

# COURSE DESCRIPTIONS



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**C – The number of class hours per week**

**L – The number of laboratory hours per week**

**Cl – The number of clinical hours per week**

**SHC – Semester Hour Credit received for the course**

## ACADEMIC RELATED

**ACA 085 Improving Study Skills** **2-0-1**  
**C-L-SHC**

This course is designed to improve academic study skills and introduce resources that will complement developmental courses and engender success in college-level courses. Topics include basic study skills, memory techniques, note-taking strategies, test-taking techniques, library skills, personal improvement strategies, goal-setting, and learning resources. Upon completion, students should be able to apply techniques learned to improve performance in college-level classes.

**ACA 111 College Student Success** **1-0-1**

This course introduces the college's physical, academic, and social environment and promotes the personal development essential for success. Topics include campus facilities and resources; policies, procedures, and programs; study skills; and life management issues such as health, self-esteem, motivation, goal-setting, diversity, and communication. Upon completion, students should be able to function effectively within the college environment to meet their educational objectives.

**ACA 115 Success and Study Skills** **0-2-1**

This course provides an orientation to the campus resources and academic skills necessary to achieve educational objectives. Emphasis is placed on an exploration of facilities and services, study skills, library skills, self-assessment, wellness, goal-setting, and critical thinking. Upon completion, students should be able to manage their learning experiences to successfully meet educational goals.

**ACA 118 College Study Skills** **1-2-2**

This course covers skills and strategies designed to improve study behaviors. Topics include time management, note taking, test taking, memory techniques, active reading strategies, critical thinking, communication skills, learning styles, and other strategies for effective learning. Upon completion, students should be able to apply appropriate study strategies and techniques to the development of an effective study plan.

**ACA 122 College Transfer Success** **0-2-1**

This course provides information and strategies necessary to develop clear academic and professional goals beyond the community college experience. Topics include the CAA, college policies and culture, career exploration, gathering information on senior institutions, strategic planning, critical

thinking, and communications skills for a successful academic transition. Upon completion, students should be able to develop an academic plan to transition successfully to senior institutions. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## ACCOUNTING

**ACC 115 College Accounting** **3-2-4**  
**C-L-SHC**

This course introduces basic accounting principles for a business. Topics include the complete accounting cycle with end-of-period statements, bank reconciliation, payrolls, and petty cash. Upon completion, students should be able to demonstrate an understanding of accounting principles and apply those skills to a business organization.

**ACC 120 Principles of Financial Accounting** **3-2-4**

This course introduces business decision-making using accounting information systems. Emphasis is placed on analyzing, summarizing, reporting, and interpreting financial information. Upon completion, students should be able to prepare financial statements, understand the role of financial information in decision-making, and address ethical considerations. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ACC 121 Principles of Managerial Accounting** **3-2-4**

*Prerequisite: ACC 120*

This course includes a greater emphasis on managerial and cost accounting skills. Emphasis is placed on managerial accounting concepts for external and internal analysis, reporting, and decision-making. Upon completion, students should be able to analyze and interpret transactions relating to managerial concepts including product-costing systems. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ACC 122 Principles of Financial Accounting II** **3-0-3**

*Prerequisite: ACC 120*

This course provides additional instruction in the financial accounting concepts and procedures introduced in ACC 120. Emphasis is placed on the analysis of specific balance sheet accounts, with in-depth instruction of the accounting principles applied to these accounts. Upon completion, students should be able to analyze data, prepare journal entries, and prepare reports in compliance with generally accepted accounting principles.

**ACC 129 Individual Income Taxes** **2-2-3**

This course introduces the relevant laws governing individual income taxation. Topics include tax law, electronic research and methodologies, and the use of technology for preparation of individual tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various individual tax forms.

**ACC 130 Business Income Taxes 2-2-3**

This course introduces the relevant laws governing business and fiduciary income taxes. Topics include tax law relating to business organizations, electronic research and methodologies, and the use of technology for the preparation of business tax returns. Upon completion, students should be able to analyze basic tax scenarios, research applicable tax law, and complete various business tax forms.

**ACC 140 Payroll Accounting 1-2-2**

*Prerequisite: Take One: ACC 115 or ACC 120*

This course covers federal and state laws pertaining to wages, payroll taxes, payroll tax forms, and journal and general ledger transactions. Emphasis is placed on computing wages; calculating social security, income, and unemployment taxes; preparing appropriate payroll tax forms; and journalizing/posting transactions. Upon completion, students should be able to analyze data, make appropriate computations, complete forms, and prepare accounting entries using appropriate technology.

**ACC 150 Acct Software Appl 1-2-2**

*Prerequisite: Take One: ACC 115 or ACC 120*

This course introduces microcomputer applications related to the accounting systems. Topics include general ledger, accounts receivable, accounts payable, inventory, payroll, and correcting, adjusting, and closing entries. Upon completion, students should be able to use a computer accounting package to solve accounting problems.

**ACC 220 Intermediate Accounting I 3-2-4**

*Prerequisites: ACC 120*

*Local Prerequisite: ACC 122*

This course is a continuation of the study of accounting principles with in-depth coverage of theoretical concepts and financial statements. Topics include generally accepted accounting principles and an extensive analysis of balance sheet components. Upon completion, students should be able to demonstrate competence in the conceptual framework underlying financial accounting, including the application of financial standards.

**ACC 221 Intermediate Accounting II 3-2-4**

*Prerequisite: ACC 220*

This course is a continuation of ACC 220. Emphasis is placed on special problems which may include leases, bonds, investments, ratio analyses, present value applications, accounting changes, and corrections. Upon completion, students should be able to demonstrate an understanding of the principles involved and display an analytical problem-solving ability for the topics covered.

**ACC 227 Practices in Accounting 3-0-3**

*Prerequisite: ACC 220*

This course provides an advanced in-depth study of selected topics in accounting using case studies and individual and group problem solving. Topics include cash flow, financial

statement analysis, individual and group problem solving, practical approaches to dealing with clients, ethics, and critical thinking. Upon completion, students should be able to demonstrate competent analytical skills and effective communication of their analysis in written and/or oral presentations.

**AGRICULTURE****C-L-SHC****AGR 111 Basic Farm Maintenance 1-3-2**

This course covers fundamentals of maintenance and repair of farm facilities and equipment. Topics include safe use of hand tools and farm machinery, carpentry, concrete, painting, wiring, welding, plumbing, and calculating costs and materials needed. Upon completion, students should be able to answer theoretical questions on topics covered and assist with maintenance and repair of farm facilities and equipment.

**AGR 121 Biological Pest Mgmt 3-0-3**

This course will emphasize the building and maintaining of healthy soil, plant, and insect biological cycles as the key to pest and disease management. Course content includes study of major pests and diseases, including structure, life cycle, and favored hosts; and biological and least toxic methods of chemical control. Upon completion, students should be able to identify and recommend methods of prevention and control of selected insects and diseases.

**AGR 139 Intro to Sustainable Ag 3-0-3**

This course will provide students with a clear perspective on the principles, history, and practices of sustainable agriculture in our local and global communities. Students will be introduced to the economic, environmental, and social impacts of agriculture. Upon completion, students should be able to identify the principles of sustainable agriculture as they relate to basic production practices.

**AGR 160 Plant Science 2-2-3**

This course introduces the basic principles of botany that pertain to agricultural production. Emphasis is placed on the anatomy and physiology of flowering plants. Upon completion, students should be able to identify and explain plant systems.

**AGR 170 Soil Science 2-2-3**

This course covers the basic principles of soil management and fertilization. Topics include liming, fertilization, soil management, biological properties of soil (including beneficial microorganisms), sustainable land care practices and the impact on soils, and plant nutrients. Upon completion, students should be able to analyze, evaluate, and properly amend soils/media according to sustainable practices.

**AGR 212 Farm Business Management 3-0-3**

This course introduces budgeting, farm analysis, production costs, business organizations, and general management

principles. Topics include enterprise budgets, partial budgets, whole farm budgets, income analysis, and business organizations. Upon completion, students should be able to prepare and analyze a farm budget.

**AGR 214 Agricultural Marketing 3-0-3**

This course covers basic marketing principles for agricultural products. Topics include buying, selling, processing, standardizing, grading, storing, and marketing of agricultural commodities. Upon completion, students should be able to construct a marketing plan for an agricultural product.

**AGR 220 Ag Mechanization 2-2-3**

This course is a study of farm machinery and agricultural equipment. Topics include selection and operation of tractors, materials handling equipment, tillage and harvesting equipment, and irrigation systems. Upon completion, students should be able to identify equipment parts and explain the basic principles of machinery operation and management.

**AGR 221 Farm Structures 2-2-3**

This course covers basic agricultural buildings and structures. Topics include building materials, cost estimating, basic blueprint reading, and job planning. Upon completion, students should be able to complete a cost estimate for constructing an agricultural structure.

**AGR 265 Organic Crop Prod: Spring 2-2-3**

This course includes a study of spring organic crop production practices, including vegetables, cut flowers, and culinary and medicinal herbs. Topics include variety selection, production methods, and record keeping procedures for certification. Upon completion, students should be able to demonstrate a knowledge of organic crop production appropriate for the spring season.

**AGR 266 Organic Crop Prod: Fall 2-2-3**

The course includes a study of fall organic crop production practices, including vegetables, cut flowers, and culinary and medicinal herbs. Topics include variety selection, production methods, and record keeping procedures for certification. Upon completion, students should be able to demonstrate a knowledge of organic crop production appropriate for the fall season.

**AGR 268 Adv Organic Crop Prod 2-6-4**

*Prerequisites: Take One: AGR 265 or AGR 266*

This course provides students with structured practical experience in managing the complexities of organic crop production. Emphasis is placed on crop management skills and decision making associated with production-related operations such as cover crop management, irrigation, and post-harvest physiology. Upon completion, students should be able to create and implement a crop management plan and demonstrate competency in the selection and efficient use of equipment.

**AGR 293 Selected Topics in Sustainable Agriculture 3-0-3**

This course provides an opportunity to explore areas of current interest in Sustainable Agriculture. Emphasis is placed on subject matter appropriate to this discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

**AIR CONDITIONING, HEATING, AND REFRIGERATION**

**C-L-SHC**

**AHR 120 HVACR Maintenance 1-3-2**

*Local Prerequisite: ELC 112 or Permission of Instructor*

This course introduces the basic principles of industrial air conditioning and heating systems. Emphasis is placed on preventive maintenance procedures for heating and cooling equipment and related components. Upon completion, students should be able to perform routine preventive maintenance tasks, maintain records, and assist in routine equipment repairs.

**ALTERNATIVE ENERGY TECHNOLOGY**

**C-L-SHC**

**ALT 110 Biofuels I 3-0-3**

This course is designed to provide an introduction to the fundamentals of bio-based fuels. Emphasis is placed on proper handling and use guidelines, basic chemistry of biofuels, production methods, and the social, environmental, and economic impacts of biofuels. Upon completion, students should be able to demonstrate a general understanding of biofuels.

**ALT 120 Renewable Energy Tech 2-2-3**

This course provides an introduction to multiple technologies that allow for the production and/or conservation of energy from renewable sources. Topics will include hydroelectric, wind power, passive and active solar energy, tidal energy, appropriate building techniques, and energy conservation methods. Upon completion, students should be able to demonstrate an understanding of renewable energy production and its impact of humans and their environment.

**ALT 210 Biofuels II 3-0-3**

*Prerequisite: ALT 110*

This course provides an in-depth study of commercial biofuels production and various methods for manufacturing biofuels on a large scale. Topics include advanced production technologies, feedstock selection and pretreatment, quality control, energy balance, and biofuels business models. Upon completion, students should possess a practical knowledge of commercial biofuels production and facility operation.

**ALT 211 Biofuels Analytics 2-4-4**

*Prerequisite: ALT 110*

This course is designed to address quality control management during all phases of the biofuels production

process. Topics include feedstock analysis, in-process quality monitoring, and standards compliance with national and international biofuels specifications. Upon completion, students should be able to demonstrate safe and accurate laboratory practices as well as an understanding of various quality control techniques.

**ALT 250 Thermal Systems 2-2-3**

This course introduces concepts, tools, techniques, and materials used to convert thermal energy into a viable, renewable energy resource. Topics include forced convection, heat flow and exchange, radiation, the various elements of thermal system design, regulations, and system installation and maintenance. Upon completion, students should be able to demonstrate an understanding of geothermal and solar thermal systems and corresponding regulations.

**ANIMAL SCIENCE**

**ANS 110 Animal Science C-L-SHC 3-0-3**

This course introduces the livestock industry. Topics include nutrition, reproduction, production practices, diseases, meat processing, sustainable livestock production, and marketing. Upon completion, students should be able to demonstrate a basic understanding of livestock production practices and the economic impact of livestock locally, regionally, state-wide, and internationally.

**ANS 111 Sustainable Livestock Mgt 2-2-3**

This course covers the integration of livestock as part of a sustainable farming system with emphasis on small-scale production for niche markets and pasture. Topics included are appropriate breed selection, nutrition and living requirements for livestock such as goats, hogs, sheep, poultry, and bees. Upon completion, student should recognize appropriate breeds for their farm needs and demonstrate knowledge of small-scale livestock production.

**ANTHROPOLOGY**

**ANT 210 General Anthropology C-L-SHC 3-0-3**

This course introduces the physical, archaeological, linguistic, and ethnological fields of anthropology. Topics include human origins, genetic variations, archaeology, linguistics, primatology, and contemporary cultures. Upon completion, students should be able to demonstrate an understanding of the four major fields of anthropology. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**ANT 220 Cultural Anthropology 3-0-3**

This course introduces the nature of human culture. Emphasis is placed on cultural theory, methods of fieldwork, and cross-cultural comparisons in the areas of ethnology, language, and the cultural past. Upon

completion, students should be able to demonstrate an understanding of basic cultural processes and how cultural data are collected and analyzed. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**ARCHITECTURAL TECHNOLOGY**

**ARC 111 Intro to Arch Technology C-L-SHC 1-6-3**

This course introduces basic architectural drafting techniques, lettering, use of architectural and engineer scales, and sketching. Topics include orthographic, axonometric, and oblique drawing techniques using architectural plans, elevations, sections, and details; reprographic techniques; and other related topics. Upon completion, students should be able to prepare and print scaled drawings within minimum architectural standards.

**ARC 114 Architectural CAD 1-3-2**

*Local Prerequisite: DFT 151*

This course introduces basic architectural CAD techniques. Topics include basic commands and system hardware and software. Upon completion, students should be able to prepare and plot architectural drawings to scale within accepted architectural standards.

**ARC 114A Architectural CAD Lab 0-3-1**

*Corequisite: Take ARC 114*

This course provides a laboratory setting to enhance architectural CAD skills. Emphasis is placed on further development of commands and system operation. Upon completion, students should be able to prepare and plot scaled architectural drawings.

**AUTOMOTIVE RESTORATION**

**ARS 112 Auto Restoration Research C-L-SHC 3-0-3**

This course covers identification and collection of information needed to restore classic automobiles. Emphasis is placed on using books, numbers, emblems, titles, bills of sale, and other documents as resources. Upon completion, students should be able to use reference materials in the area of auto restoration to restore classic vehicles.

**ARS 113 Automobile Upholstery 2-4-4**

This course covers automobile upholstery work used in restoration of classic automobiles. Emphasis is placed on removing, repairing, or reconstructing worn/damaged upholstery material in classic automobiles. Upon completion, students should be able to disassemble, repair/reconstruct, or replace the seats, headliners, door panels, and other components in the interior of vehicles.

**ARS 114 Restoration Skills I 2-4-4**

*Corequisites: Take All: ARS-113, ARS-117, ARS-131 and TRN120* This course covers mechanical, electrical, and upholstery restoration. Emphasis is placed on engines,

transmissions, brakes, starters, generators, distributors, and replacement or fabrication of upholstery. Upon completion, students should be able to restore, rebuild, or replace specific components in a wide range of classic vehicles.

**ARS 117 Automotive Engines 1-3-2**

This course covers the repair, rebuilding, and troubleshooting of internal combustion engines. Emphasis is placed on use of tools and equipment to measure reconditioning tolerances of the internal combustion engine. Upon completion, students should be able to disassemble, repair and/or replace, and reassemble an internal combustion engine.

**ARS 118 Wood and Metal Restoration 2-2-3**

This course introduces various wood materials used in early automobile construction including a general overview of woodworking techniques. Emphasis is placed on wood material, metal behavior, and trim construction. Upon completion, students should be able to perform simple woodworking techniques, attach and remove trim, and be familiar with basic hardware techniques.

