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# BULLETIN

General Information

Programs  
Course Descriptions





# Course Descriptions

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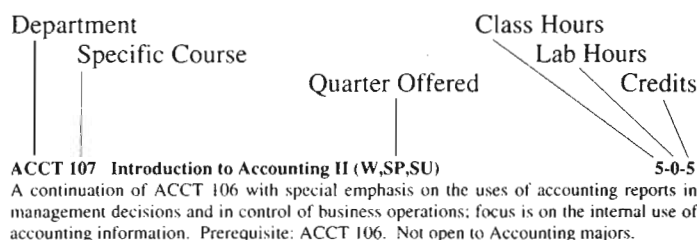
## Columbus State's Course Numbering System

No two courses at Columbus State have the same number. The three or four letter alpha identifier indicates the department, and the three numbers indicate the specific course within each department.

Listed below are the various departments in alphabetical order. Refer to this chart to find in which department a given course can be found. For example, ACCT 107 Introduction to Accounting would be found in the Course Descriptions section under Accounting Technology.

Accounting Technology .....	ACCT	Hospitality Management	
Anthropology .....	ANTH	Technology .....	HOSP
Architecture Technology .....	ARCH	Humanities .....	HUM
Art .....	ART	Interpreting/Transliterating	
Automotive Technology .....	AUTO	Technology .....	ITT
Aviation Maintenance			
Technology .....	AVI	Italian .....	ITAL
Biology .....	BIO	Japanese .....	JAPN
Business Management			
Technology .....	BMGT	Landscape Major .....	LAND
Chemistry .....	CHEM	(See Architecture Technology)	
Civil Engineering			
Technology .....	CIVL	Law Enforcement	
Communication Skills .....	COMM	Technology .....	LAWE
Computer Programming			
Technology .....	CPT	Legal Assisting Technology .....	LEGL
Construction Management			
Technology .....	CMGT	Literature .....	ENGL
Dental Laboratory			
Technology .....	DENT	Marketing Technology .....	MKTG
Developmental Education .....	DEV	Mathematics .....	MATH
Dietetic Manager Certificate .....	DMGR	Mechanical Engineering	
(See Hospitality Management)			
Dietetic Technician Major .....	DIET	Technology .....	MECH
(See Hospitality Management)			
Early Childhood Development			
Technology .....	ECD	Medical Laboratory	
Economics .....	ECON	Technology .....	MLT
Electro-Mechanical			
Engineering Technology .....	EMEC	Mental Health/Chemical	
Electronic Engineering			
Technology .....	EET	Dependency/Mental	
Emergency Medical Services			
Technology .....	EMS	Retardation Technology .....	MHCR
English .....	ENGL	Microcomputing Technology .....	MCT
English as a Second Language .....	ESL	Multi-Competency Health	
Environmental Technology .....	ENVR	Technology .....	MULT
Financial Management			
Technology .....	FMGT	Music .....	MUS
French .....	FREN	Natural Science .....	NSCI
Geography .....	GEO	Nursing Technology .....	NURS
Geology .....	GEOL	Office Administration Tech. ....	OADM
German .....	GERM	Philosophy .....	PHIL
Gerontology Technology .....	GER	Physics .....	PHYS
Graphic Communications			
Technology .....	GRPH	Political Science .....	POLS
Health Information			
Management Technology .....	HIMT	Psychology .....	PSY
Heating and Air			
Conditioning Technology .....	HAC	Quality Assurance	
		Technology .....	QUAL
		Radiologic Technology .....	RAD
		Real Estate Technology .....	REAL
		Retail Management	
		Technology .....	RETL
		Social Sciences .....	SSCI
		Sociology .....	SOC
		Spanish .....	SPAN
		Sports & Fitness Mgmt. Tech. ....	SFMT
		Surgical Technology .....	SURG
		Surveying .....	SURV
		Technical Communications	
		Technology .....	TCO
		Veterinary Technology .....	VET

## Explanation of Course Description Codes



**Course Number** - the three or four letter alpha identifier indicates the department; the three numbers that follow identify the specific course. Three or four letters followed by xxx indicate an elective requirement for which only the department is specified; here the student may choose the specific course, subject to approval of his/her advisor. Where no alphabetical or numerical characters appear, the elective may come from more than one department.

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

**Prerequisites** - any coursework that must be completed before the student is eligible to enroll for the course. For example, if ENGL 101 were listed as a prerequisite for a course, then only students who have completed ENGL 101 would be eligible to register for the course.

**Concurrent Courses** - any coursework that must be completed during the same quarter as the course in which you are enrolling. For example, if course ACCT 271 is concurrent with course ACCT 272, both courses must be taken during the same quarter.

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

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

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

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

# Accounting Technology (ACCT)

- ACCT 101 Financial Accounting (A,W,SP,SU)** 4-0-4  
The first of a two-quarter sequence introducing financial accounting to non-accounting majors. The course is a fundamental study of the principles and procedures of double-entry accounting as applied to sole proprietorships. Concepts of this first course are continued and applied in the second course, Managerial Accounting. Students are advised to avoid any time lapse between these courses. Lab fee: \$2.00.
- ACCT 102 Managerial Accounting (A,W,SP,SU)** 3-0-3  
An extension of financial accounting applying introductory accounting techniques to business situations. It is designed to acquaint the student with the use of accounting information in the control of a business operation and the interpretation of such information for management's use. This course is an overview of the analysis of financial statements, cost and responsibility accounting, budgeting, cost volume profit analysis and decision making. Lab fee: \$2.00. Prerequisite: ACCT 101 or ACCT 111.
- ACCT 106 Introduction to Accounting I (A,W,SP,SU)** 5-0-5  
The uses of accounting reports for business entities; focus on the uses of accounting for external reporting, emphasizing accounting as a provider of financial information. This course is intended for students who plan to transfer to a four-year college or university to complete a Bachelor's Degree. Not open to Accounting majors. Lab fee: \$2.00.
- ACCT 107 Introduction to Accounting II (A,W,SP,SU)** 5-0-5  
A continuation of ACCT 106 with special emphasis on the uses of accounting reports in management decisions and in control of business operations; focus is on the internal use of accounting information. Lab fee: \$2.00. Prerequisite: ACCT 106. Not open to Accounting majors.
- ACCT 111 Principles of Accounting I (A,W,SP,SU)** 5-0-5  
An introductory course in accounting with emphasis on 1) the accounting cycle as applied to a service organization 2) adaptations in accounting for a merchandising concern, and 3) recording through the use of specialized journals. Lab fee: \$6.00. Prerequisite: Placement into ENGL 101. Not recommended for Associate of Arts or Associate of Science degree seeking students.
- ACCT 112 Principles of Accounting II (A,W,SP,SU)** 5-0-5  
A continuation of ACCT 111 will specifically emphasize the major types of assets, as well as the category of current liabilities, and payroll accounting, with particular emphasis on the effect of their measurement on net income and their presentation in the financial statements. The course is rounded out with a discussion of corporate equity and the Statement of Retained Earnings. Lab fee: \$4.00. Prerequisite: ACCT 111 with a "C" or better.
- ACCT 113 Principles of Accounting III (A,W,SP,SU)** 5-0-5  
A continuation of ACCT 112 with special emphasis on accounting problems peculiar to corporations (focusing on long-term liabilities and corporate earnings). 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. Lastly, the students will be expected to apply their accumulated knowledge of ACCT 111, ACCT 112 and ACCT 113 to a computerized practice set for a merchandising corporate entity. Lab fee: \$4.00. Prerequisite: ACCT 112 with a "C" or better.
- ACCT 121 Data Processing for Accountants (W,SP)** 2-4-4  
A survey of types of software packages often used by accountants. In-depth practice in the varied practical applications of Lotus Electronic Spreadsheet is provided. Lab fee: \$12.00. Prerequisite: CPT 101
- ACCT 126 Accounting Systems (SP,SU)** 2-5-5  
An introduction to systems fundamentals including flowcharting and internal control. A comprehensive application of accounting principles studied in ACCT 111 and ACCT 112 using microcomputers. Lab fee: \$8.00. Prerequisites: ACCT 121 and ACCT 112
- ACCT 201 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 sheet, income statement, and retained earnings statement; analysis of working capital; analysis and methods of valuation and statement presentation of the following items: cash and receivables, inventories and property, plant and equipment. Lab fee: \$1.00. Prerequisite: ACCT 113 with a "C" or better, and ACCT 126.
- ACCT 202 Intermediate Accounting II (W)** 4-3-5  
A continuation of ACCT 201 including analysis and methods of valuation and statement presentation of the following items: current liabilities - contractual and contingent items; intangible assets; deferred charges and long-term liabilities, investments, leases, equity transactions, earnings per share, statement of cash flow. Lab fee: \$1.00. Prerequisite: ACCT 201 with a "C" or better.
- ACCT 206 Advanced Accounting (SP)** 4-3-5  
Covers series of advanced topics such as partnership accounting, branch accounting, consolidations and installment sale accounting. These topics are such that they round out the student's knowledge of accounting for the most common organizational types. Prerequisite: ACCT 202
- ACCT 211 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 budgeting and standard costs. Lab fee: \$3.00. Prerequisite: ACCT 113

**ACCT 221 Financial Statement Analysis I (A,SU)** 2-3-3  
A study of forms of business organization; source and management of working capital; financial statement presentation; tools of analysis; percentages, comparisons to past performance industry standards, and basic ratios including working capital. Lab fee: \$1.00. Prerequisite: ACCT 113

**ACCT 222 Financial Statement Analysis II (W,SU)** 2-3-3  
A continuation of course ACCT 221; 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: \$2.00. Prerequisite: ACCT 221

**ACCT 231 State and Local Taxation (SP,SU)** 2-3-3  
Payroll taxes (withholding and reports), unemployment taxes, workmen's compensation, franchise taxes, personal property taxes (classified and intangible), city income taxes, Ohio personal taxes, sales and use taxes, real estate taxes, and vehicle and other taxes. Lab fee: \$5.00. Prerequisite: ACCT 113

**ACCT 232 Federal Taxation (W,SU)** 4-3-5  
Individual income taxes; returns, income exemptions, deductions, gains and losses, rates, adjustments. Problems of proprietorship, partnerships, corporations, inventories, depreciation accounting, installment and deferred sales treatment. Filing requirements, payments, refunds, claims. Tax planning techniques. Lab fee: \$5.00. Prerequisite: ACCT 113

**ACCT 236 Advanced Taxation (SP)** 3-3-4  
A continuation of ACCT 232, 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. Lab fee: \$2.00. Prerequisites: ACCT 202 and ACCT 232

**ACCT 241 Auditing (SP,SU)** 3-3-4  
A course concerned with identification of professional qualifications and responsibilities of an auditor and study of auditing concepts and techniques utilized in the investigation and appraisal of economic information. Topics of study will include: professional ethics, legal liability, internal control, statistical sampling, reports, and auditing standards and procedures used in an independent audit. Lab fee: \$1.00. Prerequisite: ACCT 202

**ACCT 251 Accounting Practice (SP)** 3-3-4  
A capstone course in the technology intended to tie course material presented throughout the Accounting Technology curriculum to a single practical application - herein students form simulated accounting firms to maintain accounting records for an on-going enterprise. A secondary thrust is intended to assist students in post-graduation pursuits of employment and continuing education. Lab fee: \$10.00. Prerequisite: ACCT 202

**ACCT 256 Final Project (SP)** 2-8-5  
A capstone course for students who are enrolled in the EDP Auditing Major. The course integrates materials presented throughout the curriculum through use of a simulated accounting engagement. Students will design appropriate software in conjunction with both systems analysis and design and apply it to a period of transactions of a hypothetical business enterprise. Prerequisite: ACCT 202

**ACCT 261 Controllership/CPA Review (SP)** 3-3-4  
The emphasis of this course is the practical accounting problems and questions on accounting theory as presented in the C.P.A. examination which students have not had in other Columbus State classes such as: fund accounting, consolidated financial statements, foreign currency transactions, and partnership accounting (including liquidations). Other emphasis will include test taking strategies. Geometry in the G.R.E., statement of cash flow, review of intermediate accounting. Lab fee: \$4.00. Prerequisite: ACCT 202

**ACCT 266 Public Administration/Fund Accounting (SP,SU)** 3-3-4  
A course dealing with the principles and applications of fund accounting as it relates to state and local governments. It includes budgeting, accounting, reporting, and auditing for federal government, colleges, universities, and hospitals. Prerequisite: ACCT 202

**ACCT 271 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: ACCT 201. Concurrent: ACCT 272

**ACCT 272 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 student's working environment. Prerequisite: ACCT 201. Concurrent: ACCT 271.

# Anthropology (ANTH)

**ANTH 200 Introduction to Physical Anthropology (A,W,SP,SU)** 5-0-5  
An introduction to anthropology with primary emphasis on the subdiscipline of physical anthropology. Other anthropological subdisciplines will be drawn on and incorporated where relevant. Topics to be covered include: basic genetic concepts, nonhuman primates, human evolution, and modern human biological diversity. A biocultural approach is used. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**ANTH 201 World Prehistory (A,W,SP,SU) 5-0-5**

A basic survey of the prehistoric human past. Prehistory focuses on the use of material remains and their context to reconstruct past lifeways. Topics include cross-cultural treatment of major transitions in prehistory (such as the development of farming economies and of complex societies) and general theories of cultural change in a broad geographical and temporal context. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**ANTH 202 Introduction to Cultural Anthropology (A,W,SP,SU) 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 sociocultural systems. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**ANTH 240 Introduction to Forensic Anthropology (On Demand) 5-0-5**

An introduction to the field of forensic anthropology. Topics to be covered will include basic forensic anthropology concepts and theories; the study of human growth and development; and the nature of modern human biological diversity. Lab fee: \$5.00. Prerequisites: ANTH 200 or LAWE 111 and LAW 113 or LEGL 210 or BIO 161.

**ANTH 290 Capstone Experience in Anthropology (On Demand) 2-2-3**

A capstone course focusing on anthropology. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in anthropology.

**ANTH 293 Independent Study in Anthropology (On Demand) 1-5**

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. Lab fee: \$4.00. Prerequisite: Permission of the Instructor and the Chairperson.

**ANTH 299 Special Topics in Anthropology (On Demand) 1-5**

Detailed examination of selected topics of interest in anthropology. Lab fee: \$4.00. Prerequisites vary.

## Architecture Technology (ARCH)

**ARCH 111 Construction Basic Drafting (A,W,SP,SU) 2-6-4**

This is a basic drafting course using manual drafting. Areas covered include lettering, linework, layout, dimensioning, geometric construction and orthographic projection. Problems are drawn from throughout the construction industry. Lab fee: \$9.00.

**ARCH 112 Construction CAD Drafting (A,W,SP,SU) 1-5-3**

This course is an entry-level computer aided drafting class. The class will utilize the current version software in a stand-alone PC exercise using methods of orthographic drawing generation and dimensioning. After mastering system basics, students will be given individual projects. Lab fee: \$7.00. Prerequisite: ARCH 111 or permission of instructor.

**ARCH 113 Construction CAD Drafting II (A,W,SP,SU) 2-3-3**

This course will build on ARCH 112 AutoCAD drafting skills to increase speed by learning higher level edit commands, polyline application techniques and customized library modules. These exercises will be offered as PC stand-alone projects using current AutoCAD version. Lab fee: \$12.00. Prerequisite: ARCH 112.

**ARCH 120 Construction Materials (A,W,SP,SU) 2-4-3**

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: \$6.00.

**ARCH 121 Building Construction Drawings (A,W,SP,SU) 2-3-3**

Reading and interpretation of construction drawings and project manuals as related to residential, commercial, and industrial construction projects. Interpretation of the relationship between plans, elevations, sections, details, and the coordination of these drawings with materials specifications. The use of basic construction math will be explained along with the interpretation of construction terms and symbols. The Dodge SCAN microfilm readers and Sweets catalogues will be used in this course. Lab fee: \$9.00. Prerequisite: MATH 103 or higher.

**ARCH 155 Structural Systems (Wood) (A,SP) 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: \$12.00. Prerequisite: MATH 104, ARCH 111 and ARCH 120.

**ARCH 161 Architectural Graphics I (W,SU) 1-7-3**

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. Lab fee: \$12.00. Prerequisite: ARCH 111

**ARCH 212 Mechanical Systems I (HAC) (A,W) 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 HAC into the building envelope. Lab fee: \$12.00. Prerequisites: ARCH 161 and ARCH 121.

**ARCH 214 Mechanical Systems II (Electrical) (W,SP) 2-2-3**

This course deals with the fundamentals of lighting in buildings. The essentials of the electrical code, electrical systems, standards, conventional symbols, nomenclature and layouts. Coordination of electrical work with the elements of the building, and fixture and equipment schedules. Lab fee: \$12.00. Prerequisites: ARCH 161 and ARCH 121.

**ARCH 216 Mechanical Systems III (Plumbing) (A,SP) 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: \$12.00. Prerequisites: ARCH 161 and ARCH 121.

**ARCH 232 Building Construction Standards (A,SP) 1-5-3**

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: \$12.00. Prerequisites: ARCH 120 and ARCH 121.

**ARCH 250 Finish Materials/Installation (A,SP) 1-5-3**

This course is intended to follow ARCH 120 and expose the student to those materials which are specifically associated with the shell of buildings. Topics covered include interior finishes, window and door openings, moisture and thermal protection, acoustical treatments, and mechanical conveyance systems. Lab fee: \$12.00. Prerequisite: ARCH 120.

**ARCH 262 Architectural Graphics II (A,SP) 1-9-4**

This course introduces the student to presentation 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 architectural presentation drawings. Lab fee: \$12.00. Prerequisite: ARCH 161.

**ARCH 263 Architectural Graphics III (W,SU) 1-9-4**

This course introduces the student to the practice of working drawings, and deals with the generation of schedules, details, plans and other drawings necessary, and ADA requirements, with an emphasis on the organization and coordination necessary among the drawings. Lab fee: \$12.00. Prerequisites: ARCH 250 and ARCH 155.

**ARCH 264 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: \$20.00. Prerequisites: ARCH 232 and ARCH 263.

**ARCH 291 Field Co-Op Experience (SU) 0-40-4**

Off-campus work experience in architecture, 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. Prerequisites: CMGT 290 or permission of instructor.

## Landscape Major (LAND)

**LAND 101 Landscape Principles (A,W,SP,SU) 2-3-3**

Landscape principles will study the basic components of landscape design and those elements, that when combined together create such designs.

**LAND 102 Landscape Design I (A,W,SU) 2-6-4**

This course will study the application of landscape design principles to construction situations, design vs. style, perform site inventory and analysis and draft basic projects. Lab fee: \$15.00. Prerequisites: ARCH 111 and LAND 101.

**LAND 104 Specialty Gardens (W) 2-3-3**

This course will study the history, development and basic design of gardens including Estate, Victorian, Colonial Patio, Water, etc., gardens. The class will combine both in-class and field experience. Lab fee: \$15.00. Prerequisite: LAND 102.

**LAND 105 Landscape Plants I (SP,SU) 3-3-4**

This course will study the identification parameters, landscape features and growing conditions of trees and shrubs indigenous to the midwest climate zone. This class will combine both in-class and field experience.

**LAND 107 Landscape Maintenance (W,SP) 2-3-3**

Basic landscape maintenance principles will be discussed with an emphasis on procedures best suited to promote optimum growth and aesthetic qualities of landscape plants. Other areas include soil structure and amendments. Lab fee: \$10.00. Prerequisite: MATH 104 or permission of instructor.

**LAND 108 Landscape Garden Flowers (SP,SU) 2-3-3**

This course will study the identification parameters, landscape features and growing conditions of herbaceous flowering plants such as annuals, perennials, bulbs and herbs. Design of perennial gardens will also be covered. Lab fee: \$15.00.

**LAND 109 Landscape Arboriculture (A) 2-2-3**

This course introduces the basic principles of tree biology and care. Arboricultural practices will be discussed and performed. Lab fee: \$15.00.

- LAND 110 Landscape Computer Applications (W,SU)** 2-3-3  
This course will explore current computer applications as they relate to the landscape industry. Prerequisites: LAND 102 and CPT 101 or permission of instructor.
- LAND 201 Landscape Pest Control (SP,SU)** 2-3-3  
This course will study basic control methods as they apply to insects, fungi, bacteria, abiotic and other pests in the landscape. Identification of pests as well as mechanical, cultural, biological and chemical controls will be discussed. Prerequisites: BIO 125 and LAND 105 or permission of instructor.
- LAND 202 Landscape Design II (W,SP,SU)** 2-6-4  
This course builds on skills learned in LAND 102 and emphasizes graphic representations of plant materials and landscape structures. Lab fee: \$15.00. Prerequisites: LAND 102, LAND 206 and LAND 105 and/or LAND 205.
- LAND 203 Landscape Water/Lighting Systems (A,W)** 2-3-3  
This course will study the design principles of landscape irrigation and lighting systems. Cost/estimation factors will also be discussed. Lab fee: \$12.00. Prerequisites: LAND 102 and MATH 104.
- LAND 205 Landscape Plants II (A,SU)** 3-3-4  
The plants in this course are not the same as those covered in LAND 105. This course will study the identification parameters, landscape features and growing conditions of trees and shrubs indigenous to the midwest climate zone. This class will combine both in-class and field experience.
- LAND 206 Landscape Graphics (A,SP)** 2-4-4  
This course will study the graphic symbols used to create landscape drawings. Included will be such information as color renderings, graphic representation of trees and shrubs, and shadowing. Lab fee: \$15.00.
- LAND 207 Landscape Structures (A,SP)** 2-3-3  
This course will study the design and construction principles of landscape decks, patios, etc., and design projects of each will be drafted. Lab fee: \$10.00. Prerequisites: LAND 102.
- LAND 210 Landscape Plants III (W)** 3-3-4  
This course will study the identification parameters, landscape features and growing conditions of evergreen trees and shrubs indigenous to our climate. Prerequisite: LAND 105 or LAND 205.
- LAND 222 Landscape Operations (W,SU)** 2-3-3  
This is a capstone course in the Landscape Major; students will receive an overview of the technical operations of a landscape design/build firm. Students will work on group and individual class projects simulating the day to day business operations of a landscape firm. Lab fee: \$9.00. Prerequisites: LAND 202, LAND 203, and LAND 207.

## Art (ART)

- ART 101 History of Western Art (A,W,SP,SU)** 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 Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in Humanities, and the Arts. Lab fee: \$5.00. Prerequisites: Placement into ENGL 101.
- ART 121 Beginning Drawing (A,W,SP,SU)** 0-10-5  
An introduction to the basic techniques of freehand drawing. Emphasis is on media, concepts, drawing from observation and development of technique. Meets elective requirements in the Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in the Arts. Lab fee: \$8.00.
- ART 122 Two-Dimensional Design (W,SU)** 0-10-5  
An introduction to the basic concepts of 2-dimensional design: line, shape, space, hue, value and texture. Use of various media in a variety of problem-solving projects leading toward an awareness of the principles of visual organization. Lab fee: \$8.00.
- ART 123 Beginning Painting (A,SP)** 0-10-5  
An introduction to studio painting fundamentals utilizing varied subject matter and media. Lab fee: \$8.00.
- ART 299 Special Topics in Art (On Demand)** 1-5  
Detailed examination of selected topics of art. Lab fee: \$2.00. Prerequisites vary.

## Automotive Technology (AUTO)

- AUTO 061 Automotive Principles (A,W,SP,SU)** 3-3-4  
This course covers the basic systems of an automobile and their theory of operation. Includes the physical, hydraulic, and electrical theoretical basics, as applied to cars and light trucks. This course and AUTO 062 are prerequisites for all other automotive courses. Credit for this course can be obtained by satisfactory completion of the course, documented previous training and/or experience, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$15.00.

- AUTO 062 Shop Orientation (A,W,SP,SU)** 3-3-4  
This course covers the operation of an automotive shop. Includes use of hand and power tools and basic maintenance operations on cars and light trucks. This course and AUTO 061 are prerequisites for all other automotive courses. Credit for this course can be obtained by satisfactory completion of the course, documented previous training and/or experience, or by satisfactory results of a proficiency exam administered by the department. Lab fee: \$15.00. Concurrent or prerequisite: Recommended concurrent with AUTO 061.

- AUTO 110 Engine Repair (A,SU)** 2-4-4  
A basic course in the theory of operation and automotive engines. All engine mechanical systems are explored during teardown and assembly of a current automotive engine. Common in car repairs are covered. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in engine repair. Lab fee: \$20.00. Prerequisites: AUTO 061 and AUTO 062.

- AUTO 115 Advanced Engine Repair (A,SU)** 2-2-3  
An advanced engine course including minor cylinder head and valve machining, component service, and engine removal and installation. Prepares student to achieve national ASE certification in advanced engine repair. Lab fee: \$20.00. Prerequisite: AUTO 110 or concurrent with AUTO 110.

- AUTO 120 Automatic Transmissions (W,SP)** 2-4-4  
A basic course in automatic transmission theory of operation. Hydraulic and electrical systems are emphasized during a complete teardown and assembly. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in automatic transmissions. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

- AUTO 125 Advanced Automatic Transmissions (W,SP)** 2-2-3  
An advanced course in automatic transmission and transaxle service and diagnostics. Emphasis on field diagnostics and repairs. Prepares student to achieve national ASE certification in advanced automatic transmissions. Lab fee: \$15.00. Prerequisite: AUTO 120 or concurrent with AUTO 120.

- AUTO 130 Manual Transmissions (A,SU)** 2-2-3  
This course provides a working knowledge of manual transmissions, transaxles, and differentials. Repair and diagnostics are covered during complete teardown and assembly. Prepares students to achieve national ASE certification in Manual Transmissions. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in manual transmissions. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

- AUTO 135 Advanced Manual Transmissions (A,SU)** 2-2-3  
An advanced course in clutch, manual transmission, transaxle, and differential diagnostics. Includes clutch and transmission removal and installation. Prepares student to achieve national ASE certification in advanced manual transmissions. Lab fee: \$15.00. Prerequisite: AUTO 130 or concurrent with AUTO 130.

- AUTO 140 Suspension and Steering (A,W,SU)** 2-4-4  
This course provides a working knowledge of the diagnosis and repair of wheels, tires, suspension systems, steering systems, and wheel alignment diagnosis and adjustment. Prepares students to achieve national ASE certification in Suspension and Steering. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in suspension and steering. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

- AUTO 145 Advanced Suspension and Steering (A,W,SP)** 2-2-3  
An advanced course covering detailed diagnostics and service of suspension components. Includes instruction on both two-wheel and four-wheel alignment. Lab fee: \$15.00. Prerequisite: AUTO 140 or concurrent with AUTO 140.

- AUTO 150 Brake Systems (W,SP,SU)** 2-4-4  
This course provides a working knowledge of the diagnosis and repair of the hydraulic system, drum brake systems, disc brake systems, power assist units, and associated systems including wheel bearings, parking brakes and related electrical circuits. Prepares students to achieve national ASE certification in Brake Systems. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in brake systems. Lab fee: \$20.00. Prerequisites: AUTO 061 and AUTO 062.

- AUTO 155 Advanced Brake Systems (A,SP,SU)** 2-2-3  
An advanced course covering detailed diagnostics and repair of automotive brake systems. Prepares student to achieve national ASE certification in advanced brake systems. Lab fee: \$15.00. Prerequisite: AUTO 150 or concurrent with AUTO 150.

- AUTO 160 Electrical Systems (W,SP,SU)** 3-3-4  
This course provides a working knowledge of the diagnosis and repair of general electrical systems: the battery, starting, charging, and lighting systems. Also included are gauges, warning devices, wiper systems, and other electrical accessories. Prepares students to achieve national ASE certification in Electrical Systems. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in electrical systems. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

**AUTO 165 Advanced Electrical Systems (A,SP)** 2-2-3  
An advanced course designed to provide students with a knowledge of electronic components, circuits and diagrams, and testing and service of automotive computer systems. Prepares student to achieve national ASE certification in advanced electrical systems. Lab fee: \$15.00. Prerequisite: AUTO 160 or concurrent with AUTO 160.

**AUTO 170 Heating and Air Conditioning Systems (SP)** 2-2-3  
This course provides a working knowledge of the diagnosis and repair of air conditioning systems, refrigeration systems, heating and engine cooling systems, and control units. Prepares students to achieve national ASE certification in Heating and Air Conditioning. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in heating and air conditioning systems. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

**AUTO 175 Advanced Heating and Air Conditioning Systems (SP,SU)** 2-2-3  
An advanced course designed to provide the knowledge necessary to diagnosis and repair automotive air conditioning systems, including the diagnosis and repair of automatic temperature controls and related electronic systems. Prepares student to achieve national ASE certification in advanced heating and air conditioning systems. Lab fee: \$20.00. Prerequisite: AUTO 170 or concurrent with AUTO 170.

**AUTO 180 Engine Performance (A,W)** 2-4-4  
This course provides the opportunity to gain a working knowledge of engine condition diagnostics. Includes diagnosis and repair of the ignition system, fuel and exhaust systems, emission control systems, and an introduction to engine electrical and computer control systems. Prepares students to achieve national ASE certification in Engine Performance. Credit for this course can be obtained by satisfactory completion of the course, ASE certification in this area, or by satisfactory results of a proficiency exam administered by the department. Prepares student to achieve national ASE certification in engine performance. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

**AUTO 181 Fundamentals of Alternate Fuel Systems** 2-2-3  
This course provides a working knowledge of the predominate alternate fuel systems currently in use in automotive applications. These include CNG, LNG, propane, ethanol, methanol, electric, oxygenated gasoline, and gasohol. The unique characteristics of each fuel along with the systems used to adapt automobiles to its use is explored along with the federal legislation that is mandating and controlling this technology. Lab fee: \$20.00. Prerequisites: AUTO 180.

**AUTO 185 Advanced Engine Performance (W,SP)** 2-2-3  
The course is designed to provide students with a working knowledge in the area of detailed engine diagnostics. Diagnosis and repair of fuel injection and computerized engine control systems are included. Prepares student to achieve national ASE certification in advanced engine performance. Lab fee: \$15.00. Prerequisite: AUTO 180 or concurrent with AUTO 180.

**AUTO 186 Advanced Alternate Fuel Systems** 2-2-3  
An advanced course designed to provide students with background knowledge and experience on current alternate fuel conversion systems and proper installation procedures. Symptom analysis, diagnosis, and repair of alternate fuel related engine performance problems are covered. Prepares student to achieve national ASE certification in alternate fuels. Lab fee: \$20.00. Prerequisites: AUTO 181 and 185.

**AUTO 190 Automotive Business Management (W,SP)** 2-2-3  
An introduction to automotive management principles. Topics covered include: A systems approach to management, management styles, financial measures, MBO and quality, time management, customer and employee relations, marketing and the legal environments. Lab fee: \$20.00. Prerequisites: AUTO 061 and AUTO 062

**AUTO 191 Service Advising (A,W)** 2-2-3  
The primary responsibilities of a Service Advisor: Writing a proper repair order, scheduling, selling maintenance and customer relations are covered in depth in this course. Estimating, repair order tracking and time management skills are also presented. Lab fee: \$10.00. Prerequisite: AUTO 190

**AUTO 192 Automotive Service Management (W,SU)** 2-2-3  
This course covers the variety of duties of the service manager. Principles presented in AUTO 190 are further developed along with practical implementation strategies. Facilities and equipment planning and management along with financial management and analysis are covered. Lab fee: \$10.00. Prerequisite: AUTO 190

**AUTO 195 Auto Parts - Sales (On Demand)** 1-2-2  
The duties and responsibilities of a parts department counter-person are covered in this course. The use of catalogs and locator systems, as well as outside sales, are included. Lab fee: \$10.00. Prerequisite: AUTO 190

**AUTO 196 Auto Parts - Inventory Control (On Demand)** 1-2-2  
This course covers the various inventory control systems that are commonly used in automotive parts departments and stores. Determining inventory levels is an integral part of this course. Lab fee: \$10.00. Prerequisite: AUTO 190

**AUTO 197 Auto Parts - Management (On Demand)** 1-2-2  
This course covers the various management duties of a parts department manager. Pricing, forecasting, and purchasing are included. Lab fee: \$10.00. Prerequisite: AUTO 190

**AUTO 210 Current Trends in Engine Repair (A,W)** 1-2-2  
The content of this course reflects the technological advances and changes in engine design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 115

**AUTO 220 Current Trends in Automatic Transmissions (SP,SU)** 1-2-2  
The content of this course reflects the technological advances and changes in automatic transmission design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 125

**AUTO 230 Current Trends in Manual Transmissions (A,W)** 1-2-2  
The content of this course reflects the technological advances and changes in manual transmission design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 135

**AUTO 240 Current Trends in Suspension Steering (A,SP)** 1-2-2  
The content of this course reflects the technological advances and changes in steering and suspension system design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 145

**AUTO 250 Current Trends in Brake Systems (SP,SU)** 1-2-2  
The content of this course reflects the technological advances and changes in brake system design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 155

**AUTO 260 Current Trends in Electrical Systems (W)** 1-2-2  
The content of this course reflects the technological advances and changes in electrical system design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 165

**AUTO 270 Current Trends in A/C Systems (A,SU)** 1-2-2  
The content of this course reflects the technological advances and changes in heating and air conditioning system design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 175

**AUTO 280 Current Trends in Engine Systems (SP,SU)** 1-2-2  
The content of this course reflects the technological advances and changes in engine control system design and repair made by the automobile industry during the current model year. Lab fee: \$15.00. Prerequisite: AUTO 185

**AUTO 297/298/299 Special Topics in Automotive Technology** 1-3  
Advanced level course electives. This course will address current issues in the automotive industry. Lab fee: \$15.00. Prerequisites: AUTO 061 and AUTO 062.

**AUTO 300 Shop Experience (SP)** 1-8-4  
This course is taken during a student's final quarter. It includes a final assessment of skills and knowledge. Skills are measured in a shop condition with the students performing diagnostics and repairs. A review of the eight ASE areas is also included. Lab fee: \$25.00. Prerequisite: Permission of instructor.

## Aviation Maintenance Technology (AVI)

**AVI 111 Aviation Theory (A,W,SP,SU)** 4-4-6  
Basic science for the aviation maintenance technician, including aerodynamics and flight stability, mathematics, physics, and weight and balance effects. Lab fee: \$14.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

**AVI 115 Aircraft Maintenance Regs., Pubs., and Records (A,W,SP,SU)** 1-3-2  
Application of Federal Aviation Regulations to aircraft maintenance and the aircraft technician. The use of aircraft maintenance forms, records, publications, and other pertinent technical data. Lab fee: \$14.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

**AVI 117 Basic Aviation Maintenance (A,W,SP,SU)** 3-4-5  
Develop an understanding of basic aviation maintenance procedures and the tools used by the aircraft technician. Covers identification and selection of materials used in aircraft construction. Practice in fabricating and installing fluid lines and fittings. Select and perform non-destructive inspection processes. Lab fee: \$14.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

**AVI 119 Aircraft Drawings (A,W,SP,SU)** 1-3-2  
Develop an understanding of the general language and symbolism of the aviation industry. Fundamentals of blueprint reading and interpretation of drawings and shop sketches for fabricating parts. Lab fee: \$14.00. Prerequisite: DEV 031 with a grade of "C" or better, or placement into MATH 102.

**AVI 121 Basic Electricity (A,W,SP,SU)** 5-11-9  
Inspect and service batteries. Determine the relationship of voltage, current, and resistance in electrical circuits. Measure voltage, current, resistance, and continuity, calculate and measure power, read and interpret aircraft electrical circuit diagrams including solid state devices, and logic functions. Calculate and measure capacitance and inductance, and operating principles of generators, alternators, and motors. Lab fee: \$14.00. Prerequisites: AVI 111, AVI 115, AVI 117, and AVI 119.

**AVI 125 Ground Operations and Cleaning (A,W,SP,SU)** 2-2-3  
Ground operations and servicing of aircraft. Identify and select fuels. Identify and select cleaning materials. Identify, remove and treat aircraft corrosion and perform aircraft cleaning. Lab fee: \$14.00. Prerequisites: AVI 111, AVI 115, AVI 117, and AVI 119.

**AVI 211 Aircraft Environmental Controls (A,W,SP,SU)** 3-3-4  
This course includes aircraft oxygen and environmental control systems. The pressurization system, deicing and anti-icing systems, and fire detection and extinguishing systems are explored. Emphasis is placed on troubleshooting systems. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 213 Airframe Instruments and Electronics (A,W,SP,SU)** 2-6-4  
This course centers around aircraft instrument, navigation and communication systems. The theory of operation and troubleshooting the systems. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 215 Aircraft Electrical Systems (A,W,SP,SU)** 5-6-7  
This course deals with the operation and control of electrical generation and distributing systems. Included are wiring procedure and operation principles of electrical appliances such as solenoids, diodes, transistors, motors and switches. Emphasis is placed on troubleshooting the systems. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 221 Aircraft Structures I (A,W,SP,SU)** 3-3-4  
A study of aircraft wood and its defects. Selection, application, inspection, testing and repair of aircraft fabric materials. Selection, identification and application of finishing materials, trim, letters, and touch-up paint. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 223 Aircraft Structures II (A,W,SP,SU)** 4-15-9  
Identification of aircraft structural materials, properties of aircraft metals, and heat treatment. Inspection of welded assemblies. Layout from blueprints, bend allowances, forming and fabrication techniques. Installation and inspection of conventional and special rivets and fasteners. Construction techniques, inspection, repair and finishing of composite structures and components. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 241 Aircraft Fluid Power Systems (A,W,SP,SU)** 3-3-4  
Inspect, troubleshoot, service and repair aircraft hydraulic and pneumatic system components in accordance with pertinent maintenance directives. Lab fee: \$14.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

**AVI 245 Aircraft Fuel Systems (A,W,SP,SU)** 1-2-2  
Inspect, troubleshoot, service and repair aircraft fuel system components in accordance with pertinent maintenance directives. Lab fee: \$14.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221 and AVI 223.

**AVI 246 Aircraft Landing Gear Systems (A,W,SP,SU)** 3-3-4  
Inspect, troubleshoot, service and repair aircraft landing gear system components in accordance with pertinent maintenance directives. Lab fee: \$14.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

**AVI 249 Aircraft Rigging, Assembly and 100-Hour Inspection (A,W,SP,SU)** 3-7-6  
Study of aircraft rigging and assembly. Inspection of the complete airframe and all its systems. Review of airframe topics via written examinations that present a comprehensive overview of all airframe training units. Lab fee: \$14.00. Prerequisites: AVI 211, AVI 213, AVI 215, AVI 221, and AVI 223.

**AVI 311 Reciprocating Engine Theory, Overhaul, and Repair (A,W,SP,SU)** 4-6-6  
Theory and operation of aircraft reciprocating engines. Study of the reciprocating engine construction and design. Reciprocating engine maintenance, inspection, repair, and troubleshooting. Procedures of engine removal, installation, rigging, and testing. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 313 Reciprocating Engine Ignition and Fuel Systems (A,W,SP,SU)** 4-6-6  
Electrical principles of reciprocating ignition systems. Aircraft magneto inspection, repair and overhaul. Installation and adjustment of aircraft magnetos. Reciprocating engine ignition harness construction and repair. Aircraft spark plug inspection and servicing. Reciprocating engine ignition system troubleshooting. Theory of operation, maintenance, repair and troubleshooting of aircraft carburetors. Operation, maintenance, repair and troubleshooting of reciprocating engine fuel injection systems. Repair and maintenance of engine fuel systems. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 315 Reciprocating Engine Cooling, Induction, and Exhaust Systems** 2-3-3  
The theory, maintenance, troubleshooting, and repair of reciprocating engine lubrication systems. Inspection and repair of reciprocating engine cooling systems. Fundamentals and repair of reciprocating engine induction and exhaust systems. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 321 Turbine Engine Theory and Overhaul (A,W,SP,SU)** 4-6-6  
Theory and operation of aircraft turbine engines. Study of the turbine engine construction and design. A study of turbine engine maintenance, inspection, repair, and troubleshooting techniques. Application of procedures to remove, install, rig and operationally test turbine engines. Identification and repair of lubrication systems and components. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 323 Turbine Engine Airflow Systems (A,W,SP,SU)** 3-2-4  
A study of fundamental principles of turbine engine ice and rain, cooling, exhaust and thrust reverser systems. A study of the applied techniques to inspect, maintain, troubleshoot, repair and service induction and airflow systems to industry standards. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 325 Turbine Engine Fuel and Ignition Systems (A,W,SP,SU)** 4-6-6  
A study of operating principles, and theory of turbine engine fuel systems, fuel metering systems and subsystems. A study of applied techniques to inspect, maintain, troubleshoot, repair and adjust respective systems to industry standards. A study of electrical principles of turbine engine ignition systems. Principles of operating turbine engine starting systems of both electrical and pneumatic type. A study of applied techniques to inspect, service, troubleshoot

and repair respective system components to industry standards. Lab fee: \$14.00. Prerequisites: AVI 121 and AVI 123.

