged. Lab fee: \$25.00 Prerequisite: 5144

5181 Architectural History (W,SU) 2-2-3
This course will review the theories and material representations architects used to express evolutionary techniques from approximately 1600 ad to the present. Manual drafting exercises will be used to emphasize important advances. Lab fee: \$10.00 Prerequisite: 5071

5184 Architecture Spec Writing* (A, W, SP, SU) 1-5-3
 This course will cover manual and computer exercises in creating building specifications, along with explaining the proper organization standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI standards. Lab fee: \$15.00 Prerequisites: 5075, 5127

Army ROTC

0911 Introduction to Military Establishment 0-3-1
 A comprehensive study of the organization, mission and role of the military establishment, the U.S. Army components and the ROTC program. The course will also include a survey of basic fundamentals of first aid.

0912 Land Navigation 0-3-1
 A study of military maps and land navigation techniques including terrain evaluation, scale and distance, and direction and location. The course will also include the basic principles of drill and ceremonies.

0913 Military Basic Leadership (modern) 0-3-1
 Examination and application of fundamentals of rifle marksmanship. 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 American military history from World War II to Vietnam. The principles of war and law of war. Study of US/Soviet policy on use of nuclear, biological or chemical weapons (first strike).

0922 American Military History I 0-3-1
 Survey of American military history; illustrated by selected campaigns and battles. History from the colonial period to the Civil War with special emphasis on organization, tactics, technology, campaigns, battles and commanders.

0923 American Military History II 0-3-1
 Survey of American military history from the Civil War to World War I. Illustrated by special emphasis on organization, tactics, technology, campaigns, battles and commanders.

0924 Military Leadership 2-3-3
 A study of behavioral patterns and managerial methods applied to the military environment. The course will also include a survey of basic soldier skills and radio/wire communications. Lab: squad and platoon drill and physical training, and field training Exercise.

0925 Military Skills Training 2-3-3
 An in-depth review in map reading to include practical exercises in a field environment. Also discussion of preventive medicine and first aid. Lab: squad and platoon drill and physical training, and field training Exercise

0926 Military Tactics 2-3-3
 An in-depth 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 personnel on conduct, job performance, and disciplinary matters. Management simulation program and writing in the military to include decision papers. Lab: physical training, staff meetings and field training exercises.

Automotive Maintenance Technology

4101 Introduction to Automotive Technology* (A, W, SP, SU) 4-4-6
 Covers basic maintenance operations on cars and light trucks. The instructor demonstrates all repair techniques, adjustments and performs the necessary labor operations using approved procedures and tools. This course is a prerequisite for all other automotive courses. Lab fee: \$15.00

4106 Shop Experience* (SP, SU) 1-8-4
 Automotive service and troubleshooting, proper shop procedures, diagnosis and service techniques, new car preparation and eight A.S.E. Exam reviews are covered. Lab fee: \$15.00

4109 Automotive Electricity I* (A, W, SP, SU) 2-4-4
 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: 4101

4111 Brake Systems* (A, W, SP, SU) 2-6-4
 Course covers basic brake system fundamentals. Includes the theory, testing, and service of current brake systems. Lab fee: \$15.00 Prerequisite: 4101

4112 Automotive Powerplants I* (A, W, SP, SU) 2-4-4
 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 specification interpretation. Lab fee: \$10.00 Prerequisite: 4101

4117 Steering and Suspension Systems* (A, W, SP, SU) 2-6-4
 Course covers basic suspension and steering systems. Course includes front alignment on two and four wheel alignment machines, and theory, testing and service of the systems. Lab fee: \$15.00 Prerequisite: 4101

4125 Automotive Electricity II* (A, W, SP, SU) 2-4-4
 Course covers inspection, diagnosis, and service of automotive starting systems, charging systems, accessory circuits and systems diagnosis. Prerequisite: 4109

4126 Automotive Electronics Applications* (A, W, SP, SU) 2-4-4
 An advanced electrical course designed to provide students with a knowledge of vacuum and electrical components, circuits, and diagrams; includes the testing and service of automotive computer systems. Prerequisite: 4109

4127 Fuel and Ignition Systems* (A, W, SP, SU) 3-3-4
 Course designed to provide students with a working knowledge in the area of fuel and ignition systems; including electronic ignition and fuel injection, also procedures for performing a maintenance tune-up are covered. Lab fee: \$10.00

4128 Engine Diagnostics* (A, W, SP, SU) 2-5-4
 An advanced course designed to provide diagnostic skills in the areas of fuel, air, and ignition systems; includes emission control systems and the proper use and interpretation of diagnostic equipment. Lab fee: \$5.00 Prerequisites: 4127

4129 Detailed Engine Diagnostics* (W, SP, SU) 3-5-5
 Course designed to provide students with a working knowledge in the area of detailed engine diagnostics. Including fuel, injection and computer systems. Lab fee: \$10.00 Prerequisite: 4128

4134 Manual Drivetrains* (A, W, SP, SU) 2-4-4
 Practical experience in diagnosing and repairing manual transmissions, transaxles, and rear axles. Includes theory and service procedures for clutch, driveshaft, and drive axles. Lab fee: \$10.00 prerequisites: 4101

4135 Automatic Transmissions I* (A, W, SP, SU) 2-4-4
 Course designed to provide students with a knowledge and skill in automatic transmission and transaxles; includes diagnostics and light repair procedures. Lab fee: \$15.00 Prerequisite: 4134

4136 Automatic Transmissions II* (W, SP, SU) 3-6-5
 An advanced course in automatic transmission and transaxle diagnostics, major overhaul and design. Lab fee: \$15.00 Prerequisite: 4135

4143 Engine Machining* (A, SP, SU) 2-6-5
 An advanced course designed to provide students with basic knowledge and skill in automotive machine shop procedures with emphasis on valve face and seat grinding, cylinder boring and honing, align boring, and inspection and service to all parts of the internal combustion engine. Lab fee: \$25.00 Prerequisite: 4112

4144 Air Conditioning* (A, W, SP, SU) 2-3-3
 Course covering the theory and operation of automotive air conditioning systems. Diagnosis, charging and minor service techniques are also included. Lab fee: \$15.00 Prerequisite: 4101

4145 Parts and Service Management* (A, W, SP, SU) 3-2-4
 An automotive management course covering those management fields that are uniquely applied in the automotive service and parts industry. Prerequisite: 4101

4191 Special Topics in Auto Tech* I (On Demand) 1-0-1

4192 Special Topics in Auto Tech* II (On Demand) 1-3-2

4193 Special Topics in Auto Tech* III (On Demand) 1-6-3

4195 Special Topics in Auto Tech* V (On Demand) 2-7-5

Special topics in automotive technology is a series of courses specifically designed to meet the needs of a constantly changing automotive service and parts industry. Courses will be designed for a particular purpose and/or group and will have the approval of the department chairperson. Up to five credits of special course work may be applied to degree. Lab fee: \$10.00 Prerequisite: permission of instructor.

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, conditioning 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. Selecting 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, 2505

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 systems. Heating and pressurization, oxygen systems. Lab fee: \$8.00 Prerequisites: 2501, 2553

2509 Aircraft Fluid Systems* (A,W,SP,SU) 8-9-11
Hydraulic and pneumatic principles. Basic hydraulic systems, brake systems, landing gear, and steering systems. Aircraft fuel systems. Inspection, troubleshooting and repair. Lab fee: \$8.00 Prerequisites: 2506, 2508, 2557

2511 Aircraft Rigging, Assembly and Inspection* (A,W,SP,SU) 2-6-5
Aircraft rigging and flight control nomenclature. Fundamentals and methods of rigging, disassembly and reassembly procedure. Flight control, inspection, troubleshooting and repair. Landing gear; types, rigging and inspection. Fuel system inspection. Airframe 100 hour and annual inspection. FAA report forms. Helicopter theory of flight and maintenance. Lab fee: \$8.00 prerequisites: 2506, 2508, 2557

2512 Powerplant Theory and Maintenance (reciprocating Engines)* (A,W,SP,SU) 7-12-11
The 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, and maintenance. Hazards of aircraft engine operation. Lubrication systems. Lab fee: \$8.00 prerequisites: 2501, 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, 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, 2553

2515 Carburetion and Fuel Controls*(A,W,SP,SU) 4-6-6
Theory, construction, operation, maintenance, overhaul and troubleshooting of float, pressure, and injection type carburetors. The theory, construction, operation, maintenance and troubleshooting jet engine fuel controls, engine supercharging and induction systems. Lab fee: \$8.00 prerequisites: 2501, 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, 2515

2517 Powerplant and Systems Inspection*(A,W,SP,SU) 6-8-9
Condensation and coordination of previously accumulated knowledge. Inspec-

tion 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, 2515

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. Direct current motors and alternating current motors. Lab fee: \$8.00 Prerequisite: 2501

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

Biological and Physical Sciences

1301-1306 Special Topics in Biological and Physical Sciences 1-6
(On Demand) 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 Elementary Chemistry I (A,W,SP,SU) 4-3-5
An introductory course in fundamental chemical concepts and laboratory techniques. Topics include atomic structure, periodic classification of elements, stoichiometry, solutions, acids and bases, pH and buffers, the gas laws, chemical equilibrium, and nuclear chemistry. Lab fee: \$4.00 Prerequisite: 1341 or 1345 or equivalent; 1105 or equivalent; placement into 1002 and 1815. Not open to students with credit for 1371, 1372, or 1373. This course and 1312 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the as degree.

1312 Elementary Chemistry II (A,SP) 4-3-5
A course in fundamental organic chemistry and laboratory techniques. The study of carbon compounds organized according to functional groups and including carbohydrate, lipids, proteins, enzymes, and vitamins. Emphasis is placed on physiological function. Lab fee: \$4.00 Prerequisite: 1311

1313 General and Biological Chemistry (A,W,SP,SU) 4-3-5
A review of general 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. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisite: 1341 or 1345 or equivalent; placement into 1812. Not open to students with credit for 1312.

1314 General Biology (A,W,SP) 4-3-5
A general biology course designed to introduce the student to major concepts in the subject areas of cell biology, genetics, evolution, diversity of life, and ecology. Lab fee: \$15.00 Prerequisites: 1341 or 1347 or equivalent; placement into 1815. Concurrent or Prerequisite: 1003 not open to students with credit for 1374 or 1375. This course and 1315 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the as degree.

1315 General Microbiology (A,W,SP,SU) 3-4-5
Extensive use of a bright field microscope. Isolation of bacteria by pure culture technique. Use of various staining techniques and biochemical testing methods for identification of bacteria. Asepsis technique, identification of unknown bacteria. Antibiotic sensitivity testing. Lab fee: \$8.00 Prerequisite: 1341 or 1347 or equivalent; 1343 or equivalent; placement into 1002; placement into 1815.

1316 Microbial Diseases (on Demand) 3-0-3
A basic study of the concepts of microbial disease. Topics covered are host-parasite interactions and resistance and immunity to disease, including the development of the immune system and mechanisms of antigen-antibody reactions. Additional topics for detailed discussion are human airborne, foodborne and waterborne infections and human contact diseases. Prerequisite: 1315; 1003; placement into 1815.

1317 College Physics (mechanics and Heat) (A,W,SP) 4-3-5
A treatment of classical mechanics, including statics and kinematics, Newton's laws of motion, linear and angular momentum, work and energy, and properties of solids and fluids. Elementary concepts of heat are introduced, including temperature and thermal expansion, the ideal gas law, heat transfer, and thermodynamics. Related laboratory and demonstrations are included. Lab fee: \$4.00 prerequisites: 1112 or equivalent; placement into 1002 and 1815. Not open to students with credit for 1377 or 1378. This course and 1318 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the as degree.

- 1318 College Physics (electricity, Magnetism and Light) (W,SP) 4-3-5**
A treatment of classical electricity and magnetism, including electric potential, current and resistance, dc circuits, magnetic forces and fields, electromagnetic induction, ac circuits and electromagnetic waves. The nature of light is introduced and the principles of geometrical and physical optics are treated, including optical instruments. Related laboratory and demonstrations are included. Lab fee: \$4.00 Prerequisite: 1317. Not open to students with credit for 1379.
- 1319 College Physics (modern Physics) (will Not Be Offered in 1987-88) 4-3-5**
A treatment of modern physics, including the theory of special relativity, the quantum theory of light and matter, atoms, periodic table, molecules; physics of solids, semiconductors; the nucleus, nuclear energy, radiation, and elementary particles. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisite: 1318. Not open to students with credit for 1379.
- 1324 Human Genetics (on Demand) 3-0-3**
Mendelian and classical genetics are presented. Emphasis is also placed on the discovery of the dna molecule and its structure; genetic mutations and diseases as well as genetic engineering and its implications. Prerequisite: 1343 or high school biology; placement into 1812; placement into 1002.
- 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: \$8.00 Prerequisite: 1343 or equivalent. Placement into 1812. Not open to students with credit for 1321 and 1322, or 1361.
- 1332 Physiology (A,W,SP,SU) 3-2-4**
An introductory course in human physiology that covers the cell and tissues as well as the nervous, muscular, circulatory, urinary, respiratory and digestive systems. Lab fee: \$4.00 Prerequisites: 1331 or 1361 or concurrent; 1343 or equivalent; placement into 1002; placement into 1812. Not open to students with credit for 1321, 1322, 1366, 1367, 1368 or 1369.
- 1341 Survey of Chemistry (A,W,SP,SU) 3-3-4**
Basic concepts of chemistry with emphasis on the chemical properties of matter and an introduction to chemical reactions. Related laboratory and demonstrations. Lab fee: \$3.00 Prerequisite: 1105 or equivalent; placement into 1812. Not open to students with credit for 1311, 1312, 1313, 1345, 1371, 1372, or 1373.
- 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 and demonstrations. Lab fee: \$3.00 Prerequisite: 1105 or equivalent; placement into 1812. Not open to students with credit for 1317, 1318, 1377, 1378, 1381, 1382, 1383 or 1385.
- 1343 Introduction to Biological Sciences (A,W,SP,SU) 4-0-4**
A general biology course in which basic principles such as the characteristics of life, basic biochemistry, cell reproduction and genetics are explored. Prerequisite: placement into 1812. Concurrent or Prerequisite: 1105 or equivalent. Not open to students with credit for 1314, 1321, 1322, 1331, 1332, 1346, 1347, 1361, 1366, 1367, 1368, 1369, 1374 or 1375.
- 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. Prerequisites: placement into 1812. Not open to students with credit for 1321, 1322, 1331, 1332, 1361, 1366, 1367, 1368, or 1369.
- 1345 Natural Science I (physical Systems I) (A,W,SP) 4-3-5**
This course covers the evolution of the physical sciences from antiquity to the modern era. Emphasis is placed on the rise and decline of the mechanical view of nature, the development of the scientific approach, the influence of science on technology and philosophy, and the interrelations among science, religion, politics, and government. Topics include early ideas of the physical world, the principles of mechanics, newton's synthesis, the concept of energy as a unifying principle of nature, the theory of heat, heat engines and the birth of the science of thermodynamics; observations of the chemical and physical properties of selected elements and compounds, the theory of chemical bonding and the arrangement of the elements on the periodic table. Related laboratory and demonstrations. Lab fee: \$4.00 prerequisites: placement into 1002; placement into 1812
- 1346 Natural Science II (Living Systems) (W,SP) 4-3-5**
This course covers the development of the natural sciences from the mid-19th century to the present. Emphasis is placed on the transition from a deterministic to a probabilistic description of nature, and the impact of the revolutionary theories of this period on human thought and behavior. Topics include entropy and the statistical approach to describing physical systems, electromagnetism and light, optics and the development of the light microscope, the theory of relativity, quantum mechanics, the bohr atom, isotopes and dating techniques; the diversity of life, the discovery of the microbial world, biological classification, the theories of evolution and natural selection, and the formulation of the cell theory. Related laboratory and demonstrations. Lab fee: \$4.00 prerequisite: 1345
- 1347 Natural Science III (substances of Life) (SP) 4-3-5**
This course covers the historical development of organic chemistry emphasizing the elucidation in this century of the chemical basis of life. Topics include reproduction of organisms, mendelian genetics, the structure of dna, the genetic code, protein synthesis in the cell, and the development of synthetic polymers and biologically significant macromolecules. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisite: 1346
- 1361 Human Anatomy (A,W,SP,SU) 3-4-5**
The gross anatomy of the entire human body is presented in detail. The cat is used for laboratory dissection. Lab fee: \$15.00 Prerequisites: 1343 or 1347 or equivalent; placement into 1002; placement into 1815. Not open to student with credit for 1321 and 1322, or 1331. This course and 1369 provide a two-quarter sequence in biological science that will fulfill the elective requirement for as degree.
- 1362 Human Embryology (on Demand) 3-0-3**
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: 1331 or 1361; placement into 1815; placement into 1002
- 1366 Human Physiology I (SU) 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: \$3.00 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: \$3.00 Prerequisite: 1366 or equivalent. 1367 is not open to students with credit for 1332, or 1321 and 1322
- 1368 Human Physiology III (SU,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: \$3.00 Prerequisite: 1366 or equivalent. 1368 is not open to students with credit for 1332, or 1321 and 1322.
- 1369 Human Physiology (A,W,SP) 4-2-5**
An introductory course in human physiology designed to cover the normal physiology of all organ systems. Lab fee: \$5.00 Prerequisites: 1361 or 1331 or equivalent; 1313 or equivalent; placement into 1002; placement into 1815. Not open to students with credit for 1321 and 1322, 1332, 1366, 1367 and 1368.
- 1371 General Chemistry I (Will Not Be Offered in 1987-88) 4-3-5**
A general course in fundamental chemical principles. Topics include atomic structure, periodic classification, bonding, and the mole concept. Lab fee: \$10.00 prerequisites: high school chemistry or 1341; 1109 or equivalent; placement into 1002; placement into 1815.
- 1372 General Chemistry II (Will Not Be Offered in 1987-88) 4-3-5**
A continuation of 1371. Introduction to chemical reaction kinetics and an examination of chemical equilibrium. The chemical behavior of acids and bases will be studied in detail. Lab fee: \$10.00 Prerequisite: 1371
- 1373 General Chemistry III (will Not Be Offered in 1987-88) 4-3-5**
A continuation of 1372. A study of thermodynamics, electro- and nuclear chemistry. Elements and their properties are examined in some detail. Lab fee: \$10.00 Prerequisite: 1372
- 1374 Biological Sciences I (will Not Be Offered in 1987-88) 4-3-5**
A biology course designed for biology majors that provides an in-depth coverage of cell biology, genetics and reproduction. Lab fee: \$15.00 Prerequisites: 1108 or equivalent; 1003; placement into 1815. Concurrent or Prerequisite: 1313 or 1312
- 1375 Biological Sciences II (Will Not Be Offered in 1987-88) 4-3-5**
A continuation of 1374. A biology course designed for biology majors that provides an in-depth coverage of evolution, diversity of life, and ecology. Lab fee: \$15.00 Prerequisite: 1374
- 1377 General Physics I (Will Not Be Offered in 1987-88) 4-3-5**
A course in the fundamental principles of mechanics. Topics treated include vectors, equilibrium, kinematics and dynamics of a particle, energy, momentum, rotation, elasticity, simple harmonic motion, and the behavior of fluids. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisites: high school physics or 1342 recommended; placement into 1002; placement into 1815; concurrent or Prerequisite: 1115.

- 1378 General Physics II (will Not Be Offered in 1987-88)** 4-3-5
A continuation of 1377. Topics covered include temperature, thermal expansion, specific and latent heat, heat transfer, thermodynamics, kinetic theory, mechanical waves, sound, coulomb's law, electric fields and potentials, capacitors and dielectrics, current and resistance, DC circuits. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisite: 1377. Concurrent or Prerequisite: 1116
- 1379 General Physics III (Will Not Be Offered in 1987-88)** 4-3-5
A continuation of 1378. Topics include magnetic fields and forces, electromagnetic induction, magnetic properties of matter, ac circuits, electromagnetic waves, light, mirrors, lenses, interference, diffraction, polarization, relativity, photons, structure of atoms, nuclei, and solids. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisite: 1378; concurrent or Prerequisite: 1117
- 1381 Technical Physics (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: \$4.00 Prerequisites: 1111 or 1146 or equivalent; placement into 1812. Not open to students with credit for 1317 or 1377.
- 1382 Technical Physics (Electricity and Magnetism) (On Demand)** 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: \$4.00 Prerequisite: 1111 or 1146 or equivalent; placement into 1812. Not open to students with credit for 1318 or 1379.
- 1383 Technical Physics (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: \$4.00 Prerequisites: 1111 or 1146 or equivalent; placement into 1812. Not open to students with credit for 1317 or 1378.
- 1384 Technical Physics (light and Optics) (W)** 3-3-4
A course in the basic principles of optics. Major topics include electromagnetic waves, physical and geometric optics, with special attention given to lenses, mirrors, and optical instruments. Related laboratory and demonstrations. Lab fee: \$4.00 Prerequisites: 1108 or equivalent; placement into 1812. Not open to students with credit for 1318 or 1379.
- 1385 Technical Physics (Heat, Light and Sound) (SU,A)** 3-3-4
A course in the basic principles associated with heat, light, and acoustic phenomena. Major topics include temperature and heat, heat transfer, wave and particle nature of light, atomic theory, solidstate theory, electronics, and acoustics. Related laboratory and demonstrations. Lab fee: \$4.00 prerequisites: 1112 or equivalent; placement into 1812. Not open to students with credit for 1317, 1318, 1319, 1378, or 1379.