**ARS 131 Chassis and Drive Trains 2-3-3**

This course introduces principles of operation of automotive drive trains, perimeter/ladder/full-framed vehicles, and related restoration processes. Emphasis is placed on the technology related to restoration of manual and automatic transmissions, transaxles, and final drive components used on vehicles. Upon completion, students should be able to describe, diagnose, and determine needed service and repairs in the vehicle restoration industry.

**ART**

**C-L-SHC**

**ART 111 Art Appreciation 3-0-3**

This course introduces the origins and historical development of art. Emphasis is placed on the relationship of design principles to various art forms including but not limited to sculpture, painting, and architecture. Upon completion, students should be able to identify and analyze a variety of artistic styles, periods, and media. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ART 114 Art History Survey I 3-0-3**

This course covers the development of art forms from ancient times to the Renaissance. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ART 115 Art History Survey II 3-0-3**

This course covers the development of art forms from the Renaissance to the present. Emphasis is placed on content, terminology, design, and style. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of human social development. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ART 117 Non-Western Art History 3-0-3**

This course introduces non-Western cultural perspectives. Emphasis is placed on, but not limited to, African, Oriental, and Oceanic art forms throughout history. Upon completion, students should be able to demonstrate an historical understanding of art as a product reflective of non-Western social and cultural development. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ART 121 Two-Dimensional Design 0-6-3**

This course introduces the elements and principles of design as applied to two-dimensional art. Emphasis is placed on the structural elements, the principles of visual organization, and the theories of color mixing and interaction. Upon completion, students should be able to understand and use critical and analytical approaches as they apply to two-dimensional visual art. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 122 Three-Dimensional Design 0-6-3**

*Prerequisites: ART 121*

This course introduces basic studio problems in three-dimensional visual design. Emphasis is placed on the structural elements and organizational principles as applied to mass and space. Upon completion, students should be able to apply three-dimensional design concepts. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 131 Drawing I 0-6-3**

This course introduces the language of drawing and the use of various drawing materials. Emphasis is placed on drawing techniques, media, and graphic principles. Upon completion, students should be able to demonstrate competence in the use of graphic form and various drawing processes. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 132 Drawing II 0-6-3**

*Prerequisites: ART 131*

This course continues instruction in the language of drawing and the use of various materials. Emphasis is placed on experimentation in the use of drawing techniques, media, and graphic materials. Upon completion, students should be able to demonstrate increased competence in the expressive use of graphic form and techniques. This course has been

approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 214 Portfolio and Resume 0-2-1**

This course covers resume writing, interview skills, and the preparation and presentation of an art portfolio. Emphasis is placed on the preparation of a portfolio of original artwork, the preparation of a photographic portfolio, approaches to resume writing, and interview techniques. Upon completion, students should be able to mount original art for portfolio presentation, photograph and display a professional slide portfolio, and write an effective resume. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 231 Printmaking I 0-6-3**

This course introduces printmaking: its history, development techniques, and processes. Emphasis is placed on basic applications with investigation into image source and development. Upon completion, students should be able to produce printed images utilizing a variety of methods. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 232 Printmaking II 0-6-3**

*Prerequisites: ART 231*

This course includes additional methods and printmaking processes. Emphasis is placed on the printed image as related to method, source, and concept. Upon completion, students should be able to produce expressive images utilizing both traditional and innovative methods. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 240 Painting I 0-6-3**

This course introduces the language of painting and the use of various painting materials. Emphasis is placed on the understanding and use of various painting techniques, media, and color principles. Upon completion, students should be able to demonstrate competence in the use of creative processes directed toward the development of expressive form. . This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 241 Painting II 0-6-3**

*Prerequisites: ART 240*

This course provides a continuing investigation of the materials, processes, and techniques of painting. Emphasis is placed on the exploration of expressive content using a variety of creative processes. Upon completion, students should be able to demonstrate competence in the expanded use of form and variety. . This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 281 Sculpture I 0-6-3**

This course provides an exploration of the creative and technical methods of sculpture with focus on the traditional processes. Emphasis is placed on developing basic skills as they pertain to three-dimensional expression in various media. Upon completion, students should be able to show competence in variety of sculptural approaches. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 282 Sculpture II 0-6-3**

*Prerequisites: ART 281*

This course provides an exploration of the creative and technical methods of sculpture with focus on the traditional processes. Emphasis is placed on developing basic skills as they pertain to three-dimensional expression in various media. Upon completion, students should be able to show competence in variety of sculptural approaches. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 283 Ceramics I 0-6-3**

This course provides an introduction to three-dimensional design principles using the medium of clay. Emphasis is placed on fundamentals of forming, surface design, glaze application, and firing. Upon completion, students should be able to demonstrate skills in slab and coil construction, simple wheel forms, glaze technique, and creative expression. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ART 284 Ceramics II 0-6-3**

*Prerequisites: ART 283*

This course covers advanced hand building and wheel techniques. Emphasis is placed on creative expression, surface design, sculptural quality, and glaze effect. Upon completion, students should be able to demonstrate a high level of technical competence in forming and glazing with a development of three-dimensional awareness. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ASTRONOMY**

**C-L-SHC**

**AST 111 Descriptive Astronomy 3-0-3**

*Corequisite: AST 111A*

This course introduces an overall view of modern astronomy. Topics include an overview of the solar system, the sun, stars, galaxies, and the larger universe. Upon completion, students should be able to demonstrate an understanding of the universe around them. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**AST 111A Descriptive Astronomy Lab 0-2-1**

*Corequisite: AST 111*

This course is a laboratory to accompany AST 111. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 111 and which provide practical experience. Upon completion, students should be able to demonstrate an understanding of the universe around them. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**AST 151 General Astronomy I 3-0-3**

This course introduces the science of modern astronomy with a concentration on the solar system. Emphasis placed on the history and physics of astronomy and an introduction to the solar system, including the planets, comets, and meteors. Upon completion, students should be able to demonstrate a general understanding of the solar system. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Science.

**ART 151A General Astronomy I Lab 0-2-1**

*Corequisite: AST 151*

The course is a laboratory to accompany AST 151. Emphasis is placed on laboratory experiences which enhance the materials presented in AST 151 and which provide practical experience. Upon completion, students should be able to demonstrate a general understanding of the solar system. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Science.

**AUTOMOTIVE BODY REPAIR**

**AUB 111 Painting and Refinishing I C-L-SHC 2-6-4**

This course introduces the proper procedures for using automotive refinishing equipment and materials in surface preparation and application. Topics include federal, state, and local regulations, personal safety, refinishing equipment and materials, surface preparation, masking, application techniques, and other related topics. Upon completion, students should be able to identify and use proper equipment and materials in refinishing by following accepted industry standards.

**AUB 112 Painting and Refinishing II 2-6-4**

*Prerequisite: AUB 111*

This course covers advanced painting techniques and technologies with an emphasis on identifying problems encountered by the refinishing technician. Topics include materials application, color matching, correction of refinishing problems, and other related topics. Upon completion, students should be able to perform spot, panel, and overall refinishing repairs and identify and correct refinish problems.

**AUB 121 Non-Structural Damage I 1-4-3**

This course introduces safety, tools, and the basic fundamentals of body repair. Topics include shop safety, damage analysis, tools and equipment, repair techniques, materials selection, materials usage, and other related topics. Upon completion, students should be able to identify and repair minor direct and indirect damage including removal/repairing/replacing of body panels to accepted standards.

**AUTOMOTIVE**

**AUT 114 Safety and Emissions C-L-SHC 1-2-2**

This course covers the laws, procedures, and specifications needed to perform a North Carolina State Safety and Emissions inspection. Topics include brake, steering and suspension, lighting, horn, windshield wiper, tire, mirrors, and emission control devices inspection. Upon completion, students should be able to perform complete and thorough North Carolina State Safety and Emissions inspections.

**AUT 114A Safety and Emissions Lab 0-2-1**

*Corequisite: AUT 114*

This course is an optional lab that allows students to enhance their understanding of North Carolina State Emissions Inspection failures. Topics include evaporative, positive crankcase ventilation, exhaust gas recirculation and exhaust emissions systems operation, including catalytic converter failure diagnosis. Upon completion, students should be able to employ diagnostic strategies to repair vehicle emissions failures resulting from North Carolina State Emissions inspection.

**AUT 116 Engine Repair 2-3-3**

This course covers the theory, construction, inspection, diagnosis, and repair of internal combustion engines and related systems. Topics include fundamental operating principles of engines and diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis, measurement and repair of automotive engines using appropriate tools, equipment, procedures, and service information.

**AUT 116A Engine Repair Lab 0-3-1**

*Corequisite: AUT 116*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include diagnosis, inspection, adjustment, and repair of automotive engines using appropriate service information. Upon completion, students should be able to perform basic diagnosis, measurement and repair of automotive engines using appropriate tools, equipment, procedures, and service information.

**AUT 141 Suspension & Steering Sys 2-3-3**

This course covers principles of operation, types, and diagnosis/repair of suspension and steering systems to



include steering geometry. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

**AUT 141A Suspension & Steering Lab 0-3-1**

*Corequisite: AUT 141*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include manual and power steering systems and standard and electronically controlled suspension and steering systems. Upon completion, students should be able to service and repair steering and suspension components, check and adjust alignment angles, repair tires, and balance wheels.

**AUT 151 Brake Systems 2-3-3**

This course covers principles of operation and types, diagnosis, service, and repair of brake systems. Topics include drum and disc brakes involving hydraulic, vacuum boost, hydra-boost, electrically powered boost, and anti-lock and parking brake systems. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems.

**AUT 151A Brake Systems Lab 0-3-1**

*Corequisite: AUT 151*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include drum and disc brakes involving hydraulic, vacuum-boost, hydra-boost, electrically powered boost, and anti-lock, parking brake systems, and emerging brake systems technologies. Upon completion, students should be able to diagnose, service, and repair various automotive braking systems.

**AUT 163 Adv Auto Electricity 2-3-3**

*Prerequisite: TRN 120*

This course covers electronic theory, wiring diagrams, test equipment, and diagnosis, repair, and replacement of electronics, lighting, gauges, horn, wiper, accessories, and body modules. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, and troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

**AUT 163A Adv Auto Electricity Lab 0-3-1**

*Corequisite: AUT 163*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include networking and module communication, circuit construction, wiring diagrams, circuit testing, troubleshooting, and emerging electrical/electronic systems technologies. Upon completion, students should be able to properly use wiring

diagrams, diagnose, test, and repair wiring, lighting, gauges, accessories, modules, and electronic concerns.

**AUT 181 Engine Performance 1 2-3-3**

This course covers the introduction, theory of operation, and basic diagnostic procedures required to restore engine performance to vehicles equipped with complex engine control systems. Topics include an overview of engine operation, ignition components and systems, fuel delivery, injection components and systems, and emission control devices. Upon completion, students should be able to describe operation and diagnose/repair basic ignition, fuel, and emission-related driveability problems using appropriate test equipment/service information.

**AUT 181A Engine Performance 1 Lab 0-3-1**

*Corequisite: AUT 181*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include overviews of engine operation, ignition components and systems, fuel delivery, injection components and systems, and emission control devices and emerging engine performance technologies. Upon completion, students should be able to describe operation and diagnose/repair basic ignition, fuel, and emission-related drive ability problems using appropriate test equipment/service information.

**AUT 183 Engine Performance 2 2-6-4**

*Prerequisite: AUT 181*

This course covers study of the electronic engine control systems, the diagnostic process used to locate engine performance concerns, and procedures used to restore normal operation. Topics will include currently used fuels and fuel systems, exhaust gas analysis, emission control components and systems, OBD II (on-board diagnostics), and inter-related electrical/electronic systems. Upon completion, students should be able to diagnose and repair complex engine performance concerns using appropriate test equipment and service information.

**AUT 221 Auto Transm/Transaxles 2-3-3**

This course covers operation, diagnosis, service, and repair of automatic transmissions/transaxles. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to explain operational theory and diagnose and repair automatic drive trains.

**AUT 221A Auto Transm/Transax Lab 0-3-1**

*Corequisite: AUT 221*

This course is an optional lab to be used as an alternative to co-op placement in meeting the NATEF standards for total hours. Topics include hydraulic, pneumatic, mechanical, and electrical/electronic operation of automatic drive trains and the use of appropriate service tools and equipment. Upon completion, students should be able to diagnose and repair automatic drive trains.

**AUT 231 Man Trans/Axles/Drtrains 2-3-3**  
This course covers the operation, diagnosis, and repair of manual transmissions/transaxles, clutches, driveshafts, axles, and final drives. Topics include theory of torque, power flow, and manual drive train servicing and repair using appropriate service information, tools, and equipment. Upon completion, students should be able to explain operational theory and diagnose and repair manual drive trains.

**AUT 231A Man Trans/Ax/Drtrains Lab 0-3-1**  
*Corequisite: AUT 231*  
This course is an optional lab for the program that needs to meet NATEF hour standards but does not have a co-op component in the program. Topics include manual drive train diagnosis, service, and repair using appropriate service information, tools, and equipment. Upon completion, students should be able to diagnose and repair manual drive trains.

**AUT 281 Adv Engine Performance 2-2-3**  
This course utilizes service information and specialized test equipment to diagnose/repair power train control systems. Topics include computerized ignition, fuel and emission systems, related diagnostic tools and equipment, data communication networks, and service information. Upon completion, students should be able to perform advanced engine performance diagnosis and repair.

## BARBERING

### C-L-SHC

**BAR 111 Barbering Concepts I 4-0-4**  
*Corequisite: BAR 112*  
This course introduces basic barbering concepts and includes careers in barber styling and various hair treatments. Emphasis is placed on sanitizing equipment, professional ethics, skin, scalp, and hair disorders and treatment, and safe work practices. Upon completion, students should be able to safely and competently apply barbering concepts in the shop setting.

**BAR 112 Barbering Clinic I 0-24-8**  
*Corequisite: BAR 111*  
This course introduces basic clinic services. Topics include a study of sanitizing procedures for implements and equipment, determination of hair texture, hair cutting, and hair processing. Upon completion, students should be able to safely and competently demonstrate shop services.

**BAR 113 Barbering Concepts II 4-0-4**  
*Corequisite: BAR 114*  
This course covers more comprehensive barbering concepts. Topics include safety and sanitation, product knowledge, as well as both wet and thermal hairstyling. Upon completion, students should be able to safely and competently apply these barbering concepts in the shop setting.

**BAR 114 Barbering Clinic II 0-24-8**  
*Corequisite: BAR 113*  
This course provides experience in a simulated shop setting. Topics include draping, shampooing, hair cutting, and hair drying as well as chemical processing. Upon completion, students should be able to safely and competently apply these barbering concepts in the shop setting.

**BAR 115 Barbering Concepts III 4-0-4**  
*Corequisite: BAR 116*  
This course covers more comprehensive barbering concepts. Topics include hair processing as well as finger waving, wet and thermal hairstyling, skin care, including electricity/light therapy, and manicuring. Upon completion, students should be able to safely and competently apply these barbering concepts in the shop setting.

**BAR 116 Barbering Clinic III 0-12-4**  
*Corequisite: BAR 115*  
This course covers more comprehensive barbering concepts. Emphasis is placed on intermediate-level of skin care manicuring, scalp treatments, hair design, chemical restructuring, and other related topics. Upon completion, students should be able to safely and competently apply these barbering concepts in the shop setting.

**BAR 117 Barbering Concepts IV 2-0-2**  
*Corequisite: BAR 118*  
This course covers advanced barbering concepts. Topics include hair color, advanced hair cutting techniques, hair styling, shaving, skin care, retailing, and preparing for a job interview. Upon completion, students should be able to demonstrate an understanding of these barbering concepts and meet program completion requirements.

**BAR 118 Barbering Clinic IV 0-21-7**  
*Corequisite: BAR 117*  
This course provides advanced experience in a simulated shop setting. Emphasis is placed on efficient and competent delivery of all shop services in preparation for the licensing examination and employment. Upon completion, students should be able to demonstrate competence in the areas covered on the Barbering Licensing Examination and meet entry-level employment requirements.

**BAR 119 Trichology & Chemistry 1-3-2**  
This course introduces basic principles associated with the study of the hair and scalp and the interaction of applied chemicals. Emphasis is placed on pH actions, the reactions and effects of chemical ingredients, and the impact of healthcare and wellness as it relates to hair loss. Upon completion, students should be able to demonstrate an understanding of chemical terminology, pH testing, and chemical reactions on hair.

**BAR 121 Contemporary Hair Coloring 1-3-2**  
*Prerequisite: BAR 111 and BAR 112*  
This course covers basic color concepts, hair coloring problems, and application techniques. Topics include color theory, terminology, contemporary techniques, product

knowledge, and other related topics. Upon completion, students should be able to identify a client's color needs and safely and competently perform color applications and correct problems.