**AVI 331 Propellers (A,W,SP,SU)** 4-6-6  
Aerodynamic principles of propellers. Propeller types, construction and operation. Inspection, repair and troubleshooting. Installation, removal, tracking and balance. Controllable propellers. Constant speed governor control, operation and adjustment. Reversible propellers. Hazards of propeller operation. Lab fee: \$14.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

**AVI 333 Engine Instruments and Electrical Systems (A,W,SP,SU)** 2-1-3  
Identify types of powerplant instrument and electrical systems, operating principles and procedures to inspect, check and troubleshoot temperature, pressure and RPM indicating systems. Lab fee: \$14.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

**AVI 335 Powerplant Inspection and Fire Protection (A,W,SP,SU)** 4-8-7  
One hundred hour inspection of powerplants and systems. Use of inspection equipment and aids. Procedures for returning aircraft engines to service. FAA regulations and maintenance records. Theory, inspection, service and troubleshooting of engine fire protection and fire detection systems. Radial engine design, systems and differences. A summative evaluation course to determine, in a comprehensive manner, the competence necessary for certification testing. Lab fee: \$14.00. Prerequisites: AVI 311, AVI 313, AVI 315, AVI 321, AVI 323, and AVI 325.

## Biology (BIO)

**A mandatory safety lesson (normally given in the laboratory) must be completed before the student is admitted to certain biology laboratory sessions. Approved safety glasses are required for some laboratory sessions and may be purchased through the Bookstore. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes.**

**BIO 100 Introduction to Biological Sciences (A,W,SP,SU)** 4-0-4  
A general biology course in which basic principles of the characteristics of life, biochemistry, cell reproduction and genetics are explored. Lab fee: \$3.00. Prerequisite: Placement into ENGL 100 or higher. Not open to students with credit for BIO 111, BIO 112, BIO 125, BIO 126, BIO 131, BIO 132, NSCI 101, NSCI 102, NSCI 103, BIO 161, BIO 169, BIO 174 or BIO 175.

**BIO 101 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. Lab fee: \$3.00. Prerequisite: Placement into ENGL 100 or higher. Not open to students with credit for BIO 121, BIO 122, BIO 161 or BIO 169.

**BIO 111 Introductory Biology I (A,W,SP,SU)** 4-3-5  
An introduction to the biological sciences for the non-major student. Topics included are cell structure and function, bioenergetics, DNA structure and function, cell reproduction, biodiversity, ecology, and evolution. Lab fee: \$19.00. Prerequisite: Placement into ENGL 101. Not open to students with credit for BIO 174 or BIO 175. This course and BIO 112 or BIO 115 or BIO 125 or BIO 126 or BIO 127 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree. This course not open to students with credit for BIO 114.

**BIO 112 Introductory Biology II; Human Biology (A,W,SP,SU)** 4-3-5  
An introduction to the study of human biology. Topics included are human evolution, human reproduction, human growth and development, homeostasis, the human brain, and the environmental impact of humans on earth. Lab fee: \$19.00. Prerequisites: BIO 111 or permission of instructor.

**BIO 115 General Microbiology (A,W,SP,SU)** 3-4-5  
A general microbiology course for biology majors (non-microbiology majors). Topics covered include taxonomy, morphology and staining, culture techniques, bacterial metabolism and physical and chemical methods for microbial control. General concepts in immunology, including host defense mechanisms and hypersensitivity, are also covered. Related laboratory is required, including identification of unknown bacteria. Lab fee: \$26.00. Prerequisites: high school chemistry and biology, or CHEM 100 and BIO 100 or NSCI 103, and placement into ENGL 101.

**BIO 116 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 mechanics of antigen-antibody reactions. Additional topics for detailed discussion are human airborne, foodborne and waterborne infections and human contact diseases. Lab fee: \$3.00. Prerequisites: BIO 115, ENGL 101.

**BIO 121 Anatomy, Physiology and Pathology I (A,SP)** 4-3-5  
An integrated organ systems approach to the anatomy, physiology and pathology of the human body. Topics include cell biology, histology, and integumentary, skeletal, muscular and nervous systems. Lab fee: \$19.00. Prerequisites: High school biology and chemistry or BIO 100 and CHEM 100 or NSCI 103 and placement into ENGL 101. Not open to students with credit for BIO 161 or BIO 169.



**BIO 122 Anatomy, Physiology and Pathology II (W,SU)** 4-3-5  
A continuation of BIO 121. Topics include endocrinology, respiratory system hematology, cardiovascular system, metabolism, gastro-intestinal system, thermal regulation, and renal and reproductive systems. Lab fee: \$19.00. Prerequisite: BIO 121.

**BIO 124 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. Lab fee: \$3.00. Prerequisites: high school biology or BIO 100 or NSCI 103, and ENGL 101.

**BIO 125 Plant Biology (A,SP)** 4-3-5  
This course covers the biology of the major plant groups. Topics include diversity, physiology, reproduction, ecology, and economic significance. Lab fee: \$18.00. Prerequisites: Placement into ENGL 101; high school chemistry and biology, or CHEM 100 and BIO 100, or NSCI 103.

**BIO 126 Principles of Ecology (On Demand)** 4-3-5  
This course provides an introduction to ecology. Topics include population dynamics, distribution of species, and energetics. Lab fee: \$15.00. Prerequisites: BIO 111 or BIO 174, high school chemistry, CHEM 100, or NSCI 103.

**BIO 127 Environmental Science (A,SP)** 4-3-5  
This course provides a survey of current issues in the study of environmental science. Topics include scientific principles and concepts, human population dynamics, resources and resource management, pollution, world problems, and environment and society. Emphasis will be placed on how individual actions, and economic and political policies can affect the environment. Proposed solutions to environmental problems will be considered. Lab fee: \$18.00. Prerequisites: NSCI 101 and NSCI 102; or BIO 111 or BIO 174 or equivalent and placement into ENGL 101.

**BIO 161 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: \$26.00. Prerequisites: high school biology or BIO 100 or BIO 101 or NSCI 103; placement into ENGL 101. This course and BIO 169 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree. Not open to students with credit for BIO 121.

**BIO 162 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. Lab fee: \$3.00. Prerequisites: BIO 161, and placement into ENGL 101.

**BIO 169 Human Physiology (A,W,SP,SU)** 4-2-5  
An introductory course in human physiology designed to cover the normal physiology of all organ systems. Lab fee: \$13.00. Prerequisites: BIO 161 or equivalent, CHEM 113 or equivalent, placement into ENGL 101. Not open to students with credit for BIO 121.

**BIO 170 Human Pathophysiology (A,W,SP,SU)** 5-0-5  
This course deals with the disordered functioning of the human body due to disease. It is designed for students or practitioners in nursing or other allied health professions who wish to increase their understanding of the changes occurring in physiology due to an abnormality. Lab fee: \$3.00. Prerequisites: BIO 169 or equivalent; CHEM 112 or CHEM 113 or equivalent or permission of instructor.

**BIO 174 Biological Sciences I (A,W,SP,SU)** 4-3-5  
A biology course designed for biology majors that provides an in-depth coverage of cell biology, genetics and embryology. Lab fee: \$26.00. Prerequisites: MATH 104 or equivalent, and placement into ENGL 101. Concurrent or prerequisite: CHEM 112 or CHEM 113. This course and BIO 175 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.

**BIO 175 Biological Sciences II (A,W,SP,SU)** 4-3-5  
A continuation of BIO 174. A biology course designed for biology majors that provides an in-depth coverage of evolution, diversity of life, animal behavior, and ecology. Lab fee: \$25.00. Prerequisite: BIO 174.

**BIO 201 Animal Diversity and Systematics (A,SP)** 4-3-5  
A survey of the diversity of organisms in the animal kingdom. Emphasis will be placed on evolutionary interrelationships, locomotory, nutritional, and reproductive strategies of the major groups. Lab fee: \$26.00. Prerequisite: BIO 174. This course and BIO 174 provide a two-quarter sequence in biological science that will fulfill the elective requirement for the Associate of Science Degree.

**BIO 290 Capstone Experience in Biology** 4-3-5  
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: \$19.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all biological science majors seeking either the Associate of Arts or Associate of Science degree.

## Business Mgmt. Technology (BMGT)

**BMGT 101 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 related to the basic principles of management and economics. Lab fee: \$3.00.

**BMGT 111 Management (A,W,SP,SU)** 5-0-5  
The basic management functions of planning, organizing, leading, controlling and staffing business organizations are covered. The organization is viewed as a system of interdependent parts which interacts with the outside environment. Topics include leadership, motivation, communication and problem solving. Lab fee: \$3.00.

**BMGT 121 Human Resources Management (A,W,SP,SU)** 4-0-4  
A study of the philosophy, principles and legal aspects of human resources management including policy making, recruiting, selection, training, evaluation, wage and salary administration, benefit programs, employee rights, representation and safety. Lab fee: \$3.00. Prerequisite: BMGT 111

**BMGT 122 Human Resource Policy and Procedure Writing (W,SU)** 1-4-3  
An in-depth study of employment law, the recruiting process, the selection process, and writing policies and procedures through the development of an employment policy, procedure, and employee handbook summary. Lab fee: \$5.00. Prerequisites: MCT 106, BMGT 121, ENGL 101 and ENGL 102.

**BMGT 151 Purchasing Principles I (A)** 3-0-3  
This course is designed to teach the basics of purchasing management to the newly appointed buyer or non-purchasing personnel looking to broaden their business perspective. Purchasing Management will be treated as a dynamic and vital function requiring professional people skills and educational background. Topics include: the challenge of purchasing and materials management; objectives and organization; function, specification, quality and inspection, computerization and procedures, and quantity considerations. Lab fee: \$3.00.

**BMGT 152 Purchasing Principles II (W)** 3-0-3  
This course, which is a continuation of "Purchasing Principles I", will focus on how the basics of good buying can be used effectively to meet the challenges and responsibilities of the constantly changing business climate. Topics such as forward buying, international purchases, buying capital assets and the purchase of transportation services will be covered in-depth through lecture and discussion. Lab fee: \$3.00. Prerequisite: BMGT 151.

**BMGT 211 Organizational Behavior for Managers (A,W,SP,SU)** 3-2-4  
An introduction to the fundamental concepts of human relations in an organization. Topics include intrapersonal, interpersonal and organizational communication styles, understanding the self motivational techniques, and personal and organizational values and attitudes. Lab fee: \$4.00. Prerequisite: BMGT 111.

**BMGT 216 Business Ethics (A,W,SP,SU)** 3-0-3  
A comprehensive and practical study of ethical systems designed to explore, analyze and evaluate the organizational values, strategic policies and expected behaviors required to develop high ethical standards both on a personal and organizational level. Emphasis will be placed on case studies and exercises in ethical behaviors. Lab fee: \$5.00.

**BMGT 218 Management Training for Supervisors (A,W,SP,SU)** 5-0-5  
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, problem identification techniques, decision-making, time management, management styles, motivation, training subordinates, performance evaluation, verbal and non-verbal communications, interviewing techniques, and a look at the challenge of leadership in an organizational setting. Emphasis will be placed on actual on-the-job problems. Lab fee: \$4.00.

**BMGT 219 International Business (A,SP)** 3-0-3  
The course focuses on the economic, social and cultural considerations in doing business overseas. The globalization of markets and the growth of overseas business ventures is explored. The need to develop varied techniques for managing people from other cultural backgrounds, the means of minimizing risks in financial transactions, and development of systems for coordinating and controlling operations will be stressed. Techniques to overcome international business barriers are examined. Lab fee: \$3.00. Prerequisite: BMGT 101

**BMGT 221 Monetary Compensation (A,SP)** 4-0-4  
An in-depth study of the history, principles and theories of both monetary and non-monetary compensation; the laws governing monetary compensation; the development of internal and external equity in monetary compensation; and the development of monetary compensation policies and procedures for various levels of employees. Lab fee: \$10.00. Prerequisites: BMGT 121 and MATH 135. Concurrent: BMGT 222.

**BMGT 222 (3862) Benefits/Non-Monetary Compensation (A,SP)** 4-0-4  
An in-depth study of the history, principles, and theories of benefits and non-monetary compensation; the laws governing benefits; the development of benefit packages; the development of external equity in benefit packages; the writing of benefit programs, policies and procedures; and the value of benefit programs to an organization. Lab fee: \$10.00. Prerequisites: BMGT 121 and MATH 135. Concurrent: BMGT 221.

**BMGT 223 Staffing Under the Law (A,SP)** 5-0-5  
An in-depth study of the legal aspects and boundaries of the human resources process for all organizations; the writing of policies, procedures, rules and programs in the areas of affirmative

action, sexual harassment, discipline, and safety; additional discussions to cover topics such as determining hiring needs, the hiring process, discrimination, workers compensation, OSHA, ADA, and termination issues. Lab fee: \$10.00. Prerequisites: BMGT 121 and MATH 135.

**BMGT 224 Human Resource Information Systems (A,SP) 3-0-3**  
A course to develop human resources students' skills in designing manual and automated records and information management systems that meet the professional and industry standards of performance; that will support the key tasks they perform; and meet the legislative requirements with which the organization must comply. Lab fee: \$10.00. Prerequisites: BMGT 121.

**BMGT 225 Personnel Interviewing (A,W,SP,SU) 3-2-4**  
An in-depth study of the legal aspects of interviewing, various types of interviews conducted in business, and interviewing techniques. Students participate, as both an employer and an employee, in selection, counseling, disciplinary, exit, and performance appraisal interview situations. Interviewing techniques are evaluated utilizing videotape playback. Lab fee: \$10.00. Prerequisite: BMGT 121.

**BMGT 227 Labor Relations (A,W,SP,SU) 3-4-5**  
A study of labor relations including the history of the labor movement, the legislative history and an in-depth study of the four major pieces of private sector collective bargaining legislation; the union organizing process and management responses; the collective bargaining process; the daily contract administration process; and grievance and arbitration procedures. Students participate in negotiations, third step grievance meeting, and arbitration simulations. Lab fee: \$10.00. Prerequisite: BMGT 121 and MATH 101 or MATH 135.

**BMGT 228 Administration of Human Resources Management (W,SU) 0-10-5**  
A capstone course for the Human Resources Management major curriculum. A hands-on application seminar course wherein students serve as a "Board of Directors" developing the full range of human resource policies and procedures. Draws on information and skills gained in previous core courses. Lab fee: \$3.00. Prerequisite: Open to graduating students only.

**BMGT 231 Small Business Development (A,W,SP,SU) 4-0-4**  
First of a two-quarter sequence that introduces the fundamental considerations in planning and executing the start-up of a new small business venture. Concentrates on planning selected critical aspects of a business plan in the areas of: Orientation to Small Business, Strategic Planning, Financial Considerations, Location, Layout and Beginning Inventory. Lab fee: \$5.00.

**BMGT 232 Small Business Operations (A,W,SP,SU) 4-0-4**  
This course is a sequel to BMGT 231 and completes the basic instruction necessary for competence in managing a small business enterprise. Topics covered will include effective operation of an established business with emphasis on strategic planning, market analysis, pricing, inventory control and credit collections. Lab fee: \$5.00. Prerequisite: BMGT 231

**BMGT 234 Case Studies in Small Business (A,SP) 4-0-4**  
Cases covering all functional areas of small business management will be analyzed and presented. Emphasis will be placed on the problem-solving process as a tool for developing and implementing small business management strategies and operational techniques. In addition, a small business computer simulation will be required to apply skills learned. Lab fee: \$3.00. Prerequisites: BMGT 231 and BMGT 232.

**BMGT 235 Strategic Business Planning (A,SP) 2-6-5**  
Preparation and presentation of a formal business plan using Lotus 1-2-3. Lab fee: \$10.00. Prerequisites: ACCT 101, ACCT 102, BMGT 231, BMGT 232, MKTG 111.

**BMGT 238 Small Business Management Internship (A,W,SP,SU) 0-40-4**  
Supervised cooperative work experience with on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Lab fee: \$2.00. Concurrent: BMGT 239.

**BMGT 239 Small Business Management Seminar (A,W,SP,SU) 2-0-2**  
On-campus seminar which allows students to report on small business management knowledge gained in specific areas of the internship. May include a market research survey, case reports or other special projects. Lab fee: \$1.00. Prerequisite: Advisor approval required. Concurrent: BMGT 238.

**BMGT 241 Management Information Principles (A,SP) 3-0-3**  
The emphasis of this course is on introducing the manager to the resources key to decision-making and to the management of all other resources-information. This course will: (1) teach students the relationships between data, information, records, manager, and management; (2) discuss manual and computerized information systems; (3) discuss hardware and software options; and (4) introduce the concepts of data communications, networks, distributed systems, office automation, and records management. Lab fee: \$3.00. Prerequisite: BMGT 101 or BMGT 111.

**BMGT 242 Human Resources Management Practicum (A,W,SP,SU) 0-28-4**  
A guided work experience in a human resources office or work environment providing human resources services. Exact duties are determined by the student and the employer/placement site supervisor. Students are responsible for securing their own practicum. Lab fee: \$2.00. Prerequisites: Completion of all Human Resources core courses and permission of advisor two quarters in advance. Concurrent: BMGT 243.

**BMGT 243 Human Resources Management Seminar (A,W,SP,SU) 0-2-2**  
Seminar discussion of work experience and the development of work related projects and assignments. Lab fee: \$1.00. Concurrent: BMGT 242.

**BMGT 253 Negotiation Principles (SU) 3-0-3**  
A review of negotiation objectives, skills, tactics and preparation. The student, with a foundation on the technical aspect of purchasing, now has the opportunities to understand the

human behavior part of the acquisition cycle. This involves resolving complex issues with many different people, both inside and outside of the organization. Lab fee: \$3.00.

**BMGT 255 Operations Management (A) 4-0-4**  
This course focuses on both the qualitative and quantitative methods used to design processes, manage inventory and the work force and plan and execute decisions related to capacity, quality, productivity, and performance. Emphasis will be placed on applications of these methods. Lab fee: \$3.00.

**BMGT 256 Advanced Purchasing Seminar (SP) 3-0-3**  
This course has been designed as a capstone course for the student of purchasing and materials management disciplines as a comprehensive thorough course blending the most current in academic theory and practical day to day necessary skills. It emphasizes purchasing as the primary materials and activity while integrating purchasing with other materials activities. Topics include legal considerations, public purchasing, the planning process and control functions such as inventory control, budgeting and production. Lab fee: \$3.00. Prerequisite: BMGT 152.

**BMGT 261 Business Management Internship I (A,W,SP,SU) 0-40-4**  
Supervised on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Lab fee: \$2.00. Concurrent: BMGT 262.

**BMGT 262 Special Problems in Business Management I (A,W,SP,SU) 0-4-2**  
Application of business management knowledge to specific areas of on-the-job internship via a report. Lab fee: \$1.00. Prerequisite: Advisor approval required. Concurrent: BMGT 261.

**BMGT 263 Business Management Internship II (A,W,SP,SU) 0-40-4**  
Continuation of BMGT 261. Prerequisite: BMGT 261 and advisor approval required the quarter before the student actually begins the internship. Lab fee: \$1.00. Concurrent: BMGT 264.

**BMGT 264 Special Problems in Business Management II (A,W,SP,SU) 0-4-2**  
Continuation of BMGT 262. Lab fee: \$2.00. Prerequisite: Advisor approval required. Concurrent: BMGT 263

**BMGT 266 Free Enterprise Seminar I (A) 3-0-3**  
The development and execution of free enterprise projects and programs. Direct involvement emphasizing team leadership, project design and implementation and the creation and operation of an actual small business endeavor. The course will be conducted in cooperation with Students in Free Enterprise, Inc. (SIFE). Lab fee: \$1.00. Prerequisites: completion of SIFE orientation; membership in SIFE; completion of 6 credit hours.

**BMGT 267 Free Enterprise Seminar II (W) 3-0-3**  
A continuation of BMGT 266 during which time students will complete projects developed in BMGT 266 and prepare for regional competition events sponsored by Students in Free Enterprise, Inc. (SIFE). Lab fee: \$3.00. Prerequisite: BMGT 266.

**BMGT 271 Management Decisions (A,W,SP,SU) 0-4-2**  
A practical presentation of how to apply fundamental accounting principles to the decision making process in business. A computer simulation is used as an integral part of this course. Lab fee: \$10.00. Prerequisite: Open to graduating students only or through advisor approval.

**BMGT 272 Case Studies in Business Seminar (A,W,SP,SU) 3-0-3**  
The fundamentals of problem solving and decision making will be covered in-depth and applied, using the case approach to a variety of organizational situations. A group case presentation will be a requirement of the course. Lab fee: \$8.00. Prerequisite: Open to graduating students only or through advisor approval.

**BMGT 281-293 Studies in Contemporary Business 1-6**  
Studies in Contemporary Business is a specially designed course offering to meet the needs of the constantly changing business community and student population. Prerequisite: Advisor approval.

## Chef Apprentice Major (See Hospitality Management Technology)

### Chemistry (CHEM)

A mandatory safety lesson must be completed before the student is admitted to any other chemistry laboratory sessions. Approved Chemical Splash Resistant goggles are required and may be purchased through the Bookstore. Certain clothing restrictions exist and will be explained by the instructor. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes.

**CHEM 100 Introduction to Chemistry (A,W,SP,SU) 3-3-4**  
A preparatory chemistry course covering the basic concepts of chemistry with emphasis on the physical and chemical properties of matter, problem-solving, and an introduction to chemical reactions. Related laboratory work and demonstrations. Safety training and goggles are required for laboratory sessions. Lab fee: \$13.00. Prerequisites: MATH 102 or higher. Placement into ENGL 100 or higher. Not open to students with credit for CHEM 111, CHEM 112, CHEM 113, CHEM 171, CHEM 172, or CHEM 173.

**CHEM 111 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: \$19.00. Safety training and goggles are required for laboratory sessions. Prerequisites: high school chemistry or CHEM 100; MATH 102 or equivalent; placement into ENGL 101. Not open to students with credit for CHEM 171, CHEM 172, or CHEM 173. This course and CHEM 112 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

**CHEM 112 Elementary Chemistry II (W,SP,SU)** 4-3-5  
An introductory course in fundamental organic chemistry and laboratory techniques. The study of carbon compounds organized according to functional groups including carbohydrates, lipids, proteins, enzymes, and vitamins. Emphasis is placed on physiological function. Safety training and goggles are required for laboratory sessions. Lab fee: \$19.00. Prerequisite: CHEM 111.

**CHEM 113 General and Biological Chemistry (A,W,SP,SU)** 4-3-5  
This is a course in elementary chemical concepts designed primarily for allied health students. It includes the study of principles of general chemistry, carbon compounds, and biochemical classes. Related laboratory work and demonstrations. Safety training and goggles are required for laboratory sessions. Lab fee: \$19.00. Prerequisites: High school chemistry or CHEM 100, MATH 102 or equivalent, and placement into ENGL 100. Not open to students with credit for CHEM 112.

**CHEM 171 General Chemistry I (A,W,SP,SU)** 4-3-5  
A course in fundamental chemical principles for chemistry majors. Topics include chemical calculations, atomic structure, periodic classification, bonding, and the mole concept. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: \$19.00. Prerequisites: high school chemistry or CHEM 100, MATH 148 or equivalent, and placement into ENGL 101. This course and CHEM 172 provide a two-quarter sequence in physical science that will fulfill the elective requirements for the Associate of Science Degree.

**CHEM 172 General Chemistry II (A,W,SP,SU)** 4-3-5  
A continuation of CHEM 171. Topics include solutions, oxidation-reduction reactions, kinetics, equilibrium, and acid-base chemistry. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: \$19.00. Prerequisite: CHEM 171.

**CHEM 173 General Chemistry III (On Demand)** 4-3-5  
A continuation of CHEM 172. Topics include qualitative analyses, thermodynamics, electrochemistry, nuclear chemistry, the representative elements, and the transition elements. Laboratory sessions provide bench experiences. Safety training and goggles are required for laboratory sessions. Lab fee: \$19.00. Prerequisite: CHEM 172.

**CHEM 290 Capstone Experience in Chemistry (On Demand)** 4-3-5  
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: \$18.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all science majors seeking either the Associate of Arts or Associate of Science degree.

## Civil Engineering Technology (CIVL)

**CIVL 221 Elementary Hydraulics (A,W)** 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: MATH 104.

**CIVL 223 Storm and Wastewater Systems (W,SU)** 2-3-3  
A study of the planning process and design parameters of storm water and sanitary collection systems and treatment processes. Lab fee: \$10.00.

**CIVL 225 Water Supply Systems (SP)** 2-3-3  
A study of design parameters and the planning process of water supply, storage, treatment, transmission and distribution systems. Lab fee: \$10.00.

**CIVL 232 Strength of Materials (A,W,SU)** 2-2-3  
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: \$6.00. Prerequisite: PHYS 117.

**CIVL 233 Structural Steel Systems (A,W)** 1-5-3  
Design and drafting exercises of steel construction techniques and detailing using the steel construction handbooks. Structural layouts, 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: \$9.00. Prerequisites: CIVL 232 and ARCH 121.

**CIVL 235 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 drawing 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: \$9.00. Prerequisites: CIVL 232 and ARCH 121.

**CIVL 291 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. Prerequisites: CMGT 290 and permission of instructor.

## Communication Skills (COMM) (Also see English, and Technical Communications)

**COMM 105 Speech (A,W,SP,SU)** 3-0-3  
Emphasis is placed on both verbal and nonverbal communication techniques in public speaking. Individual presentations, including at least three major speeches, are required. The fundamental principles of interpersonal communications and small group discussion are introduced. Audio and/or video taping of selected projects will occur. This course, or its equivalent, is required for all degrees. Lab fee: \$3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

**COMM 110 Conference and Group Discussion (A,W,SP,SU)** 3-0-3  
Through role play, discussion, and participation, students will develop attitudes, skills, and knowledge of methods necessary to effectively participate in discussion at conferences, in committees, and in other small groups. This course is recommended as a substitute for COMM 105 in some technologies. Check with your academic advisor. Lab fee: \$3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

**COMM 115 Oral Interpretation (A,W,SP,SU)** 3-0-3  
Students will read literature orally and listen critically. They will then practice techniques for presenting literature dramatically. The cultural and social functions of oral literature will be discussed. Emphasis will be placed on analyzing literary works, recognizing their emotional and dramatic values, and projecting those qualities through oral presentations. Writing assignments include response journals and short critical papers. This course is recommended as a substitute for COMM 105 for all Associate of Arts and Associate of Science students. Lab fee: \$3.00. Prerequisite: ENGL 101 or ENGL 111 or concurrent registration with ENGL 101 or ENGL 111.

**COMM 130 Introduction to the Theatre (A,SP)** 5-0-5  
The course is designed to help students bring critical thinking skills into their experience as theatergoers. Students will be introduced to the theatre arts - acting, directing, and design. Students will survey the history of Western theatre, focusing on the art as a reflection of society's changing social and cultural values. Plays representing several genres and historical periods will be read and discussed. Writing assignments include critical reviews of plays attended. Lab fee: \$5.00. Prerequisites: ENGL 101 or ENGL 111.

**COMM 180 Theatre Practicum (A,W,SP,SU)** 1-3  
Theatre Practicum is open to students who have been cast in a Readers Theater production or to students who have been selected to work on technical elements of a Readers Theater production -- lighting, sound, set, costumes, directing or stage managing. Credit varies from 1-3 hours as determined by the instructor. Repeatable to 5 credit hours. Lab fee: \$5.00. Prerequisite: Permission of instructor.

**COMM 220 Introduction to Mass Communications (W)** 5-0-5  
Students will become better consumers of news and other mass media through the study and discussion of the history, roles, and impact of mass media in American society. Principal ethical, policy, and legal questions confronting reporters and media are reviewed. Students are introduced to news writing, advertising, and public relations techniques. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111.

**COMM 230 Communication for the Mass Media (W,SP)** 3-0-3  
This course prepares students to communicate effectively with the mass media including newspapers, magazines, radio, and television through press conferences, news releases, feature stories, research reports, and statements. Students will prepare and present a portfolio that may include news and feature stories, brochures, flyers, research and other assignments completed for the course. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111. Concurrent: COMM 105 or equivalent is recommended.

**COMM 297-298-299 Special Topics in Communications (On Demand)** 1-5  
Special topics from the communication skills area designed to meet specific needs. Prerequisites vary.

## Computer Electronics Major (See Electronic Engineering Technology)

# Computer Programming Technology (CPT)

<b>CPT 100 Computer Literacy I (DOS) (On Demand)</b>	<b>2-2-3</b>
An introductory course designed to provide basic information about computer hardware, software, data communications, operating systems, popular application packages and ethical issues. Hands-on lab experience using the IBM PC and a popular integrated software package is emphasized in the course. The software package introduces the student to business applications using a word processor, file manager, spreadsheet, and graphics. Note: This course meets the Computer Literacy requirements for all technologies. This course or CPT 101 is a prerequisite for the Computer Programming Technology, and thus, does not count toward requirements for the Computer Programming Technology. CPT 100 is not open to students who place in DEV 030 or DEV 040 until both of these courses have been completed. Lab fee: \$10.00.	
<b>CPT 101 Computer Literacy I (Windows) (A,W,SP,SU)</b>	<b>2-2-3</b>
An introductory course designed to provide basic information about computer hardware, software, data communications, operating systems, popular application packages and ethical issues. Hands-on lab experience using the IBM PC and a popular integrated software package is emphasized in the course. The software package introduces the student to business applications using a word processor, file manager, spreadsheet, and graphics. Note: This course meets the Computer Literacy requirements for all technologies. This course or CPT 100 is a prerequisite for the Computer Programming Technology, and thus, does not count toward requirements for the Computer Programming Technology. CPT 101 is not open to students who place in DEV 030 or DEV 040 until both of these courses have been completed. Lab fee: \$10.00.	
<b>CPT 105 Introduction to Computer Applications (A,W,SP,SU)</b>	<b>2-3-3</b>
A course designed to provide computer programming majors with fundamental data processing concepts. Hands-on lab experience using word processing, spreadsheet, database and presentation graphics software is emphasized. Lab fee: \$25.00. Prerequisites: CPT 101, MATH 103, and acceptance into the Computer Programming Technology.	
<b>CPT 108 Program Design and Development (A,W,SP,SU)</b>	<b>2-3-3</b>
Introduction to programming logic for business applications. No programming language is used. Students develop language-independent solutions to typical business applications involving the use of totals, minor and major control breaks, and a sequential update. Lab fee: \$5.00. Prerequisites: CPT 101, MATH 103, and acceptance in the Computer Programming Technology. CPT 105 may be taken prior to or with CPT 108.	
<b>CPT 111 Assembly Language 1 (A,W,SP)</b>	<b>2-8-5</b>
Introduction to programming in Assembly Language on an IBM mainframe. Students learn the basic principles of editing numeric data and packed decimal arithmetic. Programs are run on an IBM mainframe computer system using the DOS/VSE operating system. Lab fee: \$40.00. Prerequisite: MATH 121. CPT 108 may be taken prior to or with CPT 111.	
<b>CPT 112 Assembly Language 2 (W,SP,SU)</b>	<b>2-8-5</b>
A continuation of CPT 111. Emphasizes the use of binary arithmetic, table handling, sequential disk files, and the external sort. Programs are run on an IBM mainframe computer system using the DOS/VSE operating system. Lab fee: \$40.00. Prerequisite: CPT 111	
<b>CPT 131 Operating Systems (SP,SU)</b>	<b>2-3-3</b>
Selected topics of current interest will be presented, including a comparative discussion of operating systems, for micros (MS/PC-DOS), and mini (OS/400) mainframe (DOS/VSE, OS/MVS, and UNIX). The student will code several JCL lab exercises. Lab fee: \$10.00. Prerequisite: CPT 111.	
<b>CPT 151 BASIC Business Language (A,SP)</b>	<b>2-3-3</b>
Introduction to the BASIC programming language with business applications. Lab fee: \$25.00. Prerequisite: CPT 111.	
<b>CPT 155 Visual Basic (A,W,SP,SU)</b>	<b>2-3-3</b>
Emphasizes the essential aspects of creating the graphical user interface of a Visual Basic Windows program. Some Visual Basic coding is also used included in the subject material. Programs are run on IBM micro computers using the Windows operating system. Lab fee: \$25.00. Prerequisite: CPT 111.	
<b>CPT 201 COBOL 1 (A)</b>	<b>2-8-5</b>
Introduction to the concepts and techniques of batch COBOL programming using structured programming techniques. Sequential access methods are stressed. An introduction to alternate mediums will be used. Lab fee: \$40.00. Prerequisite: CPT 112.	
<b>CPT 202 COBOL 2 (W)</b>	<b>2-8-5</b>
A continuation of CPT 201. Sort procedures and random access through VSAM file structure and table handling is stressed. Alternate mediums will be used. Lab fee: \$40.00. Prerequisite: CPT 201.	
<b>CPT 205 COBOL 3 (CICS) (SP)</b>	<b>2-8-5</b>
On-line programming using IBM's CICS system. Pseudo-conversational techniques will be used to solve a variety of business applications. Lab fee: \$40.00. Prerequisite: CPT 202. CPT 205 may be taken prior to or with CPT 281.	
<b>CPT 211 Systems Analysis 1 (A)</b>	<b>3-2-4</b>
An introduction to the science of systems analysis and design to include explanation of systems flowcharting, documentation and decision support systems. Readings concerning selected topics of current interest in the field of systems analysis will be presented. Prerequisite: CPT 111.	
<b>CPT 212 Systems Analysis 2 (W)</b>	<b>3-2-4</b>
A continuation of CPT 211. The student will learn to use system flowcharting techniques to design typical business systems. Additionally, the students will learn to apply the principles of systems analysis and design to manage and develop large data processing projects. Prerequisite: CPT 211.	
<b>CPT 221 Database Programming (A,W,SP,SU)</b>	<b>2-3-3</b>
This course presents an overview of Database Management Systems (DBMS) programming techniques and systems. The student will write programs using a database software package. Lab fee: \$25.00. Prerequisite: CPT 111.	
<b>CPT 225 Database Systems (W,SU)</b>	<b>2-3-3</b>
An introduction to database systems in theory and application. Students will design and build a database on IBM personal computers using a popular database package. Lab fee: \$25.00. Prerequisite: CPT 221.	
<b>CPT 231 IBM PC Assembler (W)</b>	<b>2-8-5</b>
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: CPT 112.	
<b>CPT 241 Introduction to AS/400 (A,W,SP,SU)</b>	<b>2-3-3</b>
Survey of IBM AS/400 computer system operation and use of application development tools. Lab fee: \$25.00. Prerequisite: CPT 105 for Computer Programming students; MCT 106 for Microcomputing Technology students.	
<b>CPT 243 Command Language/400 (A,W,SP,SU)</b>	<b>2-3-3</b>
Introduction to Control Language Programming on the AS/400 will stress the skills required to effectively use Control Language in the operations of an AS/400. Lab fee: \$25.00. Prerequisites: CPT 108 and CPT 241.	
<b>CPT 245 Introduction to RPG (A,SP)</b>	<b>2-8-5</b>
Study of the fundamentals of Report Program Generator (RPG) programming language, particularly as it applies to an IBM AS/400 computer. Lab fee: \$40.00. Prerequisites: CPT 111 and CPT 241.	
<b>CPT 246 Advanced RPG (W,SU)</b>	<b>2-8-5</b>
A continuation of CPT 245. Advanced course in RPG programming using the IBM AS/400 computer. Topics include RPG/3 and RPG/400 enhancement to the RPG language, structural RPG coding and interactive file processing. Lab fee: \$40.00. Prerequisite: CPT 245.	
<b>CPT 251 C Language Programming (A,W,SP,SU)</b>	<b>2-8-5</b>
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 a compiler. Lab fee: \$40.00. Prerequisite: CPT 201.	
<b>CPT 252 Advanced C (W,SU)</b>	<b>2-8-5</b>
An advanced course in C Language programming. Selected advanced topics such as random access file handling, create files, interrupts and graphics will be presented. Lab problems will be run on IBM personal computer running under MS/PC-DOS utilizing a compiler. This course is business application oriented. Lab fee: \$40.00. Prerequisite: CPT 251.	
<b>CPT 261 Network Communication Systems (A,W)</b>	<b>2-3-3</b>
Students will learn the fundamentals of data communication and computer networks. To include basic communication theory as applied to both digital and analog communication networks. Also students will learn the basics of the OSI layered network model and characteristics of the wide area, and local area data communication networks. Prerequisite: MCT 221.	
<b>CPT 262 Client Server Systems (A,W)</b>	<b>2-3-3</b>
Students will learn the basic information about client server systems. Coverage includes a discussion of: the advantages of client/server computing, the hardware and software components of client/server systems, and the future of client/server computing. Prerequisite: MCT 221.	
<b>CPT 263 Networking (W,SP)</b>	<b>2-8-5</b>
Students will learn the fundamentals of local area networks and will learn to install a popular LAN operating system, create users, establish network security, share printers and other network resources, and use network accounting systems in a laboratory environment. Lab fee: \$40.00. Prerequisites: CPT 261 and CPT 262.	
<b>CPT 264 Advance Networking (SP,SU)</b>	<b>2-8-5</b>
A continuation of CPT 263. Students will learn advanced local area network concepts and how they can be applied to support enterprise wide information management of large organizations. Student will complete a series of laboratory assignments using a popular LAN operating system. Lab fee: \$40.00. Prerequisite: CPT 263.	
<b>CPT 265 Distributed Database Management Systems (A,SU)</b>	<b>4-2-5</b>
Students will learn the characteristics and types of distributed DBMS currently available for use on distributed data networks. Additionally, students will learn to design and create an enterprise wide database that will be maintained on a distributive network system in a laboratory environment. Lab fee: \$20.00. Prerequisite: CPT 264.	
<b>CPT 266 Certification Test Review (A,SU)</b>	<b>2-2-3</b>
Students will review the material necessary to become certified with a popular network operating systems software. Students will complete a series of practical exercises designed to enhance their ability to successfully complete a popular vendor certification program. Lab fee: \$15.00. Prerequisite: CPT 264.	

**CPT 281 Final Project (SP,SU)** 2-8-5  
Students will work in small groups to design, choose appropriate medium and program a typical business system. Lab fee: \$40.00. Prerequisite: CPT 202 and CPT 212. CPT 205 may be taken prior to or with CPT 281.

**CPT 289 ACP Examination (A,W,SP,SU)** 0-3-1  
Students will review topics covered in all previous technical courses. Students will be eligible to sit for the Associate Computer Professional (ACP) examination administered by the Institute for the Certification of Computer Professionals (ICCP). All students in Computer Programming Technology will take CPT 289 during their graduating quarter. Lab fee: \$20.00.

**CPT 297 Computer Science Internship/Field Experience 1 (On Demand)** 0-12-1  
The student works 12 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

**CPT 298 Computer Science Internship/Field Experience 2 (On Demand)** 0-24-2  
The student works 24 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

**CPT 299 Computer Science Internship/Field Experience 3 (On Demand)** 0-36-3  
The student works 36 hours per week in an activity which relates to the students' occupational objective. The on-the-job experience is coordinated by a faculty member who aids in the students' growth and development.

**CPT 291 Special Topics in CS 1 (On Demand)** 1-0-1

**CPT 292 Special Topics in CS 2 (On Demand)** 2-0-2

**CPT 293 Special Topics in CS 3 (On Demand)** 3-0-3

**CPT 294 Special Topics in CS 4 (On Demand)** 4-0-4

**CPT 295 Special Topics in CS 5 (On Demand)** 5-0-5

Special topics in CS 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 chairperson.

cooperation of local law enforcement departments and insurance companies will also be studied. Lab fee: \$7.00.

**CMGT 141 Building Estimating (W,SP,SU)** 1-3-2  
Development of topics such as material price extensions, equipment requirements, labor requirements, and time requirements as related to building construction projects. Lab fee: \$9.00. Prerequisites: CMGT 131 and CMGT 115.

**CMGT 241 Planning and Scheduling (A)** 2-3-3  
A study of project control and coordination through systematic planning and scheduling, including operational adjustments for resource changes and alterations. Computer computation of critical path methods and analysis. Lab fee: \$5.00. Prerequisite: CMGT 115 or CMGT 125.

**CMGT 243 Construction Labor Law (A)** 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: \$3.00.

**CMGT 248 Heavy Construction Estimating (A,SU)** 1-3-2  
A comprehensive study of the topics associated with and unique to heavy/highway construction estimating. The major focus of the course will involve determining the cost factors of the equipment intensive operations associated with heavy/highway construction. The secondary focus will be relating the equipment selection and cost factors to the labor requirements, materials price extensions, and time requirements as utilized in the model crew method of estimating. Lab fee: \$9.00. Prerequisites: CMGT 125 and CMGT 123.

**CMGT 251 Construction Cost Controls (W)** 2-3-3  
Methods and techniques of cost analysis used to develop skills in controlling construction computer computation of costs, budgets, and related critical path analysis and adjustment, operating costs and cost forecasting of completed production. Lab fee: \$5.00. Prerequisites: CMGT 141 or CMGT 248 and CMGT 241.

**CMGT 252 Construction Contract Law (W)** 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: \$1.00. Prerequisite: CMGT 105.

**CMGT 253 Residential Construction (A,SU)** 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: \$2.00.

**CMGT 261 Project Management (SP)** 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: \$3.00. Prerequisite: CMGT 251.

**CMGT 262 Productivity Analysis (W)** 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 data documentation of various methods of analysis. Lab fee: \$4.00 Prerequisites: CMGT 115 and CMGT 125.