Business Management Technology

- 3801 Marketing* (A,W,SP,SU)** 5-0-5
A study of marketing fundamentals in a changing environment. Concepts and applications of various marketing strategies and marketing research techniques as they apply to the marketing mix, consumer behavior and marketing policies. Prerequisite: 3821
- 3808 Survey of Advertising* (A,SP)** 3-0-3
An in-depth exploration of advertising as a part of the "marketing mix". Course content includes the steps necessary to produce and deliver an advertising campaign to the consuming public. Non-credit elective when 2902 is used for credit. Prerequisite: 3815 or advisor approval
- 3809 Small Business Management* (A,W,SP)** 3-0-3
An overview of business management as it applies to the entrepreneur. Concentrates on planning aspects particularly in the areas of production, marketing, personnel, and finance. Students will be taught the essentials of writing a business plan and be required to analyze a variety of small business management situations. Prerequisites: 3763,3801,3813
- 3812 Government and Business* (A,SP)** 3-0-3
Presents the relationship between the operations of business organizations as they interact with and impact upon society. Various government regulations, environmental issues and ethical issues will be explored. Prerequisite: 3821
- 3813 Management* (A,W,SP,SU)** 5-0-5
The basic management process of planning, organizing, directing and controlling

business organizations is covered. The organization is viewed as a system of interdependent parts which interacts with the outside environment. Prerequisite: 3821

- 3814 Organizational Behavior for Management* (A,W,SP,SU)** 3-0-3
An introduction to the fundamental concepts of human relations in an organization. Topics include managerial applications of interpersonal communication styles, decision-making modes, needs analysis and motivational techniques. Prerequisite: 3813
- 3815 Promotion* (A,W,SP,SU)** 4-0-4
A survey of the promotional efforts contributing to economic exchange in todays distributive business. Personal selling, advertising, sales promotion and publicity are presented as key elements in the promotional process. Prerequisite: 3801
- 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 complements 3815 promotion, 3819 technical selling, and 3808 advertising. Prerequisite: 3815 or advisor approval
- 3819 Professional Selling* (A,SP)** 4-0-4
Practical application of selling theory in a variety of personal selling situations. Techniques of all phases of the selling process from initial contact to the close will be taught using video tape playback. Prerequisite: 3815 or advisor approval
- 3821 Introduction to Business (A,W,SP,SU)** 5-0-5
A discussion of all significant activities in the field of business including the interaction of business with internal and external forces, ownership, organization, marketing, location, purchasing, production, personnel, finance, and control. These areas are described as they relate to the basic principles of management and economics.
- 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.
- 3824 Business Law II (A,W,SP,SU)** 3-0-3
A continuation of business Law I. Exploring the law of agency, corporations, partnerships, and property. Prerequisite: 3823
- 3828 Case Studies in Business Seminar* (A,W,SP,SU)** 3-0-3
Cases covering all functional areas of management will be analyzed and presented. Emphasis will be placed on the problem solving process as a tool for developing and implementing corporate strategy. Capstone course open to last quarter students only. Prerequisite: 3763
- 3831 Personnel Interviewing* (A,W,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. Techniques of interviewing will be presented utilizing video tape playback.
- 3832 Personnel Management* (A,W,SP,SU)** 4-0-4
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. Prerequisite: 3813
- 3833 Management Decisions* (A,W,SP,SU)** 0-4-2
A practical presentation of the concepts underlying steps in the process of decision-making utilizing the computer simulation. Students will be required to make company decisions, as individuals or teams, on the financing, production and marketing of a product under varying external and internal environmental conditions. Open to last quarter business management students only. Lab fee: \$8.00 Prerequisite: 3762
- 3835 Industrial Relations* (A,W,SP,SU)** 4-0-4
A survey of industrial relations, including the history of the labor movement, labor legislation, collective bargaining, and daily contract administration. Simulations of an actual bargaining, grievance cases and arbitration will be presented by the students. Prerequisite: 3832
- 3836 Staffing Under the Law (A,SP)** 3-0-3
A thorough review of the legal aspects and boundaries of the hiring process for all organizations. Topics covered include determining hiring needs, finding the right people, the hiring process and affirmative action issues. Prerequisite: 3832
- 3837 Public Relations* (W,SU)** 3-0-3
Public relations examines both the theoretical and practical factors that contribute to a firm's image among it's many publics. The emphasis is on public relations as a function of management as well as an adjunct of promotion. Prerequisite: 3801 and 3815 or advisor's approval
- 3838 Administration of Personnel* (W,SU)** 5-0-5
An in-depth study of the various facets of a personnel program among the topics to be covered are: compensation plans, employee fringe benefits, performance appraisal, training and development, grievances and discipline. Presentation of

each subject will be in-depth and include legal considerations. Prerequisite: 3832,3836,3831

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 the quarter before the student actually begins the internship.

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.

3845 Distribution* (A) 3-0-3
An overview of the movement of goods and services through the channels of distribution. Topics will include warehousing, transportation, inventory methods and materials handling as well as alternative channels of distribution. Prerequisite: 3801

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 the quarter before the student actually begins the internship.

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.

3854 Information Management Principles* (A,SP) 3-0-3
An introduction to the scope and content of total management responsibility for using resources of information available in an organization. An organizational structure is built to understand the discipline, management use, and impact of automation and technology. This basic core introduces the information technology program.

3855 Forms Management* 3-0-3
A study of the design management system using forms for the control and organization of useful business information. The concepts of analyzing and designing forms using a computer-aided tool will be included.

3857 Office Automation* (A,SP) 3-0-3
Intensive study into present and future technological resources used to facilitate the handling of office information. Emphasis will be placed on the cost-effectiveness of selection, placement and the use of equipment and systems used in micrographics, records management, word processing, and other areas.

3859 Records Resource Management* (W,SU) 3-0-3
The course is designed to: 1) describe the relationships between data, information, records, management, and managers; 2) to discuss the components of a records management program and how each supports managers' needs; 3) to describe the records management system planning, organizing, controlling, and leading tasks; and 4) to examine ways the (non-records) manager uses the records systems and becomes involved in records-related tasks. Prerequisite: 3854

3869 Production & Inventory Control* (A,SP) 4-0-4
An introductory course in the basics of production and inventory management. Topics to be covered include types of inventories and related inventory costs, order quantity models, material requirements. Planning just-in-time inventory management and capacity planning models. Prerequisite: 3872

3871 Purchasing Principles I* (A,SP) 3-0-3
A basic course focusing on the procurement and control of supplies and equipment in a business enterprise. It provides fundamental information regarding principles, procedures, techniques and tools which are employed in the purchase and control of materials necessary for production and delivery of goods and services.

3872 Purchasing Principles II* (W,SU) 3-0-3
This course is a continuation of basic purchasing policies and procedures, yet is more geared to the many types of products and services being procured. A detailed analysis will include foreign purchasing, forward buying and commodities, as well as the purchase of capital assets, transportation services and disposal of scrap, surplus, and obsolete material. Prerequisite: 3871

3873 Advanced Purchasing and Materials Management* (W,SU) 4-0-4
This course will relate the act of purchasing management to the materials management concepts of centralized control. Discussion will include ordering policy in conjunction with inventory control methods and the master production schedule, forecasting models, negotiations, inventory investment analysis, and the role of materials planning in the business plan. Prerequisite: 3869

3874 Management Training for Supervisors* (A,W,SP,SU) 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 present 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 tech-

niques, and a look at the challenge of leadership in an organizational setting. Emphasis will be placed on actual on-the-job problems.

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

5307 Geotechnical Soils Behavior* (SU,W) 2-3-3
An analysis of soil behavior and the design construction of substructures (those parts of structures that transmit loads of structures into earth). investigation of the principles of excavation, tunneling and building earth supported structures. Lab fee: \$10.00 Prerequisite: 5025,5072

5315 Heavy Construction Standards* (A,SP) 3-2-4
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: 5074,5075,5082

5316 Elementary Hydraulics* (A,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 or 1146

5321 Advanced Civil Graphics* (W,SU) 2-6-4
Advanced drawing procedures and methods for contract drawings with emphasis on ink work, formality and accuracy. Use of CAD equipment. Lab fee: \$20.00 Prerequisite: 5071

5323 Materials Testing II* (SP,SU) 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 designed to build on basics taught in course 5072. Lab fee: \$20.00 Prerequisite: 5072

5325 Townsite Urban Development*(W,SP) 1-5-3
Municipal subdivision planning, calculations and preliminary cost considerations. Public and private interest conflicts are related to methods of resolving them and the specific standards that govern that area. Lab fee: \$15.00 Prerequisite: 5078,5082,5321

5327 Water Supply Systems* (SP,SU) 2-3-3
A study in design and planning of water supply, storage, treatment, transmission and distribution systems. Lab fee: \$12.00 Prerequisite: 5316,5325

5328 Storm and Wastewater Systems* (W) 2-3-3
A study in planning and design of storm water and sanitary collection systems and treatment processes. Lab fee: \$12.00 Prerequisite: 5316,5325

5337 Field 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-drawing experience. Actual work site project can be substituted with prior approval of instructor. Lab fee: \$20.00 Prerequisite: permission of instructor

5338 Environmental Analysis* (W) 1-5-3
A study in environmental considerations which enter into the civil engineering planning process. Lab fee: \$20.00 Prerequisite: 1111 or 1146,5316,5072

5345 Survey Law* (W,SU) 2-3-3
A study of the legal codes and practices as applicable within the job duties of a two year civil engineering technician. Municipal records research will be utilized as one learning method. Lab fee: \$15.00 Prerequisite: 5078,5082

5357 Field Co-op Experience (SU) 0-40-4
Off campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. Permission of instructor is needed. "N" credit will not be allowed for this course. Lab fee: \$30.00 Prerequisite: 5236

5361 Hazardous Waste Regulations* (W,SU) 2-2-3
A study of the local, state and national codes and regulations as they apply to

storage, utilization and disposal site preparation for hazardous wastes materials. Lab fee: \$12.00 Prerequisite: 5328,5338,5072

5383 Land Subdivision Systems* (AU,SP) 2-3-3
Advanced surveying including section and subdivision lines and residential property lines. Re-establishment of property boundaries and legal considerations for boundary descriptions including local municipal records searching. Lab fee: \$15.00 Prerequisite: 5078,5082,5345

5384 Civil Spec Writing* (A,SP) 1-5-3
This course will cover manual and computer exercises in creating civil specifications, along with explaining the proper organization, standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI standards. Lab fee: \$15.00 Prerequisites: 5075,5315

5385 Automated Mapping Process* (A,SP) 2-4-4
This course will take senior level civil technology students with basic word processor and computer graphics skills and teach them the proper procedures and the skills necessary to transfer existing organizational manual mapping data on to an automated computer informational system. Lab fee: \$20.00 Prerequisites: 1155,5321,5325,5345,5383

5386 Civil Project Management* (SP,SU) 2-4-4
This course will cover the techniques of proper project management related to civil engineering, from concept to end of project. Lab fee: \$20.00 Prerequisite: 1155,5077,5079,5251,5261

Communication Skills

1001 Language Development (A,W,SP,SU) 3-0-3
Through the writing process, students will develop skills for writing. Concentration on essentials for writing. Prerequisite: 1831 or placement by asset test

1002 Beginning Composition (A,W,SP,SU) 3-0-3
Through the writing process, students will compose clear, concise exposition. Prerequisite: 1001 or placement by asset test

1003 Essay and Research (A,W,SP,SU) 3-0-3
A continuation of 1002 expanded to include reading and argumentation. Research techniques and research papers using MLA documentation format. Prerequisite: 1002

1004 Technical Writing (A,W,SP,SU) 3-0-3
Principles and practice in writing required of engineering and scientific technicians, including resumes, letters, memos and various reports as required of a student's technology. 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, poems in a workshop approach. Prerequisite: 1002

1014 Business Communications (A,W,SP,SU) 3-0-3
Practice writing clear, concise, correct business letters and memos. Problem solving report using original sources, resume preparation, and job search techniques. Business etiquette and written and/or oral reports. Prerequisite: 1002 and at least two quarters or equivalent in technology.

1024 Speech (A,W,SP,SU) 3-0-3
Emphasis on communication, verbal and nonverbal. At least three prepared speeches required. Listening techniques. Opportunity to be audio and video recorded during the quarter in various situations. Lab fee: \$2.00 prerequisite: 1002

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

1031 Introduction to Literature (A,W,SP,SU) 3-0-3
Critical reading and writing about literary genres, including poetry, drama. Short stories, and optional novel. Writing will include a research paper. Prerequisite: 1003

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. Prerequisite: 1031

1049 Introduction to Mass Communications (SP) 5-0-5
The impact and influence of mass media on american society. Introduction to new writing. Principal ethical, policy and legal questions confronting reporters and media. Emphasis on students becoming better consumers of news and all media. Prerequisite: 1031

1054 Basic English As Second Language (A,SU) 9-0-9
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. 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. 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. Prerequisite: 1056 or placement

1064 Introduction to Drama (A,W,SP,SU) 5-0-5
A study of selected masterpieces of western drama. Discussion of social, political, and cultural influences on the major eras of drama. Critical analysis of plays. Prerequisite: 1031

Computer Science Technology

2701 Assembly Language I* (W,SP) 2-8-5
Introduction to programming in the IBM assembly language. Students are also trained in the use of on-line computer terminals and their programming language. The students continues their study of problem solving techniques, flowcharting, and structured programming concepts and techniques. Students learn job control language, codes and test problems on the computer. Lab fee: \$40.00 Prerequisite: 2705

2702 Assembly Language II* (SP,SU,A) 2-8-5
Continues the study of programming in the IBM assembly language. Emphasis on binary arithmetic and disk file properties, organization, and concepts. Students continue to study job control language and code and test lab problems on the computer. Lab fee: \$40.00 prerequisite: 2701

2703 Assembly Language III* (on Demand) 2-8-5
Continues the study of programming in the IBM assembly language. Introduction to sort/merge utility programs. Additional disk file concepts are introduced as well as additional job control languages. Students code and test lab problems on the IBM computer. Lab fee: \$40.00 Prerequisite: 2702

2705 Introduction to Computer Applications* (A,W) 2-3-3
An introductory course to the fundamental concepts of computer programming and systems analysis. The student will learn about computer hardware, software, and the impact of computers on society. In addition, the student will also learn how to operate the IBM PC and use some micro-based software packages. Lab fee: \$25.00 Prerequisite: 1108 and acceptance into the computer science technology.

2706 Program Design & Development* (W,SP) 3-0-3
An introduction to the basic logic required to solve business applications including control breaks, updates, table look-ups and sorts. Prerequisite: 2705

2714 Basic Business Language* (on Demand) 2-3-3
Introduction to the basic programming language with business applications Lab fee: \$25.00 Prerequisite: 2706 and programming experience in another language.

2715 COBOL I* (A) 2-8-5
Introduction to the concepts and techniques of batch cobol programming using structured programming techniques. Sorts and sequential access methods are stressed. Lab fee: \$40.00 Prerequisite: 2702

2717 RPG II* (On Demand) 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: 2706 and programming experience in another language.

2726 Systems Analysis I* (A) 3-2-4
Introduction to the science of systems analysis and design to include explanation of systems flowcharting, documentation and detailed discussion of common business applications. Prerequisite: 2702

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 Operating Systems* (SP,SU) 3-2-4
Selected topics of current interest will be presented, including a comparative discussion of operating systems, job control language, and on-line programming techniques. The student will also code several JCL lab exercises. Lab fee: \$25.00 Prerequisite: 2701

2736 PASCAL* (on Demand) 2-8-5
Introduction to problem solving techniques, algorithm development, flowcharting, and pseudocode. Introduces the student to the concepts and techniques involved in the pascal programming language using structured techniques. Lab fee: \$40.00 Prerequisite: 2706 and programming experience in another language.

2755 COBOL II* (W) 2-8-5
A continuation of 2715, COBOL I. Random access through VSAM file structure is introduced. On-line processing using VSAM files and CICS is introduced. Lab fee: \$40.00 Prerequisite: 2715

2756 COBOL III* (SP) 2-8-5
A continuation of 2755, COBOL II. On-line programming through IBM's CICS system and on-line data base programming through ADR's DATACOM/DB system is introduced. Lab fee: \$40.00 Prerequisite: 2755

2757 Final Project* (SP,SU) 2-8-5
A complete system design and implementation is done. Design may be using vsam file structures, on-line programming or special off campus projects through various companies. Lab fee: \$40.00 Prerequisite: 2755, 2727

2771 Dbase III Plus* (A) 2-3-3
An overview of Dbase III plus to include file creation, use of the assist program, data base programming and report generation. Lab fee: \$25.00 Prerequisite: 2706 and programming experience in another language.

2772 LOTUS 1-2-3* (SP,SU) 2-3-3
A comprehensive study of Lotus 1-2-3 software package including the use of macros. Lab fee: \$25.00 Prerequisite: 2706 and programming experience in another language.

2773 C Language Programming* (A,W,SP,SU) 2-8-5
An introductory course in C language programming. Lab problems are oriented toward the writing of interactive programs with business applications. The operating environment is the IBM-PC and compatibles running under MS-DOS utilizing an interpreter and a compiler. Lab fee: \$40.00 Prerequisite: 2706 and programming experience in another language.

2782 Computer Literacy - Business/Health (A,W,SP,SU) 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: \$20.00 note: this course is not for computer science majors. CST majors should take 2705.

2784 IBM-PC Assembler* (on Demand) 2-8-5
Introduction to programming in the IBM assembly language for the personal computer. The student will code and test lab problems on the IBM-PC. Lab fee: \$40.00 Prerequisite: 2702

2785 Data Base Systems* (W,SU) 2-3-3
An introduction to data base systems in theory and application. Students will design and build a data base on IBM personal computers using a popular data base package. Lab fee: \$25.00 Prerequisite: 2771

2791 Special Topics in CST I* (On Demand) 1-0-1
2792 Special Topics in CST II* (On Demand) 2-0-2
2793 Special Topics in CST III* (On Demand) 3-0-3
2794 Special Topics in CST IV* (On Demand) 4-0-4
2795 Special Topics in CST V* (On Demand) 5-0-5
Special topics in CST 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.

Construction Core

5023 Structural Steel Systems* (A,W) 1-5-3
Design and drafting exercises of steel construction techniques and detailing using the steel construction handbooks. Structural layout, details, schedules, shop drawing techniques, checking and coordination of steel structural elements with other parts of the building will be examined. Some computer and materials testing lab exercises will be scheduled. Lab fee: \$25.00 Prerequisite: 5025, 5074, 5078

5024 Structural Concrete Systems (W,SP) 1-5-3
Design and drafting exercises of concrete construction techniques and detailing using the concrete construction handbooks. Structural layout, details, schedules,

shop drawings techniques, checking and coordination of concrete structural elements with other parts of the building will be examined. Some computer and materials testing lab exercises will be scheduled. Lab fee: \$25.00 Prerequisite: 1111 or 1146, 5025

5025 Construction Statics*(W,SU) 2-2-3
This is a beginning course in structural design as applied to the field of construction. The emphasis is on the analysis of forces and reacting forces, load transfer and the application of elementary concepts of strength of materials. The student should be able to size conventionally loaded simple beams in wood or steel. Lab fee: \$10.00 prerequisite: 1111 or 1146

5026 Construction Strength of Materials* (SP,A) 2-2-3
This course is the second in the structural sequence following 5025, construction statics. The emphasis is on calculating the required resisting stresses of beams, columns and trusses. Topics covered include shear bending, properties of sections, stress and strain. Lab fee: \$10.00 Prerequisite: 5025

5071 Construction Basic Drafting* (A,W,SU) 2-6-4
This is a basic drafting course using both manual and computer aided drafting (CAD). Areas covered include lettering, linework, layout, dimensioning, geometric construction, orthographic projection and isometric. Problems are drawn from through out the construction industry. Lab fee: \$15.00 Prerequisite: none

5072 Basic Construction Materials* (A,SP) 1-5-3
A study of soil, concrete, masonry, wood and metal properties, form and use of these basic construction materials and products by means of laboratory examination and elementary testing. Field trips to manufacturing facilities and construction projects, as available, will be included. Lab fee: \$10.00 Prerequisite: none

5073 Construction Industry Survey* (A,SP,SU) 3-0-3
An introduction to the employment fields within the construction technologies with emphasis on architecture, civil engineering, and construction management. The development of an appreciation of the many diverse human personality characteristics used in the construction industry jobs and contributions of workers within the industry. Management, organization practices and interrelationships of special interest groups will be discussed. Lab fee: none Prerequisite: none

5074 Building Construction Drawings (A,W,SP,SU) 1-4-3
Reading and interpretation of construction drawings as related to residential, commercial, and industrial construction projects. Interpretation of the relationships of plans, elevations, sections details, and the coordination with specifications. The use of architectural and engineering scales and basic construction math will be explained along with the interpretation of construction terms and symbols. A Dodge scan machine is used in this course. Lab fee: \$15.00 Prerequisite: 1108

5075 Construction Contract Documents (A,W,SP,SU) 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: \$7.00 Prerequisite: none

5076 Construction Quantity Survey* (W) 1-4-3
Development of the use of construction math relative to linear, square and cubic measures of common construction materials. The computation and organization of basic material quantities used in a typical building construction project including the site preparation. Lab fee: \$15.00 Prerequisite: 5074, 1145

5077 Supervising Field Operations (W,SP) 2-3-3
An overview of the principles of field supervision which includes leadership skill, problem solving, motivation techniques, problem solving processes, communication methods and useful supervisory aids for construction projects. Lab fee: \$7.00 Prerequisite: 5075,5074,5082

5078 Building Layout & Measurement* (SP,SU) 2-6-4
A comprehensive study of the techniques and procedures utilized to locate, measure and check construction components for both new and existing buildings and related structures. Development of hands-on skills using the tools and survey equipment in construction simulated application exercises. Utilization of contract documents as sources of information for layout and measurement of projects as well as the documentation techniques used to record field activities. Lab fee: \$25.00 Prerequisite: 1111 or 1146, 5074