## BIOLOGY

- |  |                |  |
|--|----------------|--|
|  | <b>C-L-SHC</b> |  |
| <b>BIO 090 Foundations of Biology</b>  | <b>3-2-4</b>   |  |
| <i>Corequisite: DRE 098 or appropriate placement test scores</i>   |                |  |
| This course introduces basic biological concepts. Topics include basic biochemistry, cell structure and function, interrelationships among organisms, scientific methodology, and other related topics. Upon completion, students should be able to demonstrate preparedness for college-level biology courses.  |                |  |
| <b>BIO 094 Concepts of Human Biology</b>   | <b>3-2-4</b>   |  |
| <i>Corequisite: DRE 098 or appropriate placement test scores</i>   |                |  |
| This course focuses on fundamental concepts of human biology. Topics include terminology, biochemistry, cell biology, tissues, body systems, and other related topics. Upon completion, students should be able to demonstrate preparedness for college-level anatomy and physiology courses.  |                |  |
| <b>BIO 106 Introduction to Anatomy/Physiology/Microbiology</b>   | <b>2-2-3</b>   |  |
| This course covers the fundamental and principle concepts of human anatomy, physiology, and microbiology. Topics include an introduction to the structure and function of cells, tissues, and human organ systems, and an overview of microbiology, epidemiology, and control of microorganisms. Upon completion, students should be able to identify structures and functions of the human body and describe microorganisms and their significance in health and disease.   |                |  |
| <b>BIO 110 Principles of Biology</b>   | <b>3-3-4</b>   |  |
| <i>Corequisite: DRE 098 or appropriate placement test scores</i>   |                |  |
| This course provides a survey of fundamental biological principles for non-science majors. Emphasis is placed on basic chemistry, cell biology, metabolism, genetics, taxonomy, evolution, ecology, diversity, and other related topics. Upon completion, students should be able to demonstrate increased knowledge and better understanding of biology as it applies to everyday life. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.                 |                |  |
| <b>BIO 111 General Biology I</b>   | <b>3-3-4</b>   |  |
| <i>Corequisite: DRE 098 or appropriate placement test scores</i>   |                |  |
| This course introduces the principles and concepts of biology. Emphasis is placed on basic biological chemistry, cell structure and function, metabolism and energy transformation, genetics, evolution, classification, and other related topics. Upon completion, students should be able to demonstrate understanding of life at the molecular and cellular levels. This course has been approved for transfer  |                |  |
|  |                | under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences. |
| <b>BIO 112 General Biology II</b>  | <b>3-3-4</b>   |  |
| <i>Prerequisite: BIO 111</i>   |                |  |
| This course is a continuation of BIO 111. Emphasis is placed on organisms, biodiversity, plant and animal systems, ecology, and other related topics. Upon completion, students should be able to demonstrate comprehension of life at the organismal and ecological levels. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.   |                |  |
| <b>BIO 120 Introductory Botany</b>   | <b>3-3-4</b>   |  |
| <i>Prerequisite: Take one: BIO 110 or BIO 111</i>  |                |  |
| This course provides an introduction to the classification, relationships, structure, and function of plants. Topics include reproduction and development of seed and non-seed plants, levels of organization, form and function of systems, and a survey of the major taxa. Upon completion, students should be able to demonstrate comprehension of plant form and function, including selected taxa of both seed and non-seed plants. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences.      |                |  |
| <b>BIO 130 Introductory Zoology</b>  | <b>3-3-4</b>   |  |
| <i>Prerequisite: Take one: BIO 110 or BIO 111</i>  |                |  |
| This course provides an introduction to the classification, relationships, structure, and function of major animal phyla. Emphasis is placed on levels of organization, reproduction and development, comparative systems, and a survey of selected phyla. Upon completion, students should be able to demonstrate comprehension of animal form and function, including comparative systems of selected groups. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences.                               |                |  |
| <b>BIO 140 Environmental Biology</b>   | <b>3-0-3</b>   |  |
| <i>Corequisite: BIO 140A</i>   |                |  |
| This course introduces environmental processes and the influence of human activities upon them. Topics include ecological concepts, population growth, natural resources, and a focus on current environmental problems from scientific, social, political, and economic perspectives. Upon completion, students should be able to demonstrate an understanding of environmental interrelationships and of contemporary environmental issues. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences. |                |  |
| <b>BIO 140A Environmental Biology Laboratory</b>   | <b>0-3-1</b>   |  |
| <i>Corequisite: BIO 140</i>  |                |  |
| This course provides a laboratory component to complement BIO 140. Emphasis is placed on laboratory and field experience. Upon completion, students should be able to demonstrate a practical understanding of environmental interrelationships and of contemporary environmental  |                |  |

issues. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences.

**BIO 143 Field Biology Minicourse 1-2-2**

This course introduces the biological and physical components of a field environment. Emphasis is placed on a local field environment with extended field trips to other areas. Upon completion, students should be able to demonstrate an understanding of the biological and physical components of the specific biological environment. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 150 Genetics in Human Affairs 3-0-3**

*Prerequisites: Take one: BIO 110 or BIO 111*

This course describes the importance of genetics in everyday life. Topics include the role of genetics in human development, birth defects, cancer and chemical exposure, and current issues including genetic engineering and fertilization methods. Upon completion, students should be able to understand the relationship of genetics to society today and its possible influence on our future. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 155 Nutrition 3-0-3**

This course covers the biochemistry of foods and nutrients with consideration of the physiological effects of specialized diets for specific biological needs. Topics include cultural, religious, and economic factors that influence a person's acceptance of food, as well as nutrient requirements of the various life stages. Upon completion, students should be able to identify the functions and sources of nutrients, the mechanisms of digestion, and the nutritional requirements of all age groups. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 163 Basic Anatomy and Physiology 4-2-5**

This course provides a basic study of the structure and function of the human body. Topics include a basic study of the body systems as well as an introduction to homeostasis, cells, tissues, nutrition, acid-base balance, and electrolytes. Upon completion, students should be able to demonstrate a basic understanding of the fundamental principles of anatomy and physiology and their interrelationships. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 165 Anatomy and Physiology I 3-3-4**

*Local Prerequisite: Take one: BIO 090, BIO 094, or BIO 110, BIO 111, or by permission of instructor*

This course is the first of a two-course sequence which provides a comprehensive study of the anatomy and physiology of the human body. Topics include the structure, function, and interrelationship of organ systems with emphasis on the processes which maintain homeostasis. Upon completion, students should be able to

demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 166 Anatomy and Physiology II 3-3-4**

*Prerequisite: BIO 165*

This course is the second in a two-course sequence which provides a comprehensive study of the anatomy and physiology of the human body. Topics include the structure, function, and interrelationship of organ systems with emphasis on the processes which maintain homeostasis. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and the interrelationships of all body systems. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 168 Anatomy and Physiology I 3-3-4**

*Local Prerequisite: Take one: BIO 090, BIO 094, or BIO 110, BIO 111, or by permission of instructor*

This course provides a comprehensive study of the anatomy and physiology of the human body. Topics include body organization, homeostasis, cytology, histology, and the integumentary, skeletal, muscular, and nervous systems and special senses. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 169 Anatomy and Physiology II 3-3-4**

*Prerequisite: BIO 168*

This course provides a continuation of the comprehensive study of the anatomy and physiology of the human body. Topics include the endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems as well as metabolism, nutrition, acid-base balance, and fluid and electrolyte balance. Upon completion, students should be able to demonstrate an in-depth understanding of principles of anatomy and physiology and their interrelationships. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 175 General Microbiology 2-2-3**

*Prerequisite: Take one: BIO 110, BIO 111, BIO 163, BIO 165, or BIO 168*

This course covers principles of microbiology with emphasis on microorganisms and human disease. Topics include an overview of microbiology and aspects of medical microbiology, identification and control of pathogens, disease transmission, host resistance, and immunity. Upon completion, students should be able to demonstrate knowledge of microorganisms and the disease process as well as aseptic and sterile techniques. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 176 Advanced General Microbiology 1-2-2***Prerequisite: BIO 175*

This course is a continuation of BIO 175. Emphasis is placed on microbial metabolism, genetics, and environmental and food microbiology. Upon completion, students should be able to identify unknown microbes and demonstrate an understanding of the fundamentals of molecular biology and microbial ecology. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 180 Biological Chemistry 2-2-3***Local Prerequisite: Completion of a high school chemistry course and a CCCC-administered proficiency exam; completion of a college chemistry course; or by permission of instructor.*

This course provides an introduction to basic biochemical processes in living systems. Topics include properties of carbohydrates, lipids, proteins, nucleic acids, vitamins, and buffers, with emphasis on biosynthesis, degradation, function, and equilibrium. Upon completion, students should be able to demonstrate an understanding of fundamental biochemical concepts. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 250 Genetics 3-3-4***Prerequisite: BIO 112*

This course covers principles of prokaryotic and eukaryotic cell genetics. Emphasis is placed on the molecular basis of heredity, chromosome structure, patterns of Mendelian and non-Mendelian inheritance, evolution, and biotechnological applications. Upon completion, students should be able to recognize and describe genetic phenomena and demonstrate knowledge of important genetic principles. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 265 Cell Biology 3-3-4***Prerequisites: BIO 111, BIO 275 or BIO 280*

This course provides an in-depth study of cellular organization and communication, biochemical cell processes, and cellular growth, replication and death. Topics include organelle structure and function, nucleic acid and protein synthesis, gene organization and regulation, cell signaling mechanisms, bioenergetics, cell motility and apoptosis. Upon completion, students should be able to demonstrate knowledge of cell structure and function and lab skills including microscopy, cell culture, and molecular biology techniques. This course has been approved for transfer under the CAA as a premajor and/or elective course requirement.

**BIO 271 Pathophysiology 3-0-3***Prerequisite: Take one: BIO 163, BIO 166, or BIO 169*

This course provides an in-depth study of human pathological processes and their effects on homeostasis. Emphasis is placed on interrelationships among organ systems in deviations from homeostasis. Upon completion, students should be able to demonstrate a detailed knowledge of pathophysiology. This course has been approved for

transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 275 Microbiology 3-3-4***Prerequisite: Take one: BIO 110, BIO 111, BIO 163, BIO 165, or BIO 168*

This course covers principles of microbiology and the impact these organisms have on man and the environment. Topics include the various groups of microorganisms, their structure, physiology, genetics, microbial pathogenicity, infectious diseases, immunology, and selected practical applications. Upon completion, students should be able to demonstrate knowledge and skills including microscopy, aseptic technique, staining, culture methods, and identification of microorganisms. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIO 280 Biotechnology 2-3-3***Prerequisite: Take one: BIO 111, CHM 131, or CHM 151*

This course provides experience in selected laboratory procedures. Topics include proper laboratory techniques in biology and chemistry. Upon completion, students should be able to identify laboratory techniques and instrumentation in basic biotechnology. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BIOPROCESS MANUFACTURING****C-L-SHC****BPM 110 Bioprocess Practices 3-4-5**

This course provides a study of plant operations including various plant utility systems and detailed study of the varied plant environments in a bioprocessing facility. Emphasis is placed on quality mindset and principles of validation through applications of monitoring procedures. Upon completion, students should be able to demonstrate the rigors of industry regulation and its necessity.

**BLUEPRINT READING****C-L-SHC****BPR 111 Print Reading 1-2-2**

This course introduces the basic principles of print reading. Topics include line types, orthographic projections, dimensioning methods, and notes. Upon completion, students should be able to interpret basic prints and visualize the features of a part or system.

**BPR 115 Electric/Fluid Power Diagrams 1-2-2**

This course covers sketching of detail and assembly drawings and reading of hydraulic, pneumatic, electrical, mechanical, and piping schematics. Emphasis is placed on interpretation and communication skills utilizing sketches, symbols, diagrams, and other related topics. Upon completion, students should be able to read, demonstrate an understanding of, and draw sketches and schematics commonly used in industry.

**BPR 121 Blueprint Reading: Mechanical** 1-2-2  
*Take one--Prerequisite: BPR 111 or MAC 131*  
This course covers the interpretation of intermediate blueprints. Topics include tolerancing, auxiliary views, sectional views, and assembly drawings. Upon completion, students should be able to read and interpret a mechanical working drawing.

**BPR 130 Print Reading-Construction** 3-0-3  
This course covers the interpretation of prints and specifications that are associated with design and construction projects. Topics include interpretation of documents for foundations, floor plans, elevations, and related topics. Upon completion, students should be able to read and interpret construction prints and documents.

## **BROADCAST PRODUCTION**

**BPT 110 Intro to Broadcasting** C-L-SHC 3-0-3  
This course introduces the field of broadcasting and other electronic media. Emphasis is placed on the history, development, and current status of radio, television, and related industries. Upon completion, students should be able to demonstrate knowledge of regulations, organizational structure, revenue sources, historical development, and ongoing operation of broadcasting and related industries.

**BPT 111 Broadcast Law & Ethics** 3-0-3  
This course covers judicial, legislative, and administrative policies pertinent to the ethical and legal operation of broadcast and other electronic media organizations. Emphasis is placed on legal and ethical issues including First Amendment protection, FCC regulations, copyright, and libel laws. Upon completion, students should be able to demonstrate an understanding of the historical significance and modern-day application of important broadcast laws and policies.

**BPT 112 Broadcast Writing** 3-2-4  
This course introduces proper copy and script writing techniques and formats for radio, television, and other electronic media. Emphasis is placed on creating effective scripts for programs and promotional materials, including commercial and public radio service announcements for a specific target audience. Upon completion, students should be able to understand and write copy and scripts according to standard industry formats.

**BPT 113 Broadcast Sales** 3-0-3  
This course covers sales principles applicable to radio, television, cable, and other electronic media. Emphasis is placed on prospecting and servicing accounts, developing clients, and preparing sales presentations. Upon completion, students should be able to create a sales presentation based upon standard ratings reports, prospect for new customers, and understand account management.

**BPT 121 Broadcast Speech I** 2-3-3  
This course covers basic preparation and performance of on-air talents' speaking quality. Emphasis is placed on developing a pleasant and efficient voice with techniques applied to taped news, features, commercial copy, and announcing. Upon completion, students should be able to show improvement and aptitude in proper articulation, pronunciation, rate of delivery, pitch, breathing techniques, inflection, projection, and phrasing.

**BPT 122 Broadcast Speech II** 2-3-3  
*Prerequisite: BPT 121*  
This course covers basic and advanced preparation and performance of on-air speech. Emphasis is placed on enhancing a pleasant, effective voice with techniques applied to impromptu speaking, radio plays, and taped presentations. Upon completion, students should be able to employ proper articulation, pronunciation, rate of delivery, phrasing, and other voice techniques in a professional manner.

**BPT 131 Audio/Radio Production I** 2-6-4  
This course covers the creation, development, production, and presentation of audio programming elements for broadcast and/or other electronic media applications. Emphasis is placed on the proper operation of professional audio equipment and the study of basic physical behavior and perceptual effects of sound. Upon completion, students should be able to correctly operate audio recording and playback equipment and demonstrate an understanding of the basic components of sound.

**BPT 132 Audio/Radio Production II** 2-6-4  
*Prerequisite: BPT 131*  
This course covers the use of advanced audio production techniques in broadcast and/or other electronic media applications. Topics include basic audio signal processing equipment and analog and digital professional audio recording and playback equipment. Upon completion, students should be able to optimize the use of professional audio equipment in the production of effective audio programming.

**BPT 135 Radio Performance I** 0-6-2  
This course provides an opportunity to operate the college radio station as an announcer/board operator. Emphasis is placed on operating control-room equipment, logging transmitter readings, EBS tests, reading news, and broadcasting free of interruptions. Upon completion, students should be able to prepare music, public service announcements, and promos for timely broadcast; introduce songs/programs smoothly; and follow FCC rules.

**BPT 210 Broadcast Management** 3-0-3  
This course covers management duties within the fields of broadcasting and other electronic media. Emphasis is placed on the management of broadcast stations and cable systems, including financial, personnel, news, sales, and

promotion management. Upon completion, students should be able to demonstrate knowledge of successful station operation, including key management concepts and strategies.

**BPT 215 Broadcast Programming 3-0-3**

This course covers programming methods, research, and resources needed to provide programs for radio, television, cable, and satellite target audiences. Topics include market research and analysis; local, network, and public station programming and program sources; and scheduling procedures for electronic media. Upon completion, students should be able to develop a programming format or schedule.