**CMGT 263 Marketing Construction Services (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: \$5.00.

**CMGT 290 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: \$1.00.

**CMGT 291 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. Prerequisites: CMGT 290 or permission of instructor

## Construction Mgmt. Technology (CMGT)

**CMGT 101 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: \$2.00.

**CMGT 105 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 final project. Lab fee: \$4.00.

**CMGT 106 Supervision of 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: \$4.00.

**CMGT 112 Construction Industry Survey (A,W,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.

**CMGT 115 Building Construction Methods (A,W,SP,SU)** 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 building projects such as offices, schools, stores, industrial buildings and hospitals, along with the strategies employed to control and coordinate these activities. Lab fee: \$3.00.

**CMGT 123 Heavy Construction Drawings (A,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: \$5.00.

**CMGT 125 Heavy Construction Methods (A,W)** 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. Lab fee: \$5.00.

**CMGT 131 Construction Quantity Survey (A,W,SP,SU)** 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: \$9.00. Prerequisite: ARCH 121. Concurrent: MATH 104.

**CMGT 135 Safety and Loss Prevention (SP)** 2-3-3  
Identification of work hazards and unsafe practices, safety codes and standards, safety programs and training with the role of O.S.H.A. and insurance companies in safety programs. Basic first aid and CPR are included. How to develop theft reduction programs with the

## Corrections Major (See Law Enforcement Technology)

## Dental Laboratory Technology (DENT)

**DENT 101 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. Prerequisite: Acceptance into program.

**DENT 102 Materials II (W)** 2-0-2  
This course is a continuation of the study of materials introduced in DENT 101. Prerequisite: DENT 101.

**DENT 111 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. Prerequisite: Acceptance in to program.

**DENT 121 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. Lab fee: \$55.00.

**DENT 122 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. Prerequisite: DENT 121.

**DENT 123 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. Prerequisite: DENT 122.

**DENT 132 Occlusion (W)** 1-6-3  
This course will entail a study of occlusal morphology, the temporomandibular joint and mandibular movements. Prerequisite: DENT 111.

**DENT 142 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. Prerequisite: DENT 121.

**DENT 143 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. Prerequisite: DENT 142.

**DENT 153 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. Prerequisite: DENT 132.

**DENT 224 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. Prerequisite: DENT 123.

**DENT 244 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. Prerequisite: DENT 143.

**DENT 254 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 veneers. Prerequisite: DENT 153.

**DENT 255 Fixed Partial Dentures III (A)** 1-6-3  
This course will extend the students' experiences in fixed partial denture construction by introducing soldering and multiple unit appliances. Lab fee: \$55.00. Prerequisite: DENT 254.

**DENT 256 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 of an existing removable partial denture. Lab fee: \$55.00. Prerequisite: DENT 255.

**DENT 264 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. Prerequisite: DENT 123.

**DENT 275 Ceramics I (A)** 1-6-3  
This course is an introduction to dental ceramics and will involve a study and construction of porcelain fused to metal restorations. Prerequisite: DENT 254.

**DENT 276 Ceramics II (W)** 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. Prerequisite: DENT 275.

**DENT 285 Orthodontics (SU)** 1-3-2  
This course will entail a basic introduction to the laboratory skills necessary to provide services in the areas of orthodontics.

**DENT 296 Applied Laboratory I (W)** 1-6-3  
This course consists of laboratory and is intended to simulate a working laboratory. The student will fabricate fixed and removable appliances. Prerequisites: DENT 224 and DENT 255.

**DENT 297 Applied Laboratory II (SP)** 1-18-7  
This course consists entirely of laboratory and is intended to stimulate a working laboratory situation with regard to work schedules, case flow, and coping with real problems. Lab fee: \$55.00. Prerequisite: DENT 296.

# Dietetic Manager Certificate (DMGR)

(See Hospitality Management Technology)

# Dietetic Technician Major (DIET)

(See Hospitality Management Technology)

# Developmental Education Department (DEV)

**DEV 006 Writing Skills/Grammar/Sentence Structure (A,W,SP,SU)** 2-0-2  
This module course is designed to build proficiency in basic writing skills, grammar, and sentence structure. It is taught in the Writing Skills Lab, on a one-to-one basis, and may be taken simultaneously with other DEV lab module courses. It is opened to students enrolled in DEV 040, 041, 042 or the ENGL 100 series whose diagnostic test indicates specific deficiencies in language skills. Lab fee: \$2.00.

**DEV 007 Basic Punctuation Skills (A,W,SP,SU)** 2-0-2  
This module course in basic punctuation skills is structured to build students' proficiency in using punctuation correctly. It is taught in the Writing Skills Labs, on a one-to-one basis, and may be taken simultaneously with other DEV lab module courses. It is opened to students enrolled in DEV 040, 041, 042, or ENGL 100 series whose placement or diagnostic test indicates specific deficiencies in punctuation skills. Lab fee: \$2.00.

**DEV 015 Spelling and Vocabulary (A,W,SP,SU)** 3-0-3  
For development of spelling skills through the use of phonics, personal word lists and basic spelling rules. Lab fee: \$2.00.

**DEV 030 Basic Mathematics (A,W,SP,SU)** 5-0-5  
Basic Mathematics offers a review of arithmetic concepts including whole numbers, fractions, decimals, percents, simple equations, formulas, and data interpretation. The course is structured to develop students' critical thinking, problem solving, math and study skills through collaborative activities, writing assignments, real-life applications and the use of modern technology in the classroom. The course is not open to students with credit for DEV 031, MATH 101 or MATH 102. Lab fee: \$6.00.

**DEV 031 Pre-Algebra (A,W,SP,SU)** 5-0-5  
Pre-Algebra is designed for students who have no experience with algebra and for those who need to strengthen their abilities to work with algebraic mathematics. Focus on topics in DEV 031 will include simplifying algebraic expressions, working with exponents, formulas, signed number operations, polynomial operations and graphing. This course will help to develop students' algebra and thinking skills and help them to perform successfully in MATH 101, MATH 102, and in the workplace. Not open to students with credit for MATH 101 or MATH 102. Lab fee: \$6.00. Prerequisite: By placement, minimum of "C" or above in DEV 030.

**DEV 035 Whole Numbers (A,W,SP,SU)** 1-0-1  
This course is a review of whole number operations and introduces properties of numbers, order of operations, formula evaluation, prime factorization, and least common multiple. The course will develop problem solving and math study skills. The course is open to all students who need to develop skills in this area. May be taken concurrently with DEV math courses. Lab fee: \$2.00.

**DEV 036 Fractions (A,W,SP,SU)** 1-0-1  
This course offers review and instruction in the meaning and vocabulary of fractions and mixed numbers, operations with fractions, order of operations, comparing fractions, and word problems. The course will develop problem solving and math study skills. The course is open to all students who need to develop skills in this area. May be taken concurrently with DEV math courses. Lab fee: \$2.00.

**DEV 037 Decimals and Proportions (A,W,SP,SU)** 1-0-1  
This course offers review in naming and rounding decimals, decimal operations, decimal-fraction relationships, and word problems. It also provides instruction in the meaning of ratio and rate, solving proportions, proportion application problems, and similar triangles. The course will develop problem solving and math study skills. The course is open to all students who need to develop skills in this area. May be taken concurrently with DEV math courses. Lab fee: \$2.00.

**DEV 038 Percents (A,W,SP,SU)** 1-0-1  
This course provides instruction in the meaning of percents, fraction-decimal-percent relationships, using the percent formula, and applications of percents. The course will develop problem solving and math study skills. The course is open to all students who need to develop skills in this area. May be taken concurrently with DEV math courses. Lab fee: \$2.00.

**DEV 040 Reading and Writing Skills (A,W,SP,SU)** 5-0-5  
This course develops students' skills for academic success in college by focusing on developing students' basic reading, writing, and study skills. Students will practice exercises that emphasize basic reading and writing skills by reading essays, writing and responding to short questions, keeping a journal, and doing workbook activities. Not open to students with credit for DEV 041, 042, or any ENGL 100 series. Lab fee: \$4.00.

**DEV 041 Basic Communication Skills (A,W,SP,SU)** 5-0-5  
This course combines seminars in college survival skills with elements of the writing process. Students will practice pre-writing and revision techniques to develop paragraphs, and reading and writing strategies to write critical responses to multicultural readings. Students will practice using Standard Edited English, the library, and writing a variety of journal exercises. This course is open to students who place by Writing Test into DEV 041. It is not open to students with credit for any of the ENGL 100 series. Lab fee: \$4.00.

**DEV 042 Principles of Writing (A,W,SP,SU)** 5-0-5  
This course enhances the students' college experience by integrating seminars that focus on personal growth in the community college with the basic principles of writing clear and coherent paragraphs. Students will practice basic composition skills by writing various types of paragraphs, responding to reading assignments that draw on techniques of critical analysis, drafting and revising exercises in composition, and keeping a journal. Not open to students with credit for ENGL 100 series. Lab fee: \$4.00.

**DEV 044 Critical Reading and Thinking (A,W)**  
Critical Reading and Thinking is designed to help students develop higher-order thinking skills needed for academic study and career success. In this course, students will develop thinking and language abilities through discussion topics, reading and writing assignments that allow them to critique their self-knowledge, evaluate ideas, and recognize errors in thinking. The course is open to all Columbus State students. Lab fee: \$2.00. Prerequisites: **DEV 040 and DEV 041.**

**DEV 050 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: \$11.00.

**DEV 090 College Success Skills (A,W,SP,SU)** 2-0-2  
College Success provides the student with skills necessary to be successful in their personal, academic, and career-related pursuits. The course focuses on an orientation to the College, study skills, note-taking, test-taking, time management, and career preparation. **This course is required of students who place in two Developmental Education courses.** Lab fee: \$6.00.

## EDP Auditing Major (See Accounting Technology)

## EMT-Paramedic Major (See Multi-Competency Health Tech.)

## Early Childhood Development Technology (ECD)

**ECD 103 Cognitive Curriculum (W,SP)** 3-0-3  
Theoretical foundations for the child's cognitive development. Techniques for promoting concept development as well as focus on science, math and readiness skills in both indoor and outdoor program. Emphasis on planning activities which encourage questioning, probing, and problem-solving skills appropriate to individual developmental level and learning style. Also includes effects and use of T.V., microcomputers and audio-visual equipment in settings for young children. Lab fee: \$12.00. Prerequisites: PSY 261, ECD 105, ECD 107, and ECD 203.

**ECD 105 Self-Concept (A,W,SP,SU)** 3-0-3  
Focuses on individualizing an early childhood program to meet the needs of children in a manner which develops a positive self-image and individual strength. Explores impact of teacher's self-image, values and attitudes on preschool classroom. Includes dimensions of self, antecedents of self-concept, relationship of feelings to self-concept, and teaching to foster self-esteem. Includes observation and recording of behavior. Examines variety of crises in lives of children and offers suggestions that teachers/families might use to cope in given situations. Lab fee: \$12.00. Prerequisite: Placement into ENGL 101.

**ECD 107 Managing Children in Groups (A,W,SP,SU)** 3-0-3  
Focuses on basic guidance techniques to facilitate classroom management and limit-setting. Emphasizes developing goals and objectives as basis for program. Includes preschool curriculum planning and developmentally appropriate practice. Deals with the organization of time and space as it impacts on group living. Lab fee: \$12.00. Prerequisite: ECD 105.

**ECD 109 Language Experiences in Early Childhood Programs (W,SU)** 3-0-3  
Theories and sequence of speech/language development; differentiating between normal and atypical language. Focus is on teacher as facilitator of communication skill development; planning and implementing language arts activities; selecting and using literature to enhance language development, providing emotional support and stimulating interest in books. Includes reading readiness in terms of the play curriculum. Lab fee: \$12.00. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261.

**ECD 110 Infant - Toddler Curriculum (A,SP)** 3-0-3  
Presents an overview of caregiving for infants and toddlers. Emphasizes programming for infants and toddlers across curriculum areas through appropriate experiences, the design of supportive environment, the use of various methods of developmental stimulation, and

optimizing the growth potential of daily routines. The role of the caregiver in relation to parent and child is examined. Special issues of parent participation in infant and toddler care, and advocacy are included. Lab fee: \$12.00. Prerequisites: ECD 105, ECD, 107, ECD 203 and PSY 261.

**ECD 112 Physical Development Curriculum (A,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, perceptual-motor development, as well as implementing small and large motor activities in both the indoor and the outdoor setting. Health and safety education activities are also included. Lab fee: \$12.00. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261.

**ECD 161 - 265 ECD Seminars I-V (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 ECD Field Experience I-V. Seminars focus on observing and recording, the basic principles of guidance, and application of classroom studies in field. Prerequisites: ECD 105, ECD 107, ECD 203, and PSY 261.

**ECD 171 - 275 ECD Field Experiences I-V (A,W,SP,SU)** 0-7-1  
These courses are a vital part of the ECD program, providing students with the opportunity to apply theory and practice under the guidance of early childhood professionals. These professionals guide and assist in the evaluation of student performance. Prerequisite: Admission to Technology. Concurrents: ECD 161-265.

**ECD 201 Health and Safety (A,W,SP)** 3-0-3  
Course gives training and practice in first aid, in the recognition and management of communicable diseases, and in child abuse recognition and prevention. Meets requirements of Ohio Child Day Care Licensing Rules and Regulations for staffs in early childhood settings. Lab fee: \$12.00.

**ECD 203 Creative Curriculum (A,SP)** 3-0-3  
Course deals with the principles of creativity and its importance in the life of the young child. Focus is on the sequence of development in child's use of creative materials. Techniques for creative arts and music will be explored, demonstrated and implemented. Students will develop materials, objectives and activities in these areas. Lab fee: \$20.00. Prerequisites: ECD 105.

**ECD 205 Parent Involvement - Early Childhood Programs (W,SU)** 3-0-3  
Instruction, training and experience in working effectively with parents of young children. Proficiency in involving parents in the child care center according to how they view their parenting role, their cultural heritage and skills they have from their workplace. Emphasis is on active participation of parent in the early childhood program. Lab fee: \$12.00. ECD 206.

**ECD 206 Social Development Curriculum (A,SU)** 3-0-3  
Emphasis 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 and backgrounds and the implications of play theory in programming for social development. Lab fee: \$12.00. Prerequisites: ECD 112 and ECD 103.

**ECD 207 Guidance and Discipline in Early Childhood Programs (SU,SP)** 3-0-3  
In-depth study of guidance and social learning theories. Focus is on resolving problem situations, changing behavior and development of moral reasoning. Includes helping children cope with stress and adapting play therapy techniques for preschool living. Lab fee: \$12.00. Prerequisite: ECD 205.

**ECD 208 Young Children With Special Needs (A,SP)** 3-0-3  
This course presents the rationale and skills in educating and caring for young children with special needs in programs with typically developing young children. It describes skills for identifying and assessing children with special needs and appropriate adoptive activities and strategies useful in an integrated classroom. This course will enable students to acknowledge the importance and necessity of collaboration with community professionals and resources. Lab fee: \$12.00. Prerequisite: ECD 205.

**ECD 209 Early Childhood Staff (W,SU)** 3-0-3  
In-depth study of the dynamics of staff interaction in a setting for young children. Focus includes personnel rights and responsibilities, ethical implications of teaching, team-functioning, problem-solving, communication skills, professional growth and development, the evaluation process, as well as traditions and trends in the field. Lab fee: \$12.00. Prerequisite: ECD 206.

**ECD 211 Child Care Administration (W,SU)** 3-0-3  
This 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. Establishing and maintaining sound fiscal practices are given special emphasis. Includes legal requirements and responsibilities of Ohio licensing procedures. Lab fee: \$12.00. Prerequisites: Minimum of one year working in ECD setting/permission of ECD advisor, placement into ENGL 101.

**ECD 267 Student Teaching Seminar (A,SP,SU)** 2-0-2  
Students have opportunity to discuss their interaction with young children, staff, and parents in early childhood setting. Analyze the components in the learning environment, and their inter-relationships in programs for young children and families. Learn to promote the integration of theory and practice as it relates to topics such as quality programming, guidance, nutrition, health and safety. Lab fee: \$12.00. Prerequisite: ECD 264. Concurrent: ECD 277.

**ECD 277 Student Teaching Practicum (A,SP,SU)** 0-21-3  
Provide students with opportunities to develop skills in working with young children (individually and in groups), and to integrate theories of child development with teaching practice. Students will work in assigned classrooms five days a week for a total of 21 hours weekly. Lab fee: \$12.00. Prerequisite: ECD 274. Concurrent: ECD 267.

# Economics (ECON)

- ECON 100 Introduction to Economics (A,W,SP,SU)** 5-0-5  
An issues-based introduction to basic economic concepts such as scarcity, opportunity cost, supply and demand. Application issues include topics such as the minimum wage, the trade-off between jobs and the environment, and the Federal Reserve's effort to balance inflation and employment objectives. Lab fee: \$5.00. Prerequisites: Placement into ENGL 101 and MATH 101, REAL 104 or equivalent.
- ECON 200 Principles of Microeconomics (A,W,SP,SU)** 5-0-5  
An introductory course which introduces students to the economic decision making of individuals and firms. Topics include scarcity, opportunity cost, supply and demand, consumer choice, elasticity, market structure, profit maximization, resource markets, and international trade. Lab fee: \$5.00. Prerequisites: Placement into ENGL 101 and MATH 101, REAL 104, or the equivalent.
- ECON 240 Principles of Macroeconomics (A,W,SP,SU)** 5-0-5  
An introductory course designed to introduce students to economic decision making at the aggregate level. Topics include national income analysis, the business cycle, inflation, unemployment, fiscal and monetary policies and objectives. Lab fee: \$5.00. Prerequisites: ECON 200, ENGL 101, MATH 101 and REAL 104, or the equivalent.
- ECON 290 Capstone Experience in Economics (On Demand)** 2-2-3  
A capstone course focusing on economics. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in economics.
- ECON 293 Independent Study in Economics (On Demand)** 1-5  
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. Lab fee: \$4.00. Prerequisites: Permission of the instructor and the Chairperson.
- ECON 299 Special Topics in Economics (On Demand)** 1-5  
Detailed examination of selected topics of interest in economics. Lab fee: \$4.00. Prerequisites vary.

# Electro-Mechanical Engineering Technology (EMEC)

For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

- EMEC 250 Motors and Controls (A)** 2-3-3  
A study of the basic elements of AC and DC motors and generators, how they are used in industry, how to select them for different purposes, and how to control their motion. Students also learn about series and parallel circuits, capacitors, inductors, motor speed and torque ratings, and the calculation of horsepower and efficiency. Lab fee: \$12.00. Prerequisite: EET 132 or permission of instructor.
- EMEC 251 Electro-Mechanical Controls I (W)** 3-3-4  
An introduction to the basic interface circuitry used in electro-mechanical controls. Students learn about solenoids and relays, ladder logic and ladder diagrams, and how to design control systems. Students are also exposed to transducers, stepper motors, servomechanism, and programmable logic controllers (PLC's). Lab fee: \$12.00. Prerequisite: EET 243 or permission of instructor.
- EMEC 260 Electro-Mechanical Controls II (SP)** 3-3-4  
The course presents an integrative approach to the use of electro-mechanical controls and how to apply them to typical industrial situations. Students gain experience programming and industrial PLC (programmable logic controller) and designing systems to meet given criteria. Students are also exposed to digital logic. Lab fee: \$12.00. Prerequisite: EMEC 251.

# Electronic Engineering Technology (EET)

- EET 101 Basic Electricity (A,W,SP)** 2-3-3  
An introductory electrical applications course covering basic direct and alternating current concepts, 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: \$5.00. Prerequisite: MATH 103.
- EET 102 Electronics and Digital Fundamentals (W,SP,SU)** 2-3-3  
An introductory electronics and digital fundamentals course. Course content covers electronic basics, diodes, transistors, electronic power supplies, amplification, power control, and basic digital logic devices and systems. Circuit applications of electronic and digital devices are stressed. This course is not required for students in the Electronic Engineering Technology. Lab fee: \$5.00. Prerequisite: EET 101.

**EET 110 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 (CAD). Lab fee: \$6.00.

**EET 111 Direct Current Fundamentals (A,W,SP,SU)** 4-0-4  
An introduction to direct current fundamentals, electron physics, current and voltage, work, power, series and parallel resistances, network theorems, electrical measurement devices, circuit analysis. Microcomputers are introduced and used for problem-solving. Prerequisites: MATH 103 or placement into MATH 111. Concurrents: EET 112 and MATH 111.

**EET 112 DC Laboratory (A,W,SP,SU)** 1-4-3  
This is an introductory course in the use of power supplies and measurement equipment commonly found in laboratories and industrial situations. The student will gain hands-on experience in the use of these equipments. A lab manual is used by the students as an aid to standardization of notation, reference data, and student reporting throughout the course. Lab fee: \$10.00. Concurrent: EET 111.

**EET 120 Alternating Current Fundamentals (A,W,SP,SU)** 4-0-4  
A detailed study of the principles of time varying electrical current and voltage relationships. The course includes an intensive application of vector analysis as applied to AC circuits, power applications, and the resonance phenomenon. Computer solutions are stressed when appropriate. Prerequisites: EET 111 and EET 112. Concurrents: EET 121 and MATH 112.

**EET 121 Alternating Current Laboratory (A,W,SP,SU)** 0-6-2  
Laboratory study of signal sources, oscilloscopes, reactance, inductance, AC networks, transformers and filter circuits. Lab fee: \$10.00. Prerequisites: EET 111 and EET 112. Concurrent: EET 120.

**EET 122 CAD/Electronics (A,W,SP,SU)** 1-4-3  
A follow-up to EET 110, this technical elective course will familiarize the student with the concept of computer aided drafting (CAD) systems as used by drafters in the electronics industry. Emphasis will be placed on the OrCAD TM system. A limited number of seats are available to students from outside the technology. Lab fee: \$5.00. Prerequisite: EET 110 or permission of the instructor

**EET 130 Electronic Devices (A,W,SP,SU)** 4-0-4  
An indepth investigation of the operating characteristics of basic active devices. The course is designed to explain the approximate electrical equivalence and circuit analysis of devices to the basic AC, DC models, with sample applications of the most frequently used circuits. Prerequisites: EET 120 and EET 121. Concurrent: EET 131.

**EET 131 Electronic Devices Laboratory (A,W,SP,SU)** 0-6-2  
The lab exercises in this course closely follow the 4213 lecture theory for reinforcement through experimentation and theoretical verification of results. All lab exercises use modern devices, planned experiments and industrial standard equipment. Lab fee: \$10.00. Prerequisites: EET 120 and EET 121. Concurrent: EET 130.

**EET 132 Digital Fundamentals (A,W,SP,SU)** 2-3-3  
An introductory course in digital electronic fundamentals covering number systems, Boolean Algebra, truth tables, Karnaugh maps, basic gates, adders, (latches, flip-flops, and counters). Lab fee: \$5.00. Prerequisite: EET 111 or approval of instructor

**EET 134 Electric Power Technology (A,SP)** 3-0-3  
An introductory course covering three phase circuits, transformers, induction and synchronous machines, power generation, transmission lines, distribution networks and substations. Prerequisite: EET 120 or permission of the instructor.

**EET 144 Computer Maintenance I (A,W,SP,SU)** 2-2-3  
Course provides instruction and hands on experience in upgrading, reconfiguring and adding on boards, memory, etc. Use of modems and utilities. Students will tear down and reassemble a PC. Lab fee: \$15.00. Prerequisites: CPT 101 recommended.

**EET 145 Computer Maintenance (A,SP)** 1-4-3  
A hands-on laboratory course where students troubleshoot the printer, monitor, disk drive, and CPU of an IBM-PC by means of troubleshooting flowcharts. 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: \$15.00. Prerequisite: EET 130 or permission of the instructor

**EET 203 National Electrical Code (A,W and On Demand)** 3-3-4  
This course gives a brief description of each National Electrical Code article and discusses how to reference information in the code. Changes from the previous code and sample calculations are also covered. Not required for students in the Electronic Engineering Technology. Completion of this course does not guarantee eligibility to sit for any licensing examinations and may not meet electrical contractor or Electrical Safety Inspector refresher course requirements. Check with the College or The Ohio Department of Industrial Relations.

**EET 240 Calculus for Electronics (A,W,SP,SU)** 5-0-5  
Practical application of differential and integral calculus to electronics. Covering rates, limits, derivatives, differentials and differentiators, higher derivatives, maxima/minima, integrals and integrators, definite integrals, trigonometric and logarithmic functions, series and an introduction to differential equations. Graphical methods will be used for problem solutions where appropriate. Prerequisite: MATH 113 or MATH 150 and EET 120.

**EET 241 Electronic Devices Circuit Analysis (A,W,SP,SU)** 4-0-4  
This course covers the concepts of large signal power amplification, small signal voltage amplification of both low and high frequencies, the concepts of negative and positive feedback, integrated circuit (IC) differential and operational amplifiers, and IC voltage regulation with



emphasis on circuit analysis techniques. Computer solution of problems is stressed where practical. Prerequisites: EET 130 and EET 131. Concurrent: EET 242.

# Emergency Medical Services Technology (EMS)

**EET 242 Electronic Devices Circuit Analysis Lab (A,W,SP,SU) 0-6-2**  
This course is designed to compliment EET 241 by providing physical involvement with the various circuits studied therein. The student will construct the circuits presented in lecture, measure their parameters and compare experimental results with those computed from theory. Lab fee: \$10.00. Prerequisites: EET 130 and EET 131. Concurrent: EET 241.

**EET 243 Digital Devices (A,W,SP,SU) 4-0-4**  
A continuation of the study of digital electronics covering waveforms, the generation of pulses and study of the related circuitry such as multivibrators and one shots. More complex and widely used digital devices such as counters, shift registers, memories, and multiplexers are also presented. The basic units of a computer (bus, ALU) are studied. Prerequisites: EET 132 and EET 130. Concurrent: EET 244.

**EET 244 Digital Devices Laboratory (A,W,SP,SU) 0-6-2**  
This lab course, concurrent with the lecture course EET 243, gives the student an opportunity to learn and design complex and widely used digital devices. Switching and wave shaping circuits are built using IC chips. Different devices which are used in building a computer are introduced and used in experiments. Lab fee: \$10.00. Prerequisite: EET 132. Concurrent: EET 243.

**EET 250 Electronic Communications I (A,W,SP,SU) 4-0-4**  
The electronics communication course is an introductory systems course utilizing conventional modulation and demodulation theories. Particular emphasis is made on AM, FM, and video circuits. A survey of current trends in digital communication concepts, microwave principles, and fiber optics will be presented. Prerequisite: EET 130. Concurrent: EET 251.

**EET 251 Communications I Laboratory (A,W,SP,SU) 0-6-2**  
Laboratory study of modern discrete, integrated circuit and modular circuit configurations to fabricate systems in AM, SSB, FM, video circuits and phase lock loop and pulse modulation. Lab fee: \$10.00. Prerequisite: EET 131. Concurrent: EET 250.

**EET 252 Microprocessors (A,W,SP,SU) 4-0-4**  
Different building blocks of a microprocessor and their functions are introduced. Methods of data storage and programming of a microprocessor are studied. Use of a microprocessor as a controller and interfacing it to other devices are also studied. A Motorola 68HCII microprocessor is used throughout the course. Prerequisite: EET 243. Concurrent: EET 253.

**EET 253 Microprocessor Lab (A,W,SP,SU) 0-6-2**  
This lab course is the practical version of the concurrent lecture course EET 252. 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 68HCII microprocessor is used. Lab fee: \$10.00. Prerequisite: EET 243. Concurrent: EET 252.

**EET 254 Electronic Fabrication (A,W,SP,SU) 1-3-2**  
An introduction to the fabrication of electronic circuits from assembly through testing, to include soldering/desoldering, use of heat sinks, surface mount device technology testing, documentation and repair/replacement of parts. Credit can be earned by taking the course, life experience or proficiency testing. See your technology faculty advisor for details. Lab fee: \$20.00. Prerequisite: EET 120.

**EET 255 Automatic Control (W,SP) 2-3-3**  
This course gives an introduction to using automatic controls in the solution of engineering type electrical and mechanical problems. Emphasis is placed on the transient response of the systems to various inputs. Computers are used to provide solutions to differential equations. Prerequisite: EET 240.

**EET 260 Industrial Electronics (A,W,SP,SU) 4-0-4**  
A study of measurement and control circuits used in industry. A capstone course which explores the use of microprocessors and programmable logic controllers (PLCs) in control and measurement functions. Prerequisites: EET 241 and EET 252. Concurrent: EET 261.

**EET 261 Industrial Laboratory (A,W,SP,SU) 0-6-2**  
Paralleling the development of topics in EET 260, this course permits student evaluation of theoretical predictions pertaining to industrial systems and their control. Lab fee: \$10.00. Prerequisite: EET 253. Concurrent: EET 260.

**EET 262 Digital Communications and Telecommunications (W,SU) 2-3-3**  
A study of the techniques, theory and devices used for communication in computer systems, networks and telecommunications. Modulation methods including PCM, MFM, NRZ, NRZI, and synchronous and asynchronous protocols are presented. Network standards such as token ring, ALOHA, Ethernet and LAN protocols are examined. This course also includes study of devices such as UARTS, MODEMS and CODECS as applied to the subject. Lab fee: \$5.00. Prerequisites: EET 250 and EET 243.

**EET 264 Fiber Optic Communications (W,SU) 2-3-3**  
This is an introductory course on fiber optics. In it, various types of light sources, connectors, optics, fiber wave guides, detectors and distribution systems will be investigated, and the student will learn by laboratory experiment of the problems created by misalignment, attenuation, and lossy connectorization. Practical testing of fiber optic links using light sources and power meters will also be emphasized. Eye safety when working with dangerous power levels will be stressed. Lab fee: \$5.00. Prerequisite: EET 250.

**EMS 100 Crash Injury Management, First Responder (SU,SP) 1-3-2**  
This course is designed to teach the person (public safety officer or other), who arrives first at the scene of an accident, proper life saving procedures, in terms of emergency victim care, the first responder will provide what is needed until qualified emergency medical technicians arrive. Lab fee: \$5.00.

**EMS 110 EMT- Basic (A,W,SP,SU) 4-8-8**  
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 for the state certification examination. This course includes 18 clock hours of clerical experience. Lab fee: \$30.00. Prerequisite: Placement into ENGL 100.

**EMS 111 EMT - Intermediate (A,W,SP,SU) 4-4-6**  
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: \$55.00. Prerequisite: State Certified EMT-Basic.

**EMS 121 E.M.S. Systems (A) 3-0-3**  
This course deals with the history, development, organization, funding, and control of EMS. It will involve the student in current trends in EMS. Lab fee: \$12.00.

**EMS 122 Legal Principles for E.M.T. (A) 2-0-2**  
This course encompasses the laws and regulations which govern EMTs and their actions. The course also deals with the rights of the patient and professionalism of the EMT.

**EMS 123 Emergency Psychiatric Intervention (W) 3-0-3**  
This course deals with the EMT's approach to victims exhibiting abnormal behavior and provides an in-depth look into methods of evaluation and management of these people.

**EMS 124 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; the student will be required to do some practical public health education. Lab fee: \$5.00.

**EMS 125 Disaster Aid (SP) 3-0-3**  
This course will familiarize the EMT with disaster planning, community needs assessment, organization and control of a community disaster plan, and in developing testing procedures for this plan.

**EMS 126 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.

**EMS 127 Handling Hazardous Materials Situations (SU) 2-0-2**  
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).

**EMS 130 River Rescue (SU 1st Term) 2-2-3**  
This course deals with rescuing victims from the water. It will include, but not be limited to, self-rescue, rescue from shore, boat assisted rescues, rescue from boats and repelling. Lab fee: \$5.00. Prerequisite: Intermediate swimmer

**EMS 131 Special Topics for Paramedics (SU) 3-0-3**  
In this course, the paramedic will be required to develop and present an in-depth study in an area of their individual interest.

**EMS 132 Emergency Medical Services Dispatcher (SP) 1-2-2**  
The EMS dispatcher course is designed to prepare EMS dispatcher personnel to receive requests for emergency medical services and allocate community resources in response to such request and give pre-arrival instruction. Lab fee: \$18.00.

**EMS 211 EMT-Paramedic I (W,SU) 5-4-7**  
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 and trauma as well as principles of communications. Lab fee: \$75.00. Prerequisite: EMS 110. Concurrent: EMS 281 and EMS 291.

**EMS 212 EMT-Paramedic II (A,SP) 5-4-7**  
This course encompasses the training of the paramedic in the areas of: cardiovascular, anaphylaxis, and the endocrine and nervous systems. Lab fee: \$65.00. Prerequisite: EMS 211. Concurrent: EMS 282 and EMS 292.

**EMS 213 EMT-P III (W,SU) 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 emergencies, neonatal and pediatric emergencies, and rescue. Lab fee: \$60.00. Prerequisite: EMS 212. Concurrents: EMS 283 and EMS 293.

**EMS 214 EMT-P IV (SP,A) 1-2-2**  
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: \$60.00. Prerequisite: EMS 213. Concurrents: EMS 284 and EMS 294.

<b>EMS 281 Hospital Clinical I (W,SU)</b>	<b>0-6-2</b>
Hospital clinical, observation and experience, encompassing the didactic areas covered in EMS 211. Concurrents: EMS 211 and EMS 291.	
<b>EMS 282 Hospital Clinical II (A,SP)</b>	<b>0-6-2</b>
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8306. Prerequisite: EMS 281. Concurrents: EMS 212 and EMS 292.	
<b>EMS 283 Hospital Clinical III (W,SU)</b>	<b>0-6-2</b>
Hospital clinical, observation and experience, encompassing the didactic areas covered in 8307. Prerequisite: EMS 282. Concurrents: EMS 213 and EMS 293.	
<b>EMS 284 Hospital Clinical IV (A,SP)</b>	<b>0-6-2</b>
Hospital clinical, observation and supervised experience, encompassing the didactic areas covered in EMS 214. Prerequisite: EMS 283. Concurrents: EMS 214 and EMS 294.	
<b>EMS 291 Field Clinical I (W,SU)</b>	<b>0-5-1</b>
Vehicle clinical, observation and experience. Concurrents: EMS 211 and EMS 281.	
<b>EMS 292 Field Clinical II (A,SP)</b>	<b>0-5-1</b>
Vehicle clinical, observation and experience. Prerequisites: EMS 211, EMS 282 and EMS 292. Concurrents: EMS 212 and EMS 282.	
<b>EMS 293 Field Clinical III (W,SU)</b>	<b>0-5-1</b>
Vehicle clinical, observation and experience. Prerequisites: EMS 212, EMS 283 and EMS 293. Concurrents: EMS 213 and EMS 284.	
<b>EMS 294 Field Clinical IV (A,SP)</b>	<b>0-10-2</b>
Vehicle clinical, observation and experience. Prerequisites: EMS 213, EMS 283 and EMS 293. Concurrents: EMS 214 and EMS 284.	

## English (ENGL)

### (Also see Communication Skills and Technical Communications)

<b>ENGL 100 Language Development (A,W,SP,SU)</b>	<b>5-0-5</b>
Students develop skills in reading and writing in preparation for ENGL 101 by analyzing the writing of students and professionals and by developing paragraphs and short essays using narration, description, and exemplification and/or illustration. Lab fee: \$3.00. Prerequisite: DEV 042 with a grade of "C" or higher or placement by test. Credit will not count toward graduation in any degree program.	
<b>ENGL 101 Beginning Composition (A,W,SP,SU)</b>	<b>3-0-3</b>
Students compose clear, concise expository essays using various modes such as definition, exemplification, process, analysis, cause and effect, comparison and contrast. This course or its equivalent is required for all degrees. Lab fee: \$3.00. Prerequisite: ENGL 100 with a grade of "C" or higher or placement by test.	
<b>ENGL 102 Essay and Research (A,W,SP,SU)</b>	<b>3-0-3</b>
This course is a continuation of ENGL 101 expanded to include argumentation, logic, and research techniques. Research papers using MLA documentation are written. Lab fee: \$3.00. Prerequisite: ENGL 101 with a grade of "C" or higher	
<b>ENGL 111 English Composition (A,W,SP,SU)</b>	<b>5-0-5</b>
This course is an accelerated combination of ENGL 101 and ENGL 102. Students receive training in the fundamentals of exposition and argumentation through using the writing process. The course stresses critical reading of the students' own and professional writing. It includes units on library research and documentation. Lab fee: \$3.00. Prerequisite: Placement test score.	
<b>ENGL 190 Freshman Experience in English (A,W,SP,SU)</b>	<b>0-2-1</b>
The Freshman Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; required for all Associate of Arts or Associate of Science degree seeking students. Lab fee: \$4.00.	
<b>ENGL 200 Business Communications (A,W,SP,SU)</b>	<b>3-0-3</b>
Emphasis is placed on principles of effective business writing. Students practice writing business letters and memos. A problem-solving or technical report related to the student's area of concentration is required. Resume preparation and job search techniques are covered. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher and at least two quarters or equivalent work experience in a technology.	
<b>ENGL 202 Writing for Health and Human Services (A,W,SP,SU)</b>	<b>3-0-3</b>
This course may substitute for ENGL 200 or ENGL 204 in certain technologies; check with your academic advisor. Lab fee: \$3.00. Prerequisites: ENGL 102 or ENGL 111 with a grade of "C" or higher, admittance to a technical program, and current clinical/field placement.	
<b>ENGL 204 Technical Writing (A,W,SP,SU)</b>	<b>3-0-3</b>
Students learn the principles of technical writing and practice those types of writing required of technicians, including letters, memos, and reports as required in a student's technology. A problem-solving report is written. Resume preparation and job search techniques are covered.	

Oral reports using visual aids are required. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher and at least two quarters or equivalent in the student's technology.	
<b>ENGL 206 Governmental Communications (W,SU)</b>	<b>3-0-3</b>
The course emphasizes the principles of effective writing done in government settings. The student learns to write various types of correspondence in a variety of formats in addition to researching and writing a report adhering to formatting guidelines. The student will also prepare selected components of a job application package. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.	
<b>ENGL 210 Creative Writing (A,SP)</b>	<b>3-0-3</b>
Students are introduced to the fundamental techniques of creative writing. Using peer group analysis and workshop techniques, students will develop short pieces in a variety of genres. Lab fee: \$3.00. Prerequisite: ENGL 101 or ENGL 111.	
<b>ENGL 215 Magazine Publication: Literary Criticism, Editing, and Design (W)</b>	<b>1-4-3</b>
Through hands-on practice with <i>Springstreet</i> , students learn the processes and techniques involved in the production of a literary magazine. Lab fee: \$3.00. Prerequisite: ENGL 101 or ENGL 111 with a grade of "C" or higher and instructor's permission.	
<b>ENGL 220 Introduction to Literature (A,W,SP,SU)</b>	<b>3-0-3</b>
Students are introduced to the major forms of literature by reading and discussing poetry, drama, and short stories. Practical experience in the critical analysis of literature is acquired through the writing of essays and journals and through the presentation of short oral reports. This course, or its equivalent in the ENGL 250-253 series, is required for all Associate of Arts and Associate of Science degrees. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.	
<b>ENGL 225 Introduction to Fiction (W,SU)</b>	<b>5-0-5</b>
English 225 is an intensive study of selected short stories and novels. Through critical reading, discussion, and writing, students will become familiar with important themes and methodologies of fiction. In both short stories and novels, emphasis will be placed upon identifying and analyzing authors' particular uses of the traditional elements of fiction (structure, setting, point of view, etc.) to develop plot and character. Lab fee: \$1.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.	
<b>ENGL 230 Introduction to Dramatic Literature (W,SU)</b>	<b>5-0-5</b>
Students will study selected masterpieces of western drama and discuss their social, political, and cultural influences. Students will write critical analyses of drama and of plays attended. Lab fee: \$1.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.	
<b>ENGL 235 Introduction to Poetry (A,SP)</b>	<b>5-0-5</b>
This course will introduce students to the critical process of reading and responding to poetry from historical, cultural, and gender-based perspectives. Emphasis will be upon traditional and nontraditional forms as well as mainstream and marginalized writers. Students will become familiar with appropriate terminology; however, they will also learn to encounter the poem as a whole piece of written discourse between poet and reader. Students will, therefore, conduct an on-going oral and written dialogue with the poet (who is the speaker? who is the audience?, what is the purpose?) and the poem (what is the message?). Students will articulate orally and in writing their own ideas of interpretation based upon a close reading of the text and an informed perspective concerning the historical and cultural circumstances of its origin. Lab fee: \$1.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or better.	
<b>ENGL 240 Introduction to Science Fiction (A)</b>	<b>3-0-3</b>
The historical roots and literary forms of science fiction are introduced. From their readings and viewing of films, students will write critiques, reports, and research papers about science fiction as a literary genre. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.	
<b>ENGL 250 Writing About the American Experience (A,W,SP,SU)</b>	<b>5-0-5</b>
Students will read selected pieces of American literature and writings about the American experience in order to explore the variety of conflicts within individuals and within society as values, principles, and beliefs are defined, established, challenged, and defended. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.	
<b>ENGL 251 The American Identity (A,W,SP,SU)</b>	<b>5-0-5</b>
Students will read selected American writings to explore the multicultural experiences that define the American nation. Discussion will focus on how individual experience shapes the national character. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.	
<b>ENGL 252 Images of Men and Women (A,W,SP,SU)</b>	<b>5-0-5</b>
Students will read selected American writings to explore the perceptions of men and women of various racial and ethnic backgrounds in American society. Discussion will focus on gender issues and conflicts as they arise within the individual and between the individual and society. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.	