5079 Heavy Construction Estimating* (A,W) 2-3-3
Development of topics such as material price extensions, equipment requirements, labor requirements, time requirements, as related to highway/heavy construction. Lab fee: \$15.00 Prerequisite: 5076, 5215, 5222, 5315

5082 Heavy Construction Layout & Measurement* (SU,A) 2-6-4
A comprehensive study of the techniques and procedures, building on those learned in course 5078 and utilized to locate, measure, and check construction components for both new and existing highways and public works structures. Development of hands-on skills by using the tools and survey equipment in construction simulated application exercises. Utilization of contract documents as sources of information for layout and measurement of projects as well as the documentation techniques used to record field activities. Lab fee: \$25.00 Prerequisite: 1111, 1146, 5215

5083 Building Estimating* (A,SP) 2-3-3
Development of topics such as material price extensions, equipment requirements, labor requirements, and time requirements as related to building construction. Lab fee: \$15.00 Prerequisite: 5074, 5075, 5234

5084 Construction CAD Drafting* (A,W,SP,SU) 1-5-3
This course is a computer aided drafting class to allow the construction engineering technology student, who has basic computer drafting skills learned in 5071, to develop an adequate understanding and knowledge of computer drafting. The course will include current exercises using methods of orthographic drawing generation and the system capabilities for dimensioning and development of construction projects through the use of the software system. Students will be given individual exercises related to their specific construction technology. Lab fee: \$12.00 Prerequisite: 5071

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 management process by student teams demonstrating skills and competencies required. Lab fee: \$4.00 Prerequisite: none

5203 Construction 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 operating and government reporting. Lab fee: \$8.00 prerequisite: 5202

5215 Heavy Construction Drawings* (W,SP) 2-3-3
Reading and interpretation of construction drawings as related to highway and public works construction projects. Interpretation of the relationships of plans, elevations, sections and details, and the coordination with published specifications. A basic method of material quantity take-off will be explained. Lab fee: \$12.00 Prerequisite: 5074

5222 Heavy Construction Methods* (W,SP) 2-3-3
A study of methods used to build horizontal projects, such as highways, dams, airports, bridges and utility lines. The various pieces of equipment and materials used in these type projects will be explained as well as the processes used in laying asphalt and concrete. Lab fee: \$12.00 Prerequisite: none

5234 Building Construction Methods (A,W,SP) 2-3-3
A study of the methods used in work-site preparation, materials handling systems, assembly of construction materials and systems as related to vertical building projects such as office buildings, along with the strategies employed to control and coordinate these activities. Lab fee: \$8.00 Prerequisite: none

5235 Construction Work Experience* (SU) 0-40-4
Off-campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology, with actual work conditions and job experience. "N" credit will not be allowed for this course. Permission of instructor will be required. Lab fee: \$25.00 Prerequisite: 5236

5236 Work Experience Seminar* (SP) 1-0-1
This class will prepare the student to work as a co-op student in a construction related position. Resumes, interviews, and job preparation will be discussed. The student taking this class should have been a student in one of the construction engineering technology programs for at least two previous quarters. Lab fee: \$4.00 Prerequisite: none

5241 Planning and Scheduling* (A,W) 2-3-3
A study of project control and coordination through systematic planning and scheduling, including operational adjustments for resource changes and alterations. Computer computation of critical path methods and analysis. Lab fee: \$15.00 Prerequisite: 5222 or 5234

5242 Safety and Loss Prevention* (A,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 programs. Red Cross first aid and CPR are included. Development of theft reduction programs with the cooperation of local law enforcement departments and insurance companies. Lab fee: \$20.00 Prerequisite: 5074,5075

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, along with the study of techniques of written and oral communications will be developed to include recording on-site activities to prospective clients. Lab fee: \$15.00 prerequisite: 5222,5234

5245 Construction Bidding Strategies* (W,SP) 2-3-3
Extended study of how bids should be analyzed, how overhead and profit can be calculated, how to determine the financial objectives, and how to analyze the competition based upon market analysis and past bid figures. Lab fee: \$20.00 Prerequisite: 5079

5251 Construction Cost Controls* (W,SP) 2-3-3
Methods and techniques of cost analysis used to develop skills in controlling construction production operating costs. Lab fee: \$15.00 Prerequisite: 5241

5252 Construction Contract Law* (W,SP) 2-3-3
Analysis of the special conditions of construction law as applied to contractual on-site conditions, document usage, negotiations of disputes, change orders and master contracts. Lab fee: \$5.00 Prerequisite: 5075,5241,5253

5253 Construction Labor Law* (A,W) 2-3-3
Investigation of the legal areas of labor contracts, project contracts, NLRB regulations, insurance requirements, fringe benefit collection, dispute resolution, arbitration and litigation as related to construction labor disputes. Lab fee: \$5.00 Prerequisite: 5075

5254 Construction Quality Control* (A,W) 2-3-3
A study of the techniques and methodology used in controlling quality on the construction job, including record keeping and inspection techniques. Lab fee: \$8.00 Prerequisite: 5234, 5222

5261 Project Management* (SP,SU) 2-3-3
Tracking a project through a construction firm which includes job start, control assignments, control structures, organization, and move-out phases of the construction project. Computer simulation of project activities and management processes. Lab fee: \$15.00 Prerequisite: 5251

5262 Construction Productivity Analysis* (A,SP) 2-3-3
Developing and testing methods of productivity from analysis of project histories, equipment analysis, and manpower utilization studies. Timelapse photography will be utilized for one method of analysis. Lab fee: \$20.00 Prerequisite: 5234, 5222

5263 Construction Disputes/Claims* (SP,SU) 2-3-3
A study of the techniques of identification, negotiation and resolving contract disputes, along with formal methods of resolving construction claims. Lab fee: \$5.00 Prerequisite: 5252

5274 Residential Construction* (A,SP) 2-3-3
The basic construction of a single family residence from the ground up, emphasizing construction methods, equipment used, structural design theory, materials and terminology. Lab fee: \$8.00 Prerequisite: none

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: \$55.00

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: \$55.00

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: \$55.00

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: \$55.00

8132 Occlusion*(W) 1-6-3
This course will entail a study of occlusal morphology, the tempromandibular 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: \$55.00

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: \$55.00

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: \$55.00

Developmental Education Department

1811 Reading Improvement (S,A,W,SP) 4-0-4
A course designed for students to improve reading comprehension and develop word recognition skills. 1811 is not open to students with credit for 1812. Lab fee: \$3.00

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: \$3.00

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: \$5.00

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: \$3.00

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) 4-2-5
For development of basic writing skills to include grammar review and sentence structure procedures. A variety of individualized approaches will be used. 1831 is not opened to students with credit for 1001. Lab fee: \$1.00

1841 Arithmetic Skills (S,A,W,SP) 4-0-4
For development of basic arithmetic skills which includes addition, subtraction, multiplication, and division of whole numbers, fractions and decimals. It will also include ratios, proportions, and percentages. A modular approach will be used for each topic. 1841 is not open to students with credit for 1105 or 1131. Lab fee: \$5.00

1842 Pre-algebra (A,W,SP,SU) 4-0-4
This course will give a review of fractions and decimals and the basic pre-algebra skills to students who have not had algebra before. 1842 is not open to students with credit for 1105. Lab fee: \$3.00

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: \$3.00

1882 Career Options for Women (On Demand) 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 Success 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: \$3.00

Electronic Engineering Technology

4201 Electronic Drafting* (A,W,SP,SU) 1-2-2
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 given an introduction to computer-aided drafting. Lab fee: \$7.00 Prerequisite: none

4211 DC Fundamentals* (A,W,SU) 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, circuit analysis. Microcomputers are introduced and used for problem-solving. Concurrent courses: 1111, 4261

4212 AC Fundamentals* (A,W,SP) 4-0-4
Analysis of alternating current fundamentals, inductance, capacitance, resonance, complex algebra, reactance, circuits and poly-phase systems. Prerequisite: 4211, 4261 Concurrent: 4262, 1112

4213 Introduction to Electronic Devices* (SP,SU) 4-0-4
Introduction to electronic devices, semiconductors, diodes, transistors, jfet and bipolar auxiliary components. Rectifiers, filters, basic amplifiers. Prerequisites: 4212, 4262 Concurrent: 1113, 4263

4214 Electronic Device Circuit Analysis* (A,SU) 4-0-4
Analysis of linear circuits. Small signal and large signal methods. Operational amplifiers, optoelectronics special amplifiers, feedback, linear IC's regulators 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, along with digital communication techniques. Prerequisites: 4214, 4264 Concurrent: 4265

4217 Electronics Calculus I * (A,W) 3-0-3
Practical application of differential calculus to electronic circuitry. Functions, limits, algebraic differentiation, differentials, higher derivatives, maxima and minima. Prerequisite: 4212

- 4218 Electronics Calculus II* (W,SP)** 3-0-3
A continuation of electronics calculus I. Definite integrals, trigonometric functions, logarithmic and exponential functions, Prerequisite: 4217
- 4219 Electronics Calculus III* (SP,SU)** 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
- 4221 Digital Fundamentals (SP,SU)** 2-3-3
An introductory course in digital electronic fundamentals covering number systems, boolean algebra, truth tables, basic combinational (gates, adders, multiplexers, etc.), and sequential (latches, flip-flops, etc.) circuits. Although 4221 can be taken any time after completion of 1111, we recommend a three quarter unbroken sequence for 4221, 4222/4272 and 4223/4273. Lab fee: \$7.00 Prerequisite: 1111
- 4222 Digital Devices* (SU,A)** 4-0-4
A continuation of the study of digital electronics, covering the waveforms and generation of pulses and study of the related circuitry (switching ckts, multivibrators, schmitt trigger). More complex and widely used digital devices such as counters, shift registers, memories, etc., are presented. Also, some basic units of a computer (bus, alu) are studied. Prerequisite: 4221 Concurrent: 4272
- 4223 Microprocessors* (A,W)** 4-0-4
Different building blocks of a microprocessor and their functions are introduced. Methods of data storage and programming a microprocessor are studied. Some use of a microprocessor as a controller and interfacing it to other devices are also studied. A motorola 6800 microprocessor is used as an example throughout the course. Prerequisite: 4222 Concurrent: 4273
- 4226 Industrial Electronics* (SP,SU)** 4-0-4
Industrial devices and utilization concepts, power, timers, photoelectric devices, magnetic systems, servo and synchro systems, and microprocessor interfacing. Prerequisite: 4223 Concurrent: 4276
- 4231 Electronic Fabrication* (W,SP)** 1-0-3
An introduction to the fabrication of electronic circuits from assembly through testing, to include soldering/desoldering, use of heat sinks, testing, documentation and repair/replacement of parts. Lab fee: \$13.00 Prerequisite: 4222
- 4236 Electronic Communications II* (W,SP)** 2-3-3
A continuation of communications I. Ultra-high frequency, transceiver, microwave principles, systems, antennas, wave guides, use of smith charts, impedance matching. Lab fee: \$4.00 Prerequisite: 4215
- 4246 Automatic Control* (SP,SU)** 1-3-2
Fundamentals of analog computers covering circuits and equipment, control theory, laplace transform, introduction to differential equations. Lab fee: \$4.00 Prerequisite: 4218 Concurrent: 4219
- 4261 DC Laboratory* (A,W,SU)** 0-6-2
Laboratory study of DC fundamentals, electrical measurement devices, network theorems. Lab fee: \$10.00 Concurrent: 4211
- 4262 AC Laboratory* (A,W,SP)** 0-6-2
Laboratory study of signal sources, oscilloscopes, reactance, AC networks, transformers and filter circuits. Lab fee: \$10.00 Prerequisites: 4211, 4261 Concurrent: 4212
- 4263 Electronic Devices Laboratory* (SP,SU)** 0-6-2
Laboratory study of electronic devices, transistors characteristics and amplifiers. Lab fee: \$10.00 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: \$10.00 Prerequisite: 4263 Concurrent: 4214
- 4265 Communications I Laboratory* (W)** 0-6-2
Laboratory study of communication circuitry, AM, FM, TV and commercial systems, including digital communications. Lab fee: \$10.00 Prerequisite: 4263 Concurrent: 4214
- 4272 Digital Devices* Lab (A,SU)** 0-6-2
This lab course, concurrent with the lecture course 4222, gives the student an opportunity to learn and design complex and widely used digital devices. Switching and wave shaping circuits are built using real life ic chips. Different devices which are used in buliding blocks of a computer are introduced and used in experiments. Lab fee: \$10.00 Prerequisite: 4221 Concurrent: 4222
- 4273 Microprocessor Lab* (A,W)** 0-6-2
This lab course is the practical version of the concurrent lecture course 4223. Different blocks of a microprocessor studied in lecture are used and experimented on in the lab course. Along with each lab, programming methods for different blocks of the microprocessor are introduced. The practical aspects of using the microprocessor as a controller for other devices are also explored. A 6800 microprocessor is used. Lab fee: \$13.00 Prerequisite: 4222 Concurrent: 4223
- 4276 Industrial Laboratory* (SP)** 0-6-2
Analysis and study of components, circuits and systems used for industrial control. Lab fee: \$13.00 Prerequisite: 4273 Concurrent: 4226
- 4281 Basic Electricity (au,sp)** 3-2-3
An introductory electrical fundamentals course covering direct and alternating current concepts, components, measurements, circuit analysis, magnetism, electrical energy sources, and electrical energy conversion. This course is not required for students in the electronic engineering technology. Lab fee: \$8.00 Prerequisite: 1108 or 1146
- 4282 Electronics and Digital Fundamentals (WI, SU)** 3-2-3
An introductory electronics and digital fundamentals course. Course content covers electronic basics, diodes, transistors, electronic power supplies, amplification, power control, and digital devices. This course is not required for students in the electronic engineering technology. Lab fee: 12.00 Prerequisite: 4281
- 4284 Cad/Electronics* (A,W,SP,SU)** 0-3-1
A follow-on to 4201 electronic drafting, this course emphasizes the application of computer aided drafting and design techniques to electronics. AUTO CAD or CAD and HP-9000 system will be introduced. Recommended for students planning to pursue a baccalaureate degree. Lab fee: \$5.00 Prerequisite: 4201
- 4286 Computer Maintenance* (A,W,SP,SU)** 0-6-2
A hands-on laboratory course where you will troubleshoot and repair the printer, monitor, disk drive, and CPU of an IBM-PC. Can be taken in place of 4246-automatic control. Recommended for students planning to go into field service positions. A limited number of seats are available to students from outside the technology. Lab fee: \$10.00 Prerequisite: 4213
- 4287 Fiber Optic Communications* (A,W,SP,SU)** 2-3-3
Designed to provide the basics of light transmission physics, applications to electronics and a study of power losses associated with fiber cable transmission. The laboratory exercises will introduce the methods and tools associated with splicing and connectorization. This course may be substituted for 4236-electronic communications II. A limited number of seats are available to students from outside the technology. Lab fee: \$20.00 Prerequisite: 4215
- 4291 Special Subject in Electronics I (On Demand)** 0-0-1
4292 Special Subject in Electronics II (On Demand) 0-0-2
4293 Special Subject in Electronics III (On Demand) 0-0-3
Special subjects in electronics are courses designed to meet the needs of the constantly changing electronics industry. Typical subject areas may include instrumentation, lasers, troubleshooting, and bio-med. Instructional methods may include seminar, travel, field experience, research, lecture and computer assisted instruction. Lab fee: (I)\$5.00(II)\$13.00(III)\$20.00.

Emergency Medical Services

- 8301 Emergency Victim Care* (A,W,SP,SU)** 4-6-6
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 certificaion examination. Lab fee: \$20.00
- 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: \$60.00 Prerequisite: 8301, program acceptance concurrent 8313 & 8361
- 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: \$30.00 Prerequisites: 8305 Concurrent: 8314 & 8362
- 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: \$30.00 Prerequisites: 8306 Concurrent: 8315 & 8363
- 8308 EMT-P IV (SU)** 4-2-5
This course encompasses the training of the paramedic in the areas of trauma life support and major incident response, and the continuation of training in ob/gyn/neonatal, behavioral emergencies and rescue. Lab fee: \$30.00 Prerequisites: 8307 Concurrent: 8316 & 8364
- 8309 Crash Injury Mgmt., First Responder* (A)** 1-3-2
This course is designed to teach the person (public safety officer or others), who arrives first at the scene of an accident, proper life saving procedures, intervals of emergency victim care, the first responder will provide what is needed until qualified emergency medical technicians arrive. Lab fee: \$5.00

8311 Adv EMT-A* (A,W,SP,SU) 3-3-4
In depth study of patient assessment, shock physiology, fluid and intravenous therapy is the direction of this course, and covers the knowledge and skills required to take the state certification exam. Lab fee: \$43.00 Prerequisite: state certified EMT-A

8313 Hospital Clinical I* (A) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8305. Concurrent: 8305 & 8361

8314 Hospital Clinical II* (W) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8306. Prerequisite: 8313 concurrents: 8306 & 8362

8315 Hospital Clinical III* (SP) 0-6-2
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8307. Prerequisite: 8314 concurrents: 8307 & 8363

8316 Hospital Clinical IV* (SU) 0-6-2
Hospital clinical, observation and supervised experience, encompassing the didactic areas covered in #8308. Prerequisites: 8315 concurrents 8308 & 8364

8324 River Rescue Techniques* (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: 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

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.

8334 Legal Principals for E.M.T.* (A) 2-0-2
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.

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.

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.

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.

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.

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).

8357 Pediatrics for the Paramedic* (W) 2-0-2
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

8358 Emergency Medical Services Dispatcher (SP) 2-1-2
The EMS dispatcher course is designed to prepare EMS dispatcher personnel to operate a telecommunication base station for the purpose of receiving requests for emergency medical services and allocating community resources in response to such request. Lab fee: \$3.00

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

8362 Vehicle Clinical II* (W) 0-5-1
Vehicle clinical, observation & experience. Prerequisites: 8305, 8313 & 8361 Concurrents: 8306 & 8314

8363 Vehicle Clinical III* (SP) 0-5-1
Vehicle clinical, observation and supervised experience. Prerequisites: 8306, 8314, and 8362 Concurrents: 8307 & 8315

8364 Vehicle Clinical IV* (SU) 0-5-1
Vehicle clinical, observation and supervised experience. Prerequisites: 8307, 8315, 8363 Concurrents: 8308 & 8316

Financial Management Technology

2802 Personal Finance* (A,W,SP,SU, Night-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, savings, job search, buying a house, insurance, mutual funds, stock market, real estate investments, taxes, and estate planning are covered. Students will develop and write a personal financial plan. Lab fee: \$3.00

2803 Money and Banking* (A,W,Night - A,W) 5-0-5
A study of the operation, organization, and economics of U.S. Monetary and banking systems. Current trends and problems are also covered.

2805 Analyzing Financial Statements* (A,SP, Night - 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.

2806 Principles of Bank Operations* (+) 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. Banking is increasingly dependent upon personnel who have the broad perspective so necessary for career advancement.

2807 Financial Institutions and Markets* (W, Night - A) 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.

2809 Bank Investments* (+) 4-0-4
The bank's need 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, their 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.

2812 Introduction to Commercial Credit* 3-0-3
A basic course in commercial credit and collections. Studies will be centered on the establishing of the credit department, nature and function of credit, various types of credit, sources of credit, sources of credit information, analysis of information, factors of risk.

2813 Credit Administration* (W, Night - W) 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

2815 Business Financial Management* (+) 4-0-4
This is an A.I.B. Course, which covers the financial management of business enterprises.

2816 Advanced Credit Analysis* (+) 3-0-3
This course is offered by the national association of credit management and covers both commercial as well as consumer credit administration.

2817 Insurance Principles* (A,W,SP, Night - W) 3-0-3
This course covers the evaluation of the financial impact of risk exposure and how to manage this risk exposure through the intelligent use of insurance products. Lab fee: \$1.00

2818 Installment Credit* 4-0-4
In this course, the techniques of installment lending are presented concisely. Emphasis is placed on obtaining credit information, servicing the loan, and collecting the amounts due. Each phase of a bank's installment credit operation is carefully scrutinized.

2819 Finance Research* (A,W,SP)	2-0-2
The student receives exposure to current developments in finance and economics through class discussion and projects.	
2821 Investments I* (A,SP,SU Night-SP)	3-0-3
This course examines the investments for the individual with emphasis on stock market. Topics presented include: risk and return trade offs, sources of investment information, stocks, bonds, mutual funds, options, and tax considerations. Lab fee: \$3.00	
2822 Investments II* (on Demand)	3-0-3
This course is a continuation of 2821.	
2823 Business Finance* (A, W,SP,SU, Night - A, W,SU)	5-0-5
An introduction to the principles of financial management of private and incorporated firms. Topics covered include: financial analysis, financial planning, working capital management, financial leverage, sources of financing, capital budgeting and capital markets.	
2825 Cases in Financial Management* (SP, Night - SP)	3-0-3
A study of the quantitative techniques used in managerial decisions of financial problems. Current real-world situations are presented in a case study format. Prerequisite: 2823	
2826 Estate Planning* (W,SU Night - SP)	3-0-3
This course covers the procedures to transfer assets at death with the fewest complications with the fewest taxes, and at the least cost to all parties.	
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.	
2831 Savings and Time Deposits* (+)	4-0-4
This course covers the development and current operational methods of saving institutions. Also covered is the administration of savings and time deposits.	
2834 Management of Commercial Bank Funds* (+)	4-0-4
Those necessary principles from which the student can derive a philosophy of funds management. Differences between practices in large banks and smaller institutions are spelled out so that this text is useful to institutions of all sizes.	
2836 International Banking* (on Demand)* (+)	4-0-4
The course is an introduction for those working in international departments. The 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 impact banking. Topics include jurisprudence, the court system, civil procedure, contracts, quasi-contracts, property, torts, crimes, agencies, partnerships, corporations, sales of personal property, commercial paper, bank deposits, collections documents of title, and secured transactions. the uniform commercial code is also covered.	