**BPT 231 Video/TV Production I 2-6-4**

This course covers the language of film/video, shot composition, set design, lighting, production planning, scripting, editing, and operation of video and television production equipment. Emphasis is placed on mastering the body of knowledge and techniques followed in producing all forms of video and television production. Upon completion, students should be able to produce basic video and television productions in a team environment.

**BPT 232 Video/TV Production II 2-6-4**

*Prerequisite: BPT 231*

This course covers advanced video and television production. Emphasis is placed on field production, post-production, digital video effects, graphics, and multi-camera productions. Upon completion, students should be able to create productions that optimize the use of studio, field, and post-production equipment.

**BPT 235 TV Performance I 0-6-2**

This course provides hands-on experience in the operation of television studios and/or stations. Emphasis is placed on the application of skills through direct participation in the production or distribution of television programs. Upon completion, students should be able to demonstrate competence in performing key station and/or studio duties.

**BPT 236 TV Performance II 0-6-2**

*Prerequisite: BPT 235*

This course provides hands-on experience in the operation of television studios and/or stations. Emphasis is placed on the application of skills through direct participation in the production or distribution of television programs. Upon completion, students should be able to demonstrate competence in performing key station and/or studio duties.

**BPT 250 Institutional Video 2-3-3**

This course covers development and production of non-broadcast video productions for clients. Emphasis is placed on satisfying client objectives, including interviewing, research, site surveying, script review, photography, and

post-production. Upon completion, students should be able to plan, write, shoot, and edit an institutional video designed to meet a client's objectives.

**BUSINESS**

**C-L-SHC**

**BUS 110 Introduction to Business 3-0-3**

This course provides a survey of the business world. Topics include the basic principles and practices of contemporary business. Upon completion, students should be able to demonstrate an understanding of business concepts as a foundation for studying other business subjects. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BUS 115 Business Law I 3-0-3**

This course introduces the student to the legal and the ethical framework of business. Contracts, negotiable instruments, the law of sales, torts, crimes, constitutional law, the Uniform Commercial Code, and the court systems are examined. Upon completion the student should be able to identify legal and ethical issues that arise in business decisions and the laws that apply to them. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BUS 116 Business Law II 3-0-3**

*Prerequisites: Take BUS 115*

This course includes the study of the legal and ethical framework of business. Business Organizations, property law, intellectual property law, agency and employment law, consumer law, secured transactions, and bankruptcy are examined. Upon completion, the student should be able to identify legal and ethical issues that arise in business decisions and the laws that apply to them.

**BUS 125 Personal Finance 3-0-3**

This course provides a study of individual and family financial decisions. Emphasis is placed on building useful skills in buying, managing finances, increasing resources, and coping with current economic conditions. Upon completion, students should be able to develop a personal financial plan.

**BUS 137 Principles of Management 3-0-3**

This course is designed to be an overview of the major functions of management. Emphasis is placed on planning, organizing, controlling, directing, and communicating. Upon completion, students should be able to work as contributing members of a team utilizing these functions of management. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BUS 151 People Skills 3-0-3**

This course introduces the basic concepts of identity and communication in the business setting. Topics include self-concept, values, communication styles, feelings and

emotions, roles versus relationships, and basic assertiveness, listening, and conflict resolution. Upon completion, students should be able to distinguish between unhealthy, self-destructive, communication patterns and healthy, non-destructive, positive communication patterns.

**BUS 152 Human Relations 3-0-3**

This course introduces the concepts of effective human interaction in the business work environment. Topics include effective communication techniques, motivation, ego states, stress, and conflict. Upon completion, students should be able to explain the importance of human relations, apply motivational techniques, and implement strategies for resolving work-related conflicts.

**BUS 153 Human Resource Management 3-0-3**

This course introduces the functions of personnel/human resource management within an organization. Topics include equal opportunity and the legal environment, recruitment and selection, performance appraisal, employee development, compensation planning, and employee relations. Upon completion, students should be able to anticipate and resolve human resource concerns.

**BUS 217 Employment Law and Regulations 3-0-3**

This course introduces the principle laws and regulations affecting public and private organizations and their employees or prospective employees. Topics include fair employment practices, EEO, affirmative action, and employee rights and protections. Upon completion, students should be able to evaluate organization policy for compliance and assure that decisions are not contrary to law.

**BUS 225 Business Finance 2-2-3**

*Prerequisite: ACC 120*

This course provides an overview of business financial management. Emphasis is placed on financial statement analysis, time value of money, management of cash flow, risk and return, and sources of financing. Upon completion, students should be able to interpret and apply the principles of financial management.

**BUS 228 Business Statistics 2-2-3**

*Local Prerequisite: MAT 115, MAT 140, or MAT 161*

This course introduces the use of statistical methods and tools in evaluating research data for business applications. Emphasis is placed on basic probability, measures of spread and dispersion, central tendency, sampling, regression analysis, and inductive inference. Upon completion, students should be able to apply statistical problem solving to business. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**BUS 230 Small Business Management 3-0-3**

This course introduces the challenges of entrepreneurship including the startup and operation of a small business. Topics include market research techniques, feasibility

studies, site analysis, financing alternatives, and managerial decision-making. Upon completion, students should be able to develop a small business plan.

**BUS 234 Training and Development 3-0-3**

This course covers developing, conducting, and evaluating employee training with attention to adult learning principles. Emphasis is placed on conducting a needs assessment, using various instructional approaches, designing the learning environment, and locating learning resources. Upon completion, students should be able to design, conduct, and evaluate a training program.

**BUS 240 Business Ethics 3-0-3**

This course introduces contemporary and controversial ethical issues that face the business community. Topics include moral reasoning, moral dilemmas, law and morality, equity, justice and fairness, ethical standards, and moral development. Upon completion, students should be able to demonstrate an understanding of their moral responsibilities and obligations as members of the workforce and society.

**BUS 252 Labor Relations 3-0-3**

This course covers the history of the organized labor movement and the contractual relationship between corporate management and employees represented by a union. Topics include labor laws and unfair labor practices, the role of the NLRB, organizational campaigns, certification/decertification elections, and grievance procedures. Upon completion, students should be able to act in a proactive and collaborative manner in an environment where union representation exists.

**BUS 255 Organizational Behavior in Business 3-0-3**

This course covers the impact of different management practices and leadership styles on worker satisfaction and morale, organizational effectiveness, productivity, and profitability. Topics include a discussion of formal and informal organizations, group dynamics, motivation, and managing conflict and change. Upon completion, students should be able to analyze different types of interpersonal situations and determine an appropriate course of action.

**BUS 256 Recruit Select and Per Plan 3-0-3**

This course introduces the basic principles involved in managing the employment process. Topics include personnel planning, recruiting, interviewing and screening techniques, maintaining employee records; and voluntary and involuntary separations. Upon completion, students should be able to acquire and retain employees who match position requirements and fulfill organizational objectives.

**BUS 258 Compensation and Benefits 3-0-3**

This course is designed to study the basic concepts of pay and its role in rewarding performance. Topics include wage and salary surveys, job analysis, job evaluation techniques, benefits, and pay-for-performance programs. Upon completion, students should be able to develop and manage



a basic compensation system to attract, motivate, and retain employees.

**BUS 259 HRM Applications 3-0-3**

Prerequisites: Take all: BUS 217, BUS 234, BUS 256, and BUS 258

This course provides students in the Human Resource Management concentration the opportunity to reinforce their learning experiences from preceding HRM courses.

Emphasis is placed on application of day-to-day HRM functions by completing in-basket exercises and through simulations. Upon completion, students should be able to determine the appropriate actions called for by typical events that affect the status of people at work.

**BUS 260 Business Communication 3-0-3**

Prerequisite: Take one: ENG 110 or ENG 111

This course is designed to develop skills in writing business communications. Emphasis is placed on business reports, correspondence, and professional presentations. Upon completion, students should be able to communicate effectively in the workplace.

**BUS 261 Diversity in Mgmt 3-0-3**

This course is designed to help managers recognize the need to incorporate diversity into all phases of organizational management. Topics include self-evaluation, management, sexual harassment, workforce diversity, dual careers, role conflict, and communication issues. Upon completion, students should be able to implement solutions that minimize policies, attitudes, and stereotypical behaviors that block effective team building.

**BUS 270 Professional Development 3-0-3**

This course provides basic knowledge of self-improvement techniques as related to success in the professional world. Topics include positive human relations, job-seeking skills, and projecting positive self-image. Upon completion, students should be able to demonstrate competent personal and professional skills necessary to get and keep a job.

**BUS 280 REAL Small Business 4-0-4**

This course introduces hands-on techniques and procedures for planning and opening a small business, including the personal qualities needed for entrepreneurship. Emphasis is placed on market research, finance, time management, and day-to-day activities of owning/operating a small business. Upon completion, students should be able to write and implement a viable business plan and seek funding.

**CARPENTRY**

**CAR 111 Carpentry I 3-15-8 C-L-SHC**

This course introduces the theory and construction methods associated with the building industry; including framing, materials, tools, and equipment. Topics include safety, hand/power tool use, site preparation, measurement and layout, footings and foundations, construction framing, and other related topics. Upon completion, students should be

able to safely lay out and perform basic framing skills with supervision. This is a diploma-level course.

**CAR 113 Carpentry III 3-9-6**

Prerequisite: CAR 111

This course covers interior trim and finishes. Topics include safety, hand/power tool use, measurement and layout, specialty framing, interior trim and finishes, cabinetry, and other related topics. Upon completion, students should be able to safely install various interior trim and finishes in a residential building with supervision.

**CAR 114 Residential Building Codes 3-0-3**

This course covers building codes and the requirements of state and local construction regulations. Emphasis is placed on the minimum requirements of the North Carolina building codes related to residential structures. Upon completion, students should be able to determine if a structure is in compliance with North Carolina building codes.

**CAR 115 Residential Planning/Estimating 3-0-3**

Prerequisite: BPR 130

This course covers project planning, management, and estimating for residential or light commercial buildings. Topics include planning and scheduling, interpretation of working drawings and specifications, estimating practices, and other related topics. Upon completion, students should be able to perform quantity take-offs and cost estimates.

**COMPUTER ENGINEERING TECHNOLOGY**

**CET 225 Digital Signal Processing 2-2-3 C-L-SHC**

This course introduces concepts and applications of digital signal processing. Topics include Fourier analysis, signal sampling, digital filtering, IIR filters, FIR filters, and DSP programming. Upon completion, students should be able to implement and troubleshoot DSP systems in hardware and software.

**CHINESE**

**CHI 111 Elementary Chinese I 3-0-3 C-L-SHC**

This course introduces the fundamental elements of the Chinese language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Chinese and demonstrate cultural awareness. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**CHI 112 Elementary Chinese II 3-0-3***Prerequisites: Take CHI 111*

This course includes the basic fundamentals of the Chinese language within a cultural context of the Chinese people and its history. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Chinese and demonstrate further cultural awareness.

**CHI 211 Intermediate Chinese I 3-0-3***Prerequisites: CHI 112*

This course includes communicative competencies in speaking, listening comprehension, reading, and writing at an intermediate level with attention to cultural awareness. Emphasis is placed on intermediate skills in speaking, reading, writing, and comprehension of spoken language. Upon completion, students should demonstrate simple conversations and distinguish an appropriate range of Chinese characters, as well as read simple expression in modern standard Chinese. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**CHI 212 Intermediate Chinese II 3-0-3***Prerequisites: Take CHI 211*

This course provides continuation of communicative competence in speaking, listening comprehension, reading and writing at an intermediate level with attention to cultural awareness. Emphasis is placed on intermediate skills in speaking, reading, writing, and comprehension of spoken language. Upon completion, students should demonstrate simple conversations and distinguish a broad range of Chinese characters, as well as read expressions in modern standard Chinese. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**CHEMISTRY****CHM 092 Fundamentals of Chemistry 3-2-4 C-LSHC**

This course covers fundamentals of chemistry with laboratory applications. Topics include measurements, matter, energy, atomic theory, bonding, molecular structure, nomenclature, balancing equations, stoichiometry, solutions, acids and bases, gases, and basic organic chemistry. Upon completion, students should be able to understand and apply basic chemical concepts and demonstrate basic laboratory skills necessary for success in college-level science courses.

**CHM 130 General, Organic and Biochemistry 3-0-3***Corequisite: CHM 130A*

This course provides a survey of basic facts and principles of general, organic, and biochemistry. Topics include measurement, molecular structure, nuclear chemistry, solutions, acid-base chemistry, gas laws, and the structure, properties, and reactions of major organic and biological groups. Upon completion, students should be able to

demonstrate an understanding of fundamental chemical concepts. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**CHM 130A General, Organic and Biochemistry Lab 0-2-1***Corequisite: CHM 130*

This course is a laboratory for CHM 130. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 130. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 130. Also included are EMR, spectrophotometry, extraction, safety, and feed analysis. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**CHM 131 Introduction to Chemistry 3-0-3***Corequisite: CHM 131A*

This course introduces the fundamental concepts of inorganic chemistry. Topics include measurement, matter and energy, atomic and molecular structure, nuclear chemistry, stoichiometry, chemical formulas and reactions, chemical bonding, gas laws, solutions, and acids and bases. Upon completion, students should be able to demonstrate a basic understanding of chemistry as it applies to other fields. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Science.

**CHM 131A Introduction to Chemistry Lab 0-3-1***Corequisite: CHM 131*

This course is a laboratory to accompany CHM 131. Emphasis is placed on laboratory experiences that enhance materials presented in CHM 131. Upon completion, students should be able to utilize basic laboratory procedures and apply them to chemical principles presented in CHM 131. Also included are EMR, spectrophotometry, extraction, safety, and feed analysis. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Science.

**CHM 132 Organic and Biochemistry 3-3-4***Prerequisite: Take one set: 1) CHM 131 & CHM 131A; 2) CHM 151*

This course provides a survey of major functional classes of compounds in organic and biochemistry. Topics include structure, properties, and reactions of the major organic and biological molecules and basic principles of metabolism. Upon completion, students should be able to demonstrate an understanding of fundamental chemical concepts needed to pursue studies in related professional fields. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Science.

**CHM 151 General Chemistry I 3-3-4**

*Local Prerequisite: Appropriate test scores or Multiple Measures waiver or take one set: Set 1: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 Set 2: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DMA 065 Set 3: MAT 121*

This course covers fundamental principles and laws of chemistry. Topics include measurement, atomic and molecular structure, periodicity, chemical reactions, chemical bonding, stoichiometry, thermochemistry, gas laws, and solutions. Upon completion, students should be able to demonstrate an understanding of fundamental chemical laws and concepts as needed in CHM 152. Additional topics include laboratory and chemical safety rules, electromagnetic spectrum, spectrometer, and chromatography. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**CHM 152 General Chemistry II** 3-3-4

*Prerequisite: CHM 151*

This course provides a continuation of the study of the fundamental principles and laws of chemistry. Topics include kinetics, equilibrium, ionic and redox equations, acid-base theory, electrochemistry, thermodynamics, introduction to nuclear and organic chemistry, and complex ions. Upon completion, students should be able to demonstrate an understanding of chemical concepts as needed to pursue further study in chemistry and related professional fields. The spectrophotometer, pH meters, solids, liquids, and properties of solutions are covered. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**CHM 251 Organic Chemistry I** 3-3-4

*Prerequisite: CHM 152*

This course provides a systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of hydrocarbons, alkyl halides, alcohols, and ethers; further topics include isomerization, stereochemistry, and spectroscopy. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of covered organic topics as needed in CHM 252. Additional topics covered are chromatography and safety. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**CHM 252 Organic Chemistry II** 3-3-4

*Prerequisite: CHM 251*

This course provides continuation of the systematic study of the theories, principles, and techniques of organic chemistry. Topics include nomenclature, structure, properties, reactions, and mechanisms of aromatics, aldehydes, ketones, carboxylic acids and derivatives, amines and heterocyclics; multi-step synthesis will be emphasized. Upon completion, students should be able to demonstrate an understanding of organic concepts as needed to pursue further study in chemistry and related professional fields. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

## COMPUTER INFORMATION SYSTEMS

C-L-SHC

**CIS 110 Introduction to Computers** 2-2-3

This course introduces computer concepts, including fundamental functions and operations of the computer. Topics include identification of hardware components, basic computer operations, security issues, and use of software applications. Upon completion, students should be able to demonstrate an understanding of the role and function of computers and use the computer to solve problems. This course has been approved for transfer under the CAA and ICAA as a general education course in Mathematics.

**CIS 111 Basic PC Literacy** 1-2-2

This course provides an overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and fundamental workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.