**ENGL 253 Regional American Writing (A,W,SP,SU)** 5-0-5  
Students will read selected American writings to explore the regional diversity that characterizes the American nation. Discussion will focus on how such regional differences as historic and ethnic backgrounds, social development, economics, politics, language and literary traditions are reflected in literature. Student writing assignments include response journals, documented critical papers, and essay examinations. The course may substitute for ENGL 220 or meet elective requirements in the Associate of Arts or Associate of Science degree programs and transfer requirements in composition or literature. Lab fee: \$3.00. Prerequisite: ENGL 102 or ENGL 111 with a grade of "C" or higher.

**ENGL 262 Survey of British Literature (SP)** 5-0-5  
Students will study selected master works of nineteenth and twentieth century British literature. The course activities will include reading, discussion, writing assignments, and audience participation. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 264 Introduction to Shakespeare (W,SU)** 5-0-5  
This course will examine representative works selected from Shakespeare's History Plays, Comedies, Romances, and Tragedies, concentrating on a critical/analytical approach to both the plays and Elizabethan dramaturgy. Emphasis, therefore, will be placed upon Renaissance/Elizabethan dramaturgy and conventions, upon language and style, upon the elements of History Plays, Comedies, Romances, and Tragedies, and upon analyses of fundamental human experience. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 265 European Literature in Translation (A)** 5-0-5  
The course will examine the works of representative European writers and cultures for the purpose of developing an appreciation of the international nature of literary subjects, themes, and movements. Emphasis will be placed upon developing an understanding of the historical, philosophical, and social contexts of the various cultures within which European Romanticism, Realism, Naturalism, Existentialism, and modern movements developed. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 270 Black American Writers (W,SU)** 5-0-5  
This course is a survey of Black American literature from the eighteenth-century beginnings to the present; it includes a study of slave narratives, folklore, drama, poetry, and short fiction. Activities include reading and writing assignments, oral presentations, special performances, guest speakers, and field trips. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 272 Introduction to Folklore (SU)** 5-0-5  
This course is a study of folklore; it looks at 1) ORAL FOLKLORE (i.e., proverbs, riddles, myths, motifs, legends, folktales), 2) CUSTOMARY FOLKLORE (i.e., superstitions, folk customs, folk festivals), 3) MATERIAL AND FOLK TRADITIONS (i.e., folk foods, architecture, costumes). Course activities include field work, reading and writing assignments, and a special project. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 274 Introduction to Non-Western Literatures (A,SP)** 5-0-5  
This course introduces students to selected classic and modern literature of the non-Western world, including Asia, Africa, the Mid-East, and Latin America. Through several literary approaches, students will gain an understanding of the authors, the periods, and the cultures they represent and the various ways they have handled literary themes. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 276 Women in Literature (A,SP)** 5-0-5  
This course will explore the history by and about women. The course uses a comparative approach to see how women have treated a variety of themes and how they have worked within the genres of fiction, poetry, and drama. Discussions will consider the literature from the perspectives of gender, history, politics, and culture. Writing assignments will include response journals, documented critical papers, and essay examinations. Lab fee: \$3.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 280 Publishing Practicum (SP)** 0-4-2  
Students who have satisfactorily completed ENGL 215 or who have comparable training and experience from another context learn magazine production techniques using *Springstreet* or another college publication as a production laboratory. This practicum may be repeated once and normally taken immediately after completing ENGL 215. Lab fee: \$3.00. Prerequisite: ENGL 215 or instructor's permission.

**ENGL 290 Capstone Experience in English (On Demand)** 2-2-3  
A capstone course focusing on English. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in a summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: ENGL 220 or equivalent.

**ENGL 297 - 298 - 299 Special Topics in English (On Demand)** 1-5  
Special topics in English language or literature designed to meet specific needs. Prerequisites vary.

classmates and native speakers) and respond to data in the form of texts, graphs and tables, and lectures given by native speakers. Weekly oral presentations will be required. Students will receive feedback on their oral production from their instructor and their classmates regularly and will be audio/video taped on occasion. Lab fee: \$3.00. Prerequisite: ESL 099 (may be taken concurrently).

**ESL 097 Basic English as a Second Language (A,W,SP,SU)** 10-0-10  
Students who already have limited command of the English language build upon their vocabulary and begin to eliminate errors through the study of basic grammar, readings, guided discussions, and written and oral exercises. Lab fee: \$3.00. Prerequisite: Placement test. Credit will not count toward graduation in any degree program.

**ESL 098 Developmental English as a Second Language (A,W,SP,SU)** 10-0-10  
Students will continue to develop their reading, writing, listening and speaking skills through the study of intermediate grammar, readings, guided discussions, and written and oral exercises. Lab fee: \$3.00. Prerequisite: "C" in ESL 097 or placement. Credit will not count toward graduation in any degree program.

**ESL 099 ESL: Reading, Grammar, and Composition (A,W,SP,SU)** 10-0-10  
Students will prepare for academic course work through the study of advanced grammar, sentence structure, paragraph organization and pre-writing techniques and will respond to college level readings in guided discussions, oral presentations and paragraph length essays. Lab fee: \$3.00. Prerequisite: "C" in ESL 098 or placement. Credit will not count toward graduation in any degree program.

**ESL 100 English as a Second Language: Composition (A,W,SP,SU)** 5-0-5  
Students will polish their writing skill through grammar reviews, written exercises and the study of sentence structure, rhetoric and essay organization. Students will respond to both the content and technique of college level readings. Students will write essays using description, narration, cause and effect and comparison/contrast. Lab fee: \$3.00. Prerequisite: "C" in ESL 099 or placement. Credit will not count toward graduation in any degree program.

## Environmental Technology (ENVR)

**ENVR 101 Environmental Project Coordination (A,SP)** 3-0-3  
An introduction and overview of the management of environmental engineering projects. The development of an appreciation of the many aspects of project coordination. Problem discovery and definition, investigative techniques, work plans, agency interfacing/permit acquisition, solicitation of quotes/proposals, and other related tasks will be discussed.

**ENVR 110 Industrial Pollution Control (W,SU)** 2-2-3  
An overview of the treatment, disposal and management process utilized in industrial pollution control. Develop familiarity with remediation equipment technologies and other control technologies, such as, pollution prevention, air pollution control devices, water treatment, and solid and hazardous waste treatment. An introduction to influent/effluent (air, water, solid waste) analysis including fluid flow, basic piping components, volumetric measurements of fluids, and effluent testing. Lab fee: \$20.00.

**ENVR 112 Environmental Computer Applications (A,SP)** 2-3-3  
Introductory course for Environmental Technology students. This course will provide basic information about computer hardware, software, data communications, operating systems, and popular application packages. Hands-on laboratory experience using the IBM PC and a popular integrated software package is emphasized in the course. Lab fee: \$15.00. Prerequisite: MATH 102.

**ENVR 120 Environmental Aspects of Soil (A,SP)** 2-2-3  
This course will include an introduction to the analysis of soils behavior and the soil classification methods used in the environmental industry. Soil characteristics will be explored by means of laboratory examination and elementary testing techniques. Lab fee: \$10.00. Prerequisite: GEOL 101 or GEOL 121.

**ENVR 130 Environmental Laws and Regulations (W,SU)** 4-2-5  
A study of American political institutions and a brief history of the American environmental movements and the resulting environmental regulations. A study of local, state, and federal codes and regulations as they apply to the handling, treatment, storage, and disposal of hazardous materials and wastes. Emphasis on NEPA, The Clean Water and Air Acts, the Resource Conservation and Recovery Act (RCRA), and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund). Lab fee: \$10.00.

**ENVR 158 Environmental Analysis (A,SP)** 2-2-3  
A study of environmental site assessments, including Phase I ESA's for real estate transactions and environmental assessments for environmental impact statements. Environmental regulations and guidance documents will be applied in an analysis of a specific project site. Lab fee: \$12.00.

**ENVR 220 Environmental Chemistry (W,SU)** 2-3-3  
Effective solutions to environmental problems require an understanding of the chemical processes that occur in the environment. This course provides a basic knowledge of environmental chemistry including ground water chemistry, soil chemistry, analytical techniques, and the basics of chemical fate and transport, and quality assurance/quality control. Related laboratory work and demonstrations. Lab fee: \$18.00. Prerequisite: CHEM 113 with a grade of "C" or higher.

**ENVR 224 Environmental Hydrology (W,SU)** 2-2-3  
Study of the occurrence, movement, and behavior of water in the hydrologic cycle. Introduction to the concepts of controlling the movement of surface water and ground water, and the ways in which these resources can be exploited and/or contaminated. Prerequisite: MATH 102.

**ESL 095 Advanced Oral Communication (A,W,SP,SU)** 2-2-3  
This course will prepare students to participate effectively in the college classroom, especially in required Communications courses. Students will study and practice classroom discussion and public speaking techniques, with particular emphasis on native pronunciation, intonation and non-verbal communication. Students will be required to interview other students (both

## English as a Second Language (ESL)

**ENVR 250 Subsurface Investigation Techniques I (A,SP)** 4-3-5  
An introductory course covering methods of environmental field investigations. Topics include: soil, ground water, and surface water sampling protocol, health and safety monitoring, field equipment operation and calibration, materials management, and decontamination of field equipment. Lab fee: \$18.00. Prerequisite: GEOL 101 or GEOL 121.

**ENVR 252 Health and Safety Training for Hazardous Waste Operations (SU)** 2-3-3  
**(40-Hour OSHA Training)**  
Satisfies CFR Part 1910.120(e) under SARA. A health and safety training course for individuals who may be involved in the investigation, remediation and operation of hazardous waste sites. Topics include hazardous materials chemistry, toxicology, air monitoring instrumentation, air purifying respirators, self-contained breathing apparatus, supplied air respirator systems, protective clothing, decontamination, simulated hazardous materials response incidents, and appropriate problem sets. Lab fee: \$80.00

**ENVR 253 Environmental Systems Analysis (A,SP)** 2-2-3  
A course introducing environmental control systems and practical applications of their operation and maintenance. Attention to piping and instrumentation diagrams, flow diagrams, reading strip charts, continuous emission monitors, stack and source sampling methods, volumetric measurements of fluids, Dreager tube, H<sub>2</sub>S monitors, and general troubleshooting. Lab fee: \$18.00. Prerequisite: ENVR 110 with a grade of "C" or higher.

**ENVR 254 Subsurface Investigation Techniques II (A,SP)** 4-3-5  
A continuation of ENVR 250. The course covers the drilling and installation of ground water monitoring wells for environmental site investigations, including the logging and preparation for transport to the laboratory of soil core samples. Documentation of field activities and the preparation for transport to the laboratory of soil core samples. Documentation of field activities and the preparation of associated plans, specifications, and cost estimates will be presented. The measurement of surface and ground water hydraulic parameters will also be discussed. Lab fee: \$18.00. Prerequisites: ENVR 250 with a grade of "C" or higher.

**ENVR 255 Air Monitoring (W,SU)** 2-2-3  
This course focuses on EPA methods for stack sampling of various air contaminants, operation and maintenance of continuous emissions monitors, and air pollution control options. An introduction to applicable permitting and reporting requirements will also be included. Lab fee: \$18.00.

**ENVR 291 Field Co-Op Experience (SU)** 0-40-4  
Off-campus work experience in environmental engineering consulting 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. Prerequisite: CMGT 290 and permission of instructor.

**FMGT 212 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. Prerequisite: FMGT 121.

**FMGT 221 Credit Administration (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: \$3.00.

**FMGT 232 Principles of Banking (+)** 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.

**FMGT 234 Trust Operations (+)** 4-0-4  
Presents a complete picture of the services rendered by institutions engaged in trust business as well as providing an introduction to the services and duties involved in trust operations.

**FMGT 237 Law and Banking (+)** 4-0-4  
This course is 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.

**FMGT 241 Estate Planning (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. Topics presented include: estate taxes, avoiding probate, revocable living trust, gifts, life insurance, annuities, short term trusts, and totten trust. Lab fee: \$3.00. Prerequisite: FMGT 101 or advisor approval.

**FMGT 251 Finance Research (A,W,SP)** 2-0-2  
The student receives exposure to current developments in finance and economics through projects and research papers. Designed to serve as a capstone course for graduating students. Lab fee: \$3.00.

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

## Executive Office Admin. Major (See Office Administration Technology)

## Financial Mgmt. Technology (FMGT)

**FMGT 101 Personal Finance (A,W,SP,SU)** 4-0-4  
This course presents a lifetime program of money management for the individual. 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 be able to write a basic personal financial plan. Lab fee: \$3.00.

**FMGT 105 Insurance Principles (A,W)** 3-0-3  
This course covers the evaluation of the financial impact of risk exposure and how to manage the risk exposure through the intelligent use of insurance products. Topics presented include: nature of risk, insurance contracts, life and health insurance, annuities, property and liability insurance, and government regulation of insurance. Lab fee: \$3.00. Prerequisite: FMGT 101.

**FMGT 121 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. This course is offered by the National Association of Credit Management.

**FMGT 201 Business Finance (A,W,SP,SU)** 5-0-5  
An introduction to the principles of financial management of private business firms. Topics covered include: financial analysis, financial planning, working capital management, financial leverage, sources of financing, capital budgeting and capital markets. Lab fee: \$3.00. Prerequisite: ACCT 101.

**FMGT 202 Money and Banking (A)** 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. Lab fee: \$3.00.

**FMGT 211 Investments (W,SP)** 3-0-3  
This course examines the investments for the individual with emphasis on the securities markets. Topics presented include: risk and return trade-offs, sources of investment information, stocks, bonds, mutual funds, options, and tax considerations. Lab fee: \$3.00.

## Food Service/Restaurant Management Major (See Hospitality Management Technology)

## French (FREN)

**FREN 101 Elementary French I (A,W,SP,SU)** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**FREN 102 Elementary French II (A,W,SP,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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisites: FREN 101 with a grade of "C" or better or by placement exam.

**FREN 103 Intermediate French I** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: FREN 102 with a grade of "C" or better or by placement exam.

**FREN 104 Intermediate French II** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: FREN 103 with a grade of "C" or better or by placement exam.

**FREN 290 Capstone Experience in French (On Demand)** 2-2-3  
A capstone course focusing on French. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$5.00.

**FREN 299 Special Topics in French (On Demand)** 1-5  
Detailed examination of selected topics in French. Lab fee: \$2.00. Prerequisites vary.

# Geography (GEOG)

**GEOG 200 World Regional Geography (On Demand)** 5-0-5  
Geographical study of all major regions of the world. The factors of landforms, climate, population, culture, political development, and problems associated with regions in relation to geographic conditions will be examined. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**GEOG 290 Capstone Experience in Geography (On Demand)** 2-2-3  
A capstone course focusing on geography. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in geography.

**GEOG 293 Independent Study in Geography (On Demand)** 1-5  
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. Lab fee: \$4.00. Prerequisite: Permission of the instructor and the Chairperson.

**GEOG 299 Special Topics in Geography (On Demand)** 1-5  
Detailed examination of selected topics of interest in geography. Lab fee: \$4.00. Prerequisites vary.

# Geology (GEOL)

**GEOL 101 Earth Systems I: Geologic Environments (A,W,SP,SU)** 4-3-5  
A general geology course covering the materials of the earth's crust, the processes that produce and modify them, and the development of the earth and its life forms through time. Related laboratory and demonstrations. Lab fee: \$21.00. Prerequisite: Placement into ENGL 101. Not open to students with credit for GEOL 121.

**GEOL 121 Physical Geology (A,W,SP,SU)** 4-3-5  
This course covers geologic processes and the development of land forms. Topics include the development of the Earth, the nature and origin of minerals and rocks, land forms and the agents that produce and modify them, structural features of the Earth's crust, and current environmental concerns resulting from man's use of the Earth and its resources. Related laboratory and demonstrations. Lab fee: \$20.00. Prerequisite: Placement into ENGL 101 and MATH 103.

# Gerontology Technology (GER)

**GER 101 Social Gerontology (A,SP)** 3-0-3  
This course offers the student an overview of the social, psychological and physical aspects of aging. Visits with a senior friend provide an opportunity to establish a relationship with an older adult. Lab fee: \$4.00. Concurrent or Prerequisite: ENGL 100.

**GER 103 Interpersonal Communication in Human Services (W,SU)** 4-0-4  
This course teaches principles of interpersonal communication for individuals working in Human Services. This course is structured on the premise that the most important resource individuals bring to an helping relationship is their ability to remain self-aware and to communicate honestly and directly. Also taught are managing anger, conflict resolution, and assertive behavior. This course is participatory and interactive. Lab fee: \$4.00. Prerequisite: ENGL 101.

**GER 105 Human Services for the Elderly (W)** 3-0-3  
This course provides the student with an in-depth knowledge of the informal and formal community resource systems. Current concepts of service delivery, planning and evaluations are covered. Lab fee: \$4.00. Prerequisites: GER 101 and ENGL 101.

**GER 109 Social Work with the Elderly (SP)** 5-0-5  
This course teaches a problem solving method of social work. The history of social work with the elderly is presented. Values and ethical dilemmas are explored. Principles of casework are presented and applied to the aging individual. Diversity within the aging population is emphasized. Lab fee: \$4.00. Prerequisites: GER 105, GER 103 and ENGL 102.

**GER 201 Social Policy and Aging (SP)** 3-0-3  
A study of the origins of public policy, the legislative process, insurance, financial planning/retirement income, protective services and legal issues. Lab fee: \$3.00. Prerequisites: GER 294 and GER 209.

**GER 203 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 processes of perceiving, valuing, spacing and deciding. Emphasis is placed on family organization, family members, and their roles. Lab fee: \$2.00.

**GER 204 Death and Bereavement (SP)** 3-0-3  
This course examines death and dying from social, cultural, and life span perspective. Medical ethics, suicide, legal issues, and the funeral industry are analyzed. The processes of bereavement and communicating with and about dying conclude the course. Lab fee: \$4.00. Prerequisites: PSY 100 and ENGL 102.

**GER 205 Activities Programming for the Elderly in Long Term Care (A,SP)** 4-0-4  
This course is a basic 45 hour activity course accepted by the State of Ohio Health Department for activity training. Lab fee: \$5.00.

**GER 207 The Older Woman (W)** 3-0-3  
This course presents the psychosocial, biological, and economic status of older women in our culture. Lab fee: \$4.00. Prerequisites: GER 209 and GER 292.

**GER 209 Aging and Mental Health (A)** 3-0-3  
This course provides an overview of mental health issues affecting older adults. assessment techniques and diagnostics criteria will be reviewed. Topics include functional disorders, organic disorders and substance abuse. Lab fee: \$3.00. Prerequisites: GER 109, GER 192 and PSY 230.

**GER 211 Counseling the Elderly (W)** 3-0-3  
This course provides the student with an understanding of traditional counseling theories, theories specifically for the older adult, appropriate settings for counseling older adults, and the use of self within that relationship. Lab fee: \$4.00. Prerequisites: GER 209, GER 292 and PSY 230.

**GER 213 Aging and Physical Health (W)** 3-0-3  
This course provides the student with an understanding of the interactive effects of biological and psychological aging as they occur simultaneously in the human organism. Also included are the common disease processes associated with aging, and their social and emotional ramifications. General decline in functioning, as well as prevention and wellness issues are addressed. Lab fee: \$3.00. Prerequisites: BIO 101, GER 101 and GER 192.

**GER 191, 291, 293, 295 Seminar I, II, III, IV (A,W,SP,SU)** 1-0-1  
Seminar provides students a forum for discussion of practicum experiences, integration of theory and practice, and discussion of current issues related to the elderly. Lab fee: \$3.00. All Seminars are concurrent with Practicums.

**GER 192, 292, 294, 296 Practicum I, II, III, IV (A,W,SP,SU)** 0-14-2  
Practicum offers the student opportunities to both observe and work with the elderly in supervised agency settings. Lab fee: \$20.00. Practicums are sequential. Prerequisite: GER 105. Concurrents: GER 109. All Practicums are concurrent with Seminars.

# German (GERM)

**GERM 101 Elementary German I (A,W,SP,SU)** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**GERM 102 Elementary German II (A,W,SP,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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: GERM 101 with a grade of "C" or better or by placement exam. Placement into ENGL 101.

**GERM 103 Intermediate German I (On Demand)** 5-0-5  
Continued study of the German language and development of listening, reading, speaking, and writing skills. Readings from contemporary Germanic culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: GERM 102 with a grade of "C" or better or by placement exam.

**GERM 104 Intermediate German II (On Demand)** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: GERM 103 with a grade of "C" or better or by placement exam.

**GERM 299 Special Topics in German (On Demand)** 1-5  
Detailed examination of selected topics in German. Lab fee: \$2.00. Prerequisites vary.

# Graphic Communications Technology (GRPH)

**GRPH 110 Survey of Graphic Communications (A,W)** 1-6-3  
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.

**GRPH 111 Black and White Photography (A,W,SP,SU)** 1-6-3  
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.

**GRPH 112 Introduction to Computer Graphics (A,W,SP,SU)** 1-6-3  
This course introduces basic hardware and software use for the Apple Macintosh computer. Software packages include Mavis Beacon and Clarisworks. Skills are developed in wordprocessing, drawing, painting, spreadsheets, and databases. Lab fee: \$15.00.

**GRPH 120 Copy Preparation (W)** 1-6-3  
An introduction to the function of generating camera-ready art or mechanicals. Lab work will involve single and two-color mechanicals. Lab fee: \$15.00.

**GRPH 121 Lithographic Stripping I (W,SU)** 1-6-3  
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: \$25.00.

**GRPH 122 Electronic Publishing (W,SU)** 1-6-3  
This course introduces electronic publishing software "QuarkXPress" with typographical command sequences and manipulation application. This package is the chosen software of most typesetting shops and service bureaus when a high degree of accuracy is required on Macintosh hardware. In addition, XPress has certain imaging and color controls for scanned photographs and drawings. Lab fee: \$20.00. Prerequisite: GRPH 112.

**GRPH 130 Press Operations (SP)** 1-6-3  
Techniques of press operation, press design, register systems, dampening systems, cylinder preparation and operational procedures. Lab fee: \$10.00. Prerequisite: GRPH 110

**GRPH 131 Design and Typography (SP)** 2-6-3  
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 and layouts are prepared in the laboratory. Lab fee: \$10.00.

**GRPH 132 Paper and Ink (SP)** 3-0-3  
A study of the manufacture and selection of paper used in printing operations; sizes, colors, characteristics, limitations and purchase of printing papers are covered. Prerequisite: ENGL 102.

**GRPH 140 Printing Production Management (SP)** 2-4-4  
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. Prerequisites: GRPH 112 and BMGT 111.

**GRPH 241 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. Prerequisites: GRPH 110, GRPH 121 and GRPH 130.

**GRPH 242 Lithographic Camera (A,W)** 1-6-3  
A study of film, film development, camera optical systems, camera calibration and exposure determination for line and halftone. Litho darkroom procedures. Lab fee: \$25.00. Prerequisites: GRPH 110 and PHYS 100.

**GRPH 243 Computer Graphic Illustration (A,SU)** 1-6-3  
This course presents software applications for technical illustration and typographic manipulation which may be used to generate technical publications. These products will be imported into electronic publishing software. Specifically, software such as "Illustrator" or "Freehand" are introduced and compared for their capabilities and limitations. Lab fee: \$20.00. Prerequisites: GRPH 112 and GRPH 122.

**GRPH 244 Quality Control in Graphic Communications (W)** 3-3-4  
An introduction to the Deming Philosophy of Management and its implementation in the printing process through the use of statistical process control. Techniques used to identify, measure, and reduce variability are examined with the goal of ensuring quality in both the press and the pre-press production areas. Lab fee: \$5.00. Prerequisites: MATH 102 and GRPH 112.

**GRPH 251 Electronic Imaging (W,SP)** 1-6-3  
This course combines the basic skills formerly introduced in preliminary courses and brings together new technologies of desktop scanning and separation using Photoshop software. The course incorporates such ideals as color theory, color separation, color image assembly (stripping) and color proofing for print production. The course utilizes the desktop computer technology with desktop scanners, slide scanners, image manipulation software, Linotronic image setter output and color proofing techniques. Lab fee: \$20.00. Prerequisites: GRPH 112, GRPH 122 and GRPH 243.

**GRPH 270 Advanced Black and White Photography (W,SU)** 1-6-3  
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: GRPH 111.

**GRPH 271 Studio Photography (On Demand)** 1-6-3  
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: \$25.00. Prerequisite: GRPH 270.

**GRPH 273 Design II (On Demand)** 1-6-3  
Designed as a sequential follow-up to GRPH 131. 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: GRPH 131 or permission of instructor

**GRPH 278 Photo Lab Practicum (A,W,SP,SU)** 0-3-1  
The photo lab practicum provides students the opportunity to enhance their film processing and printing technique skills. Lab fee: \$25.00. Prerequisite: GRPH 111.

**GRPH 279 Estimating II (On Demand)** 1-6-3  
A continuation of the study of estimating for lithographic printing with areas including multi-color presses, signature work, prepress operations, and color separation. Provides an understanding of accurate estimating procedures and the opportunity to apply these procedures in a laboratory situation. The use of computer-assisted software is stressed. Lab fee: \$10.00. Prerequisite: GRPH 241.

**GRPH 281 Color Photography (On Demand)** 1-6-3  
An introduction to Color Photography with an emphasis on color printing. Students will examine color theory, color vision, light and color, filtration, color correcting and color balance. Through reading, practice and class discussion, students will learn some of the elements unique to color photography and its applications. Lab fee: \$50.00. Prerequisite: GRPH 270 or permission of instructor.

**GRPH 282 Electronic Publishing II (SP)** 1-6-3  
In this course, students participate in the workgroup advanced techniques production side of publications. Using Framemaker 3.0 or equivalent software, students participate in group publication exercises, incorporation the variables of publications, i.e., reformatting page layouts, updating page numbers, updating paragraph reference numbers, importing text and graphic images and multi-chapter cross-references. Typographic elements for use in such items as tables and graphic manipulation are also included in this course. Lab fee: \$20.00. Prerequisites: GRPH 112 and GRPH 122.

**GRPH 283 Multimedia Presentation Graphics (SP,SU)** 1-6-3  
This course introduces topics of presentation and programming principles that form a structure for computer graphic communications. This course presents concepts of sound recording, animation techniques and programming logic. The applications are introduced through such software as "Hypercard" and "Macromind Director", and "Adobe Premier". Lab fee: \$20.00. Prerequisites: GRPH 112 and GRPH 122.

**GRPH 297,298,299 Special Topics in Graphic Communications (On Demand)** 1-3  
Detailed examination of selected topics in graphic communications.

## Health Information Management Technology (HIMT)

**HIMT 111 Introduction to Health Information Mgmt. Technology (A)** 2-0-2  
The student will be introduced to the role of the health information management technician within the health care system. The history and advances in health information will be reviewed. The student will explore the various functions of health information management and the American Health Information Management Association and other related organizations, and the roles and responsibilities of Accredited Record Technicians (ART) and Registered Record Administrators (RRA). Prerequisite: Acceptance into the program. Lab fee: \$35.00.

**HIMT 121 Advanced Medical Terminology (A,W,SP,SU)** 3-0-3  
The student will continue to study medical terminology with emphasis placed on anatomic, diagnostic, symptomatic, and pathologic terminology as used in the context of health care documents. Prerequisite: MULT 101.

**HIMT 123 Storage and Retrieval Systems (W)** 2-2-3  
The student will be introduced to manual and automated filing systems for active and inactive primary records, indexes and secondary records. Emphasis will be placed on maintenance, filing, retrieval, retention and destruction of these records. Lab fee: \$35.00. Prerequisite: HIMT 111.

**HIMT 132 Introduction to Medical Transcription (A,SP)** 1-2-2  
The student will be introduced to word processing equipment used in the transcription of medical reports. Practice in transcription of English dictation with an emphasis on accuracy. Strongly suggest typing ability of 35 words per minute. Lab fee: \$35.00. Prerequisites: MCT 106 and HIMT 121.

**HIMT 133 Medicolegal Aspects of the Record (SP)** 2-2-3  
The student will study the policies and procedures for the control, use and release of health information. The importance of the maintenance and confidentiality of health information, the proper handling of request for and transfer of health information will be studied. The procedures for the reporting of health information for use by legal, licensing, certifying and accrediting agencies will be emphasized. Prerequisite: HIMT 123.

**HIMT 134 Analysis of the Health Record (SP)** 2-2-3  
This course will focus on the policies and procedures required to collect and process health information. The student will compile health records, follow the flow of the health record within the institution, and insure that institutional requirements are met. The electronic medical record will be discussed. Prerequisite: HIMT 123.

**HIMT 141 Pharmacology for Health Information Mgmt. Technology (W,SU)** 3-0-3  
This course will survey the major classifications of drugs. The indications and contraindications for use will be presented. Emphasis will be placed on the correlation between drug therapy and disease. The student will be required to use various desk references efficiently. Prerequisites: BIO 122 and HIMT 121.

<b>HIMT 243 Ancillary Health Facilities (SU)</b>	<b>3-0-3</b>
The student will study health record systems in non-hospital facilities and the appropriate technical aspects and functions of the health information management technician in this environment. Field trips to various health care facilities may be scheduled. Prerequisites: BIO 122 and HIMT 134.	
<b>HIMT 245 Inpatient Coding (W,SU)</b>	<b>3-4-5</b>
The student is introduced to the nomenclature and major classification and indexing systems utilized to code medical information (ICD-9-CM). Laboratory experiences will emphasize the application of the related skills with accuracy and completeness. Other coding systems will be discussed. Lab fee: \$35.00. Prerequisites: BIO 122 and HIMT 134.	
<b>HIMT 255 Ambulatory Coding (A,SP)</b>	<b>3-4-5</b>
The student is introduced to ambulatory coding/payment systems with emphasis on CPT coding. Lab fee: \$35.00. Prerequisite: HIMT 245.	
<b>HIMT 257 Introduction to Health Statistics (A)</b>	<b>2-2-3</b>
Use of health record data base for statistical and reporting purposes. Topics include inputting data and preparing reports as related to health care services. Prerequisites: MCT 106 and HIMT 245.	
<b>HIMT 259 Health Information Registries and Quality Assurance (A)</b>	<b>3-2-4</b>
The student is introduced to the internal and external requirements for establishing, operating and maintaining registries and utilization management and quality improvement programs. Emphasis on the retrieval of health information for reviewing and evaluating health care services. Prerequisites: BIO 122 and HIMT 245.	
<b>HIMT 265 Medical Reimbursement (W,SU)</b>	<b>2-2-3</b>
This course will provide students with an understanding of medical reimbursement. Course objectives will help students develop a working knowledge of how obtain payment for health care services. Lab fee: \$35.00. Prerequisite: HIMT 255.	
<b>HIMT 267 Principles of Management (W)</b>	<b>3-0-3</b>
The student is introduced to the functions related to planning, organizing, controlling and evaluating human resources and health information management services. Other topics include direction and documentation necessary for the supervision of personnel.	
<b>HIMT 291 Health Information Management Seminar (W)</b>	<b>2-0-2</b>
Group discussion of clinical experiences and analysis of the components of health information management services. Opportunities for problem solving will be offered. Discussion of current trends and topics affecting the health information management record profession. Prerequisite: HIMT 294. Concurrent: HIMT 296.	
<b>HIMT 292 Clinical Practicum I (SU)</b>	<b>0-14-2</b>
Students are assigned to local health care facilities to work under the supervision of facility personnel. Students will obtain exposure to actual working conditions and gain experiences in various aspects of health information management services. Prerequisite: HIMT 134. Concurrent: HIMT 245.	
<b>HIMT 294 Clinical Practicum II (A)</b>	<b>0-14-2</b>
This clinical experience provides the student with practical application of the knowledge and techniques needed to perform various functions of the health information management department. Prerequisite: HIMT 292. Concurrent: HIMT 255.	
<b>HIMT 296 Clinical Practicum III (W)</b>	<b>0-21-3</b>
Continued clinical experience in health information management services. Prerequisite: HIMT 294. Concurrent: HIMT 291.	

## Heating and Air Conditioning Technology (HAC)

<b>HAC 112 Piping Systems (A,W,SU)</b>	<b>2-4-4</b>
Selection of the proper 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.	
<b>HAC 141 Principles of Refrigeration (A,W,SU)</b>	<b>2-3-3</b>
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 1 refrigerants. Lab fee: \$10.00.	
<b>HAC 152 Instrumentation/Combustion Process (A,SP,SU)</b>	<b>2-4-4</b>
A course about basic combustion processes using all the fossil fuels and psychrometric chart work to track the thermal heat transfer. The instruments used to test these processes will also be explained along with the fan laws and psychrometric chart procedures. Instruments used in energy auditing are then explained and preventative maintenance programs written. Lab fee: \$15.00.	
<b>HAC 161 Hand Tools Laboratory (W,SP,SU)</b>	<b>2-4-4</b>
An entry-level course building elementary skills in brazing, soldering, threading, cutting, swaging, and other skills that relate to service, installation and maintenance processes in the HAC field. Basic handtools and meters will be demonstrated and used in lab exercises. Lab fee: \$15.00.	

<b>HAC 183 HAC Wiring Circuits I (A,W,SP)</b>	<b>2-4-4</b>
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.	
<b>HAC 222 HAC Residential Load Calculations (SP,SU)</b>	<b>2-4-4</b>
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: MATH 102.	
<b>HAC 231 HAC Commercial Load Calculations (A,W)</b>	<b>2-4-4</b>
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 HAC Contractor's License Exam. Lab fee: \$12.00. Prerequisite: HAC 222.	
<b>HAC 235 Field Co-Op Experience (SU)</b>	<b>0-40-4</b>
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. Prerequisites: CMGT 290 and permission of instructor.	
<b>HAC 242 HAC Mechanical Standards/Safety (W,SP)</b>	<b>3-2-3</b>
A basic introduction to HAC 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. Prerequisites: HAC 112, HAC 141 and HAC 152.	
<b>HAC 243 Air Conditioning Systems (SP,SU)</b>	<b>2-6-4</b>
A course designed for the student with a fundamental knowledge of the refrigeration 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. Prerequisites: HAC 141, HAC 161, HAC 112, HAC 183 and HAC 253.	
<b>HAC 244 Heat Pump Systems (A,W,SP)</b>	<b>2-6-4</b>
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 component parts of an air cycle heat pump system. Lab fee: \$20.00. Prerequisites: HAC 112, HAC 141, HAC 161, HAC 183 and HAC 253.	
<b>HAC 253 Automatic Controls I (A,W)</b>	<b>2-3-3</b>
A course introducing HAC 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. Prerequisites: HAC 141, HAC 152 and HAC 183.	
<b>HAC 254 Heating Systems (A,W)</b>	<b>2-6-4</b>
A course designed for the student with a fundamental knowledge of heat transfer characteristics and air movement properties. The course is designed around hands-on training and testing of the various component parts and accessories that make up gas, electric and fuel oil type forced air furnaces, along with accessories such as humidifiers, air filtration systems, and set-back thermostats. Lab fee: \$20.00. Prerequisites: HAC 152, HAC 161 and HAC 183.	
<b>HAC 256 Automatic Controls II (W,SP)</b>	<b>1-5-3</b>
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: HAC 253.	
<b>HAC 258 Pneumatic Controls I (SP)</b>	<b>2-4-4</b>
This course is designed to take a senior level HAC student and teach him/her the fundamentals, installation practices and common application parameters of representative pneumatic controls systems. Lab fee: \$15.00. Prerequisite: HAC 152.	
<b>HAC 263 Energy Management (W,SP)</b>	<b>2-3-3</b>
An overview of the world energy supply with both renewable and nonrenewable types being investigated. Attention will be given to building energy control systems/equipment and survey/calculation techniques. Analysis and decision making of energy policy along with computer simulations, conservation measures and systems will be utilized to conserve energy. A glossary of EM terms will be assigned. Lab fee: \$15.00. Prerequisites: HAC 152 and HAC 231.	
<b>HAC 266 Advanced Problems (A,W,SP,SU)</b>	<b>0-8-4</b>
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.	
<b>HAC 284 HAC Wiring Circuits II (W,SP)</b>	<b>2-4-4</b>
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: HAC 183.	

**HAC 285 HAC Electronic Controls I (A)** 2-4-4  
This course uses basic electronic knowledge from EET 101 and EET 102, plus electrical knowledge from HAC 183 and HAC 284 to build a basic understanding of HAC solid state computer controls. This theory course will cover controllers, sensors, relays and HAC electronic operational devices. Lab fee: \$10.00. Prerequisites: EET 102 and HAC 284.

**HAC 287 Boiler Systems (W)** 3-2-4  
This course uses basic combustion knowledge from HAC 152 and piping system knowledge from HAC 112, along with codes from course HAC 242 to build a basic understanding of boiler types, systems, safety procedures and codes that will prepare a person to take the High Pressure Boiler License Examination. Lab fee: \$10.00. Prerequisites: HAC 112, HAC 152 and HAC 253.

**HAC 288 Ammonia Systems (A)** 3-2-4  
This course uses basic piping knowledge from HAC 112, refrigeration cycle theory from HAC 141, codes from HAC 242 and control knowledge from HAC 253 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 HAC 161 course content or proficiency credit before enrolling in this class. Lab fee: \$10.00. Prerequisites: HAC 112, HAC 141, HAC 242 and HAC 253.

**HAC 299 Special Topics in Heating and Air Conditioning (On Demand)** 1-5  
A refresher maintenance training class covering refrigeration systems, mechanical tools and methods, heating and boilers, electrical, air handling and ventilation, controls and safety. Please see your advisor before scheduling for this course.

## Histology Major (See Multi-Competency Health Tech.)

# Hospitality Management Technology (HOSP) Dietetic Technician Major (DIET)

**DIET 191 Dietetic Technician Practicum I (A)** 1-4-1  
Practical application of information presented in the classroom from MLT 100, HOSP 102 and HOSP 122 to related health care facilities. Skills are developed through supervised learning situations to understand the organizational structure of health care facilities and the regulations that pertain, to define the roles of the dietetic practitioners, to maintain and evaluate standards of sanitation and safety. Lab fee: \$35.00. Concurrents: MLT 100, HOSP 102, and HOSP 122.

**DIET 192 Dietetic Technician Practicum II (W)** 1-7-2  
Practical application of information presented in the classroom from HOSP 107 and HOSP 109 in related health care facilities. Skills are developed through supervised learning situations to operate and maintain foodservice equipment, to assist in food production and service, and to maintain food quality and portion control. Lab fee: \$10.00. Prerequisite: DIET 191. Concurrents: HOSP 107 and HOSP 109.

**DIET 193 Dietetic Technician Practicum III (SP)** 1-7-2  
Practical application of information presented in classroom from HOSP 121, HOSP 123 and HOSP 153 in related health care facilities. Skills are developed through supervised learning situations to procure and store food, supplies, and equipment, to calculate food costs, to participate in quantity food production, to develop and/or test products and to provide the nutritional needs of the customers. Lab fee: \$10.00. Prerequisites: DIET 192 and HOSP 153. Concurrents: HOSP 123 and HOSP 121.

**DIET 265 Dietetic Technician Seminar (SP)** 1-0-1  
An in-depth study of recent developments and areas of concern related to providing nutrition care. Each student will select a nutrition topic of current concern, write a research paper and present an oral report. A written exam to assess knowledge attained throughout the seven quarter program will be administered. Lab fee: \$2.00. Prerequisite: DIET 298. Concurrents: DIET 299 and HOSP 219. A grade of "C" or higher is required for graduation.

**DIET 275 Diet Therapy I (A)** 4-2-5  
An introduction to the study of nutritional assessment, diet modification, and nutritional care plans. The rationale for nutritional intervention and related medical conditions and terminology is presented. Calorie controlled, and consistency and nutrient modified diets for a variety of medical and/or lifecycle-related conditions are studied. The student will identify and utilize appropriate nutritional assessment tools and techniques for specific medical and/or lifecycle-related conditions. The student will plan, prepare and/or evaluate menus, meal plans, meals, and nutritional supplements related to these diet modifications. Lab fee: \$10.00. Prerequisites: HOSP 153 with a grade of "C" or higher and completion of BIO 101. Concurrent: BIO 169.

**DIET 276 Diet Therapy II (W)** 4-2-5  
A continuation of the study of nutritional assessment, diet modification, and nutritional care plans. The rationale for nutritional intervention and related medical conditions and terminology is presented. Calorie and protein supplemented, and nutrient modified diets for a variety of medical conditions are studied. The student will identify and utilize appropriate nutritional assessment tools and techniques for specific medical conditions. The student will plan, prepare

and/or evaluate menus, meal plans, meals, and nutritional supplements related to these diet modifications. Lab fee: \$15.00. Prerequisites: DIET 275 with a grade of "C" or higher and BIO 169.

**DIET 297 Dietetic Technician Practicum IV (A)** 1-7-2  
Practical application of information presented in the classroom from HOSP 153 and DIET 275 in community health programs. Skills are developed through supervised learning situations to understand the services offered by community based organizations, to develop the ability to utilize their services, to meet and serve clients, to obtain and evaluate nutritional data from individuals, and to establish good working relationships with clients and other personnel. Lab fee: \$35.00. Prerequisite: DIET 193. Concurrents: DIET 275 and HOSP 205.

**DIET 298 Dietetic Technician Practicum V (W)** 1-7-2  
Practical application of information presented in classroom from HOSP 225, DIET 275 and DIET 276 to clients in related health care facilities. Skills are developed through supervised learning situations to interview clients, to evaluate nutritional data collected, to understand the rationale for dietary modification for nutrient and consistency modification, to understand associated medical terminology and to assist in the planning, preparation and service of modified diet meals. Lab fee: \$10.00. Prerequisite: DIET 297. Concurrents: HOSP 225 and DIET 276.