*These courses are offered by the American Institute of Banking and are open to Columbus State students for credit.

Fire Science/Safety Technology

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
An overview of inspection programs, with emphasis on fire protection procedures and practices. Relationships of prevention programs with governments, private sector, codes and arson is discussed.	
7903 Fire Prevention Codes* (SU)	3-2-4
A study of important building construction and fire safety codes with emphasis on fire prevention and enforcement. Prerequisite: 7902	
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. Prerequisite: 7921	
7909 Hazardous Materials I* (A)	3-2-4
An introduction to the properties and behavior of hazardous chemicals in our environment. A study of the physical and chemical characteristics of toxic, flammable, and reactive substances in the forms of solids, liquids, and gases combined with an overview of methods for safely responding to emergencies involving such materials. Emphasis will be placed on safe approach to incident scenes, positive identification of materials, and accurate analysis of the hazards presented by hazardous materials. Lab fee: \$6.00 Prerequisite: 1341	
7912 Fire Protection Systems* (A)	2-2-3
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 Hazardous Materials II* (W)	3-2-4
A study of the properties and behavior of various hazardous chemicals in our environment. An overview of the physical and chemical characteristics of toxic, flammable, and reactive substances in the forms of solids, liquids, and gases combined with practical application of methods for responding to emergencies involving such materials. Emphasis will be placed on safe approach to incident scenes, positive identification of materials, and accurate analysis of the hazards presented by hazardous materials. Simulation and tabletop emergency exercises will be utilized throughout the course. Lab fee: \$6.00 Prerequisite: 7909	
7914 Fire Fighting Command I* (W)	3-2-4
Group operations and command strategy for fireground operations. The training of companies and officers to operate as a team. Methods of implementing plans and strategy into tactical operations. Prerequisite: 7914	
7915 Fire Fighting Command II* (SU)	0-6-3
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)	1-4-3
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)	2-2-3
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 High Rise Safety* (A)	1-2-2
Discussions of the particular problems related to the fire safety in high rise buildings. Learners will research and establish life-safety plans for a building. Information gained from previous incidents in high rise buildings will be utilized. 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, reports, oral and written directions, work	

Graphic Communications Technology

evaluation, meetings, discipline 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
Procedures of fighting aircraft fires. Procedures of fighting fires involving hydrocarbons, and lp gas. Hazards of electrical emergencies and proper procedures of handling them. Examples of disaster and stress involving emergency personnel. Lab fee: \$3.00 Prerequisite: 7921
- 7934 Fire Insurance* (W)** 1-2-2
The history of fire insurance. The principles and practices of inspections by the insurance services office. The rating system as used by I.S.O. To determine premium rates. Extensive study of methods used by I.S.O. To classify public protection and individual property fire suppression.
- 7935 Building Construction (SP)** 4-0-4
An introduction to the present and past practices of building construction. Tells of important standard elements of buildings, the hidden dangers of old and new buildings, what influences structural stability of walls in fires, and how to look for and judge hundreds of structural dangers. 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 or safety officer to read, understand, and analyze construction blueprints so that they may be able to enforce fire safety and building codes. Prerequisite: 7935
- 7961 Fire Fighting Practices Laboratory* (SU)** 0-4-2
Laboratory to accompany 7921 fire fighting practices. Lab fee: \$2.00 Concurrent: 7921
- 7971 Introduction to Occupational Health and Safety* (On Demand)** 4-0-4
An introduction to the principles of occupational health and safety. A survey course covering basic principles and techniques.
- 7972 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
- 7975 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.
- 7976 Safety Program Management* (on Demand)** 3-0-3
Designed to acquaint the student with the common elements of a modern safety program.
- 7981 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
- 7982 Physical Hazards Control I* (on Demand)** 4-0-4
An examination of physical hazards in the work environment and methods of control.
- 7983 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.
- 7984 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.
- 7985 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.
- 7986 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

- 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. Lab fee: \$5.00.
- 2407 Estimating* (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. Students should have taken 1131. Lab fee: \$5.00
- 2408 Photography I* (A,W,SP,SU)** 2-5-4
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
- 2411 Photography III* (A,SP)** 2-5-4
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 format cameras. Lab fee: \$50.00 Prerequisite: 2409
- 2412 Copy Preparation* I (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 design for production of the printed message. The development of efficient procedures in the preparation of roughs, layouts and comprehensives are examined in the laboratory. Lab fee: \$10.00
- 2417 Lithographic Stripping* I (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 Video Production* I (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 format, 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
- 2423 Printing Papers* (SP)** 3-0-3
A study of the manufacture and selection of paper used in printing operations; sizes, colors, characteristics, limitations and packaging of printing papers. Field trip to a paper mill.
- 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 or permission of instructor
- 2433 Design II* (SU)** 2-5-4
Designed as a sequential follow-up to 2413 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 or permission of instructor

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 four color stripping. Lab fee: \$50.00 Prerequisite: 2417 or permission of instructor.

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

A study and application of phototypesetting 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 Screen Printing* (SP,SU) 2-4-4

Theory and practice of the screen printing 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

2457 Estimating II* (A,W,SP,SU) 2-5-4

A continuation of the study of estimating for lithographic printing with areas including multi-color presses, signature work, prepress operations, and color separation. Provides for understanding of accurate estimating procedures and opportunity to apply in laboratory situation.

Heating, Ventilating and Air Conditioning

4511 HVAC Graphics I* (A,W,SP) 1-5-3

A course designed for the student with no previous experience in reading or drafting HVAC blueprints. The course is structured toward drafting HVAC residential systems and symbols, and leads to understanding the heat loss/gain calculations performed in 4522. Some exercises are scheduled computer CAD. Lab fee: \$10.00 Prerequisite: none

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

Selection of the proper piping material and valves, along with consideration of the joining method will be studied. Sizing exercises will be combined with the study of symbology used in piping diagrams, steam lines, hot and chilled water lines and refrigeration piping systems. Lab fee: \$10.00 Prerequisite: none

4513 Survey of HVAC Field* (A,SP) 2-4-4

A course designed to introduce students to the various people and jobs within the HVAC engineering, sales, contracting and service community. The course also deals with various business aspects including: bidding, contracting, bonding, purchasing, designing, and in-plant operating procedures. Lab fee: \$10.00 Prerequisite: none

4514 HVAC Cad Drafting* (A,W,SP,SU) 1-5-3

This course is designed to allow HVAC students who have completed 4511 and 4521 to gain additional skills in computer aided design of mechanical environmental system. Lab fee: \$12.00 Prerequisite: 4521,4532

4521 HVAC Graphics II* (a,w,sp) 1-5-3

A follow-up course to HVAC graphics I, 4511, this course concentrates on commercial equipment, ductwork and systems. Projects in piping layout, diffuser schedules and typical notes used on large job blueprints will be assigned. Isometric principles will be explained and used in drafting exercises. Lab fee \$12.00 Prerequisite: 4511 or equivalent

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

A course covering residential heat loss/gain calculations, design of systems, and selection of equipment. ACCA design manuals will be used and subjects such as heat transmission factors, external static pressure, infiltration, enthalpy and ductwork sizing will be included. Lab fee: \$12.00 Prerequisite: 1145

4531 HVAC Commercial Load Calculations* (W,SP) 2-4-4

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. This course is one of six that prepares the student to take the HVAC contractor's license exam. Lab fee: \$12.00 Prerequisite: 4522

4532 HVAC Equipment* (W,SU) 3-2-4

A course discussing the components used to make up environmental conditioning systems in residential and commercial buildings. Chillers, unit heaters, furnaces, fans, air handlers, coils, boilers, and auxiliary equipment will have their cycle of operation explained, applicaand selection parameters detailed, along with their historical development. Lab fee: \$10.00 Prerequisite: 4512, 4541

4535 Field Co-op Experience* (SU) 0-40-4

Off campus work experience in construction, consulting engineering or construction related paid employment, that augments formal education received in the technology with actual work conditions and job experience. Permission of instructor is needed. "N" credit will not be allowed for this course. Lab fee: \$25.00 Prerequisite: 5236

4541 Principles of Refrigeration* (A,SP,SU) 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 Prerequisite: 4512

4542 HVAC Mechanical Standards/Safety* (A,SP) 3-2-3

A basic introduction to HVAC safety considerations, first aid, and CPR as well as emergency procedures for on the job accidents. An introduction to the various codes that effect the workplace and jobsite, such as OSHA, NFPA, state and local building codes. NEC, energy codes and ASHRAE standards will also be covered. Lab fee: \$12.00 Prerequisite: 4512, 4541

4543 Air Conditioning Systems* (SP,SU) 2-6-4

A course designed for the student with a fundamental knowledge of the air conditioning cycle. Previous training in refrigeration theory, wiring diagrams, control circuits, and tools used in the trade are necessary to enroll in this course. The course is designed around hands-on training and testing of the various component parts of a vapor compression split system. Lab fee: \$20.00 Prerequisite: 4541,4561

4544 Heat Pump Systems* (SP,SU) 2-6-4

A course designed for the student with a fundamental knowledge of the air conditioning and heating processes. Previous training in refrigeration cycle, wiring diagrams, control circuits, and tools used in the trade are necessary to enroll in this course. The course is structured around hands-on training on the various components parts of an air cycle heat pump system. Lab fee: \$20.00 Prerequisite: 4541,4553,4561,4583

4545 HVAC Spec Writing* (A,W,SP,SU) 1-5-3

This course will cover manual and computer exercises in creating mechanical specifications, along with explaining the proper organization, standards and types, as related to projects, materials and methods. All specifications will be taught in accordance with the CSI standards. Lab fee: \$15.00 Prerequisite: 4542

4552 Instrumentation/Combustion Process* (A,SP) 2-4-4

A course about basic combustion processes using all the fossil fuels and psychometric chart work to track the thermal heat transfer. The instruments used to test these processes will also be explained along with the fan laws. Instruments used in energy auditing are then explained and preventative maintenance programs written. Lab fee: \$15.00 Prerequisite: 4512

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

A course introducing HVAC residential and light commercial control systems and the components that make up the systems. Emphasis will be placed on operators, sensors, controllers and various pneumatic and electrical devices used in modern control systems along with the logic used to develop their control sequences. Lab fee: \$20.00 Prerequisite: 4541,4552,4281

4554 Gas/Electric Heating Service* (A,W) 2-6-4

A course designed for the student with a fundamental knowledge of heat transfer characteristics and air movement properties. This course is designed around hands on training and testing of the various component parts and accessories that make up gas and electric heating systems, humidifiers and electronic air cleaners. Lab fee: \$20.00 Prerequisite: 4552,4561

4555 Fuel Oil Heating Service* (A,W) 2-6-4

A course designed for the student with the fundamental knowledge of heat transfer characteristics and air movement properties, the course is designed around hands on training and testing of the various components and accessories that make up a fuel oil high pressure gun type heating system. Lab fee: \$24.00 Prerequisite: 4552,4561

4556 Automatic Controls II* (A,W,SP,SU) 1-5-3

A hands on laboratory course designed to build practical understanding of control

circuit logic and sequence of operation theory. Representative circuits from major environmental control devices employing various forms of energy will be included in the lab exercises. Lab fee: \$15.00 Prerequisite: 4553

4557 Residential Commercial Rooftop Systems* (SP,SU) 2-4-4
A course designed for the student with a fundamental knowledge of the residential heating and air conditioning servicing. Previous training in refrigeration cycle, wiring diagrams, control circuits, combustion process, and tools used in this trade are necessary to enroll in this course. The course includes hands-on training and testing of the various component parts of a rooftop heating and cooling system. Lab fee: \$24.00 Prerequisite: 4543,4554,4544

4558 Pneumatic Controls I* (A,W,SP,SU) 2-4-4
This course is designed to take a senior level HVAC student and teach him the fundamentals, installation practices and common application parameters of representative pneumatic controls systems. Lab fee: \$15.00 prerequisites: 4556, 4541, 4282

4561 Hand Tools Laboratory* (W,SP,SU) 2-4-4
An entry level course building elementary skills in welding, brazing, soldering, threading, cutting, swaging, and other skills that relate to service, installation and maintenance processes in the HVAC field. Basic handtools and meters will be demonstrated and used in lab exercises. Lab fee: \$15.00 Prerequisite: 4562

4562 Residential Ductwork/Installation* (SU) 3-10-4
This co-op course is designed to teach specific laboratory tasks and field practices related to the installation H.V.A.C. Equipment and ductwork systems in residential construction. 5236 work experience seminar is required for students without an employer co-op partner. Employer must furnish proof of his willingness to co-op student in order to participate in this course. Lab fee: \$15.00 Prerequisites: 4522,4542,4561,5236

4563 Energy Management* (A,SP) 2-3-3
An overview of the world energy supply with both renewable and nonrenewable types being investigated. Attention will be given to building energy survey and calculation techniques, analysis and decision making within energy policy. Computer simulations, conservation measures and systems will be utilized to conserve energy. A glossary of EM terms will be assigned. Lab fee: \$15.00 Prerequisite: 4531,4532,4552

4564 Service Management* (A,SP) 2-2-3
This course will cover the basic management practices and procedures used in a residential service contracting organization. This course will emphasize human resource development, labor management, service agreements, materials inventory and financial management. Lab fee: \$12.00 Prerequisite: permission of instructor

4566 Advanced Problems* (A,SP) 0-8-4
A simulation that will allow the student to use their educational knowledge in a problem or problems that emphasizes the design or practical service aspects of a heating and cooling system. The instructor will need to give prior approval of the project or projects to be completed by the student. A tutorial course form must be completed by the student. Lab fee: \$8.00 Prerequisite: permission of instructor

4583 HVAC Wiring Circuits I* (A,W,SP,SU) 2-4-4
This course is designed to teach a new student how to read, draw, interpret and understand residential heating and cooling wiring diagram symbols, devices and wire size identification, basic circuit distribution concepts and schematic applications of same. Lab fee: \$10.00 Prerequisite: none

4584 HVAC Wiring Circuits II* (A,SP) 2-4-4
This course will concentrate on lab experiments designed to teach a student how to properly wire up typical heating and cooling devices into working circuits. Devices such as motors, controllers, contactors, compressors and safety devices will be covered. Lab fee: \$15.00 Prerequisite: 4282,4584

4585 HVAC Electronic Controls I* (A,SP) 2-4-4
This course uses basic electronic knowledge from 4281 and 4282, plus electrical knowledge from 4583 and 4584 to build a basic understanding of HVAC solid state computer controls. This theory course will cover controllers, sensors, relays and hvac electronic operational devices. Lab fee: \$10.00 Prerequisite: 4281,4282,4583,4584

4586 HVAC Electronic Controls II* (W,SU) 2-4-4
This course will use lab exercises to teach how to wire and install, along with how to test and service the primary HVAC solid state computer controls. Lab fee: \$15.00 prerequisite: 4585

4587 Boiler Systems* (A,SP) 3-2-4
This course uses basic combustion knowledge from 4552 and piping system knowledge from 4512, along with codes from course 4542 to build a basic understanding of boiler types, systems, safety procedures and codes that will prepare a person to take the highpressure boiler license examination. Lab fee: \$10.00 Prerequisite: 4512,4541,4553

4588 Ammonia Systems* (W,SU) 3-2-4
This course uses basic piping knowledge from 4512, refrigeration cycle theory from 4541, codes from 4542 and control knowledge from 4553 to build a basic understanding of the operational theory and safe operating practices for an industrial class II ammonia refrigeration system. Entering students should have 4561 course content or proficiency credit before enrolling in this class. Lab fee: \$10.00 Prerequisite: 4512,4541,4542,4553,4561

Hospitality Management Technology

2201 Survey of Hospitality Industry* (A,SP) 3-0-3
Introduction to management of restaurants, institutional 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. Lab fee: \$2.00

2202 Food Service Equipment* (W) 4-3-5
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 beer, wines and spirits. Covers Ohio liquor and legal regulations, inventory control, liquor dispensing systems, cash control, drink merchandising and alcohol responsibility. The art of mixology. Lab fee: \$25.00

2205 Records and Cost Control* (A,W) 3-2-4
Covers the principles and procedures involved in an effective system of food, beverage, labor and sales control. Emphasizes development and use of standards and calculation of actual costs. Lab fee: \$2.00

2208 Food Preparation I Laboratory* (SU) 0-6-2
A food preparation laboratory stressing preparation terminology, use of standardized recipes, preparation of protein foods, identification and proper use of knives and utensils. This is a competency based instruction, under the supervision of a professional chef, for students enrolled in the chef apprenticeship training program. This is comparable to the laboratory portion of course no. 2211. Lab fee: \$10.00

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, poultry and vegetable proteins and fats used in food preparation. This is the lecture portion of course no. 2211, and offered to chef apprentices who register for 2208.

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 preparation, use of standardized recipes, detailed study of protein foods eggs, milk and dairy products, meats, seafoods, poultry and vegetable proteins 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 sauces, herbs and spices, 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

2215 Food Preparation II Lecture* (W) 3-0-3
A continuation of 2209 including detailed study of sauces, herbs and spices, fruits, vegetables, starches, baked goods and desserts. Standardized quantity recipes, standards of quality for 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 who register for 2216. Prerequisite: 2209

2216 Food Preparation II Laboratory* (W) 0-6-2
A laboratory 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. This is a competency based instruction under the supervision of a professional chef for students enrolled in the chef apprenticeship training program. This is comparable to the laboratory portion of course no. 2212. Lab Fee: \$10.00

- 2217 Food Specialties I (Garde Manger)* (SP)** 1-3-2
Special garde manger techniques such as vegetable carvings, appetizers, pates, terrines and galantines are studied. Buffet showpieces will be included, as well as meat cutting and boning. Culinary exhibition guidelines are covered. 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
- 2222 Sanitation and Safety* (A,W,SU)** 3-0-3
A detailed study of the control of bacteria, materials handling and safety practices to maintain a safe and healthy environment for the consumer in the food and lodging industry. Includes examination of applicable laws and regulations. Upon satisfactory completion of the course, a certificate from The Educational Foundation of The National Restaurant Association will be awarded. Lab Fee: \$5.00
- 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 Prerequisite: 1131
- 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. Lab Fee: \$2.00 Prerequisite: 3813
- 2225 Menu Planning* (W,SP)** 3-0-3
Historical background of menus. Principles of menu planning including graphic design and layout and effective merchandising of food offered. Consideration given to various pricing strategies of menu selections. Lab Fee: \$2.00 Prerequisite: 2212
- 2232 Budgeting, Purchasing & Records for Housekeeping* (W)** 4-0-4
Provides an overview of the fundamentals of budgeting, purchasing, record-keeping and financial management. This course meets certification requirements for National Executive Housekeepers Association Course E85-16, E85-17, and E85-18. Lab Fee: \$5.00
- 2233 Environmental Controls for Housekeeping* (A)** 4-0-4
A basic introduction to microorganisms for executive housekeepers. Included are chemical controls with uses of disinfectants, detergents, and floor care products. Also, an introduction to the common types of pests and effective measures for controlling them. Meets certification requirements for National Executive Housekeepers Association Courses E85-10, E85-11, and E85-12. Lab Fee: \$5.00
- 2234 Housekeeping Techniques* (A)** 4-0-4
This course identifies responsibilities in professional environmental services management. Included are supplies and equipment for cleaning, development of cleaning procedures, safety programs, materials handling and motion economy. Meets certification requirements for National Executive Housekeepers Association Course E85-7, E85-8 and E85-9. Lab Fee: \$5.00
- 2235 Basic Interior Design* (SP)** 2-0-2
Introduces the selection, use and care of interiors and furnishings. It includes the basic principles of decoration necessary to produce an environment that is harmonious, safe, and economical to maintain. It meets certification requirements for National Executive Housekeepers Association Course E85-28. Lab Fee: \$10.00
- 2242 Food and Beverage Management Survey* (A)** 3-0-3
Surveys food and beverage operations from purchasing, receiving and storage to preparation and service. It follows the guidelines of Course 240 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$2.00
- 2243 Hospitality Law* (SP)** 3-0-3
Provides a general knowledge of the law as it applies to the hospitality industry. This course follows guidelines of Course 390 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$2.00
- 2244 Hospitality Managerial Accounting* (SP)** 2-2-3
Covers the accounting concerns and techniques necessary for the managerial decisions in the hospitality industry. This course follows guidelines of Course 462 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$2.00
- 2245 Front Office Procedures* (SP)** 2-3-3
The principles required to organize, operate and manage a hotel-motel front office. Computerized property management systems are included. This course follows guidelines of Course 332 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$16.00
- 2246 Marketing of Hospitality Services* (W,SP)** 3-0-3
Covers the basic knowledge and skills necessary to develop, implement and evaluate strategic marketing plans for foodservice and lodging properties. This course follows guidelines of Course 371 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$2.00
- 2248 Hospitality Security and Maintenance* (SP)** 4-0-4
Covers the security and maintenance of a property. Risk management planning emphasizes losses due to thefts, injuries and disasters. Also included are personnel safety, OSHA rules and disaster preparedness. This course follows guidelines of Course 386 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Meets requirements for National Executive Housekeepers Association Courses E85-26 and E85-27. Lab Fee: \$5.00
- 2249 Meeting and Convention Planning and Services* (A)** 3-0-3
Explains what is required to meet individuals' needs for meetings and conventions, as well as the methods and techniques that lead to quality service. This course follows the guidelines of Course 429 from The Educational Institute of The American Hotel-Motel Association. An EIAHMA certificate will be awarded to those who successfully complete the challenge examination. Lab Fee: \$2.00
- 2253 Nutrition* (A,SP,SU)** 5-0-5
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 computerized diet and energy analysis. Lab Fee: \$16.00
- 2261 Dietetic Technician Practicum I* (A)** 1-4-1
Practical application of information presented in the classroom from 2201 and 2222 to related health care facilities. Skills are developed through supervised learning situations to evaluate health care systems and to maintain established standards of sanitation and safety. Lab Fee: \$20.00 Concurrent: 2201, 2222
- 2262 Dietetic Technician Practicum II* (W)** 1-7-2
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 maintain food quality and portion control. Lab Fee: \$10.00 Prerequisite: 2261 Concurrent 2202 and 2211
- 2263 Dietetic Technician Practicum III* (SP)** 1-7-2
Practical application of information presented in the classroom from 2212 and 2223 to related health-care facilities. Skills are developed through supervised learning situations to procure and store food and supplies, 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
- 2265 Dietetic Technician Seminar* (SP)** 2-0-2
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: \$2.00 Prerequisite: 2268 Concurrent: 2269
- 2269 Dietetic Technician Practicum VI* (SP)** 1-10-3
Practical application of information presented in the classroom from 2225 and 2276 to related health-facilities. Skills are developed through supervised learning situations to plan regular and modified menus and to continue to work with providing nutrition care services. Lab fee: \$10.00 Prerequisites: 2268 Concurrent: 2225, 2265, and 2276
- 2272 Catering* (SP)** 2-3-3
A laboratory course in which students will study, then apply, the principles of operating a catering business or department including generating business, approving locations, preparing and serving various menus, transporting food and materials, training personnel and maintaining sanitation practices. Lab fee: \$10.00 Prerequisite: 2212 or permission of instructor
- 2273 Dining Room and Service Management* (A)** 2-2-3
The recognition and evaluation of different types of food service delivery systems with emphasis on dining room management. Lab fee: \$2.00
- 2275 Diet Therapy I* (W)** 3-3-4
An introduction to the rationale for diet modification and a study of calorie controlled diets and consistency modifications used in the treatment of various pathological states of the body systems. Lab fee: \$10.00 Prerequisite: 2253, 1332

2276 Diet Therapy II* (SP) 3-3-4
A continuation of the study of diet modification. Fat and electrolyte control of diets for a variety of pathological conditions are studied. Lab fee: \$15.00 Prerequisite: 2275

2283 Hospitality Co-op Work Experience I* (A,W,SP,SU) 1-20-2
A practical application of principles taught in the classroom. Hotel and restaurant students and chef apprentices will take part in actual supervised work experience in the hospitality industry. A minimum of 20 hours per week will be spent in employment and weekly classroom discussions.