**CIS 115 Introduction to Programming and Logic** 2-3-3

*Prerequisites: Take One Set: Set 1: DMA-010, DMA-020, DMA-030, and DMA-040, Set 2: MAT-121, Set 3: MAT-171*

This course introduces computer programming and problem solving in a structured program logic environment. Topics include language syntax, data types, program organization, problem solving methods, algorithm design, and logic control structures. Upon completion, students should be able to manage files with operating system commands, use top-down algorithm design, and implement algorithmic solutions in a programming language. This course has been approved for transfer under the CAA and ICAA as a general education course in Mathematics.

## CRIMINAL JUSTICE

C-L-SHC

**CJC 100 Basic Law Enforcement Trn** 9-30-19

This course covers the basic skills and knowledge needed for entry-level employment as a law enforcement officer in North Carolina. Topics are divided into general units of study: legal, patrol duties, law enforcement communications, investigations, practical application, and sheriff-specific. Upon successful completion, the student will be able to demonstrate competence in the topics and areas required for the state comprehensive certification examination.

**CJC 111 Intro to Criminal Justice** 3-0-3

This course introduces the components and processes of the criminal justice system. Topics include history, structure, functions, and philosophy of the criminal justice system and their relationship to life in our society. Upon completion, students should be able to define and describe the major system components and their interrelationships and evaluate career options. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

- CJC 112 Criminology 3-0-3**  
This course introduces deviant behavior as it relates to criminal activity. Topics include theories of crime causation; statistical analysis of criminal behavior; past, present, and future social control initiatives; and other related topics. Upon completion, students should be able to explain and discuss various theories of crime causation and societal response.
- CJC 113 Juvenile Justice 3-0-3**  
This course covers the juvenile justice system and related juvenile issues. Topics include an overview of the juvenile justice system, treatment and prevention programs, special areas and laws unique to juveniles, and other related topics. Upon completion, students should be able to identify/discuss juvenile court structure/procedures, function and jurisdiction of juvenile agencies, processing/detention of juveniles, and case disposition.
- CJC 114 Investigative Photography 1-2-2**  
This course covers the operation of digital photographic equipment and its application to criminal justice. Topics include the use of digital cameras, storage of digital images, retrieval of digital images, and preparation of digital images as evidence. Upon completion, students should be able to demonstrate and explain the role and use of digital photography, image storage, and retrieval in criminal investigation.
- CJC 120 Interviews/Interrogations 1-2-2**  
This course covers basic and special techniques employed in criminal justice interviews and interrogations. Emphasis is placed on the interview/interrogation process, including interpretation of verbal and physical behavior and legal perspectives. Upon completion, students should be able to conduct interviews/interrogations in a legal, efficient, and professional manner and obtain the truth from suspects, witnesses, and victims.
- CJC 121 Law Enforcement Operations 3-0-3**  
This course introduces fundamental law enforcement operations. Topics include the contemporary evolution of law enforcement operations and related issues. Upon completion, students should be able to explain theories, practices, and issues related to law enforcement operations. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.
- CJC 122 Community Policing 3-0-3**  
This course covers the historical, philosophical, and practical dimensions of community policing. Emphasis is placed on the empowerment of police and the community to find solutions to problems by forming partnerships. Upon completion, students should be able to define community policing, describe how community-policing strategies solve problems, and compare community policing to traditional policing.
- CJC 131 Criminal Law 3-0-3**  
This course covers the history/evolution/principles and contemporary applications of criminal law. Topics include sources of substantive law, classification of crimes, parties to crime, elements of crimes, matters of criminal responsibility, and other related topics. Upon completion, students should be able to discuss the sources of law and identify, interpret, and apply the appropriate statutes/elements.
- CJC 132 Court Procedure & Evidence 3-0-3**  
This course covers judicial structure/process/procedure from incident to disposition, kinds and degrees of evidence, and the rules governing admissibility of evidence in court. Topics include consideration of state and federal courts, arrest, search and seizure laws, exclusionary and statutory rules of evidence, and other related issues. Upon completion, students should be able to identify and discuss procedures necessary to establish a lawful arrest/search, proper judicial procedures, and the admissibility of evidence.
- CJC 141 Corrections 3-0-3**  
This course covers the history, major philosophies, components, and current practices and problems of the field of corrections. Topics include historical evolution, functions of the various components, alternatives to incarceration, treatment programs, inmate control, and other related topics. Upon completion, students should be able to explain the various components, processes, and functions of the correctional system. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.
- CJC 144 Crime Scene Processing 2-3-3**  
This course introduces the theories and practices of crime scene processing and investigating. Topics include legal considerations at the crime scene, processing indoor and outdoor scenes, recording, note taking, collection and preservation of evidence, and submission to the crime laboratory. Upon completion, the student should be able to evaluate and search various crime scenes and demonstrate the appropriate techniques.
- CJC 146 Trace Evidence 2-3-3**  
This course provides a study of trace evidence as it relates to forensic science. Topics include collection, packaging, and preservation of trace evidence from crime scenes such as bombings, fires, and other scenes. Upon completion, students should be able to demonstrate the fundamental concepts of trace evidence collection, preservation, and submission to the crime laboratory.
- CJC 151 Intro to Loss Prevention 3-0-3**  
This course introduces the concepts and methods related to commercial and private security systems. Topics include the historical, philosophical, and legal basis of security, with emphasis on security surveys, risk analysis, and associated

functions. Upon completion, students should be able to demonstrate and understand security systems, risk management, and the laws relative to loss prevention.

**CJC 160 Terrorism: Underlying Issues 3-0-3**

This course identifies the fundamental reasons why America is a target for terrorists, covering various domestic/international terrorist groups and ideologies from a historical aspect. Emphasis is placed upon recognition of terrorist crime scene; weapons of mass destruction; chemical, biological, and nuclear terrorism; and planning considerations involving threat assessments. Upon completion, the student should be able to identify and discuss the methods used in terrorists' activities and complete a threat assessment for terrorists' incidents.

**CJC 212 Ethics & Comm Relations 3-0-3**

This course covers ethical considerations and accepted standards applicable to criminal justice organizations and professionals. Topics include ethical systems; social change, values, and norms; cultural diversity; citizen involvement in criminal justice issues; and other related topics. Upon completion, students should be able to apply ethical considerations to the decision-making process in identifiable criminal justice situations.

**CJC 213 Substance Abuse 3-0-3**

This course is a study of substance abuse in our society. Topics include the history and classifications of drug abuse and the social, physical, and psychological impact of drug abuse. Upon completion, students should be able to identify various types of drugs, their effects on human behavior and society, and treatment modalities.

**CJC 214 Victimology 3-0-3**

This course introduces the study of victims. Emphasis is placed on roles/characteristics of victims, victim interaction with the criminal justice system and society, current victim assistance programs, and other related topics. Upon completion, students should be able to discuss and identify victims, the uniqueness of victims' roles, and current victim assistance programs.

**CJC 215 Organization & Administration 3-0-3**

This course introduces the components and functions of organization and administration as it applies to the agencies of the criminal justice system. Topics include operations/functions of organizations; recruiting, training, and retention of personnel; funding and budgeting; communications; span of control and discretion; and other related topics. Upon completion, students should be able to identify and discuss the basic components and functions of a criminal justice organization and its administrative operations.

**CJC 221 Investigative Principles 3-2-4**

This course introduces the theories and fundamentals of the investigative process. Topics include crime scene/incident

processing, information gathering techniques, collection/preservation of evidence, preparation of appropriate reports, court presentations, and other related topics. Upon completion, students should be able to identify, explain, and demonstrate the techniques of the investigative process, report preparation, and courtroom presentation.

**CJC 222 Criminalistics 3-0-3**

This course covers the functions of the forensic laboratory and its relationship to successful criminal investigations and prosecutions. Topics include advanced crime scene processing, investigative techniques, current forensic technologies, and other related topics. Upon completion, students should be able to identify and collect relevant evidence at simulated crime scenes and request appropriate laboratory analysis of submitted evidence.

**CJC 225 Crisis Intervention 3-0-3**

This course introduces critical incident intervention and management techniques as they apply to operational criminal justice practitioners. Emphasis is placed on the victim/offender situation as well as job-related high stress, dangerous, or problem solving citizen contacts. Upon completion, students should be able to provide insightful analysis of emotional, violent, drug-induced, and other critical and/or stressful incidents that require field analysis and/or resolution.

**CJC 231 Constitutional Law 3-0-3**

The course covers the impact of the Constitution of the United States and its amendments on the criminal justice system. Topics include the structure of the Constitution and its amendments, court decisions pertinent to contemporary criminal justice issues, and other related topics. Upon completion, students should be able to identify/discuss the basic structure of the United States Constitution and the rights/procedures as interpreted by the courts.

**CJC 245 Friction Ridge Analysis 2-3-3**

This course introduces the basic elements of fingerprint technology and techniques applicable to the criminal justice field. Topics include the history and meaning of fingerprints, pattern types and classification, filing sequence, searching, and referencing. Upon completion, students should be able to discuss and demonstrate the fundamental techniques of basic fingerprint technology.

**CJC 246 Advanced Friction Ridge Analysis 2-3-3**

Prerequisite: CJC 245  
This course introduces the theories and processes of advanced friction ridge analysis. Topics include evaluation of friction ridges, chart preparation, comparative analysis for valued determination rendering proper identification, chemical enhancement, and AFIS preparation and usage. Upon completion, students must show an understanding of proper procedures for friction ridge analysis through written testing and practical exercises.

**CJC 250 Forensic Biology I 2-2-3**

This course covers important biological principles that are applied in the crime laboratory. Topics include forensic toxicology, forensic serology, microscopy, and DNA typing analysis, with an overview of organic and inorganic analysis. Upon completion, students should be able to articulate how a crime laboratory processes physical evidence submitted by law enforcement agencies.

**CJC 251 Forensic Chemistry I 3-2-4**

This course provides a study of the fundamental concepts of chemistry as it relates to forensic science. Topics include physical and chemical properties of substances, metric measurements, chemical changes, elements, compounds, gases, and atomic structure. Upon completion, students should be able to demonstrate an understanding of the fundamental concepts of forensic chemistry.

## CONSTRUCTION MANAGEMENT

**CMT 120 Codes and Inspections 3-0-3**

This course covers building codes and the code inspections process used in the design and construction of residential and commercial buildings. Emphasis is placed on commercial, residential, and accessibility (ADA) building codes. Upon completion, students should understand the building code inspections process and apply building code principals and requirements to construction projects.

## COMMUNICATION

**COM 110 Introduction to Communication C-L-SHC 3-0-3**

This course provides an overview of the basic concepts of communication and the skills necessary to communicate in various contexts. Emphasis is placed on communication theories and techniques used in interpersonal group, public, intercultural, and mass communication situations. Upon completion, students should be able to explain and illustrate the forms and purposes of human communication in a variety of contexts. This course has been approved for transfer under the CAA and ICAA as a general education course in Communications.

**COM 120 Introduction to Interpersonal Communication 3-0-3**

This course introduces the practices and principles of interpersonal communication in both dyadic and group settings. Emphasis is placed on the communication process, perception, listening, self-disclosure, speech apprehension, ethics, nonverbal communication, conflict, power, and dysfunctional communication relationships. Upon completion, students should be able to demonstrate interpersonal communication skills, apply basic principles of group discussion, and manage conflict in interpersonal communication situations. This course has been approved

for transfer under the CAA and ICAA as a general education course in Communications.

**COM 130 Nonverbal Communication 3-0-3**

*Prerequisite: Take One: COM 110 or COM 120*

This course introduces the contemporary study of nonverbal communication in daily life. Topics include haptics, kinesics, proxemics, facial displays, and appearance. Upon completion, students should be able to analyze/interpret nonverbal communication and demonstrate greater awareness of their own verbal communication habits. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**COM 140 Intro to Intercultural Communication 3-0-3**

This course introduces techniques of cultural research, definitions, characteristics, and impacts of cultural differences in public address. Emphasis is placed on how diverse backgrounds influence the communication act and how cultural perceptions and experiences determine how one sends and receives messages. Upon completion, students should be able to demonstrate an understanding of the principles and skills needed to become effective in communicating outside one's primary culture. This course has been approved for transfer under the CAA and ICAA as a general education course in Communications.

**COM 231 Public Speaking 3-0-3**

This course provides instruction and experience in preparation and delivery of speeches within a public setting and group discussion. Emphasis is placed on research, preparation, delivery, and evaluation of informative, persuasive, and special occasion public speaking. Upon completion, students should be able to prepare and deliver well-organized speeches and participate in group discussion with appropriate audiovisual support. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Communications.

## COSMETOLOGY

**COS 111 Cosmetology Concepts I C-L-SHC 4-0-4**

*Corequisite: COS 112*

This course introduces basic cosmetology concepts. Topics include safety, first aid, sanitation, bacteriology, anatomy, diseases and disorders, hygiene, product knowledge, chemistry, ethics, manicures, and other related topics. Upon completion, students should be able to safely and competently apply cosmetology concepts in the salon setting.

**COS 112 Salon I 0-24-8**

*Corequisite: COS 111*

This course introduces basic salon services. Topics include scalp treatments, shampooing, rinsing, hair color, design, haircutting, permanent waving, pressing, relaxing, wigs, and

other related topics. Upon completion, students should be able to safely and competently demonstrate salon services.

**COS 113 Cosmetology Concepts II 4-0-4**

*Corequisite: COS 114*

This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, chemistry, manicuring, chemical restructuring, and hair coloring. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.

**COS 114 Salon II 0-24-8**

*Corequisite: COS 113*

This course provides experience in a simulated salon setting. Topics include basic skin care, manicuring, nail application, scalp treatments, shampooing, rinsing, hair color, design, haircutting, chemical restructuring, pressing, wigs, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.

**COS 115 Cosmetology Concepts III 4-0-4**

*Corequisite: COS 116*

This course covers more comprehensive cosmetology concepts. Topics include safety, product knowledge, salon management, salesmanship, skin care, electricity/light therapy, wigs, thermal hair styling, lash and brow tinting, superfluous hair removal, and other related topics. Upon completion, students should be able to safely and competently apply these cosmetology concepts in the salon setting.

**COS 116 Salon III 0-12-4**

*Corequisite: COS 115*

This course provides comprehensive experience in a simulated salon setting. Emphasis is placed on intermediate-level of skin care, manicuring, scalp treatments, shampooing, hair color, design, haircutting, chemical restructuring, pressing, and other related topics. Upon completion, students should be able to safely and competently demonstrate these salon services.

**COS 117 Cosmetology Concepts IV 2-0-2**

*Corequisite: COS 118*

This course covers advanced cosmetology concepts. Topics include chemistry and hair structure, advanced cutting and design, and an overview of all cosmetology concepts in preparation for the licensing examination. Upon completion, students should be able to demonstrate an understanding of these cosmetology concepts and meet program completion requirements.

**COS 118 Salon IV 0-21-7**

*Corequisite: COS 117*

This course provides advanced experience in a simulated salon setting. Emphasis is placed on efficient and competent delivery of all salon services in preparation for the licensing examination and employment. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered

on the Cosmetology Licensing Examination and meet entry-level employment requirements.

**COS 119 Esthetics Concepts I 2-0-2**

This course covers the concepts of esthetics. Topics include orientation, anatomy, physiology, hygiene, sterilization, first aid, chemistry, basic dermatology, and professional ethics. Upon completion, students should be able to demonstrate an understanding of the concepts of esthetics and meet course requirements.

**COS 120 Esthetics Salon I 0-18-6**

This course covers the techniques of esthetics in a comprehensive experience in a simulated salon setting. Topics include client consultation, facials, body treatments, hair removal, make-up applications, and color analysis. Upon completion, students should be able to safely and competently demonstrate esthetic services on clients in a salon setting.

**COS 121 Manicure/Nail Technology I 4-6-6**

This course covers techniques of nail technology, hand and arm surface manipulation, and recognition of nail diseases and disorders. Topics include OSHA/safety, sanitation, bacteriology, product knowledge, salesmanship, manicures, artificial applications, pedicures, surface manipulation, and other related topics. Upon completion, students should be able to safely and competently perform nail care, including manicures, pedicures, surface manipulations, decorating and artificial applications in a salon setting.

**COS 125 Esthetics Concepts II 2-0-2**

This course covers more comprehensive esthetics concepts. Topics include nutrition, business management, make-up, and color analysis. Upon completion, students should be able to demonstrate an understanding of the advanced esthetics concepts and meet course requirements.

**COS 126 Esthetics Salon II 0-18-6**

This course provides experience in a simulated esthetics setting. Topics include machine facials, aromatherapy, massage therapy, electricity, and apparatus. Upon completion, students should be able to demonstrate competence in program requirements and the areas covered on the Cosmetology Licensing Examination for Esthetics.