**DIET 299 Dietetic Technician Practicum VI (SP)** 1-10-3  
Practical application of information presented in the classroom from all technical courses to clients in related health care facilities. Opportunities are provided through supervised learning situations to demonstrate proficiency in client interviewing, to evaluate nutritional data, to understand associated medical terminology and the rationale for dietary intervention, and to assist in the planning, preparation and service of modified diet meals. Lab fee: \$10.00. Prerequisite: DIET 298. A grade of "C" or higher is required for graduation.

## Dietary Manager (DMGR)

**DMGR 101 Dietary Manager Seminar I (A)** 4-0-4  
A study of the types of health care facilities, typical health care organizational structures, and roles of the dietary team members. Regulations and how they affect food service in health care facilities are examined. Foodservice safety and sanitation principles, utilization and care of equipment, and food preparation and purchasing are studied. Concurrents: DMGR 194 and employment in a health care facility with a qualified preceptor on the staff. A grade of "C" or higher is required for graduation.

**DMGR 102 Dietary Manager Seminar II (W)** 4-0-4  
A study of the principles for planning menus to meet the nutritional needs of people in health care operation. Nutrient requirements, functions and sources of nutrients and the digestion and absorption of food are studied. Diet modification for a variety of health conditions is studied. Methods and records used to gather data, to determine food needs and preferences, to establish care plans and to do charting are presented. Prerequisite: DMGR 101 with a grade of "C" or higher. Concurrents: DMGR 195 and employment in a health care facility with a qualified preceptor on the staff.

**DMGR 103 Dietary Manager Seminar III (SP)** 4-0-4  
An explanation of methods and records used in procurement, receiving, and storage of food and related items. Control measures for maintaining quality, quantity, and cost of food production are discussed. Management principles, employee development and supervisory characteristics are discussed. Facility evaluation and planning for improvements is presented. Prerequisite: DMGR 102 with a grade of "C" or higher. Concurrents: DMGR 196 and employment in a health care facility with a qualified preceptor on the staff.

**DMGR 194 Dietary Manager Cooperative Work Experience I (A)** 0-20-2  
Supervised work related learning experiences to be performed on the job following material presented in the classroom from DMGR 101. Lab fee: \$20.00. Prerequisite: Employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 101.

**DMGR 195 Dietary Manager Cooperative Work Experience II (W)** 0-20-2  
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from DMGR 102. Lab fee: \$20.00. Prerequisite: DMGR 194 with a grade of "C" or higher, and employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 102.

**DMGR 196 Dietary Manager Cooperative Work Experience III (SP)** 0-20-2  
Supervised work related learning experiences to be performed on the job following materials presented in the classroom from DMGR 103. Lab fee: \$20.00. Prerequisites: DMGR 195 with a grade of "C" or higher, and employment in a health care facility with a qualified preceptor on the staff. Concurrent: DMGR 103.

## Hospitality Management (HOSP)

**HOSP 101 Survey of the Hospitality/Tourism Industry (A,W,SP)** 2-0-2  
An introduction to management of restaurants, institutional food services and lodging facilities, as well as an overview of the travel and tourism industry. Industry-related professional associations and trade publications are studied. Field trips and guest speakers provide a background of organization, operation, management and career opportunities. Lab fee: \$2.00.

**HOSP 102 Foodservice Equipment (A,W,SP)** 1-2-2  
A laboratory course in which students will learn to operate, clean and maintain commercial foodservice equipment. Construction features, National Sanitation Foundation, American Gas Association and Underwriter's Laboratories requirements will be emphasized. Appropriate uses for equipment and general principles of equipment layout for safety, sanitation and efficiency will be included. Lab fee: \$10.00.



<b>HOSP 107 Food Principles (W,SP)</b>	<b>5-0-5</b>	A lecture course in basic food preparation including the terminology and definitions used and the scientific principles involved in preparing food products. The course includes a detailed study of the principles of preparation and selection criteria for all categories of foods served in foodservice operations. Lab fee: \$15.00.	and cold sauces as well as be introduced to specialty work in ice carving, tallow and salt dough. Buffet presentation and culinary show guidelines are covered. Lab fee: \$40.00. Prerequisite: Registered Chef Apprentice or permission of instructor.
<b>HOSP 109 Food Production I (W)</b>	<b>1-7-3</b>	A laboratory course in which students will produce and serve marketable food products according to standardized recipes using food production equipment in a commercial kitchen environment. The products will be served in a cafeteria and in a dining room setting. The principles of sanitation and safety will be applied. Lab fee: \$60.00. Prerequisites: HOSP 102 and HOSP 122 Concurrent or prerequisite: HOSP 107.	<b>HOSP 218 Baking (W)</b> <b>1-4-3</b> Includes the fundamentals of baking and functions of ingredients with production of baked goods and dessert specialties. Proper use and care of equipment and hygienic work habits are emphasized. Lab fee: \$50.00. Prerequisite: Registered Chef Apprentice or permission of instructor.
<b>HOSP 121 Computer Applications in Foodservice (A,SP)</b>	<b>1-2-2</b>	A course designed to build upon basic skills and knowledge acquired in Computer Literacy I and apply them to foodservice management. Hands-on computer lab experience will include word processing, spreadsheets, and data base management applications, as well as hospitality industry specialized integrated software packages. Lab fee: \$25.00. Prerequisite: CPT 101.	<b>HOSP 219 Food Production Management (SP)</b> <b>1-8-4</b> A laboratory course required during the final quarter of the Dietetic Technician and Foodservice/Restaurant Management curriculum (beginning Spring, 1996). Application of foodservice principles will occur in a simulated restaurant. Students will gain experience in various production, service and managerial positions in the front and back of the house. Lab fee: \$60.00. Prerequisite: Final quarter or permission of instructor. A grade of "C" or higher is required for graduation.
<b>HOSP 122 Sanitation and Safety (A,W,SP,SU)</b>	<b>3-0-3</b>	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. Examination of laws and regulations related to safety, fire, and sanitation. Upon the successful completion of an examination from the Educational Foundation of the National Restaurant Association, students will receive certificates from the Educational Foundation and from the Ohio Department of Health. Lab fee: \$7.00.	<b>HOSP 224 Hospitality Personnel Management (W,SU)</b> <b>5-0-5</b> Supervisory techniques applied specifically to hospitality and travel operations. A study of organizational structure, performance standards, employee application forms, and interviewing techniques used for the selection of employees. Improving communication and job performance with the development of orientation and training programs, and employee appraisal techniques. A grade of "C" or higher is required for graduation. Lab fee: \$5.00. Prerequisite: BMGT 111.
<b>HOSP 123 Food Purchasing (W,SP)</b>	<b>3-0-3</b>	Provides a working knowledge of procurement methods and procedures and recordkeeping (manual methods and computer applications) when purchasing, receiving, and storing food, equipment and non-food supplies. Special emphasis is given to writing specifications, determining order quantities, evaluating product quality, and selecting suppliers. Field trips allow the student to see food processing operations, and wholesale food markets. Lab fee: \$15.00. Prerequisites: HOSP 107 and DEV 031.	<b>HOSP 225 Menu Planning (A,W)</b> <b>3-0-3</b> Principles of menu planning for a variety of foodservice operations. Includes merchandising techniques, layout and design, and pricing strategies. Consideration is given to food selection; nutritional requirements; food, labor, and other costs; and equipment utilization. Lab fee: \$5.00. Prerequisites: HOSP 153 and HOSP 107.
<b>HOSP 139 Lodging Information Systems</b>	<b>1-5-3</b>	Introduces the student to the fundamental concepts of computer usage within the hospitality industry utilizing property management systems. The student will receive hands-on experience in reservations, registration, guest accounting, check-out, night audit and various departmental reports. Lab fee: \$50.00. Prerequisite: OADM 131.	<b>HOSP 245 Front Office Management</b> <b>2-2-3</b> The principles required to organize, operate and manage a hotel front office. Computerized property management systems are included. Lab fee: \$25.00.
<b>HOSP 143 Hospitality and Travel Law (A,W,SP)</b>	<b>3-0-3</b>	Provides a general knowledge of the law as it applies to the hospitality and travel industry. Lab fee: \$10.00.	<b>HOSP 246 Marketing Hospitality and Tourism (W,SP)</b> <b>3-0-3</b> Covers the basic knowledge and skills necessary to develop, implement and evaluate strategic marketing plans for foodservice, lodging properties, and tourism services. Lab fee: \$5.00.
<b>HOSP 153 Nutrition (A,W,SP,SU)</b>	<b>5-0-5</b>	A study of the role of nutrition in establishing, promoting and maintaining good health. The composition and functions of foods, nutrition needs throughout the life cycle, and contemporary nutrition concerns are included in the course. Lab fee: \$5.00.	<b>HOSP 249 Meeting and Convention Planning and Service (A,SP)</b> <b>3-0-3</b> Includes planning necessary to meet group and individuals needs for meetings and conventions, as well as the methods and techniques that lead to quality service. Lab fee: \$5.00.
<b>HOSP 154 Destination Geography (A)</b>	<b>5-0-5</b>	Geographical and cultural study of all major regions of the world with emphasis on the most popular destinations. Lab fee: \$2.00.	<b>HOSP 257 Computer Reservations Systems (A,SU)</b> <b>1-5-3</b> This course is designed to allow the student to develop capabilities in the use and operation of computer reservations systems including searching for travel information, making reservations, and ticketing for simulated customers. Students receive instruction on-site in a reservations office. Lab fee: \$20.00. Prerequisite: HOSP 156.
<b>HOSP 155 Travel Agency Operations (W)</b>	<b>4-0-4</b>	This course provides students with a basic understanding of the travel product distribution system and the role travel agencies play therein. It also covers the various agencies and organizations that affect travel agency operation. It stresses the personal selling skills and product knowledge needed to be a successful travel agent - with special emphasis on tours, lodging, cruise sales, and miscellaneous services needed mainly by international travelers. Lab fee: \$10.00.	<b>HOSP 259 Tour Guiding and Travel Counseling (SP)</b> <b>4-0-4</b> Development of a systematic and structured process for special interest group travel, corporate travel, and package tour operation. Students will research, plan, promote and sell a simulated or actual tour or cruise package utilizing their knowledge of destinations, sales and marketing, car/hotel/transportation reservations, ticketing, accounting and related travel services. Lab fee: \$30.00. Prerequisite: HOSP 156, final quarter or permission of instructor.
<b>HOSP 156 Principles of Transportation (SP)</b>	<b>4-2-5</b>	This course covers the principles of air transportation, rail, and rental car services. It includes use of manuals, guides, timetables, tariffs and other references used in the travel industry. Emphasis is on itinerary construction, fare calculation, reservation and ticketing procedures, and processing of other necessary travel documents. Lab fee: \$30.00. Prerequisite: HOSP 154 or GEOG 200 and HOSP 155.	<b>HOSP 271 Dining Room Management and Catering (A)</b> <b>2-3-3</b> Principles of and practice experiences in dining room management and service for both in-house and off-premise functions. Students will organize, coordinate and execute various catered functions to practice the managerial skills that a dining room or catering manager uses on a daily basis; i.e., customer contacts, menu planning, contracts, training, service, sanitation, safety of employees and guests, billing/accounting. Lab fee: \$20.00. Prerequisite: HOSP 109 or permission of instructor
<b>HOSP 203 Bar Management and Wine Technology (A,SU)</b>	<b>2-2-3</b>	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.	<b>HOSP 286 Apprenticeship Final Project (SU)</b> <b>2-0-2</b> Preparation for and completion of final practical and written examinations, summative evaluation of 6,000 hours on-the-job training, and documentation of completion of all training objectives required for students registered in the three year American Culinary Federation Educational Institute National Apprenticeship Training Program. Lab fee: \$30.00. Prerequisite: HOSP 295.
<b>HOSP 205 Records and Cost Control (A,W)</b>	<b>3-2-4</b>	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: \$15.00.	<b>HOSP 293 Hospitality Cooperative Work Experience I (A,W,SP,SU)</b> <b>1-20-3</b> Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with the equivalent of one classroom hour per week in an on-campus seminar. Lab fee: \$10.00.
<b>HOSP 216 Food Production II (W)</b>	<b>1-4-3</b>	A laboratory course to follow Food Production I (HOSP 109) for chef apprentices. Students will requisition raw food products and produce menu items requiring more complex preparation. They will use and maintain food production equipment, serve products in a dining room setting, and use computer systems and hand methods in large quantity recipe calculation, forecasting, recipe costing, and revenue analysis. Lab fee: \$25.00. Prerequisites: HOSP 109 and HOSP 107.	<b>HOSP 294 Hospitality Cooperative Work Experience II (A,W,SP,SU)</b> <b>1-20-3</b> A continuation of HOSP 293. Work experience in the hospitality/tourism industry. A minimum of 200 hours will be spent in cooperative work experience, with the equivalent of one classroom hour per week in an on-campus seminar. Lab fee: \$10.00. Prerequisite or concurrent: HOSP 293.
<b>HOSP 217 Garde Manger (SP)</b>	<b>1-4-3</b>	A laboratory course including preparation of cold food items commonly produced in a garde manger station. Students will prepare garnitures, appetizers, salads, pates, terrines, galantines	<b>HOSP 295 Hospitality Cooperative Work Experience III (A)</b> <b>1-20-3</b> Work experience in the foodservice industry for third-year chef apprentices. The equivalent of one classroom hour per week will be spent in an on-campus seminar. Lab fee: \$10.00. Prerequisites: HOSP 294 and Chef Apprenticeship major.

# Human Resources Mgmt. Major

(See Business Management Technology)

## Humanities (HUM)

**STUDENTS WHO ENROLL IN HUMANITIES COURSES MUST HAVE PLACED IN ENGL 101 AND ARE ENCOURAGED TO EITHER HAVE COMPLETED ENGL 101 OR BE ENROLLED IN THAT COURSE WHEN SCHEDULING A HUMANITIES COURSE.**

**HUM 111 World Civilization I (A,W,SP,SU) 5-0-5**  
A survey of the culture, ideas, and values of human civilization from their origins in the Ancient World through the 15th Century. Emphasis is on the intellectual and artistic achievements of the ancient Middle East, India, China, Classical Greece and Rome, the Christian and Arab/ Islamic Middle Ages, and Renaissance Italy showing how culture reflects and influences economic, social and political development. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into ENGL 101.

**HUM 112 World Civilization II (A,W,SP,SU) 5-0-5**  
A study of the development of the culture, ideas, and values of the early modern Western World. Emphasis is on the Protestant Reformation, the rise of modern science, the Enlightenment, the American and French Revolutions, the Industrial Revolution, Baroque, Classical, and Romantic styles in art, music and literature and the revolutionary theories of Karl Marx. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into ENGL 101.

**HUM 113 World Civilization III (A,W,SP,SU) 5-0-5**  
A survey of the triumphs and failures of modern culture, ideas, and values from 1850 to the present. Emphasis is on 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. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Classes meet three hours per week in small groups for lecture and discussion and in combined sections for two hours per week for group cultural experiences. Lab fee: \$10.00. Prerequisite: Placement into ENGL 101.

**HUM 151 American Civilization to 1877 (A,W,SP,SU) 5-0-5**  
A survey of American History from settlement through the Civil War and Reconstruction. The course places major emphasis on the relationship between historical events and the literature, art, music, major ideas and popular culture which made up the American intellectual tradition. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Lab fee: \$10.00. Prerequisite: Placement into ENGL 101.

**HUM 152 American Civilization Since 1877 (A,W,SP,SU) 5-0-5**  
A survey of the development of the United States from a frontier society to an industrial world power in the 20th century. The course places major emphasis on the relationship between historical events and the literature, art, music, major ideas and popular culture which have made up the American intellectual tradition. Students are exposed to the creative process by reading from primary works of literature and philosophy and critically reviewing works of art, music, theater and dance, both in and out of class. Lab fee: \$10.00. Prerequisite: Placement into ENGL 101.

**HUM 190 Freshman Experience in Humanities (A,W,SP,SU) 0-2-1**  
The Freshman Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; recommended for all other Associate of Arts or Associate of Science degree seeking students. Lab fee: \$4.00.

**HUM 205 Medicine and the Humanities (On Demand) 5-0-5**  
A survey of the treatment of medical themes in history, literature, philosophy, the fine arts and popular culture. The course covers works ranging from the drawings of Leonardo DaVinci, to the novel and film MASH. Of particular importance will be the role of the humanities in the assessment and understanding of modern health care. Meets elective requirements in Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in History and Humanities. Lab fee: \$4.00. Prerequisite: Placement into ENGL 101.

**HUM 222 Classical Mythology (On Demand) 5-0-5**  
An introduction to the world of mythology, the human and the supernatural, the real and the fantastic through a study of myths from Ancient Mesopotamia, Egypt, Greece, and Rome. The course explores some of the religious ideas, traditions and values that distinguish one civilization from another, while also indicating universally shared themes. Attention will be given to cultural expressions of mythical themes in literature and art. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 245 Music and Art Since 1945 (On Demand) 5-0-5**  
A survey of the styles and subject matter of important contemporary works of music and visual art. Students will examine the wide spectrum of aural and visual expression that has developed since the Second World War such as aleatoric music, electronic music, abstract expressionism, performance art, pop and op art, minimalism, etc. Students will also examine the major intellectual and social issues of the day and the relationship between these issues and the styles and expressive content of contemporary music and art. Lab fee: \$8.00. Prerequisite: Placement into ENGL 101.

**HUM 251 Latin American Civilization (On Demand) 5-0-5**  
A general introduction to the history and cultures of Latin America through the study of literature, film and primary historical texts. The course will employ an interdisciplinary approach to explore the relationship between culture and the major historical, political, and socio-economic developments in Latin America from 1492 to the present. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 252 The Islamic World and the Middle East (On Demand) 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 Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social sciences, and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 253 History of China and Japan (On Demand) 5-0-5**  
A survey of the economic, social, political, and cultural development of China and Japan from earliest times to present. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in history, social sciences, and non-western studies. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 254 Introduction to African Literature (On Demand) 5-0-5**  
A general survey of sub-Saharan African literature including the oral traditions that formed its background. Students will examine traditional African artistic expressions such as dance, drama, poetry and short story as well as novels produced by European-educated writers. Students will read literary texts originally written in English or in English translation. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 270 Comparative Religions (A,SP) 5-0-5**  
Introduction to the study of religion through a historical overview and comparison of the major world religions of Judaism, Christianity, Islam, Buddhism, and Hinduism through readings in their sacred texts in translation. Attention will be focused on the concepts, categories, theories, and methods used by the various religious disciplines and how each of them addresses basic issues of the human condition. Also included will be an examination of Sectarianism and contemporary sects in America and the World. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in comparative studies, religion, and philosophy. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**HUM 299 Special Topics in Humanities (On Demand) 1-5**  
Special topics from the Humanities discipline designed to meet specific needs.

## Interpreting/Transliterating Technology (ITT)

**ITT 101 Introduction to Sign English (On Demand) 0-4-2**  
This course emphasizes the use of conceptual signs in 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.

**ITT 102 Sign English I (On Demand) 0-4-2**  
This course emphasizes the use of concept signs in straight English context. The course covers an additional vocabulary of 500 words. In addition to vocabulary building, this course concentrates on signing English expressions and increasing receptive skills. Lab fee: \$5.00. Prerequisite: ITT 101.

**ITT 110 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 a historical overview, terminology, interpreter's role, ethics, and career options.

**ITT 111 Orientation to Deafness (A) 5-0-5**  
This course is designed to acquaint students with the causes of deafness, the adaptive devices available such as hearing aids and TTY phones, the different types of hearing losses, the Deaf Community, educational issues, employment issues, the psychology of deafness, and misconceptions about deafness. Lab fee: \$5.00.

**ITT 112 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 conference interpreting coordination. Prerequisite: ITT 110.

**ITT 113 Patterns of Language Development (W) 3-0-3**  
This course compares the normal patterns of language development of hearing children,

prelingual deaf children and postlingual deaf children. Theories of language development are discussed. Influences of total communication and oral education are also discussed. Prerequisite: ITT 150.

**ITT 120 English for the Interpreter (SP)** 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: ITT 110.

**ITT 121 Legal and Ethical Aspects of Interpreting/Transliterating (SP)** 3-0-3  
This course looks at applying the RID Code of Ethics to the interpreting situation. Analysis of professional ethics, confidentiality vs. privilege, legal liability, and the role of the interpreter are all covered. Lab fee: \$5.00. Prerequisite: ITT 110.

**ITT 123 Specialized Interpreting/Transliterating (A)** 3-2-4  
This course introduces the student to special vocabulary, skills, and knowledge needed to interpret in special situations. It looks at ethical considerations of these settings as well. Some of these situations include artistic interpreting, interpreting for deaf/blind persons, interpreting in medical settings, and oral interpreting. Lab fee: \$5.00. Prerequisite: ITT 110.

**ITT 124 Special Problems in Interpreting/Transliterating (SP)** 3-0-3  
This course 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 non-human entity of interpreting and application of the "gray areas" of the code of ethics. The course also looks at the business practice of interpreting. Prerequisite: ITT 110.

**ITT 130 Fingerspelling (W)** 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.

**ITT 141 American Sign Language I (A,SP)** 2-4-4  
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.

**ITT 142 American Sign Language II (W,SU)** 2-4-4  
ASL II, as a continuation of ITT 141, further acclimates the students to the visual/gestural modality of this 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 ITT 141, 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: ITT 141 with a "C" or better.

**ITT 143 American Sign Language III (A,SP)** 2-4-4  
ASL III provides the students with 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: ITT 142 with a "C" or better.

**ITT 144 American Sign Language IV (W,SU)** 2-4-4  
In ASL IV, 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: ITT 143 with a "C" or better.

**ITT 145 American Sign Language V (A,SP)** 2-4-4  
As the final course in this five (5) course series, ITT 145 provides students with 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: ITT 144 with a "C" or better.

**ITT 150 Linguistics of American Sign Language (ASL) (SP)** 2-2-3  
This course begins with a basic foundation in general linguistics. The major grammatical systems of ASL, its structure and diachronic evaluation are studied via a comparative analysis with English. Lab fee: \$5.00. Concurrent: ITT 143.

**ITT 201 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: \$10.00. Concurrent: ITT 120.

**ITT 202 Interpreting II (SU)** 1-5-3  
This course is a continuation of ITT 201. 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: \$10.00. Prerequisite: ITT 201 with a "C" or better. Concurrent: ITT 144.

**ITT 203 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, increasing speed, and decreasing process time. Lab fee: \$10.00. Prerequisite: ITT 202 with a "C" or better.

**ITT 211 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: \$10.00. Prerequisite: ITT 120. Concurrent: ITT 144.

**ITT 212 Transliterating II (A)** 1-5-3  
This course is a continuation of ITT 211. 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 while increasing speed and length of the subject matter. Lab fee: \$10.00. Prerequisite: ITT 211 with a "C" or better.

**ITT 213 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, increasing speed, and decreasing process time. Lab fee: \$10.00. Prerequisite: ITT 212 with a "C" or better.

**ITT 290 Interpreting/Transliterating Practicum Seminar I (W,SU)** 1-0-1  
This course supplements the practicum experience by providing opportunities for sharing experiences via recordings in journals and group discussions. Concurrent: ITT 292.

**ITT 291 Interpreting/Transliterating Practicum Seminar II (A,SP)** 1-0-1  
This course continues to supplement the practicum experience. Applying theory to the daily work setting, applying for jobs, and additional educational opportunities are also discussed. Prerequisite: ITT 290. Concurrent: ITT 293.

**ITT 292 Interpreting/Transliterating Practicum I (W,SU)** 0-20-4  
Students are provided opportunities to work in interpreting situations and apply the concepts learned in the classroom to the actual setting. Students are assigned to work in a variety of settings on a part-time basis and are supervised by staff interpreters. Prerequisite: 2.0 tech. average; completion of 5 quarters of study. Concurrent: ITT 290.

**ITT 293 Interpreting/Transliterating Practicum II (A,SP)** 0-20-4  
Students are provided opportunities to work in different interpreting situations and apply the concepts learned in the classroom to the actual setting. Students are assigned to work in a variety of settings on a part-time basis and are supervised by staff interpreters. Prerequisite: ITT 292 and 2.0 tech average. Concurrent: ITT 291.

## Italian (ITAL)

**ITAL 101 Elementary Italian I (On Demand)** 5-0-5  
Italian language instruction through the use of texts, audio/visual, and other selected materials to actively and proficiently communicate in the targeted language. This course also operates on developing student's historical, and cultural consciousness through the use of film, art, music and a wide range of cultural activities particular to the Italian culture. Encourages analytical thinking, individual and group participation and strengthens writing, reading and comprehension skills. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**ITAL 102 Elementary Italian II (On Demand)** 5-0-5  
Continuation of ITAL 101, with further development of listening, reading, speaking, and writing skills and further study of Italian culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: ITAL 101 with a grade of "C" or better.

**ITAL 103 Intermediate Italian I (On Demand)** 5-0-5  
Continued study of the Italian language and development of listening, reading, speaking and writing skills. Readings from contemporary Italian culture and literature. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: ITAL 102 with a grade of "C" or better.

**ITAL 104 Intermediate Italian II (On Demand)** 5-0-5  
Reading and discussion of Italian short stories, novels, plays, newspapers, and magazines, emphasizing literary appreciation and the development of Italian culture. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature programs. Lab fee: \$5.00. Prerequisite: ITAL 103 with a grade of "C" or better.

**ITAL 299 Special Topics in Italian (On Demand)** 1-5  
Detailed examination of selected topics in Italian. Lab fee: \$2.00. Prerequisites vary.

## Japanese (JAPN)

**JAPN 101 Elementary Japanese I (A)** 5-0-5  
Elements of standard modern colloquial Japanese grammar, with emphasis on oral communications and culture. Students will learn to hear and reproduce the sounds of modern Japanese accurately; handle basic interactive skills such as greetings, invitations and apologies; learn

about cultural factors that are reflected in the language. Lab fee: \$5.00. Prerequisite: Entry into ENGL 101.

**JAPN 102 Elementary Japanese II (W)** 5-0-5  
Continuation of JAPN 101. Lab fee: \$5.00. Prerequisite: "C" or higher in JAPN 101.

**JAPN 103 Elementary Japanese III (On Demand)** 5-0-5  
Continuation of JAPN 102. Lab fee: \$5.00. Prerequisite: "C" or higher in JAPN 102.

**JAPN 104 Elementary Japanese IV (On Demand)** 5-0-5  
Continuation of JAPN 103. Lab fee: \$5.00. Prerequisite: "C" or higher in JAPN 103.

**JAPN 299 Special Topics in Japanese (On Demand)** 1-5  
Detailed examination of selected topics in Japanese. Lab fee: \$2.00. Prerequisites vary.

## Landscape Major (See Architecture Technology)

# Law Enforcement Technology (LAWE)

**LAWE 101 Introduction to Criminal Justice (A,SP)** 3-0-3  
This course examines the development of law, and the systems and procedures developed by society for dealing with law violations. Emphasis will be placed on the three major components of the system: the police, courts, and corrections.

**LAWE 102 Patrol Procedures (A,SP)** 2-2-3  
This course covers the basic concepts of police patrol. The purpose of patrol and various patrol strategies will be examined. Calls for service and response tactics as well as arrest techniques, vehicle stops, and prisoner booking and handling are covered.

**LAWE 104 Government and the Law (A,SP)** 3-0-3  
The role of local government in the community; its structure, organization, and responsibility. Local government politics and the community. Urban, suburban, rural and community structure will be discussed in relationship to delivery of services.

**LAWE 107 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 the fundamental systems used for loss prevention, fire destruction, and personnel safety. This course 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.

**LAWE 110 Criminal Investigation I (A,SP)** 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. Lab fee: \$5.00.

**LAWE 111 Criminalistics I (A,SP)** 0-4-2  
An introduction to criminalistics laboratory techniques: includes the recognition, collection, and preservation of evidence and its preparation for court presentation. An introduction to fingerprint comparison. Lab fee: \$10.00.

**LAWE 112 Criminal Investigation II (W,SU)** 3-2-4  
A continuation of LAW 110. Emphasis will be placed on the scientific analysis of evidence and proper methods for collection and preservation of trace evidence. Lab fee: \$5.00. Prerequisite: LAW 110.

**LAWE 113 Criminalistics II (W,SU)** 0-4-2  
Advanced study of criminalistics laboratory techniques: includes examination techniques for blood, hair and fiber, fire-arms identification, toolmark comparison, latent fingerprints, questioned document examination and trace evidence. Lab fee: \$10.00.

**LAWE 115 Community and Personal Relations (W,SU)** 2-2-3  
This course examines the complex relationship between the police and the public they serve. Areas of potential problems will be discussed and programs and procedures for enhancing the relationship will be presented. Lab fee: \$5.00.

**LAWE 120 Criminology (A,SP)** 3-0-3  
An exploration of the crime problem in the United States. Theories of the causation of crime will be analyzed and critiqued.

**LAWE 121 Juvenile Delinquency (SP)** 3-0-3  
A study of the nature and causes of delinquent activity by juveniles. Though the development of an understanding of causative factors, appropriate criminal justice responses to such activity can be planned.

**LAWE 122 Criminal Law (On Demand)** 2-2-3  
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.

**LAWE 124 Penology (SP)** 3-0-3  
A study of the admitting, housing, and releasing of prisoners. Emphasis on city and county systems for handling prisoners.

**LAWE 125 Traffic Accident Investigation (A,SP)** 2-2-3  
An in-depth study of the procedure and objectives in accident 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.

**LAWE 128 Special Category Offenders** 3-0-3  
This course will focus on six subject areas; treatment of sex offenders, mentally disordered offenders, mentally retarded offenders, inmates with Aids, inmates with disabilities and the substance abuse offender. Further attention will be directed to correctional personnel, impact of political influences, perceptions, training, problems and corrective actions.

**LAWE 145 Self Defense for Women** 1-2-2  
Students will learn to recognize threatening behavior, situations, and appropriate responses. Simple to learn, basic physical defense techniques are taught. In addition, defensive devices will be discussed and demonstrated.

**LAWE 201 Emergency Dispatching (A,SP)** 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.

**LAWE 204 Juvenile Procedures (A,SP)** 2-2-3  
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.

**LAWE 208 Community Based Corrections (W)** 3-0-3  
This course will investigate alternative models of corrections in place of institutionalizing the offender. Various alternatives, and the benefits that will derive from the placing of the offender back in the community rather than in an institution will be discussed.

**LAWE 210 Crises Intervention (W)** 3-0-3  
This course provides the student with intervention strategies for dealing with persons in crises. The areas of domestic disputes, suicide prevention, and the special problems of crime victims will be emphasized. Lab fee: \$5.00.

**LAWE 211 Institutional Corrections (A)** 3-0-3  
An exploration of the development and the purposes of correctional institutions. Emphasis will be placed on major correctional facilities at the state and federal levels. Operation of such facilities and the care and treatment of prisoners will be examined.

**LAWE 212 Ohio Criminal Code (A,SP)** 3-2-4  
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.

**LAWE 213 Techniques of Instruction (On Demand)** 3-0-3  
Methods of instruction, application of audio visual equipment, testing, evaluation, and preparation of materials are introduced. Special emphasis is placed on planning an organizational training program. Lab fee: \$3.00.

**LAWE 218 Supervision of Public Service Personnel (A,SP)** 3-0-3  
Supervision techniques applied to public service personnel. The study of the need for job descriptions and job procedures, civil service requirements, reports, oral and written directions, work evaluation, and conference leadership. Methods of instruction effective in teaching and motivating personnel.

**LAWE 219 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. The course will also cover due process of law.

**LAWE 220 Constitutional Law (A,SP)** 3-2-3  
A study of federal and state constitutional law and the Bill of Rights with emphasis on: 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.

**LAWE 221 Counseling - Probation and 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. Emphasis is also placed on the functions of the parole and probation officers.

**LAWE 223 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, mid-management and 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.

**LAWE 241 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 will include the interviewing of convicted felons, verification of the information received, and various other duties connected with probation and parole. Prerequisite: LAW 205. Concurrent: LAW 249.

**LAWE 249 Corrections Seminar I (TBA)** 1-0-1  
This seminar will cover the pre-sentence investigation report, the purpose and how they are 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: LAWE 205. Concurrent: LAWE 241.

**LAWE 252 Police Administration (TBA)** 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.

**LAWE 253 Criminal Procedure (W,SU)** 2-2-3  
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/she collects or prepares presented in court. Prerequisite: LAWE 220.

**LAWE 254 Correctional Internship II (TBA)** 0-10-1  
On-the-job training in the corrections setting. The student will work in a correctional 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: LAWE 241. Concurrent: LAWE 255.

**LAWE 255 Corrections Seminar II (TBA)** 1-0-1  
This course is a discussion of what has occurred during the student's internship and clarification of problems. Assignment of project and explanation of reason for the project. Prerequisite: LAWE 249. Concurrent: LAWE 254.

**LAWE 256 Law Enforcement Practicum I (On Demand)** 0-14-2  
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 on by agreement of the student and the law enforcement agency. Prerequisite: Permission of the chairperson. Concurrent: LAWE 257.

**LAWE 257 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: LAWE 256.

**LAWE 258 Law Enforcement Practicum II (On Demand)** 0-14-2  
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: LAWE 259.

**LAWE 259 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. Lab fee: \$5.00. Concurrent: LAWE 258.

**LAWE 260 Criminal Evidence and Trial (A,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. Lab fee: \$5.00.

**LAWE 261 Defensive Driving (SU)** 0-2-2  
Defensive driving is driving to prevent accidents from occurring in spite of the actions of others or the presence of adverse conditions. Students will learn recommended driving principles and practices through vehicle operation. Lab fee: \$20.00.

**LAWE 263 Unarmed Self Defense (SU)** 1-6-4  
The student will learn: the basic principles and tactics of unarmed self-defense, how to defend against physical attack, and control of aggressive behavior in effecting an arrest using minimum force.

**LAWE 264 Police Firearms (SU)** 0-6-3  
Students will learn to safely use police firearms including pistol and shotgun. Shooting decisions and alternatives to firearm use are covered. Successful completion of the course requires compliance with current Ohio Peace Officers Training Council qualification standards. Lab fee: \$20.00.

**LAWE 265 Police Physical Fitness (SU)** 1-4-3  
This course will utilize the proven methods developed by the Aerobic Institute in measuring and attaining fitness. A baseline of fitness will be established for each student and an individual exercise program will be decided upon. Class activities may include aerobics, jogging, and if needed, weight training.

**LAWE 266 High Rise Safety (A)** 1-2-2  
Discussions of the particular problems related to the fire safety in high rise buildings. Students 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.

**LAWE 268 Hazardous Materials I (A)** 3-2-4  
An introduction to the properties and behaviors 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.

**LAWE 271 Contemporary Issues in Law Enforcement (SP)** 2-0-2  
A review of important facts in modern law enforcement along with an examination of current

topics and trends. Prerequisite: Open to Academy majors only with a minimum of 70 credit hours completed.

**LAWE 273 Legal Computing** 2-1-2  
Course is designed to focus on legal style microcomputing for law enforcement and legal assisting personnel. Emphasis is on the legal history, copyright, computer crimes, computer security and legal computer systems. Prerequisite: CPT 101/Optional LEGL 251.

**LAWE 299 Special Topics in Law Enforcement** 3-0-3  
Special Topics in Law Enforcement is a course that utilizes a variety of instructional techniques to meet the needs of the constantly changing law enforcement, corrections, and legal community. The course will be designed with the advice of the particular group requesting the course and/or the Law Enforcement faculty, and Department Chairperson.

## Legal Assisting Technology (LEGL)

**LEGL 101 Introduction to Legal Assisting** 4-0-4  
The role of the legal assistant, ethical responsibilities, and legal restrictions are the main focus of this course. Students will also be introduced to the function of statutes, case law, administrative regulations and constitutions within the legal system. Prerequisite: ENGL 101 or placement into ENGL 101.

**LEGL 102 The Legal System** 2-0-2  
This course explores the federal and state civil law systems, federal and state criminal law systems, appellate process and such concepts as jurisdiction and venue. Prerequisite or concurrent: LEGL 101.

**LEGL 103 Law Office Procedures and Management** 3-0-3  
This course is an introduction to the day to day operation of a law office. Emphasis will be placed on the development of accurate records keeping skills and developing an understanding of office management procedures unique to law offices, including computerized time keeping and billing programs. Prerequisite or concurrent: LEGL 101.

**LEGL 111 Legal Research and Writing I** 3-2-4  
An introduction to conducting legal research and the proper methods of preparing briefs, pleadings and memorandum of law. Locating, analyzing and checking of case law is emphasized. Students will learn proper citation methods, and legal writing style, as well as becoming familiar with the Ohio and Federal Rules of appellate procedure. Prerequisite: LEGL 101.

**LEGL 112 Legal Research and Writing II** 3-2-4  
A continuation of LEGL 111, developing advanced research skills with an emphasis on preparing legal documents. Students will be familiar with primary and secondary sources, computer assisted research and a variety of legal documents. The student will also participate in a brief writing competition. Prerequisite: LEGL 111.

**LEGL 114 Family Law** 3-0-3  
Domestic relations matters including: marriage, divorce, dissolution, child custody and support, visitation and adoptions. The law regulating such matters and the drafting of appropriate documents will be emphasized. Prerequisite: LEGL 101.

**LEGL 119 Real Estate Transactions** 3-0-3  
A study of the law governing real property, its ownership, sale, lease or other conveyance. The instruments utilized in conveyance or lease of such property will be examined and drafted. Title searching and abstracts of title are included. Prerequisite: LEGL 101.

**LEGL 201 General Practice** 4-0-4  
This course will acquaint the student with a variety of matters that may be encountered in a law practice. The basic elements of torts and contracts will be covered as well as judgments and civil collection actions. Prerequisite: LEGL 101.

**LEGL 205 Litigation Practice and Procedure I** 2-2-3  
A study of the Ohio Rules of Civil Procedure, the Federal Rules of Civil Procedure, and Federal and State Rules of Evidence. The basic elements of a tort claim will be discussed and the initial phases of an action, the complaint, pleadings and discovery and pre-trial phases will be examined. Prerequisite: LEGL 101.

**LEGL 210 Criminal Law and Procedure** 3-0-3  
The Ohio Criminal Code and Rules of Criminal Procedure will be the foundation of this examination of the pre-trial and post-trial procedures in a criminal case. Students will be exposed to the criminal justice system from the elements of offenses through post-conviction remedies. The drafting of motions and other documents associated with criminal matters will be included. Prerequisite: LEGL 101.

**LEGL 215 L.A. Practicum I** 0-14-2  
A guided work experience in an office or agency providing legal services. Exact duties are decided upon by agreement of the student and administrators of the placement site. Prerequisite: Permission of instructor.

**LEGL 216 L.A. Practicum Seminar I** 1-0-1  
Seminar discussion of work experiences and the development of strategies to improve work performance. Prerequisite: Permission of instructor

**LEGL 220 Business Organizations** 3-0-3  
The fundamentals of the formation of business entities including sole proprietorships,

partnerships, and corporations. Students will prepare documents regarding the formation of such organizations. Prerequisite: LEGL 101.

**LEGL 224 Probate Law and Practice I** 3-0-3  
The law of wills, estates and estate administration including estate taxation. Testate and intestate estates, law of descent and distribution, estate planning and other probate processes will be discussed. Prerequisite: LEGL 101.

**LEGL 226 Administrative Law** 3-0-3  
Statutory law, case law, and administrative rules will be utilized to develop an understanding of the role and authority of administrative agencies. Particular attention will be paid to social security and workers compensation claims. Prerequisite: LEGL 101.

**LEGL 227 L.A. Practicum II** 0-14-2  
Further work experience in an office or agency providing legal services. Exact duties will be decided upon by the student and administrators of the placement site. Prerequisite: Permission of instructor

**LEGL 228 L.A. Practicum Seminar II** 1-0-1  
Seminar discussion of current work experiences and the development of further strategies for improvement. Prerequisite: Permission of instructor

**LEGL 232 Taxation** 3-0-3  
Fundamentals of state, local and federal tax laws. The agencies and tribunals involved in tax matters will be examined. Specific research strategies and document preparation relative to tax issues are explored. Prerequisite: LEGL 101.

**LEGL 234 Litigation II** 2-2-3  
Building on the knowledge gained in Litigation I, students will examine the role of the attorney in the trial process, case preparation and organization of materials for trial. Students will prepare a hypothetical case for trial. Prerequisite: LEGL 205.

**LEGL 236 Probate Law II** 3-0-3  
The law of guardianship and trusts with emphasis on guardianship administration, land sales and trust accounting. Prerequisite: LEGL 224

**LEGL 238 Insurance Law** 3-0-3  
An introduction to insurance law. The course will include principles of indemnity, interests protected, the transfer of risk and claims processes. Prerequisite: LEGL 101.

**LEGL 243 Alternative Dispute Resolution Issues Seminar (SP)** 3-0-3  
This course is designed to examine legal, ethical, and policy issues that arise in the use of mediation, arbitration, minitrials, summary jury trial and conciliation and to help you develop mediation skills. Prerequisite: LEGL 205.

**LEGL 244 Creditor Debtor Relations (W)** 3-0-3  
Insure that the student is aware of the respective rights of creditors and debtors. An introduction to the pre-legal and legal procedures of debt collection. Prerequisite: LEGL 220.