2284 Hospitality Co-op Work Experience II* (A,W,SP,SU) 1-20-2
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 20 hours per week will be spent in employment and weekly classroom discussions. Prerequisite: 2283

2285 Hospitality Co-op Work Experience III (A,W,SP,SU) 1-20-2
A continuation of 2284. Off-campus paid employment or unpaid experience in the hospitality industry required of all hotel management majors and chef apprentices. A minimum of 20 hours per week will be spent in cooperative work experience, with the equivalent of one classroom hour per week in an on-campus seminar. Prerequisite: 2284

2291 Dietary Manager Seminar I* (A) 3-0-3
A study of the types of health-care facilities, typical health-care organizational structures, role of the dietary manager. Regulations and how they affect food-service in health-care facilities are examined. Discussions concentrating on food service safety and sanitation principles, and utilization and care of equipment. Concurrent: 2294

2292 Dietary Manager Seminar II* (W) 3-0-3
Principles of planning menus to meet the nutritional needs of people in health care facilities are presented. Explanation of methods and records used in procurement, receiving, and storage of food and related items. Surveys control measures of maintaining quality, quantity, and cost of food productions. Prerequisites: 2291 & 2294 Concurrent: 2295

2293 Dietary Manager Seminar III* (SP) 3-0-3
Methods and records used to determine food needs and preferences are presented. Modified diets are written using established menu patterns and patient care plans. Evaluation of supervisory skills and employment techniques that affect employee performance are discussed. Development of training programs. Prerequisites: 2292 & 2295 Concurrent: 2296

2294 Dietary Manager Coop-work Experience I* (A) 0-5-2
Supervised work related learning experiences to be performed on the job following material presented in the classroom from Dietary Manager Seminar I - 2291. Lab fee: \$15.00 Concurrents: 2291 and employment

2295 Dietary Manager Coop-work Experience II* (W) 0-5-2
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from Dietary Manager Seminar II - 2292 Lab fee: \$15.00 Prerequisite: 2291 & 2294 Concurrent: 2292 & employment

2296 Dietary Manager Coop-work Experience III* (SP) 0-5-2
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from Dietary Manager Seminar III - 2293. Lab fee: \$15.00 Prerequisites: 2292 & 2295 Concurrents: 2293 & employment

Humanities Courses

STUDENTS WHO ENROLL IN HUMANITIES COURSES MUST HAVE PLACED IN COMMUNICATION SKILLS 1002 AND ARE ENCOURAGED TO EITHER COMPLETE 1002 OR BE ENROLLED IN THAT COURSE WHEN SCHEDULING A HUMANITIES COURSE.

1931 Civilization I (A,W,SP,SU) 5-0-5
A survey of Human Civilization from its origins in the Ancient World through the age of the Baroque in Western Europe. Emphasis is upon the art, literature, music, and value systems of specific cultural ages as they reflect or influence economic, social, and political institutions. Issues covered include the foundations of world religions in India, China, and the Fertile Crescent, the culture of Classical Athens, the Christian Middle Ages, Arab/Islamic Civilization, the Renaissance in Italy, and the Protestant Reformation.

1932 Civilization II (A,W,SP,SU) 5-0-5
A study of the origins of Modern Western Civilization from the Enlightenment to the advent of Marxist-Leninism. Emphasis is upon the rise of Modern Science and the Enlightenment, the Democratic Revolutions of America and France, the Industrial Revolution and its impact upon society and culture, the American Civil War as a crisis between Democratic theory and practice, and the revolutionary theories of Karl Marx.

1933 Civilization III (W,SP,SU) 5-0-5
A survey of the modern world exploring the economic, political, and intellectual crises of the 19th century and the immediate crises of the twentieth century. Emphasis is upon the conflicts and contradictions between the prevailing spirit of Liberalism, Capitalism, Nationalism, and Imperialism from the perspective of the European and non-European worlds, the crises of Western capitalism and democracy and the Fascist and communist responses, and the major issues confronting world civilization at the turn of the 21st century.

1941 U S History to 1877 (SU, W) 5-0-5
A survey of American history from colonial times through the civil war and reconstruction, this course serves as both an introduction to the study of history and to the economic, social, political, and cultural and intellectual development of the United States. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in history and western studies.

1942 U.s. History Since 1877 (A,SP) 5-0-5
A survey of the economic, social, political, and cultural and intellectual development of the United States from a frontier society to an industrial world power in the 20th century. Meets elective requirements in the AA and AS degree programs and distributive transfer requires in history and western studies.

1951 History of Science and Technology (1988-89) 5-0-5
A survey of the history and impact of science and technology upon world civilization from the ancient world through the 20th century. The course traces the development of the theories and practices of the pure sciences (mathematics, physics, chemistry, biology, and geology) and the impact of applied science and technology upon the social, cultural, and physical environments of humankind. Meets elective requirements in AA and AS degree programs and distributive transfer requirements in history. Recommended for technology and AS students.

1953 History of Western Art (1988-89) 5-0-5
A survey of artistic expression in the western world from the earliest times to the present, including the types of media used and their limitations, the role of patronage in artistic development, the relationship of art and the artist to developments in society, and a consideration of the attributes of "great" art in any time or age. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in History, Humanities, and the Arts. Prerequisite: 1931, 1932, 1933, or permission of the instructor.

1956 History of Western Music (1988-89) 5-0-5
A survey of Western music from earliest times to the present, including the development of notation in music, the development and limitations of standard instruments, the role of patronage in music developments, the relationship of changes in music to changes in society, and a consideration of the attributes of "great" music in any time or age. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in History, Humanities and the Arts.

1961 the Third World (1988-89) 5-0-5
A survey of the historical development and contemporary problems confronting the so-called third world: Asia, Africa, Central and South America, the Middle East, etc. Issues covered include problems of world hunger and over-population, the effect of the Great Power confrontation on the non-aligned nations, the social and environmental impact of Western technology, science, and economics. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in history, social sciences, and non-western studies.

1963 History of China and Japan (1988-89) 5-0-5
A survey of the economic, social, political, and cultural development of China and Japan from earliest times to the present. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in History, Social Sciences, and non-Western studies.

1965 the Islamic World and the Middle East (W) 5-0-5
A survey of Islamic civilization from the birth of Muhammad to the destruction of the Ottoman empire in the 20th century. Emphasis is placed on developing an understanding of the nature and diversity of the Islamic religion, an appreciation of the great cultural achievements of medieval Islam, and an awareness of the complexities of the problems of the contemporary Middle East. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in History, Social Sciences, and non-Western studies.

1967 History of Latin America (1988-89) 5-0-5
A survey of the development of modern Latin America from the Spanish conquests to the present. Emphasis is placed upon the revolutionary eras of the 19th and 20th centuries, the influence of the Roman Church on Latin American society, and the influence of the United States on Latin American economic and political development. Meets elective requirements in the AA and AS degree programs and distributive transfer requirements in History, Social Sciences, and non-Western studies.

1971 Introduction To Philosophy (W) 5-0-5
An introduction to the problems, methods, and terminology of philosophy, the types of questions addressed by philosophers, and the pivotal thinkers and systems of western civilization from the greeks to the 20th century. Meets elective

requirements in the AA and AS degree programs and distributive transfer requirements in Philosophy and Humanities.

1972 Ethics (SP) 5-0-5
An introduction to moral reasoning, examining theories of right and wrong, good and bad, justice and injustice as they have been viewed in the past and as they shed light on contemporary ethical issues. Meets elective requirements in Philosophy and Humanities.

1973 Introduction to Logic (SP) 5-0-5
An introduction to formal critical thinking and the methods of inductive, deductive, and symbolic logic. Meets the elective requirements in AA and AS degree programs and distributive transfer requirements in Philosophy, Humanities, and, in some instances, mathematics and science. Check with your academic advisor.

FOREIGN LANGUAGES AND LITERATURE

Although not a degree requirement at Columbus State Community College, students in the transfer program should discuss with their academic advisors the foreign language requirements at institutions to which they are considering transferring. Students with previous language training may take a placement exam in the language. Course credit is not given for such exams.

1981 Elementary French I (A,SP) 5-0-5
Introduction to the fundamentals of the French language with practice in listening, reading, speaking, and writing. Includes selected studies in French culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature.

1982 Elementary French II (W,SU) 5-0-5
Continuation of 1981, with further development of listening, reading, speaking, and writing skills and further study of French culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1981 with a grade "C" or better.

1983 Intermediate French I (A,SP) 5-0-5
Continued study of the French language and development of listening, reading, speaking, and writing skills. Readings from contemporary French culture and literature. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign language and literature. Prerequisite: 1982 with a grade of "C" or better.

1984 Intermediate French II (W,SU) 5-0-5
Reading and discussion of French short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of French culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1983 with a grade of "C" or better.

1986 Elementary Spanish I (A,SP) 5-0-5
Introduction to the fundamentals of the Spanish language with practice in listening, reading, speaking, and writing. Includes selected studies in Hispanic culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature.

1987 Elementary Spanish II (W,SU) 5-0-5
Continuation of 1986 with further development of listening, reading, speaking, and writing skills and further study of Hispanic culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1986 with a grade of "C" or better.

1988 Intermediate Spanish I (A,SP) 5-0-5
Continued study of the Spanish language and development of listening, reading, speaking, and writing skills. Readings from contemporary Hispanic culture and literature. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1987 with a grade of "C" or better.

1989 Intermediate Spanish II (W,SU) 5-0-5
Reading and discussion of Spanish and Latin American short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Hispanic culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1989 with a grade of "C" or better.

1991 Elementary German I (SP) 5-0-5
Introduction to the fundamentals of the German language with practice in listening, reading, speaking, and writing. Includes selected studies in German culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature.

1992 Elementary German II (W,SU) 5-0-5
Continuation of 1991 with further development of listening, reading, speaking, and writing skills and further study of German culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1991 with a grade "C" or better.

1993 Intermediate German I (A,SP) 5-0-5
Continued study of the German language and development of listening, reading, and speaking, and writing skills. Readings from contemporary Germanic culture and literature. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1992 with a grade of "C" or better.

1994 Intermediate German II (W,SU) 5-0-5
Reading and discussion of German short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Germanic culture. Meets elective requirements in the AA and AS degree programs and transfer requirements in foreign languages and literature. Prerequisite: 1993 with a grade of "C" or better.

Interpreting/Transliterating Technology

7701 Introduction to Interpreting/Transliterating (A) 3-0-3
This course is designed to provide students with an overview of the field of interpreting. Topics of study include an historical overview, terminology, interpreter's role, ethics, and career options.

7702 English for the Interpreter* (W) 3-0-3
This course focuses on the grammar errors made during the voicing process and ways to remedy these errors. It also focuses on English vocabulary expansion and sign vocabulary expansion. Prerequisite: 7701

7703 Physical Aspects of Interpreting/Transliterating* (SU) 2-0-2
This course takes a look at the physical characteristics of the interpreting situation. Discussion and analysis of the following are included: lighting, visual background, distance and placement of the interpreter and consumers, and the stamina needed for various interpreting assignments. Prerequisite: 7701

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

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

7706 Signs Systems Vocabulary* (W) 3-0-3
Compares signs used in signed English and SEE II to ASL; analyzes signs from both conceptual and philosophical viewpoints and applies them to the interpreting situation. Prerequisite: 7781

7707 Specialized Interpreting/Transliterating* (SP) 3-0-3
This course covers the special vocabulary and techniques needed to interpret in special situations. Some of these situations can include interpreting for deaf-blind persons, oral-deaf persons, and interpreting in the legal, medical and educational settings. Prerequisite: 7701

7715 Linguistics of ASL* (A) 2-2-3
"Linguistics of American sign language" is an in-depth linguistic study of the structure, diachronic evolution, and major grammatical systems of American sign language. Prerequisites: 7754

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. Prerequisite: 7754

7721 Orientation to Deafness (A) 3-0-3
Discusses the psychological, social, and cultural aspects of deafness; looks at educational choices parents must make, services available to deaf people, and organizations run by deaf people.

7722 Patterns of Language Development (W) 3-0-3
This course compares the normal patterns of language development of hearing children, prelingual deaf children and post lingual deaf children. Theories of language are discussed. Influences of total communication and oral education are also discussed.

7723 Speech and Audiology (W) 3-0-3
Speech and audiology will provide the student with an adequate knowledge of the field of audiology and the areas of speech and language development. Normal and impaired functions are discussed with implications for the hearing impaired individual. Emphasis will be placed upon principles rather than fine details of speech and hearing.

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

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

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

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

7751 Introduction to American Sign Language* (A,SP) 0-6-3
This course begins with a series of visual readiness activities as a way of introducing the students to and preparing them for a language in a visual modality. The course utilizes a practical approach to teaching vocabulary, grammar, and the cultural aspects through "real life" conversational experiences. The student is further acclimated to the new modality of this language via classroom experiences conducted without voice. Additional information about the deaf community is introduced via outside readings and class discussion. Lab fee: \$5.00

7752 American Sign Language I* (WI,SU) 0-6-3
ASL I, as a continuation of 7751, further acclimates the students to the visual/gestural modality of this new language. The course utilizes a practical approach to teaching vocabulary, grammar, and cultural aspects through "real life" conversational experiences. More attention is given to the student's production of the language than in 7751, while receptive/comprehension skills continue to be emphasized. Additional information about the deaf community is introduced via outside readings and class discussions. Lab fee: \$5.00 Prerequisite: 7751

7753 American Sign Language II* (SP,A) 0-6-3
ASL II provides the students additional opportunities to expand their ability to produce and comprehend the language as used in everyday conversational settings. Students continue to recognize the fact that communication is governed by culturally-bound rules as they continue to study the culture of the deaf community. Lab fee: \$5.00 Prerequisite: 7752

7754 American Sign Language III* (SU,W) 0-6-3
In ASL III, students' production and comprehension skills continue to develop qualitatively and quantitatively as they are exposed to a greater variety of interaction activities. Whereas these activities are based on cultural values of the deaf community, the students' knowledge of this unique community is expanded. Lab fee: \$5.00 Prerequisite: 7753

7755 American Sign Language IV* (A,SP) 0-6-3
As the final course in this five course series, 7755 provides students opportunities to expand their production and comprehension skills with American sign language. Communication activities focus on advanced functions of language usage. Study of the cultural aspects of the deaf community is continued. Lab fee: \$5.00 Prerequisite: 7754

7761 Fingerspelling* (SP) 1-2-2
This course offers students the opportunity to work on expressive and receptive fingerspelling. The emphasis of this course is on using fingerspelling in context. Opportunities are provided for the students to work with videotaped materials as well as live models. Lab fee: \$5.00

7765 Introduction to Sign English (A,W,SP,SU) 0-4-2
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

7766 Sign English I (A,W,SP,SU) 0-4-2
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 Prerequisite: 7765

7771 Interpreting I* (SP) 2-2-3
This course is a theoretical and practical "hands-on" approach to the process of sign language interpreting. The student will be actively learning how to render a signed message in ASL into spoken English, as well as render a spoken message in English into ASL. Lab fee: \$5.00 Prerequisite: 7702

7772 Interpreting II* (SU) 1-5-3
This course is a continuation of 7771. As such, the students continue the process of actively learning how to render a signed message in ASL into spoken English, as well as how to render a spoken message in English into ASL. This course places more emphasis on the practical "hands-on" approach to the process of sign language interpreting. Lab fee: \$5.00 Prerequisite: 7771 Concurrent: 7754

7773 Interpreting III* (W) 1-5-3
As the final course in the three (3) course interpreting sequence, this course continues to increase students' knowledge and skills in the sign language interpretation process. Increased focus is placed on "real life" situational experiences involving actual consumers. Lab fee: \$5.00 Prerequisite: 7772

7781 Transliterating I* (SU) 2-2-3
This course is a theoretical and practical "hands-on" approach to the process of sign language transliterating. The student will be actively learning how to render a signed message in PSE into spoken English, as well as render a spoken message in English into PSE. Lab fee: \$5.00 Prerequisite: 7702 Concurrent: 7754

7782 Transliterating II* (A) 1-5-3
This course is a continuation of 7781. As such, the students continue the process of actively learning how to render a signed message in PSE into spoken English, as well as how to render a spoken message in English into PSE. This course places more emphasis on the practical "hands-on" approach to the process of sign language interpreting. Lab fee: \$5.00 Prerequisite: 7781

7783 Transliterating III* (SP) 1-5-3
As the final course in the three (3) course transliterating sequence, this course continues to increase students' knowledge and skills in the sign language transliteration process. Increased focus is placed on the "real life" situational experiences involving actual consumers. Lab fee: \$ 5.00 Prerequisite: 7782

Law Enforcement Technology

7801 Introduction to Criminal Justice* (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. An introduction to local, state, and federal court procedures.

7802 Crime Prevention Techniques* (on Demand) 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* (A,SU) 5-0-5
The study of the statutes of Ohio that apply to crime and criminal procedures, with emphasis on the specific elements necessary to constitute individual crimes.

7806 Patrol Procedures* (W) 2-2-3
A study of patrol strategies and techniques. The major emphasis of this course is on the skills needed by officers in answering calls for service and safety of all parties in making citizen contacts and arrests.

7807 Criminal Investigator I* (A) 3-2-4
Principles and techniques of criminal investigation, including those techniques and skills used in the investigation of major crimes such as: homicide, burglary, robbery, auto theft, arson and sex offenses.

7808 Criminal Investigation II* (W) 3-2-4
A continuation of the study begun in criminal investigation I. Emphasis will be placed upon the scientific analysis of evidence and proper methods for collection and preservation of trace evidence. Prerequisite: 7807

7809 Emergency Dispatching* (A) 2-2-3
A comprehensive examination of the communication process, including interpersonal as well as technological communication. The role and function of dispatchers dealing with emergency situations will be explored.

7811 Criminal Evidence and Procedures I* (on Demand) 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.

7812 Criminal Evidence and Procedures II* (on Demand)	4-0-4		
Tests for admissibility of evidence and types of evidence. Arrest, search, entrapment, and opinion testimony.			
7813 Traffic Accident Investigation* (SP)	4-2-5		
An in depth study of the procedure and objectives in accidents and investigations. Gathering facts from road, vehicle and witnesses, hit and run investigation, measurements and diagrams, utilization of skid mark 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			
7814 Criminal Law* (SP,SU)	3-0-3		
A study of the development of criminal law in the united states. The common law theories upon which law in this country is based will be explored. Specific topics will include: parties to crime; capacity to commit crimes; and defenses and the laws defining specific crimes.			
7815 Criminal Procedure* (SP)	3-2-4		
A study of the rules of procedures as they apply to criminal cases and affect the ability of the officer to have the evidence he collects or prepares presented in court. Prerequisite: 7825			
7816 Case Preparation* (on Demand)	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.			
7818 Criminal Evidence and Trial* (SP)	2-2-3		
In this course the student will study the rules of evidence as they relate to the introduction of evidence at trial. In addition to the study of rules, students will participate in a mock trial in which evidence they have collected, preserved and processed will be presented.			
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 (A)	2-2-3		
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. Community crime prevention programs are emphasized.			
7824 Investigation and Interviewing (sp)	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 in obtaining accurate and admissible statements.			
7825 Constitutional Law* (W)	3-2-4		
A study of federal and state constitutional law and the bill of rights with emphasis on the right 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		
An eclectic 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* (on Demand)	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 Crisis Intervention* (W)	3-0-3		
An analysis of the changing role of the law enforcement officer. Police have historically dealt with 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 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, housing, and releasing of prisoners. Emphasis on city and county systems for handling prisoners.			
7846 History of Law Enforcement* (on Demand)	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 in a correctional agency. The course includes the interviewing of convicted felons, verification of the information received, and various other duties connected with probation and parole. 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 in a cor-			

rectional agency. 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) 0-4-2
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 due process of law.