**COS 222 Manicure/Nail Tech. II 4-6-6**

This course covers advanced techniques of nail technology and hand and arm surface manipulation. Topics include OSHA/safety, product knowledge, customer service, salesmanship, artificial applications, nail art, and other related topics. Upon completion, students should be able to demonstrate competence necessary for the licensing examination, including advanced nail care, artificial enhancements, and decorations.

**COS 223 Contemp Hair Coloring 1-3-2**

*Prerequisite: COS 111 and COS 112*

This course covers basic color concepts, hair coloring problems, and application techniques. Topics include color theory, terminology, contemporary techniques, product knowledge, and other related topics. Upon completion, students should be able to identify a client's color needs and safely and competently perform color applications and correct problems.

**COS 224 Trichology & Chemistry 1-3-2**

This course is a study of hair and the interaction of applied chemicals. Emphasis is placed on pH actions and the reactions and effects of chemical ingredients. Upon completion, students should be able to demonstrate an understanding of chemical terminology, pH testing, and chemical reactions on hair.

**COS 253 Esthetics Instr Concepts I 6-15-11**

*Local Prerequisite: Esthetics License*

This course introduces esthetic instructional concepts and skills. Topics include orientation, theories of education, unit planning, daily lesson plans, laboratory management, and student assessment in a laboratory setting. Upon completion, students should be able to demonstrate esthetic services and instruct and objectively assess student performance in a classroom setting.

**COS 254 Esthetics Instr Concepts II 6-15-11**

*Local Prerequisite: Esthetics License*

This course covers advanced esthetic instructional concepts and skills. Topics include practical demonstrations, lesson planning, lecture techniques, development and administration of assessment tools, record keeping, and other related topics. Upon completion, students should be able to demonstrate competencies in the areas covered by the Esthetics Instructor Licensing Examination and meet program requirements.

**COS 271 Instructor Concepts I 5-0-5**

*Local Prerequisite: Cosmetology License*

*Corequisite: COS 272*

This course introduces the basic cosmetology instructional concepts. Topics include orientation, theories of education, unit planning, daily lesson planning, laboratory management, student assessment, record keeping, and other related topics. Upon completion, students should be able to identify theories of education, develop lesson plans, demonstrate supervisory techniques, and assess student performance in a classroom setting.

**COS 272 Instructor Practicum I 0-21-7**

*Local Prerequisite: Cosmetology License*

*Corequisite: COS 271*

This course covers supervisory and instructional skills for teaching entry-level cosmetology students in a laboratory setting. Topics include demonstrations of services, supervision, and entry-level student assessment. Upon completion, students should be able to demonstrate salon

services and instruct and objectively assess the entry-level student.

**COS 273 Instructor Concepts II 5-0-5**

*Prerequisites: COS 271 and COS 272*

*Corequisite: COS 274*

This course covers advanced cosmetology instructional concepts. Topics include practical demonstrations, lesson planning, lecture techniques, development and administration of assessment tools, record keeping, and other related topics. Upon completion, students should be able to develop lesson plans, demonstrate supervision techniques, assess student performance in a classroom setting, and keep accurate records.

**COS 274 Instructor Practicum II 0-21-7**

*Prerequisites: COS 271 and COS 272*

*Corequisite: COS 273*

This course is designed to develop supervisory and instructional skills for teaching advanced cosmetology students in a laboratory setting. Topics include practical demonstrations, supervision, and advanced student assessment. Upon completion, students should be able to demonstrate competence in the areas covered by the Instructor Licensing Examination and meet program completion requirements.

## COMPUTER SCIENCE

**C-L-SHC**

**CSC 134 C++ Programming 2-3-3**

This course introduces computer programming using the C++ programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test and debug at a beginning level. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**CSC 139 Visual BASIC Programming 2-3-3**

This course introduces computer programming using the Visual BASIC programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion, students should be able to design, code, test and debug at a beginning level. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**CSC 151 JAVA Programming 2-3-3**

This course introduces computer programming using the JAVA programming language with object-oriented programming principles. Emphasis is placed on event-driven programming methods, including creating and



manipulating objects, classes, and using object-oriented tools such as the class debugger. Upon completion students should be able to design, code, test, debug JAVA language programs. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## CONSTRUCTION TECHNOLOGY

### CST 111 Construction I

C-L-SHC  
3-3-4

This course covers standard and alternative building methods to include wall framing. Topics include safety and footings, foundations, floor framing systems, and wall framing systems commonly used in the construction industry. Upon completion, students should be able to safely erect all framing necessary to begin roof framing.

### CST 112 Construction II

3-3-4

*Prerequisites: CST 111*

This course covers building methods and materials used to dry-in a building. Topics include safety, ceiling/roof framing applications, roof finishes, windows, and exterior doors. Upon completion, students should be able to safely erect different roof types and properly install windows and exterior doors, roofing, and exterior finish materials.

### CST 113 Construction III

3-3-4

*Prerequisite: CST 112*

This course covers building methods and materials used to complete the interior of a structure. Topics include safety, installation of thermal and acoustical barriers, and interior finishes including millwork, cabinets, interior doors, flooring, and wall treatments. Upon completion, students should be able to safely and accurately install interior treatments including insulation, paneling, drywall, molding, doors, flooring, and cabinetry.

### CST 131 OSHA/Safety/Certification

2-2-3

This course covers the concepts of work site safety. Topics include OSHA regulations, tool safety, and certifications which relate to the construction industry. Upon completion, students should be able to identify and maintain a safe working environment based on OSHA regulations and maintain proper records and certifications.

### CST 150 Building Science

2-2-3

This course introduces concepts and techniques for the design and interaction of the mechanical systems of high performance buildings. Topics include building envelope, heating, ventilation and air conditioning (HVAC), indoor air quality, lighting, plumbing and electrical. Upon completion, students should be able to understand building systems interaction and performance.

### CST 211 Construction Surveying

2-3-3

*Prerequisite: MAT 121 or MAT 171*

This course covers field surveying applications for residential and commercial construction. Topics include

building layout and leveling, linear measurement and turning angles, plumbing vertical members, and topographic and utilities surveys. Upon completion, students should be able to properly and accurately use surveying equipment to lay out residential and commercial buildings.

### CST 221 Statics/Structure

3-3-4

*Prerequisite: Take one set:*

*Set 1: ARC-112 and MAT-110*

*Set 2: ARC-112 and MAT-121*

*Set 3: ARC-112 and MAT-171*

*Set 4: CAR-112 and MAT-110*

*Set 5: CAR-112 and MAT-121*

*Set 6: CAR-112 and MAT-171*

*Set 7: CST-112 and MAT-110*

*Set 8: CST-112 and MAT-121*

*Set 9: CST-112 and MAT-171*

This course covers the principles of statics and strength of materials as applied to structural building components. Topics include forces on columns, beams, girders, and footings and connection points when timber, steel, and concrete members are used. Upon completion, students should be able to accurately analyze load conditions present in structural members.

### CST 241 Planning/Estimating I

2-2-3

*Prerequisite: Take one: BPR 130, MAT 121, MAT 171*

This course covers the procedures involved in planning and estimating a construction/building project. Topics include performing quantity take-offs of materials necessary for a building project. Upon completion, students should be able to accurately complete a take-off of materials and equipment needs involved in a construction project.

## COMPUTER TECH INTEGRATION

C-L-SHC

### CTI 110 Web, Pgm, & Db Foundation

2-2-3

This course covers the introduction of the tools and resources available to students in programming, mark-up language and services on the Internet. Topics include standard mark-up language Internet services, creating web pages, using search engines, file transfer programs; and database design and creation with DBMS products. Upon completion students should be able to demonstrate knowledge of programming tools, deploy a web-site with mark-up tools, and create a simple database table.

### CTI 120 Network & Sec Foundation

2-2-3

This course introduces students to the Network concepts, including networking terminology and protocols, local and wide area networks, and network standards, Emphasis is placed on securing information systems and the various implementation policies. Upon completion, students should be able to perform basic tasks related to networking mathematics, terminology, media and protocols.

**CTI 140 Virtualization Concepts 1-4-3**

This course introduces operating system virtualization. Emphasis is placed on virtualization terminology, virtual machine storage, virtual networking and access control. Upon completion, students should be able to perform tasks related to installation, configuration and management of virtual machines.

## COMPUTER INFORMATION TECHNOLOGY

**C-L-SHC**

**CTS 115 Information Systems Business Concept 3-0-3**

The course introduces the role of IT in managing business processes and the need for business process and IT alignment. Emphasis is placed on industry need for understanding business challenges and developing/managing information systems to contribute to the decision making process based on these challenges. Upon completion, students should be able to demonstrate knowledge of the 'hybrid business manager' and the potential offered by new technology and systems. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**CTS 120 Hardware/Software Support 2-3-3**

This course covers the basic hardware of a personal computer, including installation, operations and interactions with software. Topics include component identification, memory-system, peripheral installation and configuration, preventive maintenance, hardware diagnostics/repair, installation and optimization of system software, commercial programs, system configuration, and device-drivers. Upon completion, students should be able to select appropriate computer equipment and software, upgrade/maintain existing equipment and software, and troubleshoot/repair non-functioning personal computers.

**CTS 130 Spreadsheet 2-2-3**

This course introduces basic spreadsheet design and development. Topics include writing formulas, using functions, enhancing spreadsheets, creating charts, and printing. Upon completion, students should be able to design and print basic spreadsheets and charts.

**CTS 135 Integrated Software Introduction 2-4-4**

This course instructs students in the Windows or Linux based program suites for word processing, spreadsheet, database, personal information manager, and presentation software. This course prepares students for introductory level skills in database, spreadsheet, personal information manager, word processing, and presentation applications to utilize data sharing. Upon completion, students should be able to design and integrate data at an introductory level to produce documents using multiple technologies.

**CTS 220 Advanced Hardware/Software Support 2-3-3**

*Prerequisite: CTI 120*

This course provides advanced knowledge and competencies in hardware and operating system technologies for computer technicians to support personal computers. Emphasis is placed on configuring and upgrading; diagnosis and troubleshooting; as well as preventive maintenance of hardware and system software. Upon completion, students should be able to install, configure, diagnose, perform preventive maintenance, and maintain basic networking on personal computers.

**CTS 285 Systems Analysis and Design 3-0-3**

*Local Prerequisite: CIS 115*

This course introduces established and evolving methodologies for the analysis, design, and development of an information system. Emphasis is placed on system characteristics, managing projects, prototyping, CASE/OOM tools, and systems development life cycle phases. Upon completion, students should be able to analyze a problem and design an appropriate solution using a combination of tools and techniques.

**CTS 289 System Support Project 1-4-3**

*Prerequisite: CTI 110, CTI 120, and CTS 115*

*Local Prerequisite: CTS 285*

This course provides an opportunity to complete a significant support project with minimal instructor assistance. Emphasis is placed on written and oral communication skills, project definition, documentation, installation, testing, presentation, and user training. Upon completion, students should be able to complete a project from the definition phase through implementation.

## CULINARY

**C-L-SHC**

**CUL 110 Sanitation & Safety 2-0-2**

This course introduces the basic principles of sanitation and safety relative to the hospitality industry. Topics include personal hygiene, sanitation and safety regulations, use and care of equipment, the principles of food-borne illness, and other related topics. Upon completion, students should be able to demonstrate an understanding of the content necessary for successful completion of a nationally recognized food/safety/sanitation exam.

**CUL 112 Nutrition for Foodservice 3-0-3**

This course covers the principles of nutrition and its relationship to the foodservice industry. Topics include personal nutrition fundamentals, weight management, exercise, nutritional adaptation/analysis of recipes/menus, healthy cooking techniques and marketing nutrition in a foodservice operation. Upon completion, students should be able to apply basic nutritional concepts to food preparation and selection.

- CUL 112A Nutrition for Fdsv Lab** **0-3-1**  
*Corequisite: CUL 112*  
 This course provides a laboratory experience for enhancing student skills in the principles of nutrition and its relationship to the foodservice industry. Emphasis is placed on personal nutrition fundamentals, weight management/exercise, nutritional adaptation/analysis of recipes/menus, healthy cooking techniques and marketing nutrition in a foodservice operation. Upon completion, students should be able to apply basic nutritional concepts to food preparation and selection.
- CUL 120 Purchasing** **2-0-2**  
 This course covers purchasing for hotels and restaurants. Emphasis is placed on procurement, yield tests, inventory control, specification, planning, forecasting, market trends, terminology, cost controls, pricing, and foodservice ethics. Upon completion, students should be able to apply effective purchasing techniques based on the end-use of the product.
- CUL 135 Food & Beverage Service** **2-0-2**  
 This course is designed to cover the practical skills and knowledge necessary for effective food and beverage service in a variety of settings. Topics include greeting/service of guests, dining room set-up, profitability, menu sales and merchandising, service styles and reservations. Upon completion, students should be able to demonstrate competence in human relations and the skills required in the service of foods and beverages.
- CUL 140 Culinary Skills I** **2-6-5**  
*Corequisite: CUL 110*  
 This course introduces the fundamental concepts, skills and techniques in basic cookery, and moist, dry and combination heat. Emphasis is placed on recipe conversion, measurements, terminology, classical knife cuts, safe food/equipment handling, flavorings/seasonings, stocks/sauces/soups, and related topics. Upon completion, students should be able to exhibit the basic cooking skills used in the foodservice industry.
- CUL 140A Culinary Skills I Lab** **0-3-1**  
*Corequisites: Take CUL 110 and CUL 140*  
 This course provides laboratory experience for enhancing student skills in the fundamental concepts, skills and techniques in basic cookery, and moist, dry and combination heat. Emphasis is placed on practical experiences including recipe conversion, measurements, terminology, classical knife cuts, safe food/equipment handling, flavorings/seasonings, stocks/sauces/soups, and related topics. Upon completion, students should be able to demonstrate competency in the basic cooking skills used in the foodservice industry.
- CUL 160 Baking I** **1-4-3**  
*Corequisite: CUL 110*  
 This course covers basic ingredients, techniques, weights and measures, baking terminology and formula calculations. Topics include yeast/chemically leavened products, laminated doughs, pastry dough batter, pies/tarts, meringue, custard, cakes and cookies, icings, glazes and basic sauces. Upon completion, students should be able to demonstrate proper scaling and measurement techniques, and prepare and evaluate a variety of bakery products.
- CUL 165 Therapeutic Cuisine** **1-4-3**  
*Prerequisites: Take CUL 110 and CUL 140*  
 This course covers the principles of therapeutic cooking with an emphasis on gluten free, allergy free, and vegan cooking. Topics include vegan, lacto-ovo, vegetarian, nut-free, dairy-free, wheat-free, soy-free, and corn-free meal preparation. Upon completion, students should be able to demonstrate an understanding of common dietary preferences and intolerances, and be able to safely and accurately execute allergy-free meal plan preparation.
- CUL 170 Garde Manger I** **1-4-3**  
*Corequisites: CUL 110*  
 This course introduces basic cold food preparation techniques and pantry production. Topics include salads, sandwiches, appetizers, dressings, basic garnishes, cheeses, cold sauces, and related food items. Upon completion, students should be able to present a cold food display and exhibit an understanding of the cold kitchen and its related terminology.
- CUL 240 Culinary Skills II** **1-8-5**  
*Prerequisites: CUL 110 and CUL 140*  
 This course is designed to further students' knowledge of the fundamental concepts, skills, and techniques involved in basic cookery. Emphasis is placed on meat identification/fabrication, butchery and cooking techniques/methods; appropriate vegetable/starch accompaniments; compound sauces; plate presentation; breakfast cookery; and quantity food preparation. Upon completion, students should be able to plan, execute, and successfully serve entrees with complementary side items.
- CUL 240A Culinary Skills II Lab** **0-3-1**  
*Prerequisites: Take All: CUL 110 and CUL 140*  
*Corequisites: Take CUL 240*  
 This course provides a laboratory experience for furthering students' knowledge of the fundamental concepts, skills, and techniques involved in basic cookery. Emphasis is placed on practical applications of meat identification/fabrication; butchery and cooking techniques/methods; appropriate vegetable/starch accompaniments; compound sauces; plate presentation; breakfast cookery; and food preparation. Upon completion, students should be able to demonstrate a basic proficiency in the preparation of entrees and accompaniments.
- CUL 260 Baking II** **1-4-3**  
*Prerequisites: Take CUL 110 and CUL 160*  
 This course is designed to further students' knowledge in ingredients, weights and measures, baking terminology and formula calculation. Topics include classical desserts, frozen desserts, cake and torte production, decorating and

icings/glazes, dessert plating and presentation. Upon completion, students should be able to demonstrate pastry preparation, plating, and dessert buffet production skills.