**LEGL 251 Computer Assisted Legal Research (W,SP)** 2-1-2  
An elective course designed to give the Legal Assisting student exposure to the ever expanding and utilized area of computer assisted research, an alternative to traditional, manual legal research. The student will be required to complete a series of projects within the different libraries of LEXIS in which the student will become proficient with the various uses and functions of electronic legal information retrieval. Lab fee: \$25.00.

**LEGL 261 Business Law I (A,W,SP,SU)** 3-0-3  
Survey of the legal framework of business, the nature of legal systems and the law, including contracts, criminal, and the law of torts. Lab fee: \$1.00.

**LEGL 262 Business Law II (A,W,SP,SU)** 3-0-3  
A continuation of LEGL 261. Exploring the law of agency, corporation, partnerships, and property. Lab fee: \$1.00. Prerequisite: LEGL 261.

**LEGL 263 Business Law III (A,W,SP,SU)** 3-0-3  
An advanced examination of law as it pertains to business with emphasis on specialty areas of the law designed for the protection of business assets including the law of sales, commercial paper and secured transactions under the Uniform Commercial Code; debtor/creditor rights under the laws of bankruptcy; and the use of wills, trusts and estate planning techniques for the protection and transfer of business interest. Lab fee: \$1.00. Prerequisite: LEGL 262.

**LEGL 264 Legal Environment of Business** 4-0-4  
An overview of the American legal system with an introduction to the legal concepts and principles that form its foundation. The course will examine the judicial system and methods of dispute resolution, while focusing on business crimes and torts, including product liability, ethics, contract formation and enforcement, consumer protection, employment law, environmental regulations, business organizations, particularly sole proprietorship, partnerships, and corporations. Students will be able to understand the legal ramifications of their business decisions. Lab fee: \$2.00.

**LEGL 265 Business Law for Accountants** 4-2-5  
An in-depth examination of business law as it applies to the accounting discipline with an emphasis on those topics directly relating to the Business Law section of the Certified Public Accountants Examination, including Professional Responsibility of the C.P.A.

## Literature (See English)

## Marketing Technology (MKTG)

**MKTG 111 Marketing Principles (A,W,SP,SU)** 5-0-5  
The fundamentals of product planning, pricing, promotion and placement of goods and services are the main topics covered. Additional attention is given to consumer behavior, market research, and marketing strategies. Lab fee: \$3.00.

**MKTG 131 Marketing Research Principles (A,S)** 3-0-3  
A project-oriented course designed to introduce the student to the six discrete steps required for conducting marketing surveys. The field of marketing research as a component of the marketing process will be examined as well as cost versus benefit analysis. Lab fee: \$3.00. Prerequisites: MKTG 111 and MATH 101.

**MKTG 140 Advertising and Promotion (A,SP)** 5-0-5  
An introduction to the critical role that advertising and promotion play in marketing activities. Topics covered include promotional program development and analysis, the communications process and evaluating an integrated marketing communications program. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 211 Advanced Marketing (A,SP)** 5-0-5  
Provides marketing majors the opportunity to study marketing in more detail and in a broader perspective than Marketing Principles. The primary focus is on marketing strategies. Students will be required to develop a "marketing plan" based on a select marketing problem of personal choice. Additional topics include: service, non-profit, international, and industrial marketing. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 221 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. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 223 Sales (A,SP)** 3-0-3  
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 of the sale will be taught. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 224 Public Relations (A,SP)** 3-0-3  
Public relations examines both the theoretical and practical factors that contribute to a firm's image among its many publics. The emphasis is on public relations as a function of management as well as an adjunct of promotion. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 226 Customer Service Principles (A,W,SP,SU)** 3-0-3  
A study of customer service principles used in business. Concepts and key elements will be explored. Techniques will be developed for small business applications. Topics include customer service overview, key elements of customer service, trends, industry examples, business impact and legal implications. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 231 Distribution (A,SU)** 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. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor approval.

**MKTG 235 Channel Management (W,SU)** 3-0-3  
The course focuses on channel management emphasizing marketing channel strategy. Students will study marketing channel theory as they relate to product, price, promotion, and distribution decisions. Lab fee: \$3.00. Prerequisite: MKTG 111 or instructor permission.

**MKTG 241 Marketing Internship I (A,W,SP,SU)** 0-40-4  
Supervised on-the-job application of knowledge and skills acquired in the classroom. Lab fee: \$2.00. Prerequisite: Advisor approval required the quarter before the student actually begins the internship. Open to Marketing Technology students only. Concurrent: MKTG 242.

**MKTG 242 Special Problems in Marketing I (A,W,SP,SU)** 0-4-2  
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: \$1.00. Prerequisite: Advisor approval required. Open to Marketing Technology students only. Concurrent: MKTG 241.

**MKTG 251 Marketing Internship II (A,W,SP,SU)** 0-40-4  
Continuation of MKTG 241. Lab fee: \$2.00. Prerequisites: MKTG 241 and advisor approval required the quarter before the student actually begins the internship. Open to Marketing Technology students only. Concurrent: MKTG 252.

**MKTG 252 Special Problems in Marketing II (A,W,SP,SU)** 0-4-2  
Application of marketing knowledge to specific areas of on-the-job internship. Lab fee: \$1.00. Prerequisite: Advisor approval required. Open to Marketing Technology students only. Concurrent: MKTG 251.

**MKTG 297 Special Topics in Marketing (A,W,SP,SU)** 1-3  
Detailed examination of various topics in marketing. Prerequisites vary.

## Legal Office Admin. Major (See Office Administration Technology)

# Mathematics (MATH)

## **MATH 100 Calculations and Dosages (A,W,SP,SU) 2-0-2**

A review of the fundamental operations of arithmetic with fractions and decimal fractions; ratio and proportion calculations; an introduction to the metric and apothecary systems of measures; metric-apothecary conversions; strengths of solutions; and calculating medication dosages; children's dosages; intravenous calculations. Lab fee: \$1.00. Prerequisite: DEV 030 with a grade of "C" or higher, or by placement. Meets degree requirement for the Nursing Technology. Should be taken in the student's second quarter of the Nursing program.

## **MATH 101 Business Mathematics (A,W,SP,SU) 5-0-5**

Ratio, proportion and percents; checking accounts and gross earning; FICA and withholding; sales and property tax; discounts; mark-up and mark-down; simple and compound interest; discounting notes; present value and amortization; and depreciation schedules. An introduction to descriptive statistics: mean, median, mode, and standard deviation. Applications modules using LOTUS 1-2-3. Lab fee: \$4.00. Prerequisite: DEV 031 with a grade of "C" or higher, or by placement. Meets degree requirement for the AAS degree in Business Management and several other technologies.

## **MATH 102 Beginning Algebra I (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 equation; factoring; the rectangular coordinate system, and graphs of linear equations. Lab fee: \$1.00. Prerequisite: DEV 031 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 103 or above.

## **MATH 103 Beginning Algebra II (A,W,SP,SU) 4-0-4**

Systems of linear equations; operations with algebraic fractions; factoring, exponents, radicals, and radical equations; solving quadratic equations by factoring, completing the square, and by formula; inequalities and their graphs. Lab fee: \$1.00. Prerequisite: MATH 102 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 104 or above.

## **MATH 104 Intermediate Algebra (A,W,SP,SU) 5-0-5**

A brief review of real numbers; an introduction to the calculator and functions; function notation; the linear function; solving equations and inequalities; the exponential function; factoring; rational functions and operations with rational expressions; the square root function and operations with irrational expressions; solving quadratic equations; complex numbers; and solving systems of equations. A TI-82 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 112, MATH 113, MATH 130, or MATH 148.

## **MATH 111 Technical Mathematics I (A,W,SP,SU) 3-2-4**

A brief review of scientific notation, roots and radicals, and other algebraic concepts; solutions to linear equations and formulas; ratio-proportion, direct and inverse variation; algebraic functions and rectangular coordinates; solutions to  $2 \times 2$  and  $3 \times 3$  linear systems, including Cramer's Rule; and right triangle solutions. A TI-85 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Meets degree requirement for Electronic Engineering Technology, Mechanical Engineering Technology and Aviation Maintenance Technology.

## **MATH 112 Technical Mathematics II (A,W,SP,SU) 3-2-4**

Periodic functions with emphasis on graphing the Sine and Cosine curves; exponential and logarithm functions; complex numbers, including DeMoivre's Theorem; vectors and oblique triangles using the Law of Sines and the Law of Cosines; and solutions to quadratic equations. A TI-85 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 111 with a grade of "C" or higher. Not open to students with credit for MATH 150. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.

## **MATH 113 Technical Mathematics III (A,W,SP) 3-2-4**

Higher-degree equations, synthetic division, remainder and factor theorems; linear, quadratic, and rational inequalities; trigonometric identities and equations; the straight line, circle, parabola, ellipse, hyperbola, and translation of axes; an introduction to descriptive statistics, including frequency distributions, measures of central tendency and dispersion, and the Normal Distribution. A TI-85 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 112 with a grade of "C" or higher. Not open to students with credit for MATH 150. Meets degree requirement for Electronic Engineering Technology and Mechanical Engineering Technology.

## **MATH 121 Computer Science Math (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 algorithm, flowchart, and pseudocode forms; a comparison of decimal, binary, octal, and hexadecimal numbering systems, conversions, and arithmetic in those systems; definitions, symbols, and operations in set theory; logical operators with truth tables and flowcharts and Boolean Algebra. Lab fee: \$1.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. Meets degree requirement for the Computer Programming Technology, the Computer Electronics major of the Electronic Engineering Technology, and the EDP Auditing major of the Accounting Technology.

## **MATH 125 Mathematics in a Modern World (A,W,SP,SU) 5-0-5**

Mathematics will be used to examine global environmental and population issues. Topics include linear, quadratic, exponential, and logarithmic functions, and their inverses, systems of linear equations and inequalities, matrices, and graphical solutions to linear programming problems. Problems in population, pollution, hunger, energy, waste, etc. will be studied through mathematical modeling. Data will be examined through descriptive statistics using graphical methods, sampling theory, measures of central tendency, measures of variability, and the basic theory of probability. Graphing calculators and computers will be used. Students are expected to write as a form of assessment. Lab fee: \$1.00. Prerequisite: MATH 104 with a grade of "C" or higher. Meets the general education requirement for the AA degree.

## **MATH 130 Business Algebra (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; exponential and logarithmic functions; algebraic solutions to linear and nonlinear systems of equations: matrix solutions to linear systems: business applications throughout. Lab fee: \$1.00. Prerequisite: MATH 104 with a grade of "C" or higher, or by placement. Not open to students with credit for MATH 148 or MATH 150. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

## **MATH 131 Business Calculus I (A,W,SP,SU) 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 business. Lab fee: \$1.00. Prerequisite: MATH 130 or MATH 148 with a grade of "C" or higher, or permission of Mathematics Department. Not open to students with credit for MATH 151. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

## **MATH 132 Business Calculus II (A,W,SP,SU) 5-0-5**

An introduction to integral calculus: anti-differentiation, definite integral, integrals of logarithmic and exponential functions, techniques of integration, fundamental theorem of calculus, area, differential equations, partial derivatives, Lagrange multipliers, and applications of integral calculus to business. Lab fee: \$1.00. Prerequisite: MATH 131 with a grade of "C" or higher. Not open to students with credit for MATH 152. Meets general education requirement for the AA degree for a student planning to transfer to a business college at a four-year university.

## **MATH 135 Elementary Statistics (A,W,SP,SU) 5-1-5**

Descriptive statistics; percentiles and z-scores; probability; binomial and normal distributions; Central Limit Theorem; sample statistics; statistical inference, estimation; testing hypothesis; linear correlation and regression. Microcomputers will be used. Lab fee: \$4.00. Prerequisite: MATH 103 with a grade of "C" or higher, or by placement. A readiness test will be given the first week of classes. Not open to students with credit for MATH 233. Meets degree requirement for the Accounting, Financial Management, Electro-Mechanical Engineering and Quality Assurance Technologies and the Human Resources Management major in the Business Management Technology.

## **MATH 148 College Algebra (A,W,SP,SU) 5-0-5**

The concept of a function is used to analyze linear, quadratic, higher degree polynomial, rational, and radical functions. The function concept is applied to solving related equations, inequalities, and systems of equations. Right triangle trigonometric solutions are discussed. A TI-82 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 104 with a grade of "C" or higher, or by placement. Meets general education requirement for AA degree.

## **MATH 150 PreCalculus (A,W,SP,SU) 5-0-5**

A continuation of the study of functions, including the exponential, logarithmic, and trigonometric functions; triangle trigonometry, analytic trigonometry; the Complex Number System; parametric equations. A TI-82 graphing calculator is required. Lab fee: \$1.00. Prerequisite: MATH 148 with a grade of "C" or higher, or permission of the Mathematics Department. Meets general education requirement for AA degree.

## **MATH 151 Calculus and Analytic Geometry I (A,W,SP,SU) 5-1-5**

An introduction to differential calculus: functions; limits, continuity, derivatives, differentiation rules, derivatives of the trigonometric functions, related rates, extrema, curve sketching, optimization, antiderivatives; applications to problems in science and engineering. Lab fee: \$1.00. Prerequisite: MATH 150 with a grade of "C" or higher, or permission of the Mathematics Department. Meets general education requirement for AS and AA degrees.

## **MATH 152 Calculus and Analytic Geometry II (A,W,SP,SU) 5-1-5**

An introduction to integral calculus: definite integral, area, fundamental theorems of calculus, integration of exponential, logarithmic, trigonometric, inverse trigonometric, and hyperbolic functions, methods of integration; applications of integration to problems in science and engineering. Lab fee: \$1.00. Prerequisite: MATH 151 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

## **MATH 153 Calculus and Analytic Geometry III (A,W,SP,SU) 5-0-5**

A continuation of differential and integral calculus: indeterminate forms and improper integrals, infinite sequences and series, plane curves and polar coordinates, vectors in the plane and in space, analytic geometry in space; applications to problems in science and engineering. Lab fee: \$1.00. Prerequisite: MATH 152 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

## **MATH 190 Freshman Experience in Mathematics (A,W,SP,SU) 0-2-1**

The Freshman Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; recommended for all other Associate of Arts and Associate of Science degree seeking students. Lab fee: \$4.00.

## **MATH 233 Statistics for Business (A,W,SP,SU) 5-1-5**

Numerical and graphical descriptions of sample data; measures of central tendency and dispersion; probability; Bayes' Theorem; the binomial, Poisson, uniform, exponential, and normal distributions; sampling distributions, the Central Limit Theorem. Applications to the business sciences. Microcomputers will be used. Lab fee: \$4.00. Prerequisite: MATH 132 with a grade of "C" or higher. Meets general education requirement for AS and AA degrees.

## **MATH 254 Calculus and Analytic Geometry IV (A,W,SP,SU) 5-0-5**

Introduction to multivariable calculus; vector valued functions and motion in the plane and in

space, functions of several variables, partial derivatives, directional derivatives, gradients, extrema, multiple integrals, line integrals and Green's Theorem; applications to problems in science and engineering. Lab fee: \$1.00. Prerequisite: MATH 153 with a grade of "C" or higher. Meets general education requirement for the AS and AA degrees.

**MATH 255 Elementary Differential Equations I (W,SP)** 5-0-5  
A study of the basic concepts and methods of solving ordinary differential equations, first and second order, higher order linear equations, Laplace transform methods, series solutions, and numerical solutions of differential equations. Applications to the physical sciences and engineering. Lab fee: \$1.00. Prerequisite: MATH 254 with a grade of "C" or higher. Meets general education requirements for AS and AA degrees.

**MATH 256 Elementary Differential Equations II** 5-0-5  
Partial differential equations; boundary value problems; Bessel Functions; orthogonality relations; Fourier series; vibrating string; steady state heat; Laplace transforms; with applications. Lab fee: \$1.00. Prerequisite: MATH 255 with a grade of "C" or higher. Meets general education requirements for the AS and AA degrees.

**MATH 266 Discrete Mathematical Structures** 5-0-5  
Mathematical formalization and reasoning; logic; Boolean algebra; sets, relations, and functions; recursive definitions; mathematical induction; probability theory and counting principles. Lab fee: \$1.00. Prerequisite: MATH 152 with a grade of "C" or higher. Meets general education requirements for the AS and AA degrees.

**MATH 268 Elementary Linear Algebra (W,SP)** 5-0-5  
Linear systems, matrices, and determinants; vector spaces,  $R^n$  and its subspaces; Eigenvalues, Eigenvectors, and applications; orthogonal matrices; linear transformations; and complex scalars; with applications. Lab fee: \$1.00. Prerequisite: MATH 254 with a grade of "C" or higher, or permission of Mathematics Department. Meets general education requirement for the AS and AA degrees.

**MATH 290 Capstone Experience in Mathematics (On Demand)** 2-2-3  
A capstone course focusing on Mathematics. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00.

## Mechanical Engineering Technology (MECH)

**MECH 110 Introduction to Manufacturing Technology (A,SU)** 2-3-3  
This course is designed to introduce the beginning student to the Engineering Technology and basic engineering practices such as drafting, engineering procedures, calculations, terminology, symbols, publications, and professional societies. Emphasis will be placed on manufacturing organizations, employment opportunities and career paths to jobs in the engineering technology professions. Prerequisites: MATH 102 and ENGL 100.

**MECH 111 Manufacturing Processes (A,SU)** 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.

**MECH 112 Computer Applications in Manufacturing** 2-3-3  
An introductory course for Mechanical Engineering Technology students. The course covers knowledge required for successful studies in CAD, CAM, and other computer programming coursework in the Mechanical program. Computer terminology relating to all computers is covered as well as a history of the development of computer hardware and operating system software. Disk operating systems past and present and significant exploration into current operating systems is presented. Lab fee: \$10.00.

**MECH 120 Mechanical Drafting I (W,SU)** 1-5-3  
This course is designed to instruct students in the principles of orthographic, isometric, and oblique projection. Instruction is provided on linework, lettering, dimensioning, sectioning, and applied descriptive geometry. Course focus is placed on making detail drawings. Lab fee: \$10.00. Prerequisite: MECH 110.

**MECH 130 Statics (SP,SU)** 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. Prerequisites: MATH 112 and PHYS 181.

**MECH 131 Hydraulics (SP,SU)** 2-3-3  
This is a course designed to instruct students in the basics of fluid flow and power transmission in hydraulically and pneumatically controlled machines. This course will emphasize the principals of system design and practical uses of hydraulic and pneumatic components for industrial applications. Much of the course is involved in practical lab exercises to demonstrate basic operating principles including piping, pumps, cylinders, and motors. Lab fee: \$10.00. Prerequisite: MATH 102 or equivalent

**MECH 240 Machine Tools (A,SU)** 2-6-4  
This course features hands-on operation of mills, lathes, shapers, grinders, and electronic 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: \$20.00. Prerequisite: MECH 110.

**MECH 241 Mechanical Drafting II (A)** 1-5-3  
This course is a continuation of MECH 120, including advanced drafting practices, industrial standards, and the drawing of machine elements. Lab fee: \$10.00. Prerequisite: MECH 120.

**MECH 242 Strength of Materials (A,SU)** 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: MECH 130.

**MECH 243 Robotics (A)** 2-3-3  
This 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. Prerequisites: MECH 112 and MATH 111.

**MECH 244 Statistical Process Control (W,SP)** 2-3-3  
This course provides a broad overview of statistical process control practices 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. Prerequisite: Placement into MATH 103 or higher; QUAL 240.

**MECH 250 Materials Science (W)** 2-3-3  
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: Placement into MATH 102 or higher.

**MECH 251 Computer Aided Drafting I (W,SP)** 1-5-3  
Introduces students to the basic terminology and fundamental concepts of computer aided drafting. Presents commands and functions applicable to all computer aided drafting systems. Students apply this knowledge to generate orthographic and other two-dimensional mechanical drawings. Lab fee: \$20.00. Prerequisites: MECH 112 and MECH 120.

**MECH 252 Computer Programming for Technicians (W)** 1-5-3  
A course designed to instruct students in the use of Quick Basic and Visual Basic in solving engineering problems. Students will design, flowchart, code, compile, and debug programs in this course. Lab fee: \$10.00. Prerequisites: MECH 112 and placement into MATH 103 or higher.

**MECH 253 Numerical Control (W)** 1-5-3  
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 word address formats, in both absolute and incremental positioning systems. Students will program for state-of-the-art computerized numerical control equipment including mills and lathes. Each student will prepare programs utilizing punched paper tape and magnetic media on computerized equipment. Lab fee: \$15.00. Prerequisite: MATH 112 and MECH 240.

**MECH 260 Basic Mechanisms (SP,SU)** 2-4-4  
Graphical and mathematical study of displacement, acceleration, and velocity of typical mechanisms, including mechanical linkages, cams and followers, gears and gear trains. Lab fee: \$6.00. Prerequisites: MATH 112 and MECH 120.

**MECH 261 Machine Design (SP,SU)** 2-6-4  
The course integrates the principles of design applied to projects involving tooling, jigs, and fixtures, power transmission. Theory is presented with practical applications to promote understanding of mechanical systems. Emphasis is on practical industrial applications. Lab fee: \$15.00. Prerequisites: MECH 131, MECH 241, MECH 242 and EET 102.

**MECH 262 Computer Aided Drafting II (SP,SU)** 1-5-3  
This course is an extension of MECH 251. Course includes the study of practical applications of computer graphics with isometric and two and three dimensional drawing and solids modeling techniques to graphically solve mechanical related problems and to produce mechanical drawings. Lab fee: \$20.00. Prerequisites: MECH 251 and MECH 241.

**MECH 263 Computer Aided Manufacturing (SP)** 2-6-4  
This course provides the manual Numerical Control programmer with an understanding of the basic fundamentals of computer aided manufacturing including instruction in the APT and EZ-CAM computer aided manufacturing language and flexible manufacturing systems. Lab fee: \$15.00. Prerequisites: MECH 252 and MECH 253.

## Medical Laboratory Technology (MLT)

**MLT 100 Introduction to Health Care (A,SP)** 2-2-3  
Introduction to the structure and organization of health care through exploration of the evolution of health care delivery, legal and ethical issues, communications, allied health professions and safety. Lab fee: \$15.00. Prerequisite: Placement into ENGL 102.



**MLT 120 Role and Responsibility of the MLT (W,SU)** 1-2-2  
This course will provide an in-depth examination of the role and responsibilities of the MLT as an important professional in the delivery of quality health care. Discussions will include such topics as professionalism, the general organization and operational activities of a clinical laboratory, and career opportunities for MLT graduates. Students will be exposed to actual clinical settings and meet with practicing laboratory personnel. In addition, students will be introduced to basic laboratory equipment, specimen processing techniques, the application of laboratory math, and the techniques of phlebotomy. Prerequisites: MLT 100 and MLT 141.

**MLT 130 Immunology (W,SU)** 3-4-5  
A study of the immune system, the nature of immune responses, and the application of immunological reactions to a variety of laboratory procedures. Emphasis is placed on the commonly performed serological tests. Also included are discussions of the etiology and diagnosis of immunologically mediated diseases. Upon successful completion of this course the student will be able to perform the routine serological tests during clinical experience. Lab fee: \$80.00. Prerequisite: MLT 141. Concurrent: MLT 120.

**MLT 141 Hematology I (A,SP)** 3-9-6  
An introduction to basic laboratory skills, and the origin, formation, and differentiation of blood formed elements. Included are techniques in counting red cells, white cells, platelets (by both manual and automated methods), reticulocytes, eosinophils, and the preparation and study of normal blood smears. Lab fee: \$80.00. Prerequisite: Admission to the program.

**MLT 180 Special Topics in Medical Laboratory (A,W,SP,SU)** 1-0-1

**MLT 181 Special Topics in Medical Laboratory (A,W,SP,SU)** 2-0-2

**MLT 182 Special Topics in Medical Laboratory (A,W,SP,SU)** 3-0-3  
These courses are independent studies of advanced topics in laboratory management, instrumentation, computerization, hematology, immunology, immunochemistry, microbiology, clinical chemistry, urinalysis, coagulation or phlebotomy. Prerequisite: Permission of Chairperson.

**MLT 220 Immunohematology (A,SP)** 4-12-8  
This course is designed to teach students to perform, according to American Association of Blood Banks (AABB) standards, the routine serological procedures used in any transfusion service or blood bank. Stress is placed on the performance of pretransfusion testing and the recognition of the presence of serological incompatibilities in a patient's specimen. Students will be introduced to the techniques used in the resolution of the most commonly encountered serological difficulties. Class discussions will also include donor blood collection and processing for component therapy, blood transfusion practices, adverse effects of blood transfusion, investigation of transfusion reactions, and fetal-maternal blood incompatibilities. Upon successful completion of this course, the students will be able to perform the routine pretransfusion procedures during clinical experience. Lab fee: \$80.00. Prerequisite: MLT 130 or permission of Chairperson. Open to Medical Laboratory Technology students only.

**MLT 240 Hematology II (W,SU)** 3-6-6  
This course builds on the routine Hematology procedures covered in Hematology I. Blood smears are prepared and studied for the identification of blood cells which aid in the diagnosis of anemias, leukemias, hemoglobinopathies, and other disease states. Also included is the study of coagulation and the routine procedures used to evaluate hemostasis. Upon completion of this course the student will be able to perform routine hematology procedures during clinical experience. Lab fee: \$80.00. Prerequisites: MLT 141 and previous technical courses. Concurrent: MLT 242.

**MLT 242 Body Fluids (W,SU)** 1-2-2  
The physical, chemical, and microscopic evaluation of urine and other nonblood body fluids will be studied. Phlebotomy procedures will also be presented through demonstration and practice sessions. Prerequisites: Previous technical courses. Concurrent: MLT 240.

**MLT 244 Medical Laboratory Case Studies** 1-3-2  
This course provides students with the opportunity to review major technical areas of the curriculum. It is a capstone course in which students demonstrate their abilities to complete work assignments and examinations in each of the major laboratory sections. Students take examinations similar to the Registry Exam and must meet minimum scores. Prerequisite: All technical courses.

**MLT 250 Clinical Microbiology (W,SU)** 4-12-8  
A practical introduction to the laboratory identification of microbial agents associated with disease in man. Students will be instructed in 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. Students who successfully complete this course will be able to perform routine clinical microbiology procedures and evaluate test results in clinical experience. Lab fee: \$80.00. Prerequisites: BIO 115 and previous technical courses.

**MLT 260 Clinical Chemistry (A,SP)** 4-12-8  
This course is a study of the application of biochemistry to laboratory medicine and the understanding of the human in health and disease. Analytical procedures utilized to determine chemical constituents in blood, urine and other body fluids will be presented. The chemical principles of the methods will be discussed as well as the correlation of test results as indicators of presence or absence of disease. Students who successfully complete clinical chemistry will be able to perform routine clinical chemistry procedures and evaluate test results in clinical experience. Lab fee: \$80.00. Prerequisites: CHEM 113 and previous technical courses.

**MLT 270 Clinical Experience** 0-25-5  
Practical experience in area health care facilities in which students are given the opportunity to practice in a laboratory setting under the guidance of laboratory professionals. Students will be placed in one of several clinical affiliates within an approximate 60 mile radius of Columbus. Students will be required to provide their own transportation. Lab fee: \$45.00. Prerequisite: all technical courses. Concurrent: MLT 271.

**MLT 271 Clinical Seminar** 2-0-2  
Informal seminar course covering topics specific to working in a medical laboratory including interpersonal skills, resume writing, employer expectations and activities to prepare students for credentialing examinations. Concurrent: MLT 270.

## Medical Office Admin. Major (See Office Administration Technology)

## Mental Health/Chemical Dependency/Mental Retardation Technology (MHCR)

**MHCR 111 Introduction to Human Services: Mental Retardation/Developmental Disabilities/ Chemical Dependency and Mental Health (A,W,SP)** 4-0-4  
This is an introductory course covering terminology, history, assessment, legal rights, classifications, normalization, community based treatment, medical vs. a human services model and community resources in relation to mental retardation/developmental disabilities chemical dependency and mental health. Students will develop a basic understanding of the needs of those persons with MR/DD, mental health and chemical dependency issues/problems. The student will also visit community agencies serving the MR/DD/MH/CD populations. Beginning concepts related to working with families of persons with disabilities are also covered. Lab fee: \$4.00. Prerequisite: Completion of DEV 031. Prerequisites or concurrents: PSY 100 and ENGL 101.

**MHCR 113 Values and Attitudes** 0-2-1  
This course focuses on the values, beliefs, attitudes and ethical standards necessary in the workplace. Values clarification and self exploration are an integral part of the course. Conducted through a small group experience to facilitate interpersonal understanding. Lab fee: \$4.00. Prerequisites or concurrents: Completion of DEV 031, PSY 100 and ENGL 101.

**MHCR 115 Interviewing in Human Services** 2-2-3  
This introductory course focuses on the development of basic interviewing, rapport building and active listening skills for the beginning student. The student will gain a beginning understanding of the process and principles in establishing effective helping relationships using observation and behavioral writing. Lab fee: \$4.00. Prerequisite: Completion of DEV 031. Prerequisites or concurrents: PSY 100 and ENGL 101.

**MHCR 131 Principles of Behavior Management** 4-0-4  
This core course focuses on behavior management theory and application of positive approaches with a varied client population. This course will reinforce data collection, behavioral analysis, and treatment planning skills. Lab fee: \$4.00. Prerequisites: MHCR 191 and PSY 240. Concurrents: CPT 101 and PSY 230.

**MHCR 133 Case/Program Management** 4-0-4  
This core course is designed to coordinate a clinical experience with (classroom) focus on case management services. Various treatment modalities are presented. The student will practice the skills necessary to conduct effective case management services within a community treatment model. Lab fee: \$4.00. Prerequisites: MHCR 111, MHCR 113 and MHCR 115. Prerequisite or concurrent: MHCR 191. Concurrents: SSCI 101 and PSY 240.

**MHCR 191 Fundamentals in Human Service Practice** 6-14-8  
This is a core course which focuses on the planning process for delivering service to clients which is 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 which provides a range of services. The students will also practice basic skills under close supervision. Lab fee: \$40.00. Prerequisites: MHCR 111, MHCR 113, MHCR 115, PSY 100 and ENGL 101. Concurrent: MHCR 133 and PSY 240.

**MHCR 241 Counseling Skills** 4-0-4  
This core course focuses on the theoretical and practical aspects of effective helping through the counseling relationship. Skills which form the foundation of effective communication using a microtraining model are emphasized. Critical thought and creativity is stressed. Course content includes practicing skills in small study groups, and in role play/simulations. Lab fee: \$4.00. Prerequisites: MHCR 191, ENGL 102 and PSY 240. Concurrents: MHCR 292 or MHCR 293 and ENGL 202.

**MHCR 243 Adjunctive Therapy** 4-0-4  
This course offered as a part of the Mental Health and Mental Retardation track, is designed to provide the student with knowledge of key concepts and specific skills using activities as the tool in helping relationships. The student is exposed to the use of a variety of adjunctive therapies as it facilitates gathering data, assessment and treatment planning for clients. Lab fee: \$4.00. Prerequisites: MHCR 191, ENGL 102 and PSY 240. Concurrents: MHCR 241, MHCR 292 and PSY 230.

**MHCR 245 Chemical Dependency I** 4-0-4  
This is a course in the Chemical Dependency track designed to give the student skills in assessing and treating chemical dependency, co-dependency, and other addictions. The course

will acquaint the student with philosophies of addiction, assessment processes, treatment planning and intervention strategies with the chemical dependent person. It provides an introduction to the effects of chemical dependency on family systems and identifies family treatment strategies. The course addresses the special issues concerning minority groups, elderly, women and youth. The student will be exposed to various community resources, discharge planning, and will be assisted in identifying their own issues and connecting with a 12 step recovery plan. Lab fee: \$4.00. Prerequisites: ENGL 102, PSY 240 and MHCR 191. Concurrents: MHCR 241 and MHCR 293.

**MHCR 251 Social Policy and Programs** 4-0-4  
Social policy and its relationship to the work of the human services professional. An overview of U.S. social welfare institutions: family, church, government, and economical institutions is presented. This second level course examines social welfare policies/programs at national, state, and local levels in areas of housing, health care, and income maintenance. Agency analysis and social action for social change model is emphasized. Lab fee: \$7.00. Prerequisites: MHCR 191, ENGL 102 and CPT 101. Concurrents: MHCR 295 or MHCR 294 or MHCR 296.

**MHCR 253 Therapeutic Group Work Skills** 4-0-4  
This course offered as a part of the Mental Health and Chemical Dependency tracks, is dual focus on knowledge and experiential learning using group as the unit of attention. Course content includes formation, process, stages of development, leadership skills and problematic issues of inpatient and outpatient groups. The student will participate as a member in a peer group to compliment classroom theoretical constructs. Lab fee: \$4.00. Prerequisite: MHCR 241, ENGL 102 and CPT 101. Concurrent: MHCR 295.

**MHCR 255 Principles of Habilitation Programming** 4-0-4  
An advanced course in the Mental Retardation track designed to utilize and focus previous learning into components of habilitation programming for persons with mental retardation and developmental disabilities. The student will learn current philosophical and technical approaches to designing activities. Various implementation strategies will also be presented. The student will review and practice the skills necessary to participate in the habilitation process. Lab fee: \$4.00. Prerequisite: MHCR 241. Concurrent: MHCR 294.

**MHCR 263 Job Coaching/Principles of Work** 4-0-4  
An advanced course in the Mental Health and Mental Retardation tracks designed to focus on principles of work training. The student will learn the components of vocational rehabilitation and job training approaches. The student will practice the skills necessary to provide effective job training for people with disabilities. Lab fee: \$4.00. Prerequisites: MHCR 241 and MHCR 131. Concurrent: MHCR 297.

**MHCR 265 Chemical Dependency II** 4-0-4  
This is an advanced course in the Chemical Dependency track designed to provide the student with the knowledge and skills to collect assessment data, develop treatment plans, do interventions with family/significant others, write discharge summaries and link chemical dependency clients to community resources. Course content will also emphasize issues related to the dual diagnosed chemical dependent client. The student will become a member of a chemical dependency unit/agency treatment team. Lab fee: \$4.00. Prerequisites: MHCR 241, MHCR 245 and MHCR 253. Concurrent: MHCR 296.

**MHCR 274 and 284 Special Studies in MH/CD/MR (On Demand)** 4-0-4  
These two courses are designed to meet specific needs of students who wish to pursue in-depth training in the MH/CD/MR/DD field. Typical subject areas may include theory and skills in helping chemically dependent, severely mentally disabled, 'dual diagnosed', or persons with mental retardation/developmental disabilities. Instructional methods may include clinical experience, seminar format, field placement, lecture, research, videotape and role play. Lab fee: \$10.00.

**MHCR 292 Field Practicum in Adjunctive Therapy** 2-14-4  
This is one of several clinical experiences designed to give the trainee a broad overview of modalities of delivery of MH/MR services using activity as the tool in assessment and treatment planning. This experience gives the trainee an opportunity to observe all components of a facility which provides a range of services, and to practice basic skills under supervision. Lab fee: \$40.00. Prerequisites: MHCR 191 and ENGL 102. Concurrents: MHCR 243.

**MHCR 293 Field Practicum in Chemical Dependency I** 2-14-4  
This is a required clinical experience for the student specializing in Alcohol/Drug Dependency. The training needs of the student are matched to the community agency. The student has had training in the fundamental skills requisite to being an effective helper. The student plans an extended placement of two consecutive quarters in a primary treatment setting to become involved in on-going work with chemically dependent clients. Lab fee: \$40.00. Prerequisites: MHCR 191 and ENGL 102. Concurrent: MHCR 245.

**MHCR 294 Field Practicum in Habilitation Programming** 2-14-4  
A clinical experience for the student, specializing in the Mental Retardation/Developmental Disabilities track, which takes place in a community agency matching the student's interest and training needs. The student will use basic skills of habilitation programming. The student will work in the capacity of a habilitation specialist and is responsible for professional conduct and regular work hours. Lab fee: \$40.00. Prerequisite: Two previous placements. Concurrent: MHCR 255.

**MHCR 295 Field Practicum in Group Work** 2-14-4  
This is a clinical experience for the student in the Mental Health and Chemical Dependency tracks. The student will lead and/or co-lead a group using skills learned in the classroom. The student will assume the role of service provider and demonstrate professional conduct. Lab fee: \$50.00. Prerequisite: MHCR 292 and MHCR 293. Concurrent: MHCR 251.

**MHCR 296 Field Practicum in Chemical Dependency II** 2-14-4  
This is an advanced clinical experience for the student who has chosen to work in the alcohol/drug dependency field. The student will be responsible for collecting data, making assessments

and developing treatment plans, doing intervention with family/significant others of the chemical dependent client. Lab fee: \$40.00. Prerequisite: MHCR 295. Concurrent: MHCR 265.

**MHCR 297 Field Practicum in Job Coaching** 2-14-4  
A clinical experience for the student specializing in mental health/mental retardation which takes place in a community agency matching the student's interests and training needs. The student has a solid grounding in the fundamental skills requisite for being a vocational trainer. The student is expected to assume the role of service provider and is responsible for professional conduct and regular work habits. Lab fee: \$40.00. Prerequisite: Two previous placements. Concurrent: MHCR 263.

## Microcomputing Technology (MCT)

For other required and elective courses in this curriculum see Computer Programming Technology and Office Administration Technology.

**MCT 106 Computer Literacy 2 (A,W,SP,SU)** 2-2-3  
A continuation of CPT 101. This course will introduce the non-computer programming majors to software application packages for word processing, spreadsheets, database management and presentation graphics for the IBM PC. Hands-on experience in the microcomputer lab is emphasized to allow the student to acquire skills which will enable the use of the software mentioned above. Note: This course is not open to students in the Computer Programming Technology. Lab fee: \$20.00. Prerequisite: CPT 101.

**MCT 121 PC Operating Systems (A,W,SP,SU)** 2-3-3  
This course covers an overview of operating systems used with microcomputer systems. Students will learn to use MS/PC-DOS, Windows and other related operating systems. Lab fee: \$25.00. Prerequisite: CPT 101.

**MCT 131 LOTUS 1-2-3 (A,W,SP,SU)** 2-3-3  
A comprehensive study of LOTUS 1-2-3 software package including the use of graphics and macros. Lab fee: \$25.00. Prerequisites: MCT 106, MCT 121 and MATH 102. Not open to Computer Programming Technology students.

**MCT 141 Introduction to Database Systems (A,W,SP,SU)** 2-3-3  
This course presents an overview of Database software, including file creation, screen and report generators. Not open to students in Computer Programming Technology. Computer Programming Technology students should take CPT 221 and CPT 225 instead. Lab fee: \$25.00. Prerequisite: MCT 106 and MCT 121.

**MCT 211 Information Presentation (A,SP)** 2-3-3  
This course is designed to provide students with an understanding of computer graphics and how computer graphics is used to communicate information effectively. Presentation graphics software will be emphasized. Students will learn to select the proper chart format and data content. Students will acquire practical skills by creating pie, line, area, multiple, text and organization charts. The student will learn how to integrate these into a computerized slide show by working in small groups to develop a persuasive presentation. Lab fee: \$25.00. Prerequisite: MCT 131.

**MCT 215 Microcomputer Fundamentals (A,SP)** 2-3-3  
This course provides an overview of micro I/O devices. It includes system operation, configuration maintenance, and related software. Lab fee: \$25.00. Prerequisite: MCT 121.

**MCT 221 Local Area Networks (A,W,SP,SU)** 2-3-3  
An introductory course on Local Area Networks (LANs). This course will explore the current technology available for LANs including both hardware and software. Lab fee: \$25.00. Prerequisite: MCT 121 for Microcomputing Technology students, CPT 105 for Computer Programming Technology students.

**MCT 241 Office Automation (W,SU)** 2-3-3  
This course provides students with knowledge on the automation of office functions. The student will receive practical experience in document management (word processing and document filing/retrieving); electronic transfer of data (graphs & documents); and administrative support (time management, calendars, schedules, directory management and reminders). Lab fee: \$25.00. Prerequisite: MCT 121.

**MCT 245 Introduction to RPG/400 (A,SP)** 2-3-3  
Survey of RPG language for the IBM AS/400 computer system. Lab exercises are used to generate user reports. Not open to students in the Computer Programming Technology. Computer Programming students should take CPT 245 and CPT 246 instead. Lab fee: \$25.00. Prerequisite: CPT 241.

**MCT 251 Introduction to Systems Analysis (W,SP)** 2-3-3  
Covers basic concepts of systems analysis and design with an emphasis on small business systems. Not open to students in the Computer Programming Technology. Computer Programming students should take CPT 211 and CPT 212 instead. Lab fee: \$25.00. Prerequisite: MCT 141.

**MCT 261 Introduction to Programming with BASIC (W,SU)** 2-3-3  
An introduction to programming logic and the BASIC programming language with business applications. Not open to students in Computer Programming Technology. Computer Programming students should take CPT 108. Lab fee: \$25.00. Prerequisites: MCT 106 and MCT 121.

**MCT 281 Final Project (SP,SU)** 2-8-5  
Students will work in small groups or individually to design and develop a typical business system. Not open to students in Computer Programming Technology. Computer Programming students should take CPT 281. Lab fee: \$40.00. Prerequisite: MCT 251.