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, 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* (W) 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 aide 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* (SP) 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.

7895 Law Enforcement Practicum I (on Demand) 1-14-2
A guided work experience in a law enforcement agency. Students will observe and participate in a variety of law enforcement functions. Exact duties will be decided upon by agreement of the student and the law enforcement agency. Prerequisite: permission of the chairperson Concurrent: 7896

7896 Law Enforcement Practicum Seminar I (on Demand) 1-0-1
Seminar discussions of work experience, and development strategies to improve work performance. Prerequisite: permission of the chairperson Concurrent: 7895

7897 Law Enforcement Practicum II (on Demand) 1-14-2
A guided work experience in a law enforcement agency. Students will observe and participate in a variety of law enforcement functions. Exact duties will be decided upon by agreement of the student and the law enforcement agency. Prerequisite: permission of the chairperson Concurrent: 7898

7898 Law Enforcement Practicum Seminar II (on Demand) 1-0-1
Seminar discussions of work experience, and development of strategies to improve work performance. Prerequisite: permission of the chairperson Concurrent: 7897

Mathematics

1105 Introduction to Algebra (D & E-A,W,SP,SU) 4-0-4
A transition from arithmetic to algebra: the real number system; signed numbers; elementary algebraic operations; linear equations and formulas; problem solving by equations; factoring; the rectangular coordinate system, and graphs of linear equations. Prerequisite: 1842 or placement by asset not open to students with credit for 1108 or above.

1108 Intermediate Algebra (D & E-A,W,SP,SU) 4-0-4
Systems of linear equations; operations with algebraic fractions; factoring; exponents, radicals, and radical equations; solving quadratic equation by factoring, completing the square, and by formula; inequalities and their graphs. Prerequisite: 1105 or placement by asset not open to students with credit for 1109 or above.

1109 College Algebra (D & E-A,W,SP,SU) 5-0-5
A review of basic algebraic concepts including polynomial arithmetic, factoring, exponents and radicals: linear equations and inequalities: the function concept, the rectangular coordinate system and graphs of linear and quadratic functions: higher degree functions: exponential and logarithmic functions: systems of linear equations and inequalities, determinants, Cramer's rule, and matrix solutions. Prerequisite: Math 1108 or placement by asset not open to students with credit for 1133

1111 Technical Mathematics I (D & E-A,W,SP,SU) 3-2-4
A brief review of scientific notation, roots and radicals, and other algebraic concepts; an introduction to computer programming in BASIC; solutions to linear equations and formulas; ratio-proportion, direct and inverse variations; algebraic functions and rectangular coordinates; solutions to 2x2 and 3x3 linear systems, including Cramer's rule; right triangle solutions. Lab fee: \$5.00 Prerequisite: 1108 or placement by asset

1112 Technical Mathematics II (D & E-A,W,SP,SU) 3-2-4
A continuation of the discussion of basic; periodic functions with emphasis on graphing the sine and cosine curves; exponential and logarithm functions; complex numbers, including Demoiivre's theorem; vectors and oblique triangles using the law of sines and the law of cosines; and solutions to quadratic equations. Lab fee: \$5.00 Prerequisite: 1111

1113 Technical Mathematics III (D & E-A,W,SP,SU) 3-2-4
Higher-degree equations, synthetic division, remainder and factor theorems; linear, quadratic, and rational inequalities; systems of inequalities; matrix operations and inverse matrices; trigonometric identities and equations; the straight line, circle, parabola, ellipse, hyperbola, and translation of axes, computer applications using basic. Lab fee: \$5.00 Prerequisite: 1112

1115 Calculus and Analytic Geometry I (D & E-A W) 5-0-5
An introduction to differential calculus: functions; limit theory, continuity, and the derivative; applications to relate problems, maxima and minima problems; mean value theorem; and derivatives of the trigonometric, exponential, and logarithmic functions. Prerequisite: Math 1113 or permission of math department

1116 Calculus and Analytic Geometry II (D & E-W,SP) 5-0-5
An introduction to integral calculus: definite integral, the fundamental theorem of calculus, integration techniques; integration of the exponential, logarithmic, trigonometric, inverse trigonometric, and hyperbolic functions. Applications in computing areas and in calculating volumes of solids of revolution. Prerequisite: 1115

1117 Calculus and Analytic Geometry III (D & E-SP,SU) 5-0-5
Indeterminate forms and improper integrals: numerical methods, conics and polar coordinates: functions of several variables: vectors in 2 and 3 dimensions. Prerequisite: Math 1116

1118 Calculus and Analytic Geometry IV (d & E-a,su) 5-0-5
The derivative in 2 and 3 dimensions: multiple integrals and applications in 2 and 3 dimensions: vector calculus (green's, gauss, and stokes's theorms): series and sequences. Prerequisite: Math 1117

1121 Computer Science Math I (D & E-A,W,SP,SU) 5-0-5
A study of fixed and floating-point real numbers, significant digits, scientific and normalized notations; a look at algorithms; flowcharts, and pseudocode forms, and decision tables; a comparison of decimal, binary, octal, and hexadecimal numeration systems, conversions, and arithmetic in those systems; definitions, symbols, and operations in set theory; a study of linear and nonlinear relations and functions; logical operators with truth tables and flowcharts: an introduction to descriptive statistics and probability. Prerequisite: 1108 or placement by asset.

1122 Computer Science Math II (D & E-AU,W,SP,SU) 4-0-4
A look at logical operators with truth tables and flowcharts; boolean algebra properties and operations; systems of equations and solutions by algebraic, gaussian, determinant, and matrix methods; linear programming solutions by graphing, algebraic, matrix, and simplex methods. Prerequisite: 1121

1126 Probability and Statistics (D & E-A,W,SP,SU) 5-0-5
An introduction to programming using BASIC and micro-computers: the description of sample data; numerical methods of analyzing data; percentiles, quartiles and z-scores; probability; the binomial distribution and the normal distribution; linear correlation and regression; sampling including the central limit theorem. Confidence intervals; tests of hypotheses. Lab fee: \$5.00 Prerequisite: 1122 or permission of math department

1131 Business Mathematics (D & E-A,W,SP,SU) 5-0-5
Ratio, proportion and percents; checking accounts and gross earnings; fca and withholding; sales and property tax; discounts; markup and markdown; simple and compound interest; discounting notes; present value and amortization; depreciation schedules. An introduction to descriptive statistics; mean, median, mode and standard deviation. Applications modules using lotus 1-2-3. Lab fee: \$5.00 prerequisite: 1841 or placement by asset

1133 Business Algebra (D & E-A,W,SP,SU) 5-0-5
Exponents and radicals: linear equations and inequalities, quadratic, rational, and absolute value equations. An introduction to functions, including notation and operations; graphs of linear and nonlinear functions, including parabolas: algebraic solutions to linear and nonlinear systems of equations: cramer's rule and matrix solutions to linear systems: business applications throughout. Prerequisite: 1108 or placement by asset. Not opened to students with credit for 1109.

1134 Business Calculus I (D & E-A,W) 5-0-5
An introduction to differential calculus: limits, interest compounded continuously, continuity, tangent lines, derivatives, differentiability, rules for differentiation, derivatives of logarithmic and exponential functions, graphing techniques, applications of differentiation to graphing and to buiness. Prerequisite: math 1133 or permission of math department not open to students with credit for 1115

1135 Business Calculus II (D & E-W,SP) 5-0-5
An introduction to integral calculus: anti-derivatives, the definite integral, integrals of logarithmic and exponential functions, techniques of integration, fundamental theorem of integral calculus, area, differential equations, functions of several variables, partial derivatives: business applications. Prerequisite: Math 1134 not open to students with credit for 1116

1141 Business Statistics (D & E-A,W,SP) 5-0-5
An introduction to the BASIC language; descriptive statistics; probability distributions; sample statistics; statistical inference; estimation decision theory; with application to business problems. Lab fee: \$5.00 Prerequisite: 1108 or placement by asset

1145 Technical Algebra (D & E -A,W,SP) 4-0-4
An introduction to percents and their uses to include percent increase or decrease; a discussion of dimensional units and unit conversions, including the metric system;

equation solving and formula evaluation; powers and roots; quadratic equations and the quadratic formula; bar, line, and circle graphs and graphs of linear equations. Prerequisite: 1105 or placement by asset not open to students with credit for 1109, 1111, 1112, 1113, or 1133

1146 Technical Geometry/Trigonometry (D & E-A,W,SP) 4-0-4
Solutions to 2x2 systems of equations; geometric concepts and their applications to determining perimeters and areas of plane figures, surface areas, and volumes of solid figures including prisms, cylinders, cones, and spheres; solutions to right triangles; vectors, and angles greater than 90 degrees; law of sines; law of cosines Prerequisite: 1145

1151 Intro to Microcomputers (D & E-A,W,SP,SU) 2-2-3
A historical development; the role of computers in society and future directions. Software: the ibm operating system; applications to spread sheets, word processing, and data base. Lab fee: \$5.00

1155 Computer Application to Mathematics (D-A,W,SP,SU) 2-2-3
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; solutions to linear equations; the metric system; functions and their graphs; ratio and proportion; logarithms; an introduction to descriptive statistics. Lab fee: \$5.00 Prerequisite: 1108 or placement by asset

1185 Calculations and Dosages (SU, W) 2-0-2
A review of the fundamental operations of arithmetic with fractions; scientific notation; an introduction to the metric system; ratio/proportion and percents; an introduction to the apothecaries' system of measure; household measures. Prerequisite: 1841 or placement by asset

Mechanical Engineering Technology

4601 Mechanical Drafting I* (SU,A,W,SP) 0-6-3
This course is designed to instruct students in the principles of orthographic, isometric, and oblique projection. Instruction is provided on dimensioning, sectioning, and applied descriptive geometry and emphasis is placed on making detail and assembly drawings. Lab fee: \$10.00 Prerequisite: 4608

4602 Mechanical Drafting II* (SU,A,W,SP) 0-6-3
Course is 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 I* (SU,A,W,SP) 0-6-2
Computer aided drafting will introduce the student to current means of generating orthographic drawings with the aid of a computer system. Lab fee: \$20.00 Prerequisite: 4602

4604 Basic Mechanisms* (SU,A,W,SP) 0-6-4
This course is a graphical study of basic mechanisms used in the construction of industrial machinery, such as linkages, cams, and gear trains. Lab fee: \$6.00 Prerequisites: 1113

4606 Tool and Machine Design* (SU,A,W,SP) 0-8-4
This course is designed for the beginning student and is a study of the principles of design of production tooling, such as jigs, fixtures, and various types of dies. Lab fee: \$15.00 Prerequisite: 4602

4608 Introduction of Manufacturing Technology* (A,W,SP,SU) 2-3-3
This course is designed to introduce the beginning student to the world of manufacturing engineering technology and basic engineering practices such as drafting, engineering procedure, calculations, terminology, symbols, publications, and professional societies. Emphasis will be placed on demeanor on the job, employment opportunities, and educational paths to jobs in the engineering professions. Prerequisite: 1108

4609 Computer Aided Drafting II* (SU,A,W,SP) 0-6-2
Computer aided drafting II is an extension of computer aided drafting I. This course is designed to enhance skills learned in the previous CAD course and introduces additional system capabilities. Lab fee: \$20.00 Prerequisite: 4603

4611 Machine Tools* (A,W) 2-6-4
This course features hands-on operation of mills, lathes, shapers, grinders, and electrode discharge machine in addition to instruction on safety practices and related theory needed for operating these tools. Additional instruction will be given on cutting tool materials and geometry, feeds and speeds, machining times, gear cutting, and associated bench practices. Lab fee: \$25.00 Prerequisite: 4612

4612 Manufacturing Process* (A,W) 3-2-4

This course is designed to be an introduction to basic manufacturing processes and techniques used in American industry today. The topics to be covered fall into three general categories: 1) manufacturing materials; sources and usage; 2) metals; extraction, and refining; 3) production processes: Machining, forming, molding. Lab fee: \$5.00

4615 Materials Science* (A,W) 3-2-4

This is a course that will acquaint the engineering technician with the nature, properties, performance characteristics and practical uses of various engineering materials. Materials such as ferrous and nonferrous metals as well as concretes, plastics, and selected organic materials will be covered. Lab fee \$10.00 Prerequisite: none

4626 Hydraulics* (SP,SU) 2-3-3

This is a course designed to instruct students in the basics of fluid flow and power transmission in hydraulic machines. This course will emphasize system design and practical uses of hydraulic components for industrial applications. Much of the course is involved in practical lab exercises to demonstrate basic operating principles, piping, pumps, cylinders, and motors. Lab fee: \$10.00 prerequisite: none

4634 Fortran 77 Programming* (W,SP) 1-6-3

This course is designed for the beginning programmer, offering instruction and lab exercises in the ansi 77 fortran language. Students will design, flowchart, code, run, and debug programs in this course. Lab fee: \$18.00 Prerequisites: 4652, 1113

4635 Numerical Control/Cnc Programming* (W,SP) 2-6-4

This course is designed for the beginning student and covers manual numerical control programming. Each student will prepare numerical control programs in fixed block, tab sequential, and work address formats, in both absolute and incremental positioning systems. Students program utilizing state-of-the-art computerized numerical control milling equipment including mills and lathes. Each student will prepare programs utilizing punched paper tape and magnetic media on computerized equipment. Lab fee: \$15.00 Prerequisites: 1111

4644 Statics* (A,W,SP) 2-3-3

This course deals with the principles of trusses, frames, machines and machine components. The course will offer the student experience in dealing with coplanar load systems that are concurrent, parallel and noncoplanar. Prerequisite: 1112

4645 Strengths of Materials* (A,W,SP) 2-3-3

This course is a study of the application of external loads to rigid bodies and the analysis of the resulting stresses produced within those bodies. Study will be devoted to thermal expansion, bolted, and welded joints, thin walled pressure vessels, beam stresses and deflection, beam design, column stresses, and column design. Prerequisite: 4644

4652 Computer Applications for Manufacturing* (SU,A,W,SP) 2-3-3

Computer applications for manufacturing is an introduction to the microcomputer for manufacturing students. Students will be instructed in the basics of the personal computer machine operations, pc-dos, disk storage, along with basics of how a computer works. Students will learn and write applications for Lotus 1-2-3, pfs:write, and dbase II. Lab fee: \$10.00 Prerequisite: 1105

4653 Robotics* (A,W) 2-3-3

Course reviews robotic system approach principles, descriptions of robot operations, and application of robots and automation systems. Approaches to economic justification of robots and automatic production systems is presented. Students learn the application of computers to robotics and automation systems. Course provides procedures in designing, purchasing, and installation of robotic and automatic systems. Lab fee: \$10.00 Prerequisite: 4652

4654 Statistical Process Control* (SU,A,W,SP) 2-3-3

This course provides a broad overview of statistical process control in the industrial environment. This course includes presentation of the philosophy and practices of modern quality control principles, basic probability, control chart applications, acceptance sampling, frequency distributions, and process capability studies.

4655 Computer Aided Manufacturing* (A,W,SP) 2-6-4

This course is designed to provide a comprehensive presentation of the fundamentals of cam technology. The course covers the development, implementation and projected future of computer utilization in the areas of monitoring and control of manufacturing processes. In addition, various support applications will be presented for which there are no direct interfaces to existing processes. Lab fee: \$15.00 Prerequisites: 4603, 4611, 1111

Medical Laboratory Technology

8001 Medical Technology I* (A,SP) 2-4-4

The role of the medical laboratory technician in the health field is defined through an introduction to legal and ethical issues, safety, basic instruments, laboratory

records and preventive maintenance. Medical terminology and phlebotomy are the two major areas taught. Medical terminology is learned through independent work in a programmed text and blood collection techniques are learned through practice sessions scheduled throughout the quarter. Lab fee: \$35.00 Prerequisite: Admission to program

8002 Medical Technology II* (W,SU) 1-2-2

Basic electronics, spectrophotometry, standard curves, quality assurance and theories of instrumentation will be presented. Laboratory mathematics, particularly those dealing with preparing percent solutions, and standard solutions will be emphasized. Lab fee: \$35.00 Prerequisite: 8001

8005 Immunohematology* (A,SP) 5-15-10

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 cross-matching 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 and 8002 or permission of Chairperson

8017 Clinical Microbiology* (W,SU) 4-15-9

A practical introduction to the laboratory identification of microbial agents associated with infectious disease in man. The course deals with the techniques necessary to isolate, identify and evaluate the presence of clinically significant microorganisms. The course also includes a brief introduction into medical mycology and parasitology. Lab fee: \$70.00 Prerequisite: 8005 or permission of chairman

8018 Coagulation* (W,SU) 2-3-3

Mechanisms of hemostasis are studied which include the evaluation of platelet function, vascular integrity, and the four stages of the coagulation system. Disorders of hemostasis are studied and the procedures used to identify and evaluate these disorders. Examples of procedures are as follows: bleeding time, clot retraction, prothrombin times, partial thromboplastin times, substitution testing, and slide agglutination testing for fibrin degradation products. Lab fee: \$35.00 Prerequisite: 8005 or permission Concurrent 8084

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 and or 8001 permission of Chairperson

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) 4-15-9

Clinical chemistry is the application of the science of chemistry to the understanding of the human in health and disease. This course presents the analytical principles of methods necessary to determine chemical constituents in blood, urine and other body fluids and integrates them with instrumentation and manual techniques. The chemical principles of the methods utilized will be discussed as well as the physiological and biochemical changes associated with related disease states. 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

8041 Immunology I* (W) 1-2-2

This course presents a study of the immune system and the basic principles of immunology as a basis for laboratory procedures. Serology tests commonly performed in the clinical laboratory utilizing flocculation, agglutination, and antibody neutralization are included.

8042 Immunology II* (W) 1-2-2

This course is built upon basic immunology concepts, emphasizing principles and applications of antigen—antibody reactions such as agglutination—inhibition, precipitation, fluorescence, RIA and Elisa. The laboratory will focus on performing tests which use the above applications. The student will visit laboratories to observe unusual immunological techniques. Also the course will include discussions of the etiology and diagnosis of immunological mediated diseases.