**CUL 270 Garde Manger II 1-4-3**

*Prerequisites: CUL 110, CUL 140 and CUL 170*

This course is designed to further students' knowledge in basic cold food preparation techniques and pantry production. Topics include pâtés, terrines, galantines, decorative garnishing skills, carving, charcuterie, smoking, canapés, hors d'oeuvres, and related food items. Upon completion, students should be able to design, set up, and evaluate a catering/event display to include a cold buffet with appropriate showpieces.

**CUL 270A Garde Manger II Lab 0-3-1**

*Prerequisites: CUL 110, CUL 140 and CUL 170*

*Corequisite: CUL 270*

This course provides a laboratory experience for enhancing student skills in basic cold food preparation techniques and pantry production. Emphasis is placed on practical experiences with pâtés, terrines, galantines, decorative garnishing skills, carving, charcuterie, smoking, canapés, hors d'oeuvres, and related food items. Upon completion, students should be able to demonstrate proficiency in the design/technical applications of advanced garde manger work including classical cold buffets incorporating appropriate showpieces.

**CUL 275 Catering Cuisine 1-8-5**

*Prerequisites: CUL 110, CUL 140 and CUL 240*

This course covers the sequential steps to successful catering that include sales, client needs, menu planning, purchasing, costing, event pricing, staffing and sanitation concerns. Emphasis is placed on new culinary competencies and skills specific to catering preparation, presentation, and customer service. Upon completion, students should be able to demonstrate proficiency in the successful design and execution of various types of catering events.

**CUL 283 Farm-To-Table 2-6-5**

*Prerequisites: CUL 110 and CUL 140*

This course introduces students to the cooperation between sustainable farmers and foodservice operations. Emphasis is placed on environmental relationships, including how foods are grown, processed, and distributed, as well as related implications on quality and sustainability. Upon completion, students should be able to demonstrate an understanding of environmental stewardship and its impact on cuisine.

**CUL 283A Farm-To-Table Lab 0-2-1**

*Prerequisites: CUL 110 and CUL 140*

*Corequisites: CUL 283*

This course provides a laboratory experience for enhancing students' agricultural skills and understanding the development of cooperation between sustainable farmers and foodservice operations. Emphasis is placed on practical experiences such as practicing agricultural methods, observation of the farm and related field trips. Upon completion, students should be able to demonstrate an

understanding of environmental stewardship and its impact on cuisine and sustainability.

## **DATABASE MANAGEMENT TECHNOLOGY**

**C-L-SHC**

**DBA 110 Database Concepts 2-3-3**

This course introduces database design and creation using a DBMS product. Emphasis is placed on data dictionaries, normalization, data integrity, data modeling, and creation of simple tables, queries, reports, and forms. Upon completion, students should be able to design and implement normalized database structures by creating simple database tables, queries, reports, and forms.

**DBA 120 Database Programming I 2-2-3**

This course is designed to develop SQL programming proficiency. Emphasis is placed on data definition, data manipulation, and data control statements as well as on report generation. Upon completion, students should be able to write programs that create, update, and produce reports.

## **DESIGN DRAFTING**

**C-L-SHC**

**DDF 211 Design Process I 1-6-4**

*Local Corequisite: DFT 153 or DFT 154*

This course emphasizes design processes for finished products. Topics include data collection from manuals and handbooks, efficient use of materials, design sketching, specifications, and vendor selection. Upon completion, students should be able to research and plan the design process for a finished product.

**DDF 252 Advanced Solid Modeling 2-2-3**

*Prerequisite: Take One: DFT 153 or DFT 154*

This course introduces advanced solid modeling and design software. Topics include design principles, design constraints, work planes, view generation, and model sharing and rendering. Upon completion, students should be able to create advanced solid models.

## **DENTAL**

**C-L-CI-SHC**

**DEN 100 Basic Orofacial Anatomy 2-0-0-2**

This course provides a basic introduction to the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to demonstrate knowledge of normal structures and development and how they relate to the practice of dental assisting.

**DEN 101 Preclinical Procedures 4-6-0-7**

This course provides instruction in procedures for the clinical dental assistant as specified by the North Carolina Dental Practice Act. Emphasis is placed on orientation to

the profession, infection control techniques, instruments, related expanded functions, and diagnostic, operative, and specialty procedures. Upon completion, students should be able to demonstrate proficiency in clinical dental assisting procedures.

**DEN 102 Dental Materials 2-4-0-4**

This course provides instruction in identification, properties, evaluation of quality, principles, and procedures related to manipulation and storage of operative and specialty dental materials. Emphasis is placed on the understanding and safe application of materials used in the dental office and laboratory. Upon completion, students should be able to demonstrate proficiency in the laboratory and clinical application of routinely used dental materials.

**DEN 103 Dental Sciences 2-0-0-2**

This course is a study of oral pathology, pharmacology, and dental office emergencies. Topics include oral pathological conditions, dental therapeutics, and management of emergency situations. Upon completion, students should be able to recognize abnormal oral conditions, identify classifications, describe actions and effects of commonly prescribed drugs, and respond to medical emergencies.

**DEN 104 Dental Health Education 2-2-0-3**

This course covers the study of preventive dentistry to prepare dental assisting students for the role of dental health educator. Topics include etiology of dental diseases, preventive procedures, and patient education theory and practice. Upon completion, students should be able to demonstrate proficiency in patient counseling and oral health instruction in private practice or public health settings.

**DEN 105 Practice Management 2-0-0-2**

This course provides a study of principles and procedures related to management of the dental practice. Emphasis is placed on maintaining clinical and financial records, patient scheduling, and supply and inventory control. Upon completion, students should be able to demonstrate fundamental skills in dental practice management.

**DEN 106 Clinical Practice I 2-0-12-6**

*Prerequisite: DEN 101*

This course is designed to provide experience assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to utilize classroom theory and laboratory and clinical skills in a dental setting.

**DEN 107 Clinical Practice II 1-0-12-5**

*Prerequisite: DEN 106*

This course is designed to increase the level of proficiency in assisting in a clinical setting. Emphasis is placed on the application of principles and procedures of four-handed dentistry and laboratory and clinical support functions. Upon completion, students should be able to combine

theoretical and ethical principles necessary to perform entry-level skills, including functions delegable to a DA II.

**DEN 110 Orofacial Anatomy 2-2-0-3**

This course introduces the structures of the head, neck, and oral cavity. Topics include tooth morphology, head and neck anatomy, histology, and embryology. Upon completion, students should be able to relate the identification of normal structures and development to the practice of dental assisting and dental hygiene.

**DEN 111 Infection/Hazard Control 2-0-0-2**

This course introduces the infection and hazard control procedures necessary for the safe practice of dentistry. Topics include microbiology, practical infection control, sterilization and monitoring, chemical disinfectants, aseptic technique, infectious diseases, OSHA standards, and applicable North Carolina laws. Upon completion, students should be able to understand infectious diseases, disease transmission, infection control procedures, biohazard management, OSHA standards, and applicable North Carolina laws.

**DEN 112 Dental Radiography 2-3-0-3**

This course provides a comprehensive view of the principles and procedures of radiology as they apply to dentistry. Topics include techniques in exposing, processing, and evaluating radiographs, as well as radiation safety, quality assurance, and legal issues. Upon completion, students should be able to demonstrate proficiency in the production of diagnostically acceptable radiographs using appropriate safety precautions.

**DEN 120 Dental Hygiene Preclinic Lecture 2-0-0-2**

*Corequisite: DEN 121*

This course introduces preoperative and clinical dental hygiene concepts. Emphasis is placed on the assessment phase of patient care as well as the theory of basic dental hygiene instrumentation. Upon completion, students should be able to collect and evaluate patient data at a basic level and demonstrate knowledge of dental hygiene instrumentation.

**DEN 121 Dental Hygiene Preclinic Laboratory 0-6-0-2**

*Corequisite: DEN 120*

This course provides the opportunity to perform clinical dental hygiene procedures discussed in DEN 120. Emphasis is placed on clinical skills in patient assessment and instrumentation techniques. Upon completion, students should be able to demonstrate the ability to perform specific preclinical procedures.

**DEN 123 Nutrition/Dental Health 2-0-0-2**

This course introduces basic principles of nutrition with emphasis on nutritional requirements and their application to individual patient needs. Topics include the study of Federal Nutritional Guidelines, nutrient functions, Recommended Daily Allowances, Adequate Intake, Tolerable Upper Intake Level, Estimated Average

Requirement, and related psychological principles. Upon completion, students should be able to recommend and counsel individuals on their food intake as related to their dental health.

**DEN 124 Periodontology 2-0-0-2**

*Prerequisites: DEN 110*

This course provides an in-depth study of the periodontium, periodontal pathology, periodontal monitoring, and the principles of periodontal therapy. Topics include periodontal anatomy and a study of the etiology, classification, and treatment modalities of periodontal diseases. Upon completion, students should be able to describe, compare, and contrast techniques involved in periodontal/maintenance therapy, as well as patient care management.

**DEN-125 Dental Office Emergencies 0-2-0-1**

This course provides a study of the management of dental office emergencies. Topics include methods of prevention, necessary equipment/drugs, medicolegal considerations, recognition and effective initial management of a variety of emergencies. Upon completion, the student should be able to recognize, assess and manage various dental office emergencies and activate advanced medical support when indicated.

**DEN 130 Dental Hygiene Theory I 2-0-0-2**

*Prerequisite: DEN 120*

*Corequisite: DEN 131*

This course is a continuation of the didactic dental hygiene concepts necessary for providing an oral prophylaxis. Topics include deposits/removal, instrument sharpening, patient education, fluorides, planning for dental hygiene treatment, charting, and clinical records and procedures. Upon completion, students should be able to demonstrate knowledge needed to complete a thorough oral prophylaxis.

**DEN 131 Dental Hygiene Clinic I 0-0-9-3**

*Prerequisite: DEN 121*

*Corequisites: DEN 130*

This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of the recall patients with gingivitis or light deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

**DEN 140 Dental Hygiene Theory II 1-0-0-1**

*Prerequisites: DEN 130*

*Corequisite: DEN 141*

This course introduces principles in treatment modification. Topics include modification of treatment for pain management and advanced radiographic interpretation. Upon completion, students should be able to differentiate necessary treatment modifications and radiographic abnormalities.

**DEN 141 Dental Hygiene Clinic II 0-0-6-2**

*Prerequisite: DEN 131*

*Corequisite: DEN 140*

This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with early periodontal disease and subgingival deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

**DEN 220 Dental Hygiene Theory III 2-0-0-2**

*Prerequisite: DEN 140*

*Corequisite: DEN 221*

This course introduces advanced principles of patient care. Topics include advanced periodontal debridement, subgingival irrigation, air polishing, special needs and case presentations. Upon completion, students should be able to demonstrate knowledge of methods of treatment and management of periodontally compromised and special needs patients.

**DEN 221 Dental Hygiene Clinic III 0-0-12-4**

*Prerequisite: DEN 141*

*Corequisite: DEN 220*

This course continues skill development in providing an oral prophylaxis. Emphasis is placed on treatment of patients with moderate to advanced periodontal involvement and moderate deposits. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

**DEN 222 General and Oral Pathology 2-0-0-2**

*Prerequisite: Take one: BIO 163, BIO 165, or BIO 168*

This course provides a general knowledge of oral pathological manifestations associated with selected systemic and oral diseases. Topics include developmental and degenerative diseases, selected microbial diseases, and specific and nonspecific immune and inflammatory responses with emphasis on recognizing abnormalities. Upon completion, students should be able to differentiate between normal and abnormal tissues and refer unusual findings to the dentist for diagnosis.

**DEN 223 Dental Pharmacology 2-0-0-2**

*Corequisite: Take one: BIO 163, BIO 165, or BIO 168*

This course provides basic drug terminology, general principles of drug actions, dosages, routes of administration, adverse reactions, and basic principles of anesthesiology. Emphasis is placed on knowledge of drugs in overall understanding of patient histories and health status. Upon completion, students should be able to recognize that each patient's general health or drug usage may require modification of the treatment procedures.

**DEN 224 Materials and Procedures 1-3-0-2**

*Prerequisite: DEN 111*

This course introduces the physical properties of materials and related procedures used in dentistry. Topics include restorative and preventive materials, fabrication of casts and appliances, and chairside functions of the dental hygienist.

Upon completion, students should be able to demonstrate proficiency in the laboratory and/or clinical application of routinely used dental materials and chairside functions.

**DEN 230 Dental Hygiene Theory IV 1-0-0-1**

*Prerequisite:* DEN 220

*Corequisite:* DEN 231

This course provides an opportunity to increase knowledge of the profession. Emphasis is placed on dental specialties, technological advances, and completion of a case presentation. Upon completion, students should be able to demonstrate knowledge of various disciplines of dentistry, technological advances and principles of case presentations

**DEN 231 Dental Hygiene Clinic IV 0-0-12-4**

*Prerequisite:* DEN 221

*Corequisite:* DEN 230

This course continues skill development in providing an oral prophylaxis. Emphasis is placed on periodontal maintenance and on treating patients with moderate to advanced/refractory periodontal disease. Upon completion, students should be able to assess these patients' needs and complete the necessary dental hygiene treatment.

**DEN 232 Community Dental Health 2-3-0-3**

This course provides a study of the principles and methods used in assessing, planning, implementing, and evaluating community dental health programs. Topics include epidemiology, research methodology, biostatistics, preventive dental care, dental health education, program planning, and financing and utilization of dental services. Upon completion, students should be able to assess, plan, implement, and evaluate a community dental health program.

**DEN 233 Professional Development 2-0-0-2**

This course includes professional development, ethics, and jurisprudence with applications to practice management. Topics include conflict management, state laws, résumés, interviews, and legal liabilities as health care professionals. Upon completion, students should be able to demonstrate the ability to practice dental hygiene within established ethical standards and state laws.

## DRAFTING

C-L-SHC

**DFT 111 Technical Drafting I 1-3-2**

This course introduces basic drafting skills, equipment, and applications. Topics include sketching, measurements, lettering, dimensioning, geometric construction, orthographic projections and pictorials drawings, sections, and auxiliary views. Upon completion, students should be able to understand and apply basic drawing principles and practices.

**DFT 151 CAD I 2-3-3**

*Local Corequisite:* DFT 111 or Instructor Approval

This course introduces CAD software as a drawing tool. Topics include drawing, editing, file management, and plotting. Upon completion, students should be able to produce and plot a CAD drawing.

**DFT 152 CAD II 2-3-3**

*Local Prerequisite:* DFT 151

This course introduces extended CAD applications. Emphasis is placed upon intermediate applications of CAD skills. Upon completion, students should be able to use extended CAD applications to generate and manage drawings.

**DFT 153 CAD III 2-3-3**

*Local Prerequisite:* DFT 111

This course introduces advanced CAD applications. Emphasis is placed upon advanced applications of CAD skills. Upon completion, students should be able to use advanced CAD applications to generate and manage data.

**DFT 154 Introduction to Solid Modeling 2-3-3**

This course is an introduction to basic three-dimensional solid modeling and design software. Topics include basic design, creation, editing, rendering, and analysis of solid models and creation of multi view drawings. Upon completion, students should be able to use design techniques to create, edit, render, and generate a multi view drawing.

**DFT 170 Engineering Graphics 2-2-3**

This course introduces basic engineering graphics skills and applications. Topics include sketching, selection and use of current methods and tools, and the use of engineering graphics applications. Upon completion, students should be able to demonstrate an understanding of basic engineering graphics principles and practices. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DFT 211 Gears, Cams, & Pulleys 1-3-2**

*Prerequisites:* DFT 111 and MAT 121 or DFT 111 and MAT 171

This course introduces the principles of motion transfer. Topics include gears, cams, pulleys, and drive components. Upon completion, students should be able to solve problems and produce drawings dealing with ratios.

**DFT 253 CAD Data Management 2-2-3**

*Prerequisite:* DFT 151

This course covers engineering document management techniques. Topics include efficient control of engineering documents, manipulation of CAD drawing data, generation of bill of materials, and linking to spreadsheets or databases. Upon completion, students should be able to utilize systems for managing CAD drawings, extract data from drawings, and link data to spreadsheets or database applications.

**DFT 254 Intermed Solid Model/Render 2-3-3***Prerequisites: DFT 154*

This course presents a continuation of basic three-dimensional solid modeling and design software. Topics include advanced study of parametric design, creation, editing, rendering and analysis of solid model assemblies, and multiview drawing generation. Upon completion, students should be able to use parametric design techniques to create and analyze the engineering design properties of a model assembly.