## Multi-Competency Health Technology (MULT)

**MULT 101 Medical Terminology (A,W,SP,SU)** 2-0-2  
This course includes the presentation of 350 medical terms which students are taught to spell, pronounce and define using an audionym technique.

**MULT 102 Cardiopulmonary Resuscitation (CPR) (A,W,SP,SU)** 1-0-1  
Cardiopulmonary resuscitation including early warning signs of heart attacks and stroke are taught. Students completing the course will be eligible for American Heart Association Certification Course C. Lab fee: \$8.00.

**MULT 103 Responding to Emergencies (A,W,SP,SU)** 1-2-2  
Requirements for Red Cross First Aid Certification including artificial respiration, bleeding control, treatment of shock, and care of fractures are presented. Lab fee: \$10.00.

**MULT 108 Twelve Lead Electrocardiography** 1-2-2  
This course provides students with theory and procedure for performing a twelve lead EKG. Discussion of the instrument and review of anatomy and physiology are included. Lab fee: \$10.00. Prerequisites: Admission to a health and human services technology, CPR certification.

**MULT 110 Basic Electrocardiography (EKG) (A,W,SU)** 5-2-6  
This course is designed to provide basic entry-level skills in cardiovascular technology. The course covers an introduction to health care, anatomy and physiology of the heart, operation of the electrocardiograph and recording of EKG's, cardiac pathology and basic cardiac rhythm recognition skills. Completion of the course qualifies the student to function as an EKG technician, a skill ordinarily utilized in an acute health care setting or physician's office. Lab fee: \$20.00. Prerequisite: Placement into ENGL 101.

**MULT 114 Phlebotomy Practicum II (A,W,SP)** 0-5-1  
This course is designed to be a continuation of MULT 115 by providing an additional 50 hours clinical phlebotomy experience and requiring an additional 50 successful collections. Phlebotomy Practicum II is designed for students who intend to be a professional phlebotomist and will be arranged individually during the first five weeks of the quarter. Lab fee: \$10.00. Prerequisite: MULT 115.

**MULT 115 Phlebotomy (A,W,SU)** 3-9-6  
Blood collection by both venipuncture and capillary puncture techniques, using various equipment are performed in class and in the hospital. Professional ethics and liability, composition and appearance of blood, safety, anticoagulants and clinical relevance of laboratory tests are studied. Problems encountered in phlebotomy, in addition to special specimen collection for transfusion services, blood cultures, coagulation tests, timed tests and the nursery are also reviewed. This course includes a 60 hour clinical experience in a Central Ohio health care facility. Lab fee: \$45.00. Prerequisite: Placement into ENGL 101 and a health statement.

**MULT 116 Venipuncture for Health Care Providers** 1-4-2  
Basic blood collection techniques using vacuum tubes and syringes will be covered and practiced in a laboratory and clinical setting. Emphasis is on basic skills, safety and infection control. Not open to students who have credit for MULT 114 and MULT 115. Lab fee: \$20.00. Prerequisites: Completion of Health Record, Admission to MLT Technology, permission of coordinator.

**MULT 120 Nurse Aide Training Program (A,W,SP,SU)** 5-0-5  
The Nurse Aide Training Program (NATP) is designed to instruct prospective long-term care nurse aides in preparation for State of Ohio testing. The 76 hour NATP course includes 60 hours of classroom and 16 hours of clinical preparation, which meets the requirements for nurse aide training in Ohio. Lab fee: \$30.00.

**MULT 122 Home Health Aide (A,SP)** 4-1-5  
This course uses the curriculum published by the National Home Caring, 1990 Edition. This course contains a generic body of knowledge including home management and personal care information are presented through lecture and lab practicum hours. Lab fee: \$20.00.

**MULT 123 Physician's Office Urinalysis (SP)** 2-2-3  
Physician's Office 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 not intended for Medical Laboratory Students. Lab fee: \$30.00.

**MULT 125 Information Processing Assistant in Health Service Org.** 5-0-5  
This course is designed to create the knowledge base necessary to permit an individual to function as an information processing assistant. The focus is on knowledge, comprehension, application, analysis, synthesis, and evaluation of the role of the information processing assistant in the health service organizations. Lab fee: \$25.00.

**MULT 126 Patient Care Skills I (A,W,SP,SU)** 2-6-4  
Presentation of skills commonly used by patient care technicians in an acute care setting, utilizing both lecture and laboratory. Major topics include: wound care, specimen collection,

airway care, oxygen administration, enteral tubes and elimination assistance. Prerequisites: State tested long term nursing care assistant or permission of instructor.

**MULT 129 Patient Care Skill: Rehabilitation Technique** 3-3-4  
This course provides information and skills using safe, effective techniques in the care of mobility-impaired patients. Discusses the role of the physical therapy and nursing staff use of therapeutic modalities, patient positioning, patient transfer techniques, exercise, ambulation, and utilization of assistive and adaptive equipment for patients with impaired mobility. Lab fee: \$6.00.

**MULT 131 Referral Strategies for Chronically Ill Clients** 2-2-3  
This course introduces the student to the theory and rationale for appropriate referral of clients experiencing chronic physical health problems. The availability and accessibility of community resources for selected health problems will be presented.

**MULT 142 Home Care Skills for Nurses (A,W,SP,SU)** 2-1-1  
This course provides the student with appropriate adaptations of the skills and concepts traditionally used in the hospital care of patients that are now used in the home care setting. Lab fee: \$25.00. Prerequisite: Permission of the instructor or nursing license.

**MULT 160 Tissue Identification (A)** 1-6-3  
A modern day study of histology involves the study of cell and tissue structure in relation to function. Consequently the emphasis of this course will be twofold. The first emphasis will be on learning to recognize various cellular structures and arrangements and applying them to the identification of different tissue sources. The second emphasis will be correlating the tissue identification with function. Study will begin with the single cell then progress through the four basic tissue types, organ structure, and organ systems. Students will spend considerable time examining already prepared tissue sections. This examination will include macroscopic observation with emphasis on microscopic study using the light microscope. Prepared slide examination will be supplemented with other visual aides whenever possible. Lab fee: \$15.00. Prerequisite: MULT 169 or permission of program director.

**MULT 161 Chemistry of Stains I (A)** 3-0-3  
Fixation, processing and staining of tissue is discussed. The theory behind each process and the purpose of each process is defined with specific technical details related to the staining of each type of tissue. Prerequisite: MULT 169 or permission of program director. Concurrent: MULT 163.

**MULT 162 Chemistry of Stains II (W)** 2-0-2  
Continuation of MULT 161. First term. Prerequisite: MULT 161 or permission of program director. Concurrent: MULT 164.

**MULT 163 Basic Histology Techniques I (A)** 0-12-4  
This course provides laboratory practice in all phases of the practice of histology. Lab fee: \$65.00. Prerequisite: MULT 169 or permission of program director.

**MULT 164 Basic Histology Techniques II (W)** 0-9-3  
Continuation of MULT 163. First term. Lab fee: \$45.00. Prerequisite: MULT 163 or permission of program director. Concurrent: MULT 162.

**MULT 165-166 Seminar I and Seminar II (W,SP)** 1-0-1  
This course is concurrent with the clinical experience and includes instruction on preparation for employment, taking the registry and preparation of specimens for the registry exam. Case studies are presented and prepared by the students to demonstrate the total histological process. Prerequisites: MULT 161 and MULT 163.

**MULT 167 Histology Clinical Experience I (W)** 0-16-4  
The student will attend three (3) different clinical facilities 32 hours per week for 17 weeks including two weeks at Battelle Research Institute. During this time, the student will perform all functions in the clinical site as a histology technician. Lab fee: \$15.00. Prerequisite: MULT 162 or permission of program director. Concurrent: MULT 165.

**MULT 168 Histology Clinical Experience II (SP)** 0-32-8  
Continuation of MULT 167. Lab fee: \$15.00. Prerequisite: MULT 167 or permission of program director. Concurrent: MULT 166.

**MULT 169 Introduction to Histology (SU)** 0-6-2  
The student will be introduced into the laboratory environment and histology profession. The major areas of study will include instrumentation, laboratory safety (including state and federal regulations), and laboratory mathematics as they apply to reagent preparation in the histology laboratory. Lab fee: \$55.00. Prerequisite: permission of program director

**MULT 171 Current Issues: HIV Infection (A,W,SP,SU)** 1-0-1  
Introductory course covering the psycho social, legal, epidemiologic issues surrounding HIV infection.

**MULT 172 Instructor HIV/AIDS Course** 0-2-1  
In-depth study of the implications of HIV virus in society in which students complete requirements for the Red Cross HIV/AIDS Instructor Certification. Include Red Cross Instructor Candidate Training Course. Prerequisite: MULT 171.

**MULT 174 Personal Health (A,W,SP,SU)** 3-0-3  
The study of health issues which affect Americans today and in the future; to establish a basis for positive health and efficiency through consideration of various factors which affect health.

**MULT 180 Professionalism for Health Care Providers** 2-0-2  
The Code of Ethics for each of the technologies is reviewed. Concepts of death and dying, patient as consumer, professional standards of behavior and team work are addressed. Lab fee: \$2.00. Prerequisites: Admission to a Health and Human Services Technology. Concurrent: ENGL 101.

**MULT 270 Human Resource Management for Health Services** 4-0-4

The focus of this course is the application, analysis, synthesis, and evaluation of human resource management principles and practices for health care managers. Practical application to past and current life/work experience is provided and emphasized. Case studies are used as simulations to provide future application in the real work setting.

**MULT 272 Health Care Resource Management** 4-0-4

This course is designed to provide management approaches to health care resources (budget, equipment, supplies, etc.). It is intended for health care managers with limited financial skills.

**MULT 274 TQM/UM/Accreditation** 4-0-4

This course prepares health care professionals to apply, analyze, synthesize, and evaluate principles and practices of Total Quality Management (TQM), Utilization Management (UM), and Accreditation. TQM focuses on methods and systems to identify and resolve problems that interfere with optimal care and explore continuous quality improvement processes. UM enlightens the health care manager to their essential involvement in the review process and examines the meaning of utilization review to institutional performance. Accreditation process is presented in a practical manner to approach a very complex concern of health care managers. Health care managers will be more knowledgeable of and compliant with external accreditation processes. Prerequisites: ENGL 101, COMM 110, and BMGT 218.

**MULT 276 Legal Aspects and Risk Management** 3-0-3

This course is designed to provide the student with an overview of the legal aspects and risk management of the health care system. It is intended for health care practitioners preparing to enter supervisory positions. Prerequisites: ENGL 101, COMM 110, and BMGT 218.

## Music (MUS)

**MUS 101 History of Western Music (A,W,SP,SU)** 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 musical 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 Associate of Arts and Associate of Science Degree programs and distributive transfer requirements in History, Humanities and the Arts. Lab fee: \$8.00. Prerequisite: Placement into ENGL 101.

**MUS 299 Special Topics in Music (On Demand)** 1-5

Detailed examination of selected topics in music. Lab fee: \$2.00. Prerequisites vary.

## Natural Science (NSCI)

A mandatory safety lesson (normally given in the laboratory) must be completed before the student is admitted to certain natural science laboratory sessions. Approved safety goggles are required for some laboratory sessions and may be purchased through the Bookstore. Attendance during the first week of class is mandatory and may affect a student's continued enrollment in these classes.

**NSCI 101 Natural Science I (A,W,SP,SU)** 4-3-5

This course covers the evolution of the physical and biological sciences from antiquity to the modern era. Topics include early ideas of the physical world, the principles of mechanics and optics, microscopy and its role in the development of cell theory, germ theory, the atomic nature of matter, and the classification and bonding of the elements. Related laboratory and demonstrations. Safety training and goggles are required for the chemistry laboratory. Lab fee: \$18.00. Prerequisite: Placement into ENGL 101.

**NSCI 102 Natural Science II (A,W,SP,SU)** 4-3-5

A continuation of NSCI 101. Topics include the laws of chemical combination, chemical reactions, evolution and natural selection, the diversity of life and ecology, the concept of energy, heat and thermodynamics, kinetic theory, electricity and magnetism, the nature of light, and quantum mechanics. Related laboratory and demonstrations. Safety training and goggles are required for the laboratory. Lab fee: \$19.00. Prerequisite: NSCI 101 or equivalent.

**NSCI 103 Natural Science III (A,W,SP,SU)** 4-3-5

This course integrates the study of chemistry and biology with an emphasis on topics which have had an impact on the development of science in the twentieth century. Topics include the ways scientists communicate information, the modern advances of organic chemistry and biochemistry, protein synthesis, the processes of mitosis and meiosis, and genetics. Discussions cover scientific information as well as any ethical and moral implications of scientific advances. Related laboratory and demonstrations. Safety training and goggles are required for the laboratory. Lab fee: \$19.00. Prerequisite: NSCI 102 or equivalent or permission of instructor.

**NSCI 190 Freshman Experience in Natural Science (A,W,SP,SU)** 0-2-1

The Freshmen Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; recommended for all other Associate of Arts and Associate of Science degree seeking students. Lab fee: \$4.00.

## Nursing Technology (NURS)

**NURS 101 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. The wellness-illness continuum and stress/adaptation concepts are discussed in relation to health promotion. An overview of the nursing process is presented including the relationship to communication theory and teaching/learning concepts. The human needs focus for clients of all ages will be: safety and security, activity, rest and sleep, the external environment, love and belonging. Lab fee: \$25.00. Prerequisite: Admission to the Nursing Technology. Concurrents: CHEM 113, BIO 161 and ENGL 101.

**NURS 102 Nursing Concepts of Wellness I (W,SU)** 2-12-6

The student is introduced to the role of the Associate Degree Nurse within the acute care facility. Maslow's physiological needs for air, food and fluids, internal environment (sensation and communication) and external environment (skin integrity) are critically examined using the nursing process approach. Learning opportunities are provided to expand the skills of assessment, diagnosing, planning, implementation, and evaluation which support wellness. Lab fee: \$40.00. Prerequisites: NURS 101, CHEM 113, BIO 161 and ENGL 101. Concurrents: NURS 103, BIO 169 and MATH 100.

**NURS 103 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. Drug classifications and their relationship to the concepts of health, society and nursing will be emphasized. Lab fee: \$10.00. Prerequisites: NURS 101, CHEM 113, BIO 161 and ENGL 101. Concurrents: NURS 102, BIO 169 and MATH 100.

**NURS 104 Nursing Concepts of Wellness II (A,SP)** 2-12-6

The student has the opportunity to apply knowledge and skills in providing care for clients and families during the childbearing process. Sexuality as a need of holistic man is explored. All human needs are reviewed and incorporated into plans of care. The student develops the ability to use the nursing process to promote health with childbearing clients and families. Lab fee: \$40.00. Prerequisites: NURS 102, NURS 103, BIO 169 and MATH 100. Concurrents: PSY 240 and BIO 115.

**NURS 109 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: Examination credit in designated nursing courses.

**NURS 201 Nursing Concepts of Health Alterations I (W,SU)** 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 concepts of growth and development. The 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: \$45.00. Prerequisites: NURS 104, PSY 240 and BIO 115. Concurrents: PSY 100 and ENGL 202.

**NURS 202 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 adaptation and optimal wellness in pediatric and adult clients and their families in the acute care facility. Lab fee: \$45.00. Prerequisites: NURS 201, ENGL 202 and PSY 100. Concurrents: HUM 111, HUM 112, HUM 113, HUM 151 or HUM 152.

**NURS 203 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 (trust), love and belonging, self-esteem, and self-actualization are related to the mental health-illness continuum. Each phase of the nursing process is utilized in providing holistic care for clients. Clinical and laboratory experiences are provided in hospital and community care settings. Students are encouraged to explore their own adaptive behaviors in order to enhance personal and professional growth. Lab fee: \$25.00. Prerequisites: NURS 202, HUM 111, HUM 112, HUM 113, HUM 151 or HUM 152. Concurrents: COMM 105 or COMM 110; SSCI 101, SSCI 102, SSCI 103 or SSCI 104.

**NURS 205 Role and Function of the Associate Degree Nurse (A,SP)** 2-21-9

The purpose of the course is to synthesize concepts from previous courses and apply them to nursing practice. The student is introduced to concepts for managing nursing care for groups of clients. Opportunities are provided for students to demonstrate progression from student nurse role to the role of the Associate Degree Nurse. Lab fee: \$35.00. Prerequisites: NURS 203, COMM 105 or COMM 110; SSCI 101, SSCI 102, SSCI 103 or SSCI 104. Concurrents: NURS 206 and ENGL 102.

**NURS 206 Perspectives in Nursing (A,SP)** 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 Community College Nursing Technology philosophy and knowledge gained during the past six quarters. This synthesis will lead the student to develop a personalized philosophy of Associate Degree Nursing. Lab fee: \$10.00. Prerequisite: NURS 203. Concurrents: NURS 205 and ENGL 102.

# Office Administration Technology (OADM)

**OADM 101 Business Grammar Usage (A,W,SP)** 2-3-3  
This course is a structured program reviewing all eight parts of speech in detail. In addition, it is designed to assist the student to become skillful in sentence analysis, word choice, punctuation, vocabulary, capitalization, number expression, and spelling.

**OADM 102 Editing Business Documents (W,SP)** 2-3-3  
Editing Business Documents is a course which has application for anyone who writes, edits, or prepares final copy for distribution or publication. Includes basic rules regarding grammar usage and aspects of style, as well as techniques and procedures for producing many different kinds of written communications. In addition to editing and proofreading at the computer, letters, memos, reports, tables, and a wide variety of other business documents will be formatted. Lab fee: \$3.00. Prerequisites: OADM 101, and OADM 132 or permission of instructor.

**OADM 111 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 analysis of business transactions, journalizing, posting, adjusting and closing entries, and financial statement preparation. Also included are transactions involving payroll accounting, bank accounts, and cash funds.

**OADM 121 Records Management (A,W,SP)** 2-3-3  
This course is designed to provide knowledge of efficient handling of business records, ARMA filing methods and systems, and principles for the selection of records systems and supplies.

**OADM 131 Typing I (A,W,SP,SU)** 2-3-3  
An introductory interactive system of keyboarding by touch and applications using microcomputers and software; development of basic keyboarding skills measured in words per minute and accuracy of one error per minute. To receive credit for this course, students must (a) practice all keyboarding lessons in assigned text, and (b) be able to type at least two different three-minute timings, each demonstrating minimum speed of 25 words a minute with accuracy of three errors or less. Lab fee: \$3.00.

**OADM 132 Typing II (A,W,SP,SU)** 2-3-3  
An intermediate interactive system of reinforcing keyboarding skills by touch and applications using microcomputers and software designed to teach formats for business correspondence, tabulations, and manuscripts with emphasis on correct techniques, proofreading, decision-making skills, and accuracy; further development of keyboarding speed measured in words per minute and accuracy of one error per minute on three-minute timings. To receive credit for this course, students must demonstrate assigned formatting skills and be able to type at least two different three-minute timings, each demonstrating minimum speed of 35 words a minute with accuracy of three errors or less. Lab fee: \$3.00. Prerequisite: OADM 131.

**OADM 133 Typing III (W,SP,SU)** 2-3-3  
An advanced interactive system of reinforcing keyboarding skills by touch and applications using microcomputers and software designed to teach business correspondence, tabulations, manuscripts, reports, and various business forms with emphasis on correct techniques, proofreading, decision-making skills, and accuracy; further development of keyboarding speed measured in words per minute and accuracy of one error per minute on five-minute timings. To receive credit for this course, students must demonstrate assigned formatting skills and be able to type at least two different five-minute timings, each demonstrating minimum speed of 45 words per minute with accuracy of five errors or less. Lab fee: \$3.00. Prerequisite: OADM 132.

**OADM 139 Typing Improvement (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 straight-copy material. Lab fee: \$2.00. Prerequisite: OADM 131.

**OADM 151 Machine Transcription (SP,SU)** 3-2-4  
This course is designed to develop skill 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 is on the fundamentals of English in grammar, spelling, and vocabulary will reinforce transcription skills. Lab fee: \$3.00. Prerequisite: OADM 132. Concurrent: OADM 133.

**OADM 161 Data Entry Database Management (W,SU)** 2-3-3  
The student will create databases using a Window's computer application, enter data, retrieve records, and generate appropriate reports. Development of data entry skills are measured in key strokes per hour and percentage of accuracy. Lab fee: \$4.00.

**OADM 162 WordPerfect I (A,W,SP,SU)** 2-3-3  
Provides a solid foundation in this popular word processing software (Ver. 5.1). Covers basic to advanced features, including macros, merge, sort, and document assembly. Requirement: 35 wpm touch typing skill. Lab fee: \$5.00.

**OADM 163 WordPerfect II (A,W,SP,SU)** 2-3-3  
Assists the user of WordPerfect in learning advanced features such as styles, tables, math calculations, and importing spreadsheets. Includes desktop publishing functions and how to use them to create documents. Lab fee: \$5.00. Prerequisite: OADM 162.

**OADM 164 WordPerfect for Windows I (A,W,SP,SU)** 2-3-3  
Provides a solid foundation for this word processing software. Covers basic to advanced features including the use of Button Bar, Ruler, and File Manager and featuring parallel

treatment of WordPerfect's three user interfaces. Lab fee: \$5.00. Requirements: 35 wpm touch typing skill.

**OADM 165 WordPerfect for Windows II (A,W,SP,SU)** 2-3-3  
Covers such special features as using multiple windows, merging, macros, envelopes and labels, sorting and selecting, columns, tables, desktop publishing, style sheets, and manuscripts. Lab fee: \$5.00. Prerequisite: OADM 164.

**OADM 167 Desktop Publishing Using Pagemaker (A,W,SP,SU)** 2-3-3  
Principles of design and hands-on experience with PageMaker. Lab fee: \$20.00. Requirements: 35 wpm typing skill and knowledge of a personal computer in general, DOS, and word processing.

**OADM 171 Lotus 1-2-3 Basics (A,W,SP,SU)** 2-3-3  
A foundation course in spreadsheets for office workers (DOS version). Covers major features of the program, including macros, graphs, and database functions. Requirement: Basic typing skill including numbers. Lab fee: \$5.00.

**OADM 172 Lotus 1-2-3 Basics for Windows (A,W,SP,SU)** 2-3-3  
A foundation course in Lotus 1-2-3 for Windows for office workers. Covers major features of the program plus macros, graphs, and database functions. Lab fee: \$5.00.

**OADM 181 Windows** 2-3-3  
Introduction to Windows, a graphic user interface (GUI), which allows users to interact with computers using icons and simple menu items instead of the command line statements required in DOS. Includes such features as the Control Panel, the Program Manager, the File Manager, the Print Manager, and Windows accessories (Write, Paintbrush, Recorder, Notepad, Cardfile, Character Map, and Calendar). Lab fee: \$5.00.

**OADM 211 Office Management (A,SU)** 4-1-4  
This course includes an introduction to human relationships in business organizations, communication skills, motivational skills, management styles and objectives, business ethics, and organizational challenges.

**OADM 221 Executive Office Procedures I (A)** 5-5-7  
Development of skills pertaining to secretarial work with emphasis this quarter on strengthening keyboarding and production abilities, conducting a job search, reviewing grammar and communication skills, and learning about current office procedures. Lab fee: \$5.00. Prerequisites: OADM 151 and OADM 133.

**OADM 222 Executive Office Procedures II (W)** 5-5-7  
Development of skills including keyboarding, transcription from hand-written copy and transcribers, composing correspondence, using a telephone system efficiently and taking accurate messages, managing calendars and scheduling appointments, setting priorities, and handling mail. Students will continue to develop and refine their skills with WordPerfect and will learn to use Lotus 1-2-3. Lab fee: \$5.00. Prerequisite: OADM 221.

**OADM 223 Executive Office Procedures III (SP)** 5-5-7  
Continuation of executive skill development with emphasis on mailability of all types of documents. Students will learn to use the features of a database program and to prepare graphics for presentations. Students will continue to compose correspondence and will learn to plan meetings and make travel and conference arrangements. Lab fee: \$5.00. Prerequisite: OADM 222.

**OADM 224 Executive Office Field Experience I (W)** 0-24-2  
The student is employed for approximately 24 hours a week in an office position that will provide application of as many of the theories taught in the office administration program as is practical for each individual. The on-the-job field experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisite: OADM 221.

**OADM 225 Executive Office Field Experience II (SP)** 0-24-2  
A continuation of OADM 224. The student continues to apply what has been learned in the classroom to tasks and situations encountered at work. The on-the-job field experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisite: OADM 224.

**OADM 231 Legal Office Procedures I (A)** 5-5-7  
Introduction to court systems, types and sources of law, client documents, and civil litigation procedures and terminology. Review of typing skills, spelling, grammar, telephone and mailing procedures. Lab fee: \$5.00. Prerequisites: OADM 151 and OADM 133.

**OADM 232 Legal Office Procedures II (W)** 5-5-7  
This course will continue to upgrade students' typing and grammar skills and introduce students to legal transcription. Students will study criminal, appellate, corporate, and real estate law documents, procedures, and applicable terminology. Students will also become acquainted with various legal texts in preparation for developing basic research skills. Lab fee: \$5.00. Prerequisite: OADM 231.

**OADM 233 Legal Office Procedures III (SP)** 5-5-7  
This capstone course will continue to emphasize typing and grammar skills. Students will study the appeals process of the United States Supreme Court. Students will be introduced to timekeeping and billing procedures, docket control, legal ethics and citation form. Bankruptcy law, domestic law, and probate law will also be introduced, along with applicable documents and procedures. Lab fee: \$5.00. Prerequisite: OADM 232.

**OADM 234 Legal Office Field Experience I (W)** 0-24-2  
The student is placed in a secretarial position, preferably legal in nature. The on-the-job experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisite: OADM 231.

**OADM 235 Legal Office Field Experience II (SP)** 0-24-2  
A continuation of OADM 234. The student is placed in a secretarial position. The on-the-job experience is supervised by a field experience coordinator to aid in the student's growth and development. Prerequisite: OADM 234.

**OADM 241 Medical Office Procedures I (A)** 5-5-7  
Development of skills essential to the medical office including a complete review of typing, transcription, grammar, and proofreading. A study of medical terminology and office procedures including medicolegal responsibilities, receptionist duties, telephone procedures, appointment scheduling, patient records, job-seeking skills, and medical reports transcribed using WordPerfect. Lab fee: \$5.00. Prerequisites: OADM 151 and OADM 133.

**OADM 242 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: \$5.00. Prerequisite: OADM 241.

**OADM 243 Medical Office Procedures III (SP)** 5-5-7  
Continuation of OADM 242 skill development and medical terminology. Also to include accounting, payroll procedures, accident and health insurance, computerized medical office management, and transcription of medical reports. To receive credit for this course, students must have also met the following minimum skill competency in typing: five-minute timings at a minimum speed of 60 wpm passed twice with 5 or fewer errors. Lab fee: \$5.00. Prerequisite: OADM 242.

**OADM 244 Medical Office Field Experience I (W)** 0-24-2  
The student is placed in an office position, preferably in a medical environment. The on-the-job experience is supervised by a field experienced coordinator to aid in the student's growth and development. Prerequisite: OADM 241.

**OADM 245 Medical Office Field Experience II (SP)** 0-24-2  
A continuation of OADM 244. The student is placed in an office position. The on-the-job experience is supervised by a field experienced coordinator to aid in the student's growth and development. Prerequisite: OADM 244.

**OADM 297 Special Topics in Office Administration (On Demand)** 1-3  
Detailed examination of selected topics of interest in office administration. Lab fee: \$20.00 Prerequisites vary.

## Philosophy (PHIL)

**PHIL 101 Introduction to Philosophy (A,W,SP,SU)** 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 Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy and humanities. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**PHIL 130 Ethics (A,W,SP,SU)** 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 the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy and humanities. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**PHIL 150 Introduction to Logic (A,W,SP,SU)** 5-0-5  
An introduction to formal critical thinking and the methods of inductive, deductive and symbolic logic. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy, humanities, and, in some instances, mathematics and science. Check with your academic advisor. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**PHIL 250 Symbolic Logic (On Demand)** 5-0-5  
A presentation of deductive logic focused on propositional logic, natural deduction and predicate logic. This course develops in greater detail principles of deductive logic covered in PHIL 150. Meets elective requirements in the Associate of Arts and Associate of Science degree programs and distributive transfer requirements in philosophy, humanities, and in some cases, mathematics and sciences. Check with your academic advisor. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**PHIL 270 Philosophy of Religion (On Demand)** 5-0-5  
An introduction to the major issues in the philosophy of religion including the existence of God, faith and reason, the problem of evil, miracles, death and immortality, and God and morality. Meets elective requirements in the Associate of Arts and Associate of Science programs. Lab fee: \$2.00. Prerequisite: Placement into ENGL 101.

**PHIL 290 Capstone Experience in Philosophy (On Demand)** 2-2-3  
A capstone course focusing on philosophy. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00.

**PHIL 299 Special Topics in Philosophy** 1-5  
Detailed examination of selected topics in philosophy. Lab fee: \$2.00. Prerequisites vary.

## Physics (PHYS)

**PHYS 100 Introduction to Physics (A,W,SP,SU)** 3-3-4  
A survey of the basic concepts of physics with emphasis on energy and its various forms. Topics include mechanics, heat, electricity, and waves. Related laboratory and demonstrations. Lab fee: \$10.00. Prerequisites: MATH 102 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117, PHYS 118, PHYS 177, PHYS 178, PHYS 181, PHYS 182, PHYS 183, or PHYS 185.

**PHYS 117 College Physics (Mechanics and Heat) (A,W,SP,SU)** 4-3-5  
A study 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, calorimetry, and heat transfer. Related laboratory and demonstrations. Lab fee: \$11.00. Prerequisites: MATH 148 or MATH 111 or equivalent, placement into ENGL 101. Not open to students with credit for PHYS 177 or PHYS 178. This course and PHYS 118 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

**PHYS 118 College Physics (Electricity, Magn. and Light)(A,W,SP,SU)** 4-3-5  
A continuation of PHYS 117. Topics in classical electricity and magnetism include electric potential, current and resistance, dc circuits, magnetic forces and fields, and electromagnetic induction. The nature of light is introduced and the principles of geometrical and physical optics, including optical instruments, are treated. Related laboratory and demonstrations. Lab fee: \$10.00. Prerequisites: PHYS 117, and MATH 150 or MATH 112 or equivalent. Not open to students with credit for PHYS 177, PHYS 178 or PHYS 179.

**PHYS 119 College Physics (Modern Physics) (A,W,SP)** 4-3-5  
A continuation of PHYS 118. Topics include alternating current, electromagnetic waves, kinetic theory of gases, thermodynamics, and modern physics. The major emphasis of the course is on topics in modern physics, including special relativity, quantum mechanics, atomic and nuclear physics, nuclear radiation, and nuclear energy. Related laboratory and demonstrations. Lab fee: \$10.00. Prerequisites: PHYS 118. Not open to students with credit for PHYS 177, PHYS 178 or PHYS 179.

**PHYS 177 General Physics I (A,W,SP,SU)** 4-3-5  
A course in the fundamental principles of mechanics for physics majors and engineers. 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: \$11.00. Prerequisites: MATH 151, high school physics or PHYS 100 recommended and placement into ENGL 101. This course and PHYS 178 provide a two-quarter sequence in physical science that will fulfill the elective requirement for the Associate of Science Degree.

**PHYS 178 General Physics II (A,W,SP,SU)** 4-3-5  
A continuation of PHYS 177. 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: \$10.00. Prerequisite: PHYS 177 and MATH 152.

**PHYS 179 General Physics III (A,W,SP,SU)** 4-3-5  
A continuation of PHYS 178. 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: \$10.00. Prerequisite: PHYS 178 and MATH 153.

**PHYS 181 Technical Physics (Mechanics) (A,W,SP,SU)** 3-3-4  
A course in the basic principles of mechanics. Major topics include equilibrium or rigid bodies, particle motion, Newton's laws of motion, work and energy, conservation principles, and rotational motion. Related laboratory and demonstrations. Lab fee: \$10.00. Prerequisite: MATH 111 or MATH 148 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

**PHYS 183 Technical Physics (Properties of Matter) (W,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: \$10.00. Prerequisites: MATH 111 or MATH 148 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

**PHYS 185 Technical Physics (Heat, Light, Sound) (A,W,SP,SU)** 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, solid-state theory, electronics, and acoustics. Related laboratory and demonstrations. Lab fee: \$12.00. Prerequisites: MATH 112 or equivalent, and placement into ENGL 100. Not open to students with credit for PHYS 117 or PHYS 177.

**PHYS 290 Capstone Experience in Physics (On Demand)** 4-3-5  
An integrated science course blending elements of chemistry, physics and biology. Topics include the historical development of the sciences, ethical issues in science and how they affect the advancement of scientific thought, and the scientific method as it relates to experimental

design and interpretation of scientific results. The laboratory utilizes an investigative approach taking students through the process of identifying a research problem, conducting a literature review, writing a research proposal, collecting and analyzing data, writing a scientific paper and presenting results. Lab fee: \$18.00. Prerequisites: 75 hours or more of course work completed with a minimum of 20 credit hours within the sciences. This course is required for all physics majors seeking either the Associate of Arts or Associate of Science degree.

## Political Science (POLS)

**POLS 101 Introduction to American Government (A,W,SP,SU)** 5-0-5  
An introduction to the nature, purpose and structure of the American political system. Attention will be given to the institutions and processes that create public policy. The strengths and weaknesses of the American political system will be discussed, along with the role of citizens in a democracy. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**POLS 165 Introduction to Politics (A,W,SP,SU)** 5-0-5  
An introduction to the basic concepts and issues in the study of politics. The course will compare various political institutions, ideologies, and economic systems; examine political socialization and culture; explore methods of resolving international conflict and explain the impact of modern bureaucracies on policy-making. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**POLS 290 Capstone Experience in Political Science (On Demand)** 2-2-3  
A capstone course focusing on political science. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in political science.

**POLS 293 Independent Study in Political Science** 1-5  
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. Lab fee: \$4.00. Prerequisite: Permission of the Instructor and the Chairperson.

**POLS 299 Special Topics in Political Science** 1-5  
Detailed examination of selected topics of interest in political science. Lab fee: \$4.00. Prerequisites vary.

## Psychology (PSY)

**PSY 100 Introduction to Psychology (A,W,SP,SU)** 5-0-5  
An introductory course that provides an overview of the origins, growth, content and applications of psychology, including the application of the scientific method in treatment of the following topics: research methodology; beginning statistics and theories of physical, cognitive, moral and emotional development; sensation; perception; learning; motivation; intelligence; memory; personality; coping processes; abnormality and adjustment; and the individual in small groups and a pluralistic society. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**PSY 230 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-IV). The course illuminates the classification scheme of diagnoses, listing descriptive terms and symptoms of all diagnoses. Research, major perspectives, and myths in the field of mental health will be examined. Lab fee: \$5.00. Prerequisite: PSY 100 and placement into ENGL 101.

**PSY 235 Psychology of Adjustment (On Demand)** 3-0-3  
Psychological factors which influence individual growth, development, and behavior will be explored. Current theoretical approaches to understanding and achieving self-awareness, application of conditioning and motivation techniques to behavior modification, group dynamics, methods of self-help, and methods of improving interpersonal communications and relationships will be investigated. Lab fee: \$5.00. Prerequisite: PSY 100 and placement into ENGL 101.

**PSY 240 Human Growth and Dev. Through the Life Span (A,W,SP,SU)** 4-0-4  
A survey of developmental change from conception to death. The course covers the following stages of human growth and development: conception and prenatal growth, infancy, childhood, adolescence, adulthood, and death. This course focuses on physical, social, emotional and cognitive development. Lab fee: \$5.00. Prerequisite: PSY 100 and placement into ENGL 101.

**PSY 261 Introduction to Child Development (A,W,SP,SU)** 5-0-5  
Study of the nature, nurture, and development of children from conception through eight years of age. The traditional child development approach is utilized with emphasis upon physical, cognitive, social, emotional, and language development. Observation of children is an integral part of the course. Lab fee: \$5.00. Prerequisites: PSY 100 and placement into ENGL 101.

**PSY 267 Social Psychology (On Demand)** 5-0-5  
An introductory course that provides an overview of the origins, growth, content, and application of individuals in social settings, including the application of the scientific method

and cultural influence in the treatment of the following topics: attitudes and attitude change, attribution, social identity (self and gender), social perception (understanding others), social cognition (thinking about others and their social environment), prejudice and discrimination, non-verbal communication, obedience to authority, conformity, aggression, prosocial behavior, interpersonal attraction, and behavior in groups. Lab fee: \$5.00. Prerequisite: PSY 100 and placement into ENGL 101.

**PSY 290 Capstone Experience in Psychology (on Demand)** 2-2-3  
A capstone course focusing on psychology. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in psychology.

**PSY 293 Independent Study in Psychology (On Demand)** 1-5  
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. Lab fee: \$4.00. Prerequisite: Permission of the Instructor and the Chairperson.

**PSY 299 Special Topics in Psychology (On Demand)** 1-5  
Detailed examination of selected topics of interest in psychology. Lab fee: \$4.00. Prerequisites vary.

## Purchasing Major (See Business Management Technology)

## Quality Assurance Technology (QUAL)

For Statistical Process Control, see MECH 244 in the Mechanical Engineering Technology course descriptions. For other related course descriptions, see Electronic Engineering Technology and Mechanical Engineering Technology.

**QUAL 120 Engineering Drawing Interpretation (W,SU)** 2-2-3  
This course is an introduction to the proper use and interpretation of lines, symbols, abbreviations, and terminology of engineering drawings. Emphasis is on reading rather than drawing. Text illustrations use multi-views of details and assemblies, including machined, cast, welded, structural, and developed sheet metal. Also included are reading symbols for fluid power and electronic circuitry.

**QUAL 150 Quality Transformation (A,W,SP)** 3-2-4  
This course focuses on teamwork and the application of Total Quality Transformation® tools. Teams of students and employees from business and industry solve existing quality problems in their organizations with careful direction and on-site visits by faculty.

**QUAL 240 Total Quality Management (A,W)** 2-2-3  
This course is a study and practice of the major elements and concepts of total quality management, including principles and styles of quality management, systems thinking, continuous improvement, management by data, and historic influences of leaders in quality management.

**QUAL 250 Metrology (SP)** 2-2-3  
Making precise measurements is an important part of producing quality products for consumers, industry, and the military. This course teaches students how to use a variety of instruments and systems to make precision measurements, using both English and Metric systems. Lab fee: \$10.00. Prerequisite: MATH 112

**QUAL 251 Value Engineering (W)** 2-2-3  
Value engineering is the systematic application of recognized techniques which identify the function of a product or service, establish a monetary value for that function, and provide the necessary function reliably at the lowest overall cost. Students will be introduced to value engineering concepts and applications for the practitioner, including functional aspects of part and component as well as service subsystem interactions to meet fit for end use requirements. Prerequisite: MECH 244.

**QUAL 260 Reliability and Systems Maintainability (SP)** 3-0-3  
This course is an examination of the basic methods that companies use to ensure the reliability of their products. Students learn statistical methods used to determine reliability, the effectiveness of data analysis, use of simulations, and ways to improve system performance. Prerequisites: MATH 135 and MECH 244.

**QUAL 261 Technical Project Management (SP)** 3-0-3  
Course provides an integration of the elements involved in planning, developing, and managing a successful and efficient technical project for quality control.

**QUAL 262 Materials Testing and Analysis (W)** 2-2-3  
Course provides an integration of the nondestructive and destructive testing practices that industry uses to measure the quality level of products. Students practice basic methods of analyzing the physical and electrical properties of various materials. Students learn how to interpret standards of quality established for different industries. Lab fee: \$5.00. Prerequisites: MECH 111 and QUAL 120.

# Radiologic Technology (RAD)

**RAD 111 Introduction to Radiologic Technology** 3-0-3  
Basic introduction to radiologic principles and clinical radiography. Areas of emphasis include fundamentals of radiobiologic concepts, medical ethics, body mechanics, patient care skills, and clinical observation. This course is a prerequisite for all other radiologic technology courses. Prerequisite: Admission to program.

**RAD 113 Radiologic Science** 5-0-5  
The course begins with a review of basic concepts of electricity, electromagnetism, and electrical circuits. The student is then introduced to the theory of x-ray production, x-ray emissions, and x-ray interactions. Applications of equipment are discussed to include special x-ray equipment such as tomography, stereoradiography, mammography, and fluoroscopy. Prerequisite: RAD 111.

**RAD 118 Radiographic Exposure and Processing** 4-2-5  
This course consists of a study of film processing through analysis of radiographic film characteristics, film processing, film storage and handling, and silver recovery methods. Photographic and geometric properties necessary to the production of a quality radiograph are discussed, as well as technical conversions necessary to maintain film density. Lab fee: \$25.00. Prerequisite: RAD 113.

**RAD 123 Advanced Exposure and Processing** 3-2-4  
This advanced course analyzes factors which affect the diagnostic quality of the radiograph. Technique charts are developed. The importance of a quality assurance program is emphasized and quality control testing is presented. Students are required to conduct quality control testing and troubleshooting of radiographic equipment. Lab fee: \$25.00. Prerequisite: RAD 118.

**RAD 126 Radiation Biology and Protection** 3-0-3  
This advanced science course examines human responses to ionizing radiations. Early and late effects of radiation exposure are discussed, as well as an in-depth analysis of radiation protection standards and practices. Lab fee: \$25.00. Prerequisite: RAD 113.