8082 Clinical Experience I* (W,SU) 0-20-3
Two-quarter internship providing a practical application of the skills and abilities learned during the previous five quarters. The students are assigned to a laboratory as a trainee. Students will apply their skills 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 urinalysis and immunology. Prerequisite: 8025 Concurrents: 8018, 8084

8083 Medical Laboratory Clinical Experience II* (A,SP) 0-35-5
Continuation of 8082. Lab fee: \$70.00

8084 Medical Technology Case Studies* (W,SU) 0-3-1
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 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 intern 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
An 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 student will develop a basic understanding of community based mental health, mental health needs of residents of Columbus and Franklin County, contemporary legislation, and medical model vs. a human service model. Lab fee: \$7.00

8405 Interviewing (A,W,SP) 2-2-3
The student will develop a beginning understanding of the process and principles in establishing effective helping relationships using observation and behavioral writing. Lab fee: \$7.00

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: \$7.00

8416 Group Work Skills 4-0-4
Dual focus is on knowledge and experiential learning using groups as the unit of attention. This course includes formation, process and content, stages of development, leadership skills and problematic issues of the group. Student will participate as a member in a peer group to compliment classroom theoretical constructs. Lab fee: \$ 7.00 Concurrent: 8495

8421 Values and Attitudes for the MHT* (A,W,SP,SU) 0-2-1
This course focuses on the values, beliefs, and attitudes necessary for effective helping relationships. Values clarification and selfexploration are an integral part of the course. Conducted through a small group experience to facilitate interpersonal understanding. Lab fee: \$7.00

8422 Counseling Skills* 4-0-4
This course focuses on the theoretical and practical aspects of effective helping through the counseling relationship. There is an emphasis on teaching/training a varied client population. Course content includes practicing skills using the laboratory, videotape, small study groups, and role play/simulation. Lab fee: \$7.00

8423 Residential Treatment* 4-0-4
An intermediate course designed to provide the student with knowledge of key concepts and theories as well as specific skills related to treatment in a residential facility. Contemporary concepts of a 24 hour-a-day care, activity therapy, rehabilitation, psychotropic medication, impact of institutionalization, and problems of community acceptance will be taught. Lab fee: \$7.00 Concurrent: 8493

8424 Principles of Behavior Management* (W,SP) 4-0-4
An intermediate course designed to coordinate clinical (practical) experiences with theoretical and academic knowledge. Focus is on behavior management theory and application in a variety of settings. The student will develop skills in using a behavioral approach to work with clients. This course will also focus on data collection, assessment, and treatment planning with an MR/DD population. Lab fee: \$7.00 Concurrent: 8494

8426 Social Policy and Programs 4-0-4
Social policy and its relationship to the work of helping persons. Overview of U.S. Social welfare institutions: family, church, government, economic institutions. This course examines social welfare policies/programs at national, state and local levels 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: \$8.00 Prerequisite: 2nd year standing or permission. Concurrent: 8493 or 8494

8438 Chemical Dependency: Alcohol and Other Drugs* (on Demand) 4-0-4
An overview course designed to acquaint the student with assessment, intervention strategies, and treatment of the identified dependent person. Also provides an introduction to family systems and addresses needs of minority groups, elderly, women and youth. Lab fee: \$7.00 Prerequisite: none Concurrent: none, but can be taken with 8498

8491 Fundamentals in Human Service Practice* (A,W,SP) 6-12-8
The planning process for delivering service to clients will be studied through the steps of data collection, assessment, treatment planning, implementation, and evaluation. The student will become knowledgeable in specific methods to collect data, assess and prioritize client needs, devise treatment plans, implement the treatment plan, and evaluate the effectiveness of the plan. The student will observe and participate in the delivery of service to clients at an agency providing a range of MH/MR services. The student will also practice basic skills under close supervision. Lab fee: \$7.00

8492 MH/MR Advanced Clinic II 2-15-5
This course is one of two advanced clinical experiences for the second year student which takes place in community agencies matching the student's interest and training needs. The student has solid grounding in the fundamental skills requisite for being an effective helper. The student plans an extended placement of 2 consecutive quarters in the same setting in order to carry a small caseload and become involved in on-going work with clients. The student is expected to assume the role of service provider and is responsible for professional conduct and regular work habits. Lab fee: \$5.00 Concurrent: 8422 and 8416 respectively

8493 Clinical Practice II 2-12-4
This is one of several intermediate 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 provides a range of MH/MR services, and to practice basic skills under close supervision. Lab fee: \$5.00 Concurrent: 8423

8494 Clinical Practice III 2-12-4
This is one of several intermediate clinical experiences for first year students. An overview of modalities of delivery of MH/MR. To give the trainee an opportunity to observe all service components of a facility which give a range of services to MR/DD population. Provides opportunities to practice basic skills under close supervision. Lab fee: \$5.00 Concurrent: 8424

8495 Advanced Clinic I (on Demand) 2-15-5
This advanced clinical experience is for the second year student which takes place in community agencies matching the student's interests and training needs. The student has solid grounding in the fundamental skills requisite for being an effective helper. The student plans an extended placement of 2 consecutive quarters in the same setting in order to carry a small caseload and become involved in on-going work with clients. The student is expected to assume the role of service provider and is responsible for professional conduct and regular work habits. Lab fee: \$5.00 concurrents: 8422 and 8416 respectively

8498 Field Placement Elective (on Demand) 2-12-4
A specifically arranged clinical experience for students desiring to 1) pursue in-depth training in special areas, 2) strengthen areas of clinical performance as recommended by faculty, or 3) enhance their program with additional practical experience. Application must be made during the prior quarter. Lab fee: \$5.00 Permission of faculty is required.

Multi-Competency Health Technology

8801 Basic Electrocardiography (EKG)* 5-2-6
This course will cover anatomy and physiology of the heart, basic operation of the electrocardiography, pathology of the heart and basic arrhythmias. Concurrent: 8811

8802 Tissue Identification* (A) 0-6-3
This course will cover the use of the microscope and cellular structure. Tissues, such as epithelium, connective (cartilage, bone, blood), muscle, and nervous, will be examined and studied. Lab fee: \$15.00 Prerequisite: acceptance in program Concurrent: 8801

8803 Chemistry of Stains 5-0-5
This course will cover the tissue and cellular stains. Stains, such as hematoxylin-eosin, I.A.P., gram's, giemsa, acid fast, and sudan, will be used and their advantages, disadvantages, precautions and special uses will be discussed and practiced. Lab fee: \$25.00 Prerequisite: 8802

8804 Instrumentation* (W) 3-0-3
The use, maintenance and safety of the instruments involved in histology will be discussed. The physics and/or chemistry involved in the use of such instruments as the tissue processor, automatic stainers, ovens, waterbaths and the various types of microtomes must be understood. Lab fee: \$25.00 Prerequisite: 8802

8805 Basic Histology Technics* (W) 0-24-8
The processing and cutting of tissues or organs, such as skin, digestive tract, bone, kidney, liver and pancreas, will be practiced. The sections cut will then be stained using both routine and special stains and prepared for examination by a physician. Lab fee: \$25.00 Prerequisite: 8802

8806 Histology Laboratory Regulations* (W) 2-0-2
The safe use of the equipment will be reviewed and expanded upon. The federal and state regulations regarding the use of the chemicals involved with tissue processing will be discussed. Prerequisite: 8802

8807 Case Study Review* (SP) 3-0-3
Technicians and physicians from the hospital will review surgical and autopsy cases from the gross review of the tissues removed through the microscopic examinations of tissues and relate the findings to the disease entity. Prerequisite: 8805 Concurrent: 8812

8808 Seminar* (A) 3-0-3
This seminar will direct the student toward the proper methods for seeking employment. Resume writing, cover letters, and interviewing technics will be discussed. Advanced case studies will be presented. Prerequisite: 8812 Concurrent: 8813

8809 Basic Histology Theory* (SU) 4-0-4
This course is divided into two major units of study. Emphasis is first placed on mathematics applicable to reagent preparation in a functioning histology laboratory. The safe use of the equipment will be reviewed and expanded upon. The federal and state regulations regarding the use of the chemicals involved with tissue processing will be discussed. JCAH, cap regulations will be discussed. Prerequisite: 8802

8811 Electrocardiography Clinical Practice* 0-3-1
This course consists of lab demonstrations and clinical practice of EKG in a local hospital. Concurrent: 8801

8812 Clinical Practicum I*(SP) 0-24-6
The students will have clinical experience in hospital histology laboratories under the supervision of registered histology technicians. They will cut, process and stain both surgical and autopsy tissues as well as work with cryostat (frozen tissue) and in some instances, observe the newest laser technology.

8813 Clinical Practicum II* (A) 0-24-6
The students will have clinical experience in hospital histology laboratories under the supervision of registered histology technicians. They will cut, process and stain both surgical and autopsy tissues as well as work with the cryostat (frozen tissue) and in some instances, observe the newest laser technology. Prerequisite: 8812 Concurrent: 8808

8815 Phlebotomy* (A) 3-9-6
This course is designed to provide the student with a knowledge of blood collection through the use of capillary and venipuncture techniques. The anatomy necessary for the performance of the collection, the anticoagulants and clinical relevance, the preparation of all specimens for laboratory use, and the preservation of specimens are in integral part of the course. Medical ethics, medical legal responsibilities, safety and professionalism are integrated throughout the sessions. Problems encountered in phlebotomy in addition to special specimen collection for transfusion service, blood cultures, coagulation test, and timed tests are reviewed. Lab fee: \$25.00

8821 Physician's Office Microbiology* (SP) 2-4-3
This course introduces basic microbiology skills routinely performed by the laboratory in emergency care centers and doctor's offices. X-ray positioning and safety will also be presented. Skills for performing gram stains, wet preps, microbiological plating and identification of some of organisms on media will be included. Lab fee: \$35.00

8822 Physician's Office-chemistry and Immunology* (SP) 2-4-3
This course is an introduction to basic skills routinely performed by the laboratory in emergency care centers and doctors offices. Emphasis will be in hematology and microbiology with an introduction to x-ray positioning. Skills for performing a complete blood count, preparation and staining of blood smears, white cell differential, quality control, gram stain, wet prep, and microbiological plating and identification of some specimens on media will be included. Lab fee: \$35.00

8823 Physician's Office Urinalysis* (SU) 2-0-2
Basic urinalysis is the study of the composition of urine and its clinical significance through physical properties, routine chemical tests and microscopic evaluation. This course is not tech-restricted and is not intended for medical laboratory students. Lab fee: \$25.00

8824 Physicians Office Hematology* (A,W,SP,SU) 2-3-3
This course is an introduction to basic hematology skills routinely performed by the laboratory in emergency care centers and doctors offices. Skills for performing a complete blood count, preparation and staining of blood smears, white cell differentials and quality control will be presented. Lab fee: \$35.00

Nursing Technology

8541 Introduction to Nursing* (A,SP) 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: \$15.00 Prerequisite: Admission to nursing Concurrents: 1313,1361,1002

8544 Nursing Concepts of Wellness I* (W,SU) 2-12-6
The course expands the concepts of nursing and health by applying them to the hospitalized person and his family. Maslow's physiological needs for air, food and fluids, and internal environment are critically examined using the nursing process approach. The student is introduced to the role of the associate degree nurse within the acute care facility. Learning opportunities are provided to expand assessment skills, introduce the application of the planning phase of the nursing process, and implement nursing techniques that support wellness. Lab fee: \$15.00 Prerequisites: 8541,1313,1361 Concurrents: 8545,1369,1185

8545 Concepts of Pharmacology* (W,SU) 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 Prerequisites: 8541,1313,1361 Concurrents: 8544,1369,1185

8547 Nursing Concepts of Wellness II* (SP,A) 2-12-6
The student is introduced to the role of the associate degree nurse in providing nursing care for families during the childbearing process. The student will continue to utilize the nursing process in promoting wellness of holistic man during childbearing years. Lab fee: \$15.00 Prerequisites: 8544,8545,1369,1185 Concurrents: 1585, 1315

8549 Nursing Concepts of Health Alterations I* (su, W) 3-15-8
The student 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: \$15.00 Prerequisites: 8547,1585,1315 Concurrents: 1551,1003

8551 Nursing Concepts of Health Alterations II* (a,SP) 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,

internal environment maintenance, activity, and rest are addressed as they relate to illness. All aspects of the nursing process are incorporated in care of the client. Learning experiences emphasize nursing skills that promote wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$15.00 Prerequisites: 8549, 1003, 1551 Concurrent: 1931, 1932, or 1933

8553 Nursing Concepts of Mental Health* (W, SU) 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 and security, love and belonging, self-esteem, and self-actualization are related to the mental health-illness continuum. The nursing process is utilized in providing holistic care for clients. Clinical and laboratory experiences are provided in community and hospital settings. The student is encouraged to explore their own adaptive behaviors in order to enhance personal and professional growth. Lab fee: \$15.00 Prerequisites: 8551, 1931, 1932, or 1933 Concurrents: 1024, 1502, 1503 or 1504

8555 Role/Function of the Associate Degree Nurse* (SP, A) 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 and chronic health care settings will be utilized. Lab fee: \$15.00 Prerequisites: 8553, 1024, 1502, 1503 or 1504 Concurrents: 8556, 1014

8556 Perspectives in Nursing* (SP, A) 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 Columbus State 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 Concurrent: 8555, 1014

8581 Proficiency Student Transition* (A, W, SP, SU) 1-0-1
This course is designed to assist the student who has proficiency credit for one or more designated nursing courses with transition into the nursing sequence. The components of the course include socialization into the student role, communication skills, and nursing process. Prerequisite: x credit in designated nursing courses.

Real Estate 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 (GRI). (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 salespersons, law of fixtures, estates (including leases), conveyancing of real estate, real estate managers, licensure laws of Ohio, zoning, cooperatives and condominiums. Meets state requirements for licensing and graduate realtor's institute designation (GRI). (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. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00 Prerequisites: 3601 & 3602 or real estate license

3604 House Style and Design (SP) 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. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00

3605 Real Estate Advertising* (SP) 2-0-2
A contemporary study of real estate advertising: the way we advertise to reach and motivate prospective buyers, to market targets, to use additional or substitute media, and to be creative in design and application of advertising techniques emphasizing company identity. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00 Prerequisite: 3601 or real estate license

3606 Real Estate Brokerage (W, 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: \$1.00 Prerequisite: 3601 or real estate license 3607 Real Estate

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. Lab fee: \$2.00 Prerequisite: 3601 or real estate license or permission of coordinator.

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. Course may meet continuing education requirement (see advisor). Lab fee: \$1.00

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. Lab fee: \$2.00 Prerequisites: 3632 & 3601, or real estate license or permission of coordinator.

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. Course may meet continuing education requirement (see advisor). 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. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00 Prerequisites: 3611, 3612 (3612 may be taken concurrently.)

3614 Marketing Investment Analysis 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. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00 Prerequisite: 3613

3615 Real Estate Special Topics* (W, 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

3616 Real Estate Commercial Investment* (A) 5-0-5
The practical application of real estate investment concepts used in daily real estate practice. A step-by-step approach through a typical case study involving, a typical client beginning with investment in general, yield analysis, taxation, then continuing through property analysis, tax deferred exchange, the installment sale and alternative investments. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00 Prerequisite: 3601

3617 Professional Property Management* (A, S) 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, hir-

ing, merchandizing, advertising, collection problems, taxes, insurance and maintenance. An alternate course for licensing as a real estate broker (see advisor). Course may meet continuing education requirement (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. Course may meet continuing education requirement (see advisor). 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 GRI 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, proration of insurance, mortgage interest, and taxes to date of sale and preparation of closing statements. Course may meet continuing education requirement (see advisor). Lab fee: \$2.00

3633 Practical Financial Analysis (A,W,SP) 3-0-3
Emphasis is on hand-held calculators as a tool to analyze the many financial problems that realtors encounter in the conduct of their practice. Deals with a special class of hand-held calculators, namely financial calculators, such as the HP-12c and TI financial I and II calculators. Course may meet continuing education requirement (see advisor). 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. Course may meet continuing education requirement (see advisor). Lab fee: \$1.00

3682 Real Estate Today Seminar II* (on Demand) 2-0-2
Continuation of 3681. Lab fee: \$1.00

3683 Real Estate Today Seminar III* (on Demand) 3-0-3
Continuation of 3682. Lab fee: \$1.00

Respiratory Care Technology

8602 Introduction to Respiratory Care 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 Prerequisites: 1181, 1311, 1331 or 1344, 8621 or Permission

8603 Respiration in Health and Disease* (SU) 4-0-4
A study of the physiologic and the pathologic processes which are seen in normal and abnormal cardiopulmonary conditions. Topics include pulmonary and cardiac anatomy, the physiology of ventilation and perfusion, renal anatomy and physiology, obstructive and restrictive lung disorders, and cardiac and vascular disorders. 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. Prerequisites: 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 regulations. Drug groups relating to respiratory care will be emphasized to include bronchodilators, wetting agents, mucolytics, proteolytics, antibiotics, and aerosol solutions. Prerequisites: 8603 or 8604

8606 Clinical Specialties* (SU) 3-0-3
A study of cardiopulmonary disorders including clinical signs and symptoms, pathophysiology, diagnosis, and treatment. The course content includes evaluation techniques of the pulmonary system, obstructive and restrictive lung diseases, pulmonary vascular disorders, and respiratory and respiratory failure. Prerequisite: 8604 or permission

8607 Mechanical Ventilators* (A) 2-0-2
A course dealing with the equipment used to provide ventilator support, including ventilator classification, operation and adjuncts. Prerequisite: 8602

8608 Pulmonary Function and Blood Gas Analysis* (A) 3-0-3
A study of the equipment and the techniques utilized in pulmonary function testing and blood gas analysis. This course examines the types of analyzers used in performing lung volume tests, lung flow tests, and gas analysis test with a discussion of the advantages and disadvantages of such systems. Procedures used in each test are discussed including patient instruction and calculation of the data. Prerequisite: 8606 or permission Concurrent: 8683

8609 Organization and Administration* (SP) 2-0-2
A course dealing with general management concepts as they relate to the administrative duties in a respiratory care department. Topics include policy and procedure manual, human relations, budgeting, productivity and quality control. A portion of the course is devoted to preparing for the national credentialing exams. 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. Prerequisites: 8602, 8603, 8641 Concurrent: 8642

8612 Therapeutic Procedures II* (W) 3-0-3
A survey of the aspects of mechanical ventilator support including types of ventilators, criteria for support and weaning, "peep" therapy, and hemodynamic monitoring. Course content also covers the basic techniques in pulmonary function testing and arterial blood gas analysis, and an overview of neonatal and pediatric respiratory care procedures. Prerequisite: 8605, 8611, 8642 Concurrents: 8643, 8644

8621 Patient Care for Respiratory Care* (A,SP) 3-4-5
An introduction to respiratory care 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 Concurrents: 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 Concurrents: 8682, 8606, 8605

8633 Respiratory Procedures III* (A) 3-0-3
A study of the application of mechanical ventilatory support. The theory of operation of ventilators is covered including terms, abbreviations, classification, and flow characteristics. Patient application to ventilatory support is discussed, including indications for support, hazards of ventilatory support, maintenance procedures, monitoring techniques, and weaning procedures. Also included will be material on positive pressure therapy, hemodynamic monitoring, and other special topics. Prerequisite: 8632, 8605, 8606, 8682 Concurrent: 8683

8634 Respiratory Procedures IV* (W) 3-0-3
A study of the therapeutic procedures of respiratory care which are associated with pediatric and neonatal patients. Course content includes evaluation and care of the newborn, neonatal mechanical ventilatory support, neonatal diseases, and pediatric diseases. Prerequisite: 8633, 8683, 8608 Concurrent: 8684

8641 Clinical I* (SU) 0-12-3
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. Lab fee: \$20.00 Prerequisite: 8621, 8603 Concurrent: 8603, 8602

8642 Clinical II* (A) 0-12-3
Practical application of IPPB and chest physiotherapy; also, to include airway management and emergency procedures. Lab fee: \$20.00 Prerequisite: 8641, 8602, 8603 Concurrents: 8611

8643 Clinical III* (W) 0-12-3
Instruction and practical application of mechanical ventilation. Lab fee: \$20.00
Prerequisite: 8642,8611,8605 Concurrents: 8612,8644

8644 Clinical IV* (W) 0-16-4
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 16 hours per week, and the student will have the responsibilities of a department member during this affiliation. Lab fee: \$25.00 Prerequisite: 8642 Concurrent: 8643

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. Lab fee: \$20.00 Prerequisite: 8602 Concurrents: 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 Concurrents: 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) 0-24-4
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 24 hours per week. During this clinical affiliation the student will gain experience needed to develop clinical judgement in preparation for employment. Lab fee: \$25.00 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.

2902 Retail 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. Prerequisites: 3801, 3815, 2901

2904 Retail Store Operations and Control* (SU) 4-0-4
This course is designed to deal with the two major functions of a retail establishment. The first is the operations function and includes such things as location, receiving, warehousing, repair and alterations, deliver, customer service maintenance, accounts receivable, accounts payable, credit and collections, and inventories. The second is how to control these operations profitability. Prerequisite: 3762

2913 Retail Buying I* (W) 5-0-5
Retail buying is a course designed to provide you, the student, with the basic fundamentals involved in a buyer's determination. A study of what merchandise to buy and the quantity to buy. In addition to this, an overview of textiles and merchandise information is given that will enable you to have a broader knowledge of various products and help you to understand the buying process. Prerequisite: 2981, 2985

2914 Retail Buying II* (SU) 4-0-4
This course is designed to assist the student in understanding the many different duties of a buyer and how he/she may use their role in assuring profitability. The buyer's role is as a manager of risk, inventory shortage control, people, promotion and laws that will effect them and their employer. This class will direct itself to these and other areas. Prerequisites: 2981-2985

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 Science

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, and petty cash. 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 systems and supplies.

3319 Typing Improvement (Recommendation By Instructor) (A,W,SP,SU) 1-4-3
This elective course is designed to provide students with increased skills in the operation of the keyboard. Greater speed and accuracy are the goals. The emphasis is on speed and accuracy using straightcopy material. Lab fee: \$8.00 Prerequisite: 3325

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: \$8.00

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: \$8.00 Prerequisite: 3325

3329 Typing 3 (Production II)* (SP,SU) 2-3-3
Further development of the student's ability to type letters, tabulations, reports, and other business forms and introduction to the use of machine transcription equipment. Lab fee: \$8.00 Prerequisite: 3328

3341 Shorthand (Beginning)* (A,W) 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.

3342 Shorthand (Intermediate)* (W,SP) 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)* (SP,SU) 3-2-4
A continuation of shorthand (intermediate) intended to build accuracy and speed. Introduction of short cuts. Development of typewritten transcription skill. Lab fee: \$4.00 Prerequisite: 3342

3355 Word Processing I* (A,W,SP,SU) 2-3-3
Introduction to text editing equipment and to the word processing concepts. Lab fee: \$30.00 Prerequisite: 3328 Concurrent 3329

3356 Word Processing II* (W,SP,SU) 2-3-3
In-depth experience on a selected type of word processing equipment. Lab fee: \$25.00 Prerequisite: 3355

3364 Machine Transcription* (SP,SU) 3-2-4
This course is designed to provide secretarial students with increased skills in the use of machine transcription equipment. Mailable copy is the goal in transcribing machine dictation of business correspondence, technical reports, drafts, and other business communications in a broad range of business formats. Emphasis on the fundamentals of english in grammar, spelling, and vocabulary will reinforce transcription skills. Lab fee: \$8.00 Prerequisite 3328 Concurrent : 3329

3365 Office Simulation* (A,SP) 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: \$10.00 Prerequisite: 3325

3366 Model Office* (W,SU) 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: \$12.00 Prerequisite: 3325

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: \$15.00 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: \$15.00 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 WAM 3 minute speed takes passed twice with 12 or fewer errors. Typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$15.00 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 Internship 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 and transcription skills. Introduction to court systems, types of law, civil and criminal procedures, and applicable legal terminology. Legal terminology includes shorthand outlines for frequently used terms. Lab fee: \$15.00 Prerequisite: 3343 or 3364 & 3329

3385 Legal Office Procedures II* (W) 5-5-7
Continuation of legal secretarial skill development including grammar, vocabulary, and spelling; study of domestic relations, probate, corporate, bankruptcy, and real estate law and applicable terminology. Lab fee: \$15.00 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 competency: typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$15.00 Prerequisite: 3385

3388 Legal Secretarial Internship I* (W) 0-20-5
The student is placed in a secretarial position, preferably legal in nature, 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, machine transcription, and proofreading. Also to include medicolegal responsibilities, receptionist duties, telephone procedures, appointment scheduling, job-seeking skills, medical terminology, and medical reports transcribed on word processing equipment. Lab fee: \$15.00 Prerequisite: 3343 or 3364 and 3329

3395 Medical Office Procedures II* (W) 5-5-7
Continuation of skill development pertaining to work as a medical secretary to include typing, 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: \$15.00 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, 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 competency: typing: five-minute timings at a minimum speed of 60 WAM passed twice with 5 or fewer errors. Lab fee: \$15.00 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 and Behavioral Sciences

1502 Contemporary Issues: Cultural Diversity, Social Inequity, Prejudice and Discrimination (A,W,SP,SU) 5-0-5
An interdisciplinary survey of the psychological, sociological, political and economic diversity among the various ethnic and minority groups comprising American society. Emphasis will center on definitions, causes, perspectives and consequences of beliefs, values, attitudes and policies which affect their lifestyles. Solutions to the problems of inequity, prejudice and discrimination will be considered. Prerequisite: admission to 1002

1503 Contemporary Issues: America in Transition (A,W,SP,SU) 5-0-5
An overview of the impact of change on individuals and organizations in American society. Emphasis centers on causes of change, including the impacts on individuals and their families, governmental and economic responses, and the shaping of American societal institutions. Prerequisite: Admission to 1002

1504 Contemporary Issues: Social Problems (A,W,SP,SU) 5-0-5
An examination of how various conditions within society come to be defined as social problems. Cultural, structural, and individual causes of such problems will be presented, based on relevant sociological, psychological, economic, and political science research. The consequences of problems for both the individual and society will be discussed, along with possible intervention strategies. Problems to be covered include health and well-being; social and interpersonal violence; conformity and deviance; social and economic inequality associated with poverty, minority status, aging, and sex roles; institutional change and future issues and trends. Prerequisite: Admission to 1002

1512 Human Sexuality (A,W,SP,SU) 3-0-3
An introduction to the biological, physiological, psychosocial behavior, and cultural aspects of human sexuality. Special emphasis is placed on facts, fallacies, and feelings surrounding human sexuality.