**DFT 259 CAD Project 1-4-3***Local Prerequisite: DDF 211 and either DFT 153 or DFT 154*

This course is a capstone course experience for programs with a focus in computer-aided design. Emphasis is placed on the use of design principles and computer technology in planning, managing, and completing a design project. Upon completion, students should be able to plan and produce engineering documents of a design project, including solid models, working drawings, Bills of Material, annotations, and spreadsheets.

**DEVELOPMENTAL MATHEMATICS****C-L-SHC****DMA 010 Operations With Integers 0.75-0.50-1**

This course provides a conceptual study of integers and integer operations. Topics include integers, absolute value, exponents, square roots, perimeter and area of basic geometric figures, Pythagorean theorem, and use of the correct order of operations. Upon completion, students should be able to demonstrate an understanding of pertinent concepts and principles and apply this knowledge in the evaluation of expressions.

**DMA 020 Fractions and Decimals 0.75-0.50-1***Prerequisites: DMA 010 or appropriate placement test scores*

This course provides a conceptual study of the relationship between fractions and decimals and covers related problems. Topics include application of operations and solving contextual application problems, including determining the circumference and area of circles with the concept of pi. Upon completion, students should be able to demonstrate an understanding of the connections between fractions and decimals.

**DMA 030 Propor/Ratio/Rate/Percent 0.75-0.50-1***Prerequisites: DMA-010 and DMA-020 or appropriate placement test scores*

This course provides a conceptual study of the problems that are represented by rates, ratios, percent, and proportions. Topics include rates, ratios, percent, proportion, conversion of English and metric units, and applications of the geometry of similar triangles. Upon completion, students should be able to use their understanding to solve conceptual application problems.

**DMA 040 Express/Lin Equat/Inequal 0.75-0.50-1***Prerequisites: Take one set:**Set 1: DMA 010, DMA 020, and DMA 030,**Set 2: MAT 060**or appropriate placement test scores*

This course provides a conceptual study of problems involving linear expressions, equations, and inequalities. Emphasis is placed on solving contextual application problems. Upon completion, students should be able to distinguish between simplifying expressions and solving equations and apply this knowledge to problems involving linear expressions, equations, and inequalities.

**DMA 050 Graphs/Equations of Lines 0.75-0.50-1***Prerequisites: Take one set:**Set 1: DMA 010, DMA 020, DMA 030, and DMA 040,**Set 2: DMA 040 and MAT 060**or appropriate placement test scores*

This course provides a conceptual study of problems involving graphic and algebraic representations of lines. Topics include slope, equations of lines, interpretation of basic graphs, and linear modeling. Upon completion, students should be able to solve contextual application problems and represent real-world situations as linear equations in two variables.

**DMA 060 Polynomial/Quadratic Appl 0.75-0.50-1***Prerequisites: Take one set:**Set 1: DMA 010, DMA 020, DMA 030, DMA 040, and DMA 050,**Set 2: DMA 040, DMA 050, and MAT 060**Set 3: MAT 060 and MAT 070**or appropriate placement test scores*

This course provides a conceptual study of problems involving graphic and algebraic representations of quadratics. Topics include basic polynomial operations, factoring polynomials, and solving polynomial equations by means of factoring. Upon completion, students should be able to find algebraic solutions to contextual problems with quadratic applications.

**DMA 070 Rational Express/Equation 0.75-0.50-1***Prerequisites: Take one set:**Set 1: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DMA 060,**Set 2: DMA 040, DMA 050, DMA 060 and MAT 060**Set 3: DMA 060, MAT 060, and MAT 070,**Set 4: DMA 010, DMA 020, DMA 030, DMA 060, and MAT 070**or appropriate placement test scores*

This course provides a conceptual study of problems involving graphic and algebraic representations of rational equations. Topics include simplifying and performing operations with rational expressions and equations, understanding the domain, and determining the reasonableness of an answer. Upon completion, students should be able to find algebraic solutions to contextual problems with rational applications.



**DMA 080 Radical Express/Equations 0.75-0.50-1***Prerequisites: Take one set:**Set 1: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, and DMA 070**Set 2: DMA 060, DMA 070, MAT 060, and MAT 070**Set 3: DMA 040, DMA 050, DMA 060, DMA 070 and MAT 060**Set 4: DMA 010, DMA 020, DMA 030, DMA 060, DMA 070 and MAT 070**or appropriate placement test scores*

This course provides a conceptual study of the manipulation of radicals and the application of radical equations to real-world problems. Topics include simplifying and performing operations with radical expressions and rational exponents, solving equations, and determining the reasonableness of an answer. Upon completion, students should be able to find algebraic solutions to contextual problems with radical applications.

**DRAMA/THEATRE****DRA 111 Theatre Appreciation****C-L-SHC  
3-0-3**

This course provides a study of the art, craft, and business of the theatre. Emphasis is placed on the audience's appreciation of the work of the playwright, director, actor, designer, producer, and critic. Upon completion, students should be able to demonstrate a vocabulary of theatre terms and to recognize the contributions of various theatre artists. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**DRA 112 Literature of the Theatre****3-0-3**

This course provides a survey of dramatic works from the classical Greek through the present. Emphasis is placed on the language of drama, critical theory, and background as well as on play reading and analysis. Upon completion, students should be able to articulate, orally and in writing, their appreciation and understanding of dramatic works. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**DRA 120 Voice for Performance****3-0-3**

This course provides guided practice in the proper production of speech for the theatre. Emphasis is placed on improving speech, including breathing, articulation, pronunciation, and other vocal variables. Upon completion, students should be able to demonstrate effective theatrical speech. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**DRA 124 Readers Theatre****3-0-3**

This course provides a theoretical and applied introduction to the medium of readers theatre. Emphasis is placed on the group performance considerations posed by various genres of literature. Basics of acting are introduced as needed for performance. Upon completion, students should be able to adapt and present a literary script following the conventions

of readers theatre. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**DRA 128 Children's Theatre****3-0-3**

This course introduces the philosophy and practice involved in producing plays for young audiences. Topics include the selection of age-appropriate scripts and the special demands placed on directors, actors, designers, and educators in meeting the needs of young audiences. Upon completion, students should be able to present and critically discuss productions for children. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 130 Acting I****0-6-3**

This course provides an applied study of the actor's craft. Topics include role analysis, training the voice, and body concentration, discipline, and self-evaluation. Upon completion, students should be able to explore their creativity in an acting ensemble. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 131 Acting II****0-6-3***Prerequisites: DRA 130*

This course provides additional hands-on practice in the actor's craft. Emphasis is placed on further analysis, characterization, growth, and training for acting competence. Upon completion, students should be able to explore their creativity in an acting ensemble. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 140 Stagecraft I****0-6-3**

This course introduces the theory and basic construction of stage scenery and properties. Topics include stage carpentry, scene painting, stage electrics, properties, and backstage organization. Upon completion, students should be able to pursue vocational and avocational roles in technical theatre. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 141 Stagecraft II****0-6-3***Prerequisites: DRA 140*

This course provides additional hands-on practice in the elements of stagecraft. Emphasis is placed on the design and implementation of the arts and crafts of technical theatre. Upon completion, students should be able to pursue vocational or avocational roles in technical theatre. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 145 Stage Make-Up****1-2-2**

This course covers the research, design, selection of materials, and application of stage make-up, prosthetics, wigs, and hairpieces. Emphasis is placed on the development of techniques, style, and presentation of the

finished make-up. Upon completion, students should be able to create and apply make-up, prosthetics, and hairpieces. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 170 Play Production I 0-9-3**

This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 171 Play Production II 0-9-3**

*Prerequisite: DRA 170*

This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 211 Theatre History I 3-0-3**

This course covers the development of theatre from its origin to the closing of the British theatre in 1642. Topics include the history, aesthetics, and representative dramatic literature of the period. Upon completion, students should be able to trace the evolution of theatre and recognize the styles and types of world drama. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**DRA 260 Directing 0-6-3**

*Prerequisite: DRA 130*

*Corequisite: DRA 140*

This course provides an analysis and application of the techniques of theatrical directing. Topics include script selection, analysis, casting, rehearsal planning, blocking, stage business, tempo, and technical considerations. Upon completion, students should be able to plan, execute, and critically discuss a student-directed production. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 270 Play Production III 0-9-3**

*Prerequisites: DRA 171*

This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production. This course has been approved for transfer

under the CAA and ICAA as a premajor and/or elective course requirement.

**DRA 271 Play Production IV 0-9-3**

*Prerequisites: DRA 270*

This course provides an applied laboratory study of the processes involved in the production of a play. Topics include fundamental practices, principles, and techniques associated with producing plays of various periods and styles. Upon completion, students should be able to participate in an assigned position with a college theatre production. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**Developmental Reading/English**

**C-L-SHC**

**DRE 096 Integrated Reading and Writing 2.5-1.0-3**

This course is designed to develop proficiency in specific integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; these topics are primarily taught at the introductory level using texts primarily in a Lexile (TM) range of 960 to 1115. Upon completion, students should be able to apply those skills toward understanding a variety of academic and career-related texts and composing effective paragraphs. Please note: (TM) represents registered trademark.

**DRE 097 Integrated Reading Writing II 2.5-1.0-3**

*Prerequisites: DRE 96 or appropriate placement test scores*

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; except where noted, these topics are taught at a reinforcement level using texts primarily in a Lexile (TM) range of 1070 to 1220. Upon completion, students should be able to demonstrate and apply those skills toward understanding a variety of complex academic and career texts and composing essays incorporating relevant, valid evidence. Please note: (TM) represents registered trademark.

**DRE 098 Integrated Reading Writing III 2.5-1.0-3**

*Prerequisites: DRE 097 or appropriate placement test scores*

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; these topics are taught using texts primarily in the Lexile (TM) range of 1185 to 1385. Upon completion, students should be able to apply those skills toward understanding a variety of texts at the career and college ready level and toward composing a documented essay. Note: (TM) represents registered trademark.

**DRE 099 Integrated Reading Writing III 2.5-1.0-3**

*Prerequisite: DRE 097 or appropriate placement test scores*  
*Corequisites: ENG 111*

This course is designed to develop proficiency in integrated and contextualized reading and writing skills and strategies by complementing, supporting and reinforcing material covered in ENG 111. Topics include reading and writing processes, critical thinking strategies, and recognition and composition of well-developed, coherent, and unified texts; except where noted, these topics are taught using texts primarily in the Lexile (TM) range of 1185 to 1385. Upon completion, students should be able to apply those skills toward understanding a variety of texts at the career and college ready level and toward composing a documented essay. Note: (TM) represents registered trademark.

**ECONOMICS****ECO 151 Survey of Economics****C-L-SHC  
3-0-3**

This course introduces basic concepts of micro- and macroeconomics. Topics include supply and demand, optimizing economic behavior, prices and wages, money, interest rates, banking system, unemployment, inflation, taxes, government spending, and international trade. Upon completion, students should be able to explain alternative solutions for economic problems faced by private and government sectors. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**ECO 251 Principles of Microeconomics****3-0-3**

This course introduces economic analysis of individual, business, and industry choices in the market economy. Topics include the price mechanism, supply and demand, optimizing economic behavior, costs and revenue, market structures, factor markets, income distribution, market failure, and government intervention. Upon completion, students should be able to identify and evaluate consumer and business alternatives in order to efficiently achieve economic objectives. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**ECO 252 Principles of Macroeconomics****3-0-3**

This course introduces economic analysis of aggregate employment, income, and prices. Topics include major schools of economic thought; aggregate supply and demand; economic measures, fluctuations, and growth; money and banking; stabilization techniques; and international trade. Upon completion, students should be able to evaluate national economic components, conditions, and alternatives for achieving socioeconomic goals. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**EDUCATION****EDU 119 Intro to Early Childhood Educ****C-L-SHC  
4-0-4**

This course introduces the foundations of early childhood education, the diverse educational settings for young children, professionalism and planning intentional developmentally appropriate experiences for each child. Topics include theoretical foundations, national early learning standards, NC Foundations for Early Learning and Development, state regulations, program types, career options, professionalism, ethical conduct, quality inclusive environments, and curriculum responsive to the needs of each child/family. Upon completion, students should be able to design a career/professional development plan, and appropriate environments, schedules, and activity plans.

**EDU 131 Child, Family, & Community****3-0-3**

*Corequisite: Take DRE 097*

This course covers the development of partnerships between culturally and linguistically diverse families, children, schools and communities. Emphasis is placed on developing skills and identifying benefits for establishing, supporting, and maintaining respectful, collaborative relationships between diverse families, programs/schools, and community agencies/resources. Upon completion, students should be able to explain appropriate relationships between families, educators, and professionals that enhance development and educational experiences of all children.

**EDU 144 Child Development I****3-0-3**

*Corequisite: DRE 097*

This course includes the theories of child development, needs, milestones, and factors that influence development, from conception through approximately 36 months. Emphasis is placed on developmental sequences in physical/motor, emotional/social, cognitive, and language domains and the impact of multiple influences on development and learning. Upon completion, students should be able to compare/contrast typical/atypical developmental characteristics, explain environmental factors that impact development, and identify strategies for enhancing development.

**EDU 145 Child Development II****3-0-3**

*Corequisite: DRE 097*

This course includes the theories of child development, needs, milestones, and factors that influence development, from preschool through middle childhood. Emphasis is placed on developmental sequences in physical/motor, emotional/social, cognitive, and language domains and the impact of multiple influences on development and learning. Upon completion, students should be

able to compare/contrast typical/atypical developmental characteristics, explain environmental factors that impact development, and identify strategies for enhancing development.

**EDU 146 Child Guidance**

**3-0-3**

*Prerequisite: DRE 097*

This course introduces principles and practical techniques including the design of learning environments for providing developmentally appropriate guidance for all children, including those at risk. Emphasis is placed on observation skills, cultural influences, underlying causes of behavior, appropriate expectations, development of self control and the role of communication and guidance. Upon completion, students should be able to demonstrate direct/indirect strategies for preventing problem behaviors, teaching appropriate/acceptable behaviors, negotiation, setting limits and recognizing at risk behaviors.

**EDU 151 Creative Activities**

**3-0-3**

*Corequisite: DRE 097*

This course covers planning, creation, and adaptation of developmentally supportive learning environments with attention to curriculum, interactions, teaching practices, and learning materials. Emphasis is placed on creating and adapting integrated, meaningful, challenging, and engaging developmentally supportive learning experiences in art, music, movement and dramatics for all children. Upon completion, students should be able to create, adapt, implement and evaluate developmentally supportive learning materials, experiences, and environments.

**EDU 153 Health, Safety, and Nutrition**

**3-0-3**

*Corequisite: DRE 097*

This course covers promoting and maintaining the health and well-being of all children. Topics include health and nutritional guidelines, common childhood illnesses, maintaining safe and healthy learning environments, recognition and reporting of abuse and neglect and state regulations. Upon completion, students should be able to demonstrate knowledge of health, safety, and nutritional needs, safe learning environments, and adhere to state regulations.

**EDU 158 Healthy Lifestyles-Youth**

**3-0-3**

*Corequisite: DRE-097*

This course introduces the topics of health, safety, nutrition, physical activities and environments for the school-age child/youth that promote development, fitness and healthy lifestyles. Topics include the use of physical and nutritional/cooking activities (indoor/outdoor, teacher-directed/youth-directed) appropriate for youth developing typically/atypically; safe/healthy menu planning;

safe/healthy environmental design, assessment and supervision. Upon completion, students should be able to plan/facilitate safe/healthy physical and nutritional/cooking activities, discuss safety policies/regulations and identify health/safety/nutritional needs of youth.

**EDU 163 Classroom Mgt and Instruct**

**3-0-3**

*Corequisite: : DRE 097*

This course covers management and instructional techniques with school-age populations. Topics include classroom management and organization, teaching strategies, individual student differences and learning styles, and developmentally appropriate classroom guidance techniques. Upon completion, students should be able to utilize developmentally appropriate behavior management and instructional strategies that enhance the teaching/learning process and promote students' academic success.

**EDU 216 Foundations of Education**

**4-0-4**

*Corequisite: DRE 098*

This course introduces the American educational system and the teaching profession. Topics include historical and philosophical foundations of education, contemporary educational, structural, legal, and financial issues, and experiences in public school classrooms. Upon completion, students should be able to relate classroom observations to the roles of teachers and schools and the process of teacher education.

**EDU 221 Children with Exceptional**

**3-0-3**

*Prerequisite. Take one set: EDU 144, EDU 145; or PSY 244, PSY 245*

*Corequisite: DRE 098*

This course introduces children with exceptionalities, their families, support services, inclusive/diverse settings, and educational/family plans based