**RAD 141 Radiographic Procedures I** 2-2-3  
The student is introduced to radiologic terms specific to imaging, equipment operation, and patient positioning. Specific areas of study include physician assisting, and radiographic anatomy to include gastrointestinal system, upper and lower extremities, chest, abdomen, and basic urography. Lab provides the opportunity for practice and demonstration of proficiency. Lab fee: \$50.00. Prerequisite: Admission to program.

**RAD 142 Radiographic Procedures II** 2-2-3  
This course serves as a continuation of RAD 141, with progression through the positioning categories and radiographic anatomy. Course topics include basic fluoroscopic procedures, the vertebral column, bony thorax, specialized biliary and urographic studies, and tomography. Lab fee: \$50.00. Prerequisite: RAD 141.

**RAD 143 Radiographic Procedures III** 2-2-3  
This course serves as the final of a series of three, with progression through the remaining categories of positioning and radiographic anatomy. Course topics include specialized fluoroscopic and radiographic studies, skull and facial bones, operative radiography, and trauma radiography. Lab fee: \$50.00. Prerequisite: RAD 142

**RAD 148 Special Radiographic Procedures** 3-0-3  
This course provides a detailed examination of cardiovascular, neurologic, interventional radiologic studies and common specialized procedures. The course begins with discussion of specialized equipment and materials. Emphasis is placed on pertinent anatomy, diagnostic value and/or therapeutic value of each examination. Prerequisite: RAD 143.

**RAD 211 Sectional Anatomy** 1-0-1  
Sectional anatomy is introduced. Emphasis on head, chest, abdomen and pelvis. Students will be required to give a presentation demonstrating correlations between different sectional imaging modalities. Prerequisite: RAD 143.

**RAD 222 Computerized Imaging** 1-0-1  
This course presents a survey of computerized modalities related to radiography to include an introduction to computers in medical imaging, digital radiography, computed tomography, magnetic resonance imaging, positron emission tomography and Picture Archival and Communication Systems (PACS). Prerequisite: RAD 113.

**RAD 231 Radiographic Pathology** 3-0-3  
The course begins with a review of common terms relating to pathology. Using a survey approach, this course continues with a study of various disease processes and their effect on body systems as they relate to radiography and allied imaging modalities. Students are required to write a term paper on a specific pathologic process. Prerequisite: RAD 148.

**RAD 261 Clinical I** 1-16-2  
Clinical provides the opportunity for the student to become familiar with the care and positioning of the patient. Proficiency requirements are completed using a competency-based educational format over the course material presented in Radiologic Procedures I. Film Critique is incorporated to provide a correlation of all factors that comprise a finished radiograph to include an analysis of anatomic structures, patient positioning, radiation protection, and fundamental exposure techniques. Prerequisite: RAD 111.

**RAD 262 Clinical II** 1-16-2  
Clinical II provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, and on portable radiography rotations. Film critique is continued to provide a correlation of all factors that comprise a finished radiograph. Case presentations are introduced. Prerequisite: RAD 261.

**RAD 263 Clinical III** 1-16-2  
A continuation of Clinical II. Clinical III provides the practical experience necessary to function as a radiographer and is designed to complement and enhance the didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, the operating room, tomography, portable radiography, and digital imaging. Film critique and case presentations are continued. Prerequisite: RAD 262.

**RAD 264 Clinical IV** 1-24-3  
A continuation of Clinical III. Clinical IV provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment the didactic studies. Clinical experience is gained in the general diagnostic and fluoroscopic areas, the emergency department, the operating room, tomography, portable radiography, the computed tomographic area, to include an evening rotation. In addition, each student is required to observe a radiologist during film reading and dictation. Film critique and case presentations are continued. Prerequisite: RAD 263.

**RAD 265 Clinical V** 1-24-3  
A continuation of Clinical IV. Clinical V provides the practical experience necessary to function as a radiographer and is designed to enhance and compliment didactic studies. Clinical experience is gained in the general radiographic and fluoroscopic areas, emergency department, operating room, portable radiography, tomography, computed tomography, cardiovascular and interventional radiology, digital imaging and special area (one day) rotations in nuclear medicine, radiation oncology, diagnostic medical sonography, cardiac catheterization laboratory, and extra-corporeal shock wave lithotripsy. Film critique and case presentations are continued. Prerequisite: RAD 264.

**RAD 266 Clinical VI** 1-24-3  
A continuation of Clinical V. Clinical VI provides the practical experience necessary to function as a radiographer. Clinical experience is obtained in general radiographic and fluoroscopic areas, the emergency room, the operating room, tomography, mammography, portable radiography, digital imaging, computed tomography, and magnetic resonance imaging. Film critique and case presentations are continued. Prerequisite: RAD 265.

**RAD 267 Clinical VII** 1-24-3  
A continuation of Clinical VI. Students are required to complete the Final Competency Examination during this quarter. Clinical rotations are scheduled in the general radiographic and fluoroscopic areas, the operating room, the emergency room, mammography, and computed tomography. Once the Final Competency Examination has been satisfactorily completed, the student may custom design their own specific clinical rotations. Critique and case presentations are continued. Prerequisite: RAD 266.

# Real Estate Technology (REAL)

**REAL 101 Real Estate Principles and Practices (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. Lab fee: \$3.00.

**REAL 102 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. Lab fee: \$3.00.

**REAL 104 Real Estate Mathematics (A,W,SP,SU)** 3-0-3  
A review of arithmetic processes including common fractions, decimal fractions, and percentage. Topics include sale, list, net prices and commissions, unique problems in area and volume, principal, interest, and points computed on mortgages, taxes and transfer tax stamps, prorations of insurance, mortgage interest, and taxes to date of sale and preparation of closing statements. Course may meet continuing education requirement (see advisor). Lab fee: \$3.00.

**REAL 111 Real Estate Finance (A,W,SP,SU)** 3-0-3  
Covers four 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. Lab fee: \$3.00. Concurrents: REAL 101, REAL 102 and REAL 112.

**REAL 112 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. Lab fee: \$3.00. Concurrents: REAL 101, REAL 102, and REAL 111.

**REAL 121 Residential Sales Practices (SP)** 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: \$3.00. Prerequisites: REAL 101 and REAL 102 or Real Estate License

**REAL 123 Real Estate Marketing (SP)** 3-0-3  
An in-depth study of the marketing of real property. Various techniques will be used to help the practitioner use the many resources available. Areas of exploration will include computers, telemarketing, radio, television and the print media. All types of property will be used. Course may meet continuing education requirement. (See advisor) Lab fee: \$5.00. Prerequisite: Real Estate License.

**REAL 202 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: \$3.00. Prerequisite: REAL 101.

**REAL 212 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: \$3.00. Prerequisite: REAL 112.

**REAL 213 Advanced Real Estate Investment Analysis (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 ownership, 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: \$3.00. Prerequisites: REAL 112 and REAL 212 (REAL 212 - may be taken concurrently).

**REAL 214 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: \$3.00. Prerequisite: REAL 213.

**REAL 221 Professional Property Management (SP)** 3-0-3  
A course studying decision-making as it affects management of residential, commercial and industrial property. The emphasis shall be on the practical application of theory to actual management problems. Specific topics include Ohio Tenant Landlord Act, forcible entry and detainer, typical leases, office management, hiring, merchandising, 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: \$3.00. Prerequisite: REAL 101.

**REAL 233 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: \$3.00.

**REAL 234 Human Resource Management (SP)** 4-0-4  
An introduction to human resources management as it applies to the real estate business. Provides basic knowledge for present and prospective real estate brokers. The course covers the recruiting, selection, and training of personnel; the motivation and retention of sales associates, and the management of salespeople. Lab fee: \$3.00.

**REAL 236 Real Estate Development (A)** 3-0-3  
An overview of the entire field of real estate development including its methodology, history, marketing, and specific operations of planning, analysis, feasibility studies, negotiation techniques, and property management. Lab fee: \$3.00. Prerequisites: REAL 101, REAL 102, REAL 111 and REAL 112.

**REAL 281 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. Lab fee: \$3.00.

**REAL 282 Real Estate Today Seminar II (on Demand)** 2-0-2  
Continuation of REAL 281. Lab fee: \$3.00.

**REAL 283 Real Estate Today Seminar III (on Demand)** 3-0-3  
Continuation of REAL 282. Lab fee: \$3.00.

**REAL 284 Uniform Standards of Professional Appraisal Practice (On Demand)** 2-0-2  
Capstone course for the Ohio appraisal certification. Course user to apply the standards of the industry to the instruments of appraisal process. Lab fee: \$3.00. Prerequisites: REAL 211, REAL 212 or equivalent experience.

**REAL 290 Post Licensure Sales Course (On Demand)** 1-0-1  
Mandatory 10 hour Post Licensure course for Real Estate Salespersons. Course covers the following topics: The housing market today; Future trends impacting real estate markets; License law matters; Legal matters; Environmental concerns; Real estate specialties; The image of real estate licensees; and Finance, taxes, and legislation. Lab fee: \$3.00.

**REAL 291 Post Licensure Brokers Course (On Demand)** 1-0-1  
Mandatory 10 hour Post Licensure course for Real Estate Brokers. Course covers the following topics: The housing market today; Future trends impacting real estate markets; License law matters; Legal matters; Environmental concerns; Real estate specialties; The image of real estate licensees; and Finance, taxes, and legislation. Lab fee: \$3.00.

## Respiratory Care Technology (RESP)

**RESP 100 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: \$35.00. Prerequisite: Acceptance into the technology.

**RESP 102 Introduction to Respiratory Care Equipment (W,SU)** 3-4-5  
A survey of apparatus utilized in providing respiratory care, including manufacture, storage and safe handling of medical gas cylinders, regulators, flowmeters, nebulizer, humidifier, and intermittent positive pressure breathing equipment. Also to include the administration of oxygen; aerosol and IPPB therapy. Lab fee: \$35.00. Prerequisites: MATH 103, CHEM 111..BIO 161 or permission of instructor.

**RESP 114 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: BIO 161, BIO 169 or permission of instructor.

**RESP 130 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. Prerequisites: RESP 100 and RESP 102. Concurrents: RESP 114 and RESP 196.

**RESP 132 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. Prerequisites: RESP 114, RESP 130 and RESP 196. Concurrents: RESP 150, RESP 198 and RESP 216.

**RESP 150 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. Prerequisite: RESP 110 or RESP 114.

**RESP 170 Mechanical Ventilators (A,W)** 0-2-1  
Students will learn to assemble equipment used for mechanical ventilatory support, check it for proper function, identify and correct malfunctions. Prerequisite: RESP 102.

**RESP 196 Clinical Practice I (SP)** 0-12-6  
An introduction to respiratory care of general medical and surgical patients. Students will learn to collect and evaluate pertinent clinical information, select and assemble equipment, conduct therapy to assure adequate ventilation and oxygenation, and recommend appropriate changes in the patient care. Lab fee: \$35.00. Prerequisites: RESP 102. Concurrents: RESP 114 and RESP 130.

**RESP 198 Clinical Practice II (SU)** 0-12-6  
This course is a continuation of RESP 196. Students will learn to collect and evaluate pertinent clinical information, select and assemble equipment, conduct therapy to assure adequate ventilation and oxygenation, and recommend appropriate changes in the patient care. Lab fee: \$35.00. Prerequisites: RESP 114, RESP 130 and RESP 196. Concurrents: RESP 132, RESP 150 and RESP 216.

**RESP 216 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 failure. Prerequisite: RESP 114 or permission of instructor.

**RESP 230 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. Prerequisites: RESP 132, RESP 150 and RESP 216.. Concurrent: RESP 290.

**RESP 232 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. Lab fee: \$20.00. Prerequisites: RESP 230, RESP 238 and RESP 290. Concurrent: RESP 292.

**RESP 238 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: RESP 216 or permission of instructor. Concurrent: RESP 290.

**RESP 251 Respiratory Rehabilitation Home Care Techniques 2-2-3**

This course provides the student with the appropriate adaptations of skills and concepts traditionally used in the hospital to alternate care settings in order to educate the patient and care-giver to maintain the highest possible functional capacity. Included are: medication regimens, smoking cessation, breathing retraining, bronchial hygiene, and other self-care techniques. Other topics include monitoring the patient's disease and servicing the equipment needs of the patient. Lab fee: \$15.00. Prerequisite: RN, LPN, RRT, CRTT, or permission of instructor.

**RESP 252 Patient Management in Respiratory Rehabilitation 3-0-3**

The study of the patient's adaption to chronic pulmonary disease. Emphasis will be placed on problem identification, appropriate interventions, and referral to community resources using a multidisciplinary approach in coordinating the various systems of care. Prerequisite: RN, LPN, RRT, CRTT, or permission of instructor.

**RESP 253 Respiratory Rehabilitation Home Care Administration 4-0-4**

This course concentrates on the management of a respiratory rehabilitation or home care organization. Topics include the development of policies and procedures for respiratory rehab home care services, the preparation of the certificate of medical necessity, and the documentation necessary for reimbursement, accreditation, regulatory requirements, and quality assurance. Other topics include marketing strategies and community health promotion. Prerequisite: RN, LPN, RRT, CRTT, or permission of instructor.

**RESP 260 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. Lab fee: \$60.00. Prerequisite: RESP 232 or permission of instructor.

**RESP 290 Clinical Practice III (A) 0-12-6**

This course is an introduction to care of the ventilator dependent patient. Students will learn to collect and evaluate pertinent clinical information, select and assemble equipment, conduct therapy to assure adequate ventilation and oxygenation, and recommend appropriate changes in the patient care. Lab fee: \$35.00. Prerequisite: RESP 198. Concurrents: RESP 230 and RESP 238.

**RESP 292 Clinical Practice IV (W) 0-12-6**

This course is an introduction to care of the neonatal patient. Students will learn to collect and evaluate pertinent clinical information, select and assemble equipment, conduct therapy to assure adequate ventilation and oxygenation, and recommend appropriate changes in the patient care. Lab fee: \$35.00. Prerequisites: RESP 230, RESP 238 and RESP 290. Concurrent: RESP 292.

**RESP 295 Clinical Experience (SP) 1-24-4**

This quarter is designed to provide practical application of the skills learned in the previous six quarters of the program. Students will be assigned to a clinical affiliate for 24 hours each week. Lab fee: \$30.00. Prerequisite: RESP 292.

## Retail Management Technology (RETL)

**RETL 101 Introduction to Retailing (A,W,SP,SU) 4-0-4**

Principles and methods of retail management, including organization policy making, and a survey of the functions of merchandising, sales promotion, finance and control, store operations and personnel. Lab fee: \$3.00.

**RETL 121 Introduction to Fashion Merchandising (A) 4-0-4**

This course is designed as an overview of the field. A broad range of topics is covered including fashion change, research, textile and fiber production, fashion centers and markets, design development, apparel production, and retail merchandising. Lab fee: \$3.00. Prerequisite: RETL 101.

**RETL 201 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. Lab fee: \$3.00. Prerequisites: MKTG 111 and RETL 101.

**RETL 204 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 which includes: location, receiving, warehousing, repair and alterations, deliveries, customer service, maintenance, accounts receivable, accounts payable, credit and collections, and inventories. The second function is how to control these operations profitability. Lab fee: \$5.00. Prerequisite: ACCT 101.

**RETL 213 Retail Buying I (W) 5-0-5**

Retail buying is a course designed to provide the student with the basic fundamentals involved in a buyer's determination. A study of what merchandise and quantity to buy. In addition to

this, an overview of textiles and merchandise information is given that will enable the student to have a broader knowledge of various products and understand the buying process. Lab fee: \$3.00. Prerequisites: RETL 281 and RETL 285.

**RETL 214 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 affect them and their employer. This class will direct itself to these and other areas. Lab fee: \$3.00. Prerequisites: RETL 281 - RETL 285.

**RETL 223 Textiles I (W) 3-2-4**

The fundamentals of textiles are covered in these areas: fibers and yarns, weaves, non-woven construction, finishes, dyes, and fabric selection and care. Lab fee: \$10.00. Prerequisite: RETL 121.

**RETL 224 Textiles II (SP) 3-2-4**

This course is designed to cover a portion of the fundamentals of textile science with a focus on the uses of textiles in the realm of fashion merchandising. The second course in this two part series will concentrate on the properties and structures of yarns and fabrics, and the processes used to finish and color textile products. Lab fee: \$10.00. Prerequisite: RETL 223.

**RETL 225 Twentieth Century Fashions (A,SP) 4-0-4**

This course is designed as a study of fashion trends and styles from 1900 to 1990. Designers, both past and present, will be studied extensively. Fashion terminology will be emphasized and applied to each designer category. Lab fee: \$3.00. Prerequisite: RETL 223.

**RETL 281 Retail Internship I (A,SP,SU) 0-40-4**

Supervised on-the-job application of knowledge and skills acquired in the classroom. Prerequisite: successful completion of first year curriculum. Lab fee: \$2.00.

**RETL 282 Retail Internship II (A,SP,SU) 0-40-4**

A continuation of RETL 281. Lab fee: \$2.00. Prerequisite: RETL 281.

**RETL 283 Retail Internship III (A,SP,SU) 0-40-4**

A continuation of RETL 282. Lab fee: \$2.00. Prerequisite: RETL 282.

**RETL 285 Special Problems in Retailing I (A,SP,SU) 0-4-2**

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. Lab fee: \$1.00.

**RETL 286 Special Problems in Retailing II (A,SP,SU) 0-4-2**

A continuation of RETL 285. Lab fee: \$1.00. Prerequisite: RETL 285.

**RETL 287 Special Problems in Retailing III (A,SP,SU) 0-4-2**

A continuation of RETL 286. Lab fee: \$1.00. Prerequisite: RETL 286.

## Small Business Mgmt. Major (See Business Management Technology)

## Social Sciences (SSCI)

**SSCI 101 Cultural Diversity (A,W,SP,SU) 5-0-5**

An interdisciplinary survey of the diversity among the various groups comprising world cultures. Emphasis will center on how individual beliefs, social values, and political and economic systems affect our perspectives and lifestyles. Problems and policies generated by diverse cultural influences will be considered. A general education core course. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SSCI 102 America in Transition (A,W,SP,SU) 5-0-5**

An interdisciplinary course which focuses on the major changes (or transitions) now taking place in the social, economic, political, and international institutions in the United States. The course helps students identify the causes and consequences of these changes. Students are encouraged, through selected readings, written assignments, and group projects to identify possible ways to respond to and meet the challenges posed by this transitional era. A general education core course. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SSCI 103 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 wealth and power; global inequality; gender inequality; family; education; health care; crime; mental disorders; and drugs. A general education core course. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SSCI 104 World Economic Geography (A,W,SP,SU) 5-0-5**

An interdisciplinary course providing a geographical examination of the world economy. Students research the factors affecting a country's economic development and present findings from a policy maker's perspective. Factors considered include location; demographic trends; resource availability and use patterns; industrialization; political and cultural forces; and global

interdependence. A general education core course. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SSCI 190 Freshman Experience in Social Sciences (A,W,SP,SU)** 0-2-1  
The Freshman Experience Seminar is designed to familiarize first time Arts and Sciences students at Columbus State Community College with the academic environment. Students will use various on site support systems, set personal academic goals, and map their course of study at Columbus State to meet those goals. Open to all students. Optional for students having completed ESL 100; recommended for all other Associate of Arts and Associate of Science degree seeking students. Lab fee: \$4.00.

**SSCI 290 Capstone Experience in Social Sciences (On Demand)** 2-2-3  
A capstone course focusing on social sciences. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree.

**SSCI 293 Independent Study in the Social Sciences (On Demand)** 1-5  
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. Lab fee: \$4.00. Prerequisite: Permission of the instructor and the chairperson.

**SSCI 299 Special Topics in the Social Sciences (On Demand)** 1-5  
Detailed examination of selected topics of interest in the social sciences. Lab fee: \$4.00. Prerequisites vary.

## Sociology (SOC)

**SOC 101 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; collective behavior, social movement and social change. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SOC 230 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 courtship, size of family, member relationships, economic problems, and marital stability. This course compares alternative life styles, and marriage and family relations throughout the life span. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SOC 280 Ethnic Studies (On Demand)** 3-0-3  
An introductory course that explores the diverse cultures and experiences of ethnic and minority groups in America. Topics 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. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SOC 290 Capstone Experience in Sociology (On Demand)** 2-2-3  
A capstone course focusing on sociology. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00. Prerequisite: Completion of AA/AS core requirements and at least 75 hours toward the degree with five credit hours in sociology.

**SOC 293 Independent Study in Sociology (On Demand)** 1-5  
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. Lab fee: \$4.00. Prerequisite: Permission of the Instructor and the Chairperson.

**SOC 299 Special Topics in Sociology (On Demand)** 1-5  
Detailed examination of selected topics of interest in sociology. Lab fee: \$4.00. Prerequisites vary.

## Spanish (SPAN)

**SPAN 101 Elementary Spanish I (A,W,SP,SU)** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: Placement into ENGL 101.

**SPAN 102 Elementary Spanish II (A,W,SP,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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages

and literature. Lab fee: \$5.00. Prerequisite: SPAN 101 with a grade of "C" or better or by placement exam.

**SPAN 103 Intermediate Spanish I (A,W,SP,SU)** 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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: SPAN 102 with a grade of "C" or better or by placement exam.

**SPAN 104 Intermediate Spanish II (A,W,SP,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 Associate of Arts and Associate of Science degree programs and transfer requirements in foreign languages and literature. Lab fee: \$5.00. Prerequisite: SPAN 103 with a grade of "C" or better or by placement exam.

**SPAN 290 Capstone Experience in Spanish (On Demand)** 2-2-3  
A capstone course focusing on Spanish. Paradigms and their underlying assumptions will be explored. Students will work on developing research techniques and methodologies. Students will apply these techniques to a project of their own design, complete a personal portfolio covering their studies at Columbus State, and participate in summative testing of their academic skills. Open only to Associate of Arts or Associate of Science students preparing to graduate within two academic quarters. Lab fee: \$10.00.

**SPAN 299 Special Topics in Spanish (On Demand)** 1-5  
Detailed examination of special topics in Spanish. Lab fee: \$2.00. Prerequisites vary.

## Sports & Fitness Management Technology (SFMT)

**SFMT 101 Introduction to Sports & Fitness Management (W)** 3-0-3  
A survey of the health and fitness arena both private and public, to include the study of facilities, recreational options for the client, client profiles, daily operations, legal aspects, personnel issues, and program administration. Lab fee: \$2.00. Prerequisite: Acceptance into the program.

**SFMT 113 Aquatics Management (SP)** 1-2-2  
A survey of the recreational aquatics environment. Hands on training in the filtration systems and their general operation, an understanding of Federal and State guidelines for licensure for pool operation and maintenance. Legal aspects of the aquatics area. Staffing requirements and training of aquatics personnel for indoor and outdoor facilities. Lab fee: \$15.00. Prerequisite: SFMT 101.

**SFMT 115 Introduction to Weight Training (W,SP)** 1-2-2  
Analysis of the weight training field to include types of equipment used, training methods for the client, proper lifting techniques for the various equipment, assessment of the beginning client for appropriate weight program. Risk management aspects of the weight area and proper care and maintenance of equipment. Lab fee: \$20.00. Prerequisite: SFMT 101.

**SFMT 222 Court Sports I (Tennis) (SU)** 1-2-2  
Instruction in the coaching and participation in the activity, to include a thorough understanding of the rules and sport strategy. History of the sport and coaching techniques for the client, tournament set up and implementation for the facility. Lab fee: \$20.00. Prerequisite: SFMT 101.

**SFMT 224 Sports & Fitness Management I (SU)** 5-0-5  
An advanced study of the facilities required for the recreational environment. An analysis of indoor and outdoor designs and utilization. An overview of the personnel process, staffing requirements, and staff development procedures. A study of activity programming for the club environment, to include class structure, tournament procedures, proper selection of activities, and equipment needed as well as proper care and storage. Lab fee: \$10.00. Prerequisite: SFMT 101 and BMGT 111.

**SFMT 226 Care and Prevention of Athletic Injuries (W,SU)** 1-2-2  
Recognition, treatment, management, and prevention of basic injuries sustained while participating in athletic activities. Basic taping and treatment procedures to be introduced and applied in the athletic environment. Lab fee: \$10.00. Prerequisites: BIO 161 and BIO 169 or Instructors permission.

**SFMT 230 Fitness Concepts for Special Populations (A,SP)** 1-0-1  
A survey of the response of children, seniors, and physically challenged persons to exercise. Emphasis to be placed on choosing appropriate and challenging activities that will result in a positive physiological response while accommodating the social, developmental and physical needs of the potential clients. Lab fee: \$3.00. Prerequisite: SFMT 101. Concurrent: SFMT 231.

**SFMT 231 Introduction to Exercise Science (A,SP)** 1-2-2  
Instruction in the testing processes used for the individual evaluation to include proper techniques used for body fat, analysis, aerobic and anaerobic capabilities, muscle mass, flexibility, and program development for the athlete. Lab fee: \$5.00. Prerequisites: BIO 161 and BIO 169 or Instructors permission.

**SFMT 232 Court Sports II Raquetball, Squash, Wallyball (A)** 1-2-2  
Instruction in the coaching and participation in the three activities, to include a thorough understanding of the rules and sport strategy, history of the sport and coaching techniques for

the clients, tournament set up and implementation for the facility. Lab fee: \$20.00. Prerequisite: SFMT 101.

**SFMT 233 Outdoor Community Recreation (SU)** 2-2-3  
A survey of the outdoor recreational market and its application through corporate America. Review outdoor recreational opportunities, basic activities, skills, and necessary equipment. Present safety, liability, and associated programming issues. Examine the business, career, and recreational applications. Lab fee: \$50.00. Prerequisites: SFMT 101.

**SFMT 234 Sports & Fitness Mangement II (A)** 5-0-5  
An advanced study of sports marketing strategies for the club both internal and external. Promotional guidelines and discussion of concepts of promotional activity. Study of the budgetary process, differentiations of budget styles, and implementation of the budgetary process in both the private or public sector. Lab fee: \$3.00. Prerequisite: SFMT 224.

**SFMT 235 Introduction to Sports Law (A,SP)** 3-0-3  
Survey of the legal framework of the athletic environment. The nature of the legal system and the law pertaining to sports, to include tort law, contractual agreements, and civil law. Lab fee: \$2.00. Prerequisite: LEGL 261.

**SFMT 292 Practicum I (A,SP)** 1-14-3  
Practical training in general operation of a fitness club to include activity preparation, personnel evaluation, and budget analysis. This course also includes an on campus seminar to discuss issues relating to the profession. Summative assessment will include a combination of objective tests, performance checklists, and evaluation by the on-site supervisor. Lab fee: \$3.00. Prerequisite: SFMT 224 and faculty approval.

**SFMT 294 Practicum II (W,SU)** 1-14-3  
Continuation of SFMT 292. Working in conjunction with a current fitness manager to gain insight on program and facility operation, budgetary implementation, and assist in the daily operation of a fitness facility. This course also includes an on campus seminar to discuss issues relating to the profession. Summative assessment will include a combination of objective tests, performance checklists, and evaluations by the on-site supervisor. Prerequisite: SFMT 292 and faculty approval.

## Surgical Technology (SURG)

**SURG 110 Surgical Technology I (A)** 3-4-5  
This course introduces the student to the fundamentals of surgical technology. The function and relationship of the surgical technologist to the other members of the surgical operating team is defined. Included are basic operating room techniques, principles of asepsis, roles of the surgical team members, etc. Lab fee: \$50.00. Prerequisite: Acceptance into the program. Concurrent: BIO 115.

**SURG 120 Surgical Technology II (W)** 3-4-5  
This course continues the fundamentals of surgical technology. Basic procedures studied in the previous course are brought together in chronological order as they routinely occur in the operating room. In addition, the care of the patient before, during, and after surgery are presented. \$50.00. Prerequisites: SURG 110 and BIO 115. Concurrent: BIO 161.

**SURG 130 Surgical Technology III (SP)** 4-0-4  
Fundamentals learned up to this time are applied to basic general surgical procedures such as: endoscopy, abdominal surgery, soft tissue, etc. The role of the scrub technologist is emphasized. Lab fee: \$50.00. Prerequisites: SURG 120 and BIO 161. Concurrents: SURG 131 and BIO 169.

**SURG 131 Surgical Clinical I (SP)** 0-15-3  
This course introduces the student to the clinical setting. In addition the course provides the student with practical application of the knowledge and techniques needed to perform as a scrubbed member of the surgical team. Prerequisites: BIO 161 and SURG 120. Concurrent: SURG 130.

**SURG 210 Surgical Technology IV (SU)** 3-0-3  
General surgical procedures are continued. In addition, the role of the circulator and care of the patient during recovery from anesthesia will be studied. Lab fee: \$50.00. Prerequisites: SURG 130 and BIO 169. Concurrent: SURG 211.

**SURG 211 Surgical Clinical II (SU)** 0-15-3  
This clinical experience provides the student with the practical application of the knowledge and techniques needed to perform as a scrubbed member of the surgical team during general surgical procedures. Prerequisite: SURG 131. Concurrent: SURG 210.

**SURG 220 Surgical Technology V (A)** 4-0-4  
This course will focus on specialty surgical procedures such as: vascular, thoracic, EENT, neurosurgery, etc. At this time the student will be expected to be able to scrub independently on general procedures. Lab fee: \$25.00. Prerequisite: SURG 210. Concurrent: SURG 221.

**SURG 221 Surgical Clinical III (A)** 0-25-5  
This course continues to provide clinical practice at affiliated hospitals. The student will develop skills required to scrub on procedures such as: vascular, thoracic, EENT, neurosurgery, etc. Prerequisite: SURG 211. Concurrent: SURG 220.

**SURG 230 Surgical Technology VI (W)** 4-0-4  
Specialty procedures are continued. In addition, this course will introduce the student to areas in health care which required the knowledge of aseptic technique such as: labor and delivery, emergency room, burn unit, etc. Lab fee: \$25.00. Prerequisite: SURG 220. Concurrent: SURG 231.

**SURG 231 Surgical Clinical IV (W)** 0-25-5  
This clinical course continues to provide the student with experience in the specialty areas. In addition, the student will spend some time in related areas of health care which require knowledge of aseptic technique. Lab fee: \$25.00. Prerequisite: SURG 221. Concurrent: SURG 230.

**SURG 240 Currents Issues in the O.R. Department** 2-0-2  
This course deals with concepts of O.R. department management. Topics covered include: legal matters; organization; quality control; cost containment; infection control, etc.

## Surveying (SURV)

**SURV 141 Basic Surveying (A,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: \$15.00. Prerequisites MATH 104 and ARCH 121.

**SURV 241 Route Surveying (A,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 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: \$15.00. Prerequisites: MATH 104 and CMGT 123. Concurrent or prerequisite: SURV 141.

**SURV 243 Heavy Construction Standards (W,SU)** 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, and financing. Lab fee: \$15.00. Prerequisites: SURV 241, ARCH 121 and CMGT 105.

**SURV 245 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. Prerequisites: SURV 141, SURV 241 or permission of instructor.

**SURV 247 Townsite/Urban Development (A,SP)** 1-5-3  
Analysis of data and related inventory methods needed to logically plan development of all land use types. Study the forces and actions by public agencies and private interests that create the urban form. Review methods of resolving conflicts and understanding the applicable land use regulations or standards that govern area development. Lab fee: \$15.00. Prerequisites: ARCH 112, SURV 141 and SURV 241.

**SURV 249 Land Subdivision Systems (A,SP)** 2-3-3  
Advanced surveying including section and subdivision lines and residential property lines. Reestablishment of property boundaries and legal considerations for boundary descriptions, including local municipal records searching. Lab fee: \$15.00. Prerequisites: SURV 241, ARCH 112, SURV 141 and SURV 245.

## Technical Communications Technology (TCO)

**TCO 101 Careers in Technical Communications (A,SP)** 1-3-2  
In this course, students are required to interview with Technical Communications professionals, research the field of Technical Communications, and deliver an oral presentation of the findings. Discussions of career goals, including the preparation of an initial resume and employment data file will also be required. The requirements of this course must be met within the first two quarters of entering the Technical Communications degree program. Lab fee: \$20.00.

**TCO 203 Introduction to Technical Communications (A,SP)** 2-3-3  
In this course, students learn the project documentation cycle used by technical communicators in business, industry, and government by selecting an authentic problem-solving project from their technical cognate fields, and writing and formatting a series of reports in support of that project. Students learn the principles of modern technical communications and time/project management and practice them individually and in small groups throughout the documentation cycle. Lab fee: \$5.00. Prerequisites: CPT 101 and ENGL 102 with a grade of "C" or higher.

**TCO 204 Introduction to Technical Editing (A,SP)** 2-3-3  
In this course, students will practice editorial skills needed for revising scientific/technical writing by checking grammar, sentence structure, clarity and style in personal, peer, and professional writings. Students will practice hard copy and on line editing and proofreading and analyze editorial style books and other technical resource materials. Various editorial approaches and the editor/author relationship will be covered. Lab fee: \$5.00. Prerequisite: ENGL 102 with a grade of "C" or higher and OADM 101.

**TCO 223 Advanced Technical Communications (W,SU)** 2-3-3  
In this course, students focus on current research and theory in scientific and technical writing and apply that research to practical situations. Students produce a proposal for funding, a full-length, portfolio quality manual or report, and various other writing assignments. They also lead class discussions on such topics as readability theory, writing style, documentation methods, text processing, manual formatting, and integrating graphics and text. Lab fee: \$5.00. Prerequisite: TCO 203.

**TCO 224 Advanced Technical Editing (W,SU)** 2-3-3  
In this course, students are prepared as editors to work with other publications specialists. Students will edit manuscripts, prepare style books or manuals, and perform special editorial tasks such as preparing abstracts, indexes, and bibliographies with line-by-line precision and accuracy. Lab fee: \$5.00. Prerequisites: TCO 203 and TCO 204.

**TCO 230 Technical Presentations (W,SU)** 2-3-3  
In this course, students learn to prepare and present various types of information ranging from press releases, annual reports, and statistical analyses to proposals for projects, systematic evaluations, and revisions of existing documents. Various types of audiences will be targeted, and students will be required to use computer graphics, hypermedia, desktop publishing, and multimedia approaches to supplement oral presentations. Lab fee: \$5.00.

**TCO 250 Capstone in Technical Communications (A,W,SP,SU)** 2-3-3  
In this course, students will be required to demonstrate both the overall competency and quality workmanship expected of professionals in the technical communications field. Students will work individually and in collaboration to solve problems of technical writing, editing, and presentations, and on the study and implementation of projects normally assigned to entry-level technical communicators. The course can only be taken during the final quarter, prior to graduation. Lab fee: \$5.00. Prerequisite: Permission of instructor.

**TCO 260 Career Development (A,SP)** 1-0-1  
In this course, students prepare a professional portfolio, including a resume developed from the student's previous academic work experience. Students are required to review their portfolios informally and through formal oral presentations. Students will learn how to carry out company research and apply that research to targeted resumes, letters of application, and interview situations. This course must be completed within the final four quarters of the student's program. Lab fee: \$5.00. Prerequisite: Permission of instructor.

**TCO 290 Industry Internship (A,W,SP,SU)** 1-4  
In this course, students are engaged in work specifically related to the Technical Communications field as employees in business or industry. Students are responsible for arranging the internship and must submit a written proposal to the Technical Communications Program Coordinator for approval no later than two quarters prior to becoming an intern. During the internship, the student must keep a written record of job responsibilities and projects. A formal written report must be accompanied by a written evaluation of the student's performance by his/her supervisor. One credit hour is equal to one hundred (100) clock hours on the job. The four credits may be spread over more than one quarter. Lab fee: \$5.00. Prerequisites: TCO 101, TCO 203, TCO 204, and permission from the Chairperson of the Technical Communications Department. A GPA of "B" or higher in TCO courses.

**TCO 297, 298, 299 Special Topics in Technical Communications (On Demand)** 1-5  
Special topics in technical communications designed to meet specific needs. Lab fee: \$5.00.

## Veterinary Technology (VET)

**VET 111 Veterinary Technology (A)** 4-2-5  
Introduction to the Veterinary Technician Technology including laws and ethics, duties and job opportunities, medical terminology, nutrition requirements for various animals, management, restraint, sexing basic techniques and common diseases of laboratory animals are discussed. Lab fee: \$70.00. Prerequisite: Admission to program.

**VET 114 Client Relations (A)** 2-0-2  
Exploration of the procedures used in veterinary practices, in client and public relations, including standard office procedures and computerized processes. Prerequisite: Admission to program. Concurrent: VET 111.

**VET 122 Veterinary Parasitology (W)** 2-2-3  
An introduction to the common internal and external parasites of domestic animals including scientific nomenclature, life cycles, common methods of identification and the treatment and/or prevention of these parasites. Lab fee: \$70.00. Prerequisite: VET 111.

**VET 124 Principles of Veterinary Radiology (SP)** 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 measurement and positioning, preparation of a techniques chart, radiographic, development procedures, special diagnostic radiographic procedures and equipment. Prerequisites: BIO 161 and VET 136.

**VET 126 Principles of Veterinary Anesthesia (SP)** 3-0-3  
Study of systemic and inhalation anesthetic agents, premedication agents, ventilators, respirators and monitoring equipment, preanesthetic physical, emergency drugs and CPR. Prerequisites: BIO 161 and VET 136.

**VET 131 Veterinary Anatomy and Physiology (SP)** 3-0-3  
Presentation and discussion of the comparative anatomy and physiology of the canine, feline, equine and bovine species. The anatomy and physiology of these domestic species will be compared using a systems approach and clinically applied for the veterinary technician. Prerequisites: BIO 161 and BIO 169.

**VET 133 Clinical Application I (SP)** 0-6-3  
Laboratory exercises for VET 138, VET 124 and VET 126. Students practice techniques of surgery, anesthesia, radiology, venipuncture and injection. Lab fee: \$70.00. Prerequisite: CPT 101. Concurrents: VET 124, VET 126 and VET 138.

**VET 135 Veterinary Hematology (SP,SU)** 2-6-5  
Students perform procedures required for a complete blood count. Students use hemocytometer, pipet, centrifuge, spectrophotometer, and automated cell counters. Emphasis on the differential white blood cell counts including abnormal and immature red blood cells and white blood cells. Other tests performed in a veterinary hematology clinic are presented. Prerequisite: BIO 169 and VET 136.

**VET 136 Animal Health and Disease I (W)** 3-0-3  
A physiological systems approach to the most frequently encountered diseases of dogs and cats including: disease name, definition and history, animals at risk, causes and symptoms, diagnosis, treatment, prevention and vaccination programs. Diseases are discussed which can be potentially transmitted from animal to man as well as emphasizing safety and prevention from them. Prerequisites: VET 111 and VET 114. Concurrents: VET 122 and BIO 169.

**VET 138 Veterinary Surgical Techniques (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. Preanesthetic laboratory tests and postoperative care of the patient are discussed. Prerequisite: VET 111 and BIO 161.

**VET 254 Clinical Seminar I (SU,A)** 2-0-2  
Discussion of issues relating to clinical experience including euthanasia, problem solving models and change strategies. Prerequisite: VET 126. Concurrent: VET 291.

**VET 262 Veterinary Pharmacology (A,W)** 3-0-3  
Drugs commonly used in veterinary medicine, including brief history, terminology, source, dosage form and drug classification. Methods of administration, factors altering drug response, prescription terminology and metrology. Regulations for controlled substances. Prerequisite: MATH 102 and VET 136.

**VET 263 Clinical Application II (A,W)** 0-6-3  
Practice skills commonly performed in veterinary clinics, such as: record keeping, administration of fluids and medications, pre-anesthetic evaluation, surgical preparation, anesthetic administration, radiology and laboratory procedures. Lab fee: \$70.00. Prerequisites: VET 133 and VET 291.

**VET 266 Animal Health and Disease II (A,W,SP,SU)** 3-0-3  
Presentation and discussion of the most common diseases of horses, food animals, and exotics; including vaccination programs, nutrition, breeding and husbandry. Prerequisite: VET 136.

**VET 267 Veterinary Urinalysis and Clinical Chemistry (A,W)** 2-4-4  
Students perform analysis on urine, such as protein, glucose, ketones, and other diagnostic tests of a routine urinalyses. They learn physical characteristics and tests performed on transudates, exudates, and cerebrospinal fluid. Students perform blood chemistries, including glucose, BUN, creatinine, and enzymes. Prerequisite: VET 135.

**VET 269 Veterinary Microbiology (A,W)** 2-6-5  
Processes necessary to isolate and identify causative agents of bacterial infections. Students perform susceptibility testing to determine the effective chemical or antibiotic agents necessary for treatment. Basic bacteriological procedures include: isolation of colonies on culture plate and gram staining. Serologic procedures include: identification of brucellosis by antigen/antibody detection. Prerequisite: VET 136 or permission. Concurrent: VET 266.

**VET 274 Clinical Seminar II (W,SP)** 2-0-2  
Continuation of VET 254, seminar course, which addresses issues emanating from the students clinical experience. Strategies for job hunting are discussed, and simulation job interviews are practiced. Prerequisite: VET 291. Concurrent: VET 293.

**VET 291 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 Columbus Zoo. Lab fee: \$70.00. Prerequisite: 30 technical credits

**VET 293 Clinical Experience II (W,SP)** 0-30-6  
Continuation of VET 291. Lab fee: \$70.00. Prerequisites: All VET courses.

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