1524 Adult Psychology (A,W,SP,SU) 4-0-4
A developmental psychology course in which students are introduced to the various developmental stages of adulthood from youth to old age. Research and theory related to adult development and death as the final stage of growth are examined. Prerequisite: 1551

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.

1526 Abnormal Psychology (A,W,SP,SU) 3-0-3
Abnormal psychology presents 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. The course examines the research, philosophies, major perspectives, and myths in the field of mental health. Prerequisite: 1551

1528 Ethnic Studies (A,W,SP,SU) 3-0-3
A survey of the multicultural nature of American society. Multidisciplinary in nature, ethnic studies explores the diverse cultures and experiences of ethnic and minority groups in America. Topics covered include: cultural pluralism in America; assimilation of European ethnic groups and other racial minority groups; social classes in America; old world, new world, and third world cultural perspectives.

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. Emphasis is on the physical, cognitive, social, emotional, and

language development of children. Observation of children is an integral part of the course.

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. Emphasis is on the cognitive, physical, social and emotional development of children. Observation of children with the use of language and objective techniques is an integral part of the course. Prerequisite: 1531

1537 Introduction to Economics (On Demand) 5-0-5

Explanation of economic principles fundamental to a broad array of social concerns; and utilization of these concepts in understanding the economic activity of the household, the organization and the economy. Emphasis is on the definition of basic economic terms.

1538 Principles of Macroeconomics (On Demand) 5-0-5

A study of the methods and subject matter of economics within the ideological and factual framework of American capitalism at the macro-level. Emphasis is placed on the following economic concepts: national income analysis, money and banking, employment theory, and monetary and fiscal policy.

1539 Principles of Microeconomics (On Demand) 5-0-5

A study of the methods and subject matter of economics within the ideological and factual framework of American capitalism at the micro-level. Emphasis is placed on the following economic concepts: consumer behavior, theory of the firm, resource allocation, price theory, and demand and supply analysis.

1541 Community Sociology (A,W,SP,SU) 5-0-5

Description and analysis of the community as a social entity. Introduction to major community concepts and ideas, and to the community processes. Patterns of interaction, organization, and dynamics of community are examined. The urbanization process and condition is explored.

1551 Introduction to Psychology (A,W,SP,SU) 5-0-5

An introductory course providing an overview of the origins, growth, present day content and applications of psychology, including, the application of the scientific method to: sensation and perception; motivation; emotion; learning; memory; cognition; intelligence; development; personality; abnormal behavior; and social behavior.

1555 Psychology of Adjustment (A,W,SP,SU) 3-0-3

Psychological, sociological, and physiological factors which influence individual growth, development, and behavior will be explored. Emphasis is placed on the following: utilization of current theoretical approaches to understanding and achieving the application of conditioning and motivation techniques to behavior modification; group dynamics; methods of self-help; and methods of improving interpersonal communications and relationships. The course emphasizes individual projects and class activities. Prerequisites: 1551

1561 Introduction to Sociology (A,W,SP,SU) 5-0-5

A survey course designed to introduce the basic concepts, methods, and findings of sociology as a scientific discipline. The sociological perspective emphasizing social interaction and structure, will be used to explore the following topics: culture, socialization, social groups including organizations, deviance, various types of social inequality, major social institutions, and social change.

1571 Introduction to Cultural Anthropology (On Demand) 5-0-5

An introduction to the study of anthropology with primary emphasis on the subdiscipline of cultural anthropology. Other anthropological subdisciplines will be drawn on and incorporated where relevant. Topics to be covered will include: basic anthropological concepts and theories; various world cultures; the nature of cultural diversity; and the evolution and development of sociocultural systems.

1572 Introduction to Physical Anthropology (On Demand) 5-0-5

An introduction to physical anthropology within the larger framework of the overall field of anthropology. Topics to be covered include: the origin and antiquity of humankind, human biological evolution, the relationship of man to animals, paleontological discoveries, and racial phenomena.

1581 Introduction to American Government (On Demand) 5-0-5

Introduction to the nature, purpose, and forms of the federal government in the United States. The focus will be on the institutions and processes that create public policy, including strengths and weaknesses of the american political system.

1582 Introduction to Politics (On Demand) 5-0-5

An introduction to the basic concepts and issues in the study of politics. Political ideologies and systems, political power and political institutions, democratic, authoritarian and totalitarian systems are studied. The emphasis will be global and center on the aspects of politics that are shared by all political entities.

1585 Human Growth and Development Through the Life Span (A,W,SP,SU) 4-0-4

A survey of developmental change from conception to death. The interdisciplinary course of human growth and development studies each stage from the time of conception and prenatal growth through infancy, childhood, adolescence, adulthood, and death. The course will also focus on physical, social, emotional, and cognitive development attempting to familiarize the student with the many forces that shape individuals and the options individuals have to influence their own development.

1593 Independent Study (A,W,SP,SU) 3-0-3

An individual student-structured course. The independent study elective permits a student to pursue his/her interests within the context of a faculty-guided program. Prerequisite: approval by instructor.

Social Services Technology

7503 Family Planning Services* (W) 3-0-3

This course provides the student with an overview of human sexuality from birth to death. Included are: sexual reproductive systems, family planning methods and psycho-social implications of sexuality. Development of verbal ease in communicating about sexuality, responsive listening, exploring and accepting divergent views are the skills emphasized. Lab fee: \$2.00

7504 Case Work Practices* (A,SU) 3-0-3

This course is designed to expose the social service student to the unique importance of the professional interpersonal relationship between worker and client. The course defines, evaluates and analyzes this relationship via use of case studies, group practicums and role plays. Lab fee: \$2.00

7505 Categorical Disabilities* (W) 3-0-3

This course provides the student with an overview of six (6) major developmental disabilities. The major disabilities covered are mental retardation, autism, cerebral palsy, cerebral dysfunction, sensory dysfunction, sensory disorders, and epilepsy. Lab fee: \$2.00

7506 Mental Hygiene Services* (SP) 3-0-3

This course is designed to give the student insight into the three (3) health concepts of mental retardation, mental illness and mental health. The course explores these concepts via the use of video tapes, film strips, on site agency visitations, and group practicums. 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

This is a basic introductory course which surveys the american health care delivery system from a consumers viewpoint. Topics covered include health-delivery systems, insurance, health products, medication and the cost of death. Lab fee: \$2.00

7512 Concepts of Counseling* (W,SU) 3-0-3

This course is designed to develop in students an awareness and understanding of the counseling process, the philosophical basis for counseling. The course intent is to demonstrate that; "in order to help wisely one needs to develop a certain degree of selfawareness as well as knowledge and skills of how to help." Lab fee: \$2.00

7513 Family Counseling* (SP) 3-0-3

It is the aim of this course to familiarize students with the dynamics of the functional and dysfunctional family and the methods and procedures designed to assist families in coping with their problem. Lab fee: \$2.00 Prerequisite: 7512

7515 Case Recording* (W,SU) 3-0-3

This course is designed to teach the student the analytical thinking model (atm) which would facilitate the student's learning process in the areas of analyzation, diagnosis and case recording on social work case situations. Lab fee: \$2.00 Prerequisite: 7504

7516 Current Issues in Social Services* (SP) 2-0-2

A seminar course that reviews the contemporary issues that affects the social work profession in the age of social, psychological and ecological crisis. Lab fee: \$2.00

7517 Aid-in-crisis* (W) 3-0-3

This course is designed to acquaint the student with practical and innovative strategies of crisis intervention required for the helping profession. To assist in the enhancement and the developmnet of new skills and techniques, as part of the course content. Lab fee: \$2.00

7521 Interview Techniques* (A,SU) 3-0-3

A core course which teach students 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 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

This course is designed to give the student a conceptual framework for interpersonal helping that would enable the student to effectively utilize a selected treatment methods and be knowledgeable of various treatment modalities currently practiced in the field of social work. 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

This course reviews the illnesses and diseases of the elderly. The emphasis is on counseling techniques related to mental health needs. Lab fee: \$2.00 Prerequisite: 7524

7526 Legal, Housing, and Recreation Needs of the Elderly (SP) 3-0-3

This course examines the legal rights of the elderly in four main areas: income service, medical services, housing employment consumerism. The second half of this course reviews housing on a continuum from independent living through hospice. Lab fee: \$2.00 Prerequisite: 7524

7527 Therapeutic Recreation for the Elderly* (A,SP) 4-0-4

This course is designed for students in preparation for the delivery of therapeutic recreation services for the elderly. The focus is specifically on the design and development of therapeutic recreation programs, assessment and documentation, activity development and modification. 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. Concurrents: Lab fee: \$3.00 7583, 7584

7535-36 Field Experience Seminars V, VI (A,W,SP,SU) 1-0-1

Group discussion 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. Concurrents: 7534,7535,7585,7586 Lab fee: \$3.00

7541 Overview and Portfolio Building* (A,W,SP,SU) 2-6-3

The main focus of this course is the development of a portfolio that satisfies on of the requirements for the national child development credential and the familiarization of the ecd program at cti. Lab fee: \$20.00

7542 Cognitive Curriculum* (W) 3-0-3

Empahsis on theoretical foundations for the young child's cognitive development. Techniques for promoting concept development as well as science, math and readiness skills in both indoor and outdoor programs. Addresses use of t.v., microcomputers, and audio-visual equipment in settings for young children. Lab fee: \$20.00 Prerequisite: 1531 concurrents: 7564,7574

7543 Creative Curriculum* (SP) 3-0-3

Course deals with the principles of creativity and its importance in the life of the young child. Focus is on sequence of development in child's use of creative materials. Techniques for art and music will be explored, demonstrated and implemented in the classroom. Lab fee: \$20.00 concurrents: 7563,7573

7544 Self-concept and the Young Child* (au) 3-0-3

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. Lab fee: \$20.00 Prerequisite: 7561,7571

7545 Managing Children in Groups* (SP) 3-0-3

Course deals with group management, planning and implementing the daily schedule in a preschool setting. Emphasis is placed on long range planning of behavioral objectives implemented through a play curriculum. Lab fee: \$20.00 Prerequisite: 7544 concurrents: 7562,7572

7546 Parent Involvement in Early Childhood* 3-0-3

Instruction training and experience in working effectively with parents of young children. Emphasis is on active participation of parents. Lab fee: \$20.00 Prerequisite: 7545 concurrents: 7565,7575

7547 Child Care Administration* (SP) 4-0-4

Course deals with the supervisory roles required to administer a program for young children. Focus is on planning for the child, the program, the staff, the parents and community involvement. Lab fee: \$20.00 concurrents: 7566,7566

7548 Physical Development Curriculum* (SP) 3-0-3

Theoretical foundations for the child's physical and motor development includes assessing individual child s motor skills, sequence for the development of motor skills, sequence for the development of motor skills, perceptual motor development, as well as, implementing small and large motor activities in both the indoor and outdoor setting. Lab fee: \$20.00 Prerequisite: 1531 concurrents: 7562,7572

7549 Health and Safety* (A,W,SP,SU) 2-0-2

Focus is on health and nutrition for professionals working in settings for children and their families. The course gives training and practice in first aid as well as recognition and management of communicable diseases. Includes emergencies and detection/prevention/ reporting of child abuse and/or neglect. Lab fee: \$20.00

7551 Language Experiences in Early Childhood Programs* (SP) 3-0-3

Theories and sequence of language development. Analyzing factors that effect the role of the teacher in promoting the child's use of language. Course includes selection, evaluation and use of books to enhance child's language development, provide emotional support. Lab fee: \$20.00 concurrents: 7563,7573

7552 Social Development Curriculum* (SP) 3-0-3

Empahsis is placed on social development, encouraging children to work together. Sharing both experiences and responsibilities in a social atmosphere where children may express both positive and negative feelings. Key issues include sex stereotyping, prejudice, importance of family patterns, backgrounds, and the implications of play theory in programming for social development. Lab fee: \$20.00 Prerequisite: 7544 concurrents: 7566,7576

7553 Guidance and Discipline in Early Childhood Programs* 3-0-3

In depth study of guidance and social learning theories. Focus is on resolving problem situations, changing behavior, moral reasoning and systems of assessment. Techniques and skills for working with the special needs child. Lab fee: \$20.00 Prerequisite: 7545 concurrents: 7566,7576

7554 Child Care Staff* 4-0-4

In depth study of the dynamics of staff interaction in a setting for young children. Focus includes team functioning, problem solving, communication skills, motivating volunteers, personnel rights and responsibilities, policies and procedures, recordkeeping, staff orientation, in-service training, and evaluation as they pertain to child care personnel. Lab fee: \$20.00 prerequisite: 7542 concurrents: 7566,7576

7561-7566 ECD Seminars I-VI* (A,W,SP,SU) 1-0-1

Group discussion of experience arising during ECD field placement integration of theory and practice. These run concurrently with specific courses as noted in course descriptions. Seminars focus on observing and recording the basic principles of guidance application of classroom studies in field. Lab fee: \$15.00

7571-7576 ECE Field Experiences I-VI* (A,W,SP,SU) 0-7-1

These courses are vital part of the ECD program, providing students opportunity to apply theory and practice under the guidance of early childhood professionals. These professionals guide and assist in the evaluation of the students performance. Lab fee: \$15.00

7583-7584 Social Services Field Experience III, IV* (A,W,SP,SU) 0-10-2

7585-7586 Social Services Field Experience V, VI* (A,W,SP,SU) 0-12-2

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: \$15.00 Prerequisite: 3rd quarter standing Concurrents: 7533-7536

Vision Care Technology

8201 Introduction to Optometric Technology* (A) 3-0-3

The course provides an overview of the optometric technician program. Optometric and vision care terminology will be presented along with names and familiarity with instruments and testing procedures. The vision examination terminology and appropriate recording procedures will be discussed. 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: \$20.00 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: \$20.00 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: \$20.00 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: \$20.00 Prerequisites: 1331, 1332, 8202

8206 Ophthalmic Optics II* (SU) 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: \$20.00 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: \$20.00 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. Prerequisites: 8281

8211 Clinical Observation* (A) 0-3-1
The course is the laboratory section of 8201. Students observe patient care in the general clinic and contact lens clinic at The Ohio State University College of Optometry. The observations cover patient testing, instrumentation and vision examination recording procedures. Concurrent: 8201

8212 Optometric Personal and Professional Development* (A) 2-2-3
This course is a survey of the vision care field. Included in this course are field trips to private optometric offices and vision care facilities. History and development of optometry and education of the optometrist and optometric technician will be included. This course will also include the module on cardiopulmonary resuscitation.

8213 Optometric Office Procedures* (W) 2-3-3
This course is designed to provide the student with knowledge of patient management, records management, vision insurance forms, office procedures and office finances. Practical experience with prescription pricing, pegboard accounting and office management through the use of a computer will be provided. Legal and ethical responsibilities in an optometric practice will be discussed. Also presented will be information on basic in-office first aid. Lab fee: \$5.00 Prerequisite: 8281

8214 Optometric Special Techniques and Emergency Procedures* (SU) 0-4-2
This course covers special techniques and procedures that may be used in optometric practice. Topics include Goldmann perimetry, dicon auto-perimetry, Goldman tonometry, Fundus photography, slit lamp photography, contrast sensitivity, basic pharmacology, and an update on new trends in the field. A module on cardiopulmonary resuscitation is also included. Lab fee: \$20.00 Prerequisite: 8203 concurrent 8278

8221 Special Topics in Vision Care I* (On Demand) 1-0-1

8222 Special Topics in Vision Care II* (On Demand) 2-0-2

8223 Special Topics in Vision Care III* (On Demand) 3-0-3

Special topics in vision care is a series of courses specifically designed to meet the need of the ophthalmic community. Course will be designed for a particular purpose and/or group and will have the approval of the program coordinator. Lab fee: \$5.00.

8224 Pharmacology/Ocular Therapeutic Procedures* (WI) 3-0-3
This course will include information on patient education as related to pharmacology, specialized clinical procedures, pre and post operative care for cataract extractions, and in-office surgical procedures. Also included will be care of ophthalmic/surgical instrumentation, instrument sterilization techniques and surgical preparation procedures. Prerequisite: 8281

8225 Dispensing Directed Practice* (W) 0-15-3
This course will provide the student with additional hands-on dispensing experience in a professional setting. Prerequisite: 8281

8281 Optometric Clinical Experience I* (A) 0-12-4
Clinical experience at The Ohio State University College of Optometry includes patient assisting in general clinic, pediatric clinic, and dispensary/business office. Lab fee: \$20.00 Prerequisite: 8206, 8278

8282 Optometric Clinical Experience II* (W) 0-9-3
Clinical experience at The Ohio State University College of Optometry includes patient assisting in the contact lens clinic and the dispensary/business office. Lab fee: \$20.00 Prerequisite: 8281

8283 Optometric Clinical Experience III* (SP) 0-12-4
Clinical experience at The Ohio State University College of Optometry includes patient assisting in the contact lens clinic, general clinic, and orthoptics/strabismus clinic. Lab fee: \$20.00 Prerequisite: 8282,

8278 Introduction to Optometric Clinic* (SU) 0-3-1
Clinical experience at The Ohio State University College of Optometry downtown clinic includes patient assisting in general clinic. Prerequisite: 8203 Concurrent 8214

8284 In-office Practicum (SP) 0-7-1
The course will provide the student with an opportunity to integrate clinical and classroom training in an office setting. Prerequisite: 8282

Welding Technology

4747 Welding Processes I* (W,SP) 2-6-4
This course is designed to give instruction in the following welding processes: oxyacetylene, shielded metal arc welding, gas metal arc welding, and flux core arc. The student will develop a fundamental understanding and skills in the safe use of equipment. Student will learn to develop procedures and welding procedure specification for the various processes. Lab fee: \$25.00 Prerequisite: 4751

4748 Welding Processes II* (SP, A) 2-6-4
Students will receive instruction in four welding processes: 1) gas tungsten arc welding; 2) plasma welding and cutting on various metals; 3) submerged arc welding on mild steel, and 4) flux core self and gas shielded welding on mild steel. Lab fees: \$25.00 prerequisite 4747

4749 Welding/Brazing Codes, Specifications and Standards* (A,SP) 2-3-3
Instruction in understanding and applying government and industrial codes, specifications, and standards. Special project provides opportunity to demonstrate knowledge and applications of AWS, API, ASME, and MIL-STD codes, specifications, and standards to quality assurance practices.

4751 Introduction to Welding* (SU,A,W,SP) 2-4-4
Presents the basic fundamentals as applied to the welding disciplines used in the industrial environment. Provides the practical information for the persons involved to obtain an overall awareness of the various materials joining processes. Lab fee: \$28.00

4754 Welding Metallurgy* (W) 2-4-4
Study of weldability of metals and the application of basic metallurgy fundamentals to the arc welding and brazing processes. Laboratory work includes preparation of welds for structure analysis examination. Provides opportunity for metallurgical related investigations. Lab fee: \$15.00

4755 Weldment Fabrication and Production* (SP) 2-4-4
This course 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 and preparation of a bill of material ready for operation of metal-fabrication equipment and preparation of a bill of material ready for assembly as per specifications are included. GMAW, GTAW, and SAW skills are used. Lab fee: \$25.00

4757 Welding Inspection and Tests* (SP,W) 2-4-4
A course presenting the fundamentals and applications of destructive and non-destructive testing techniques for analyzing structures. Reviews welding inspector requirements. Student will learn to use tools, gages, and instrumentation required for weld inspection. Prerequisite: 4754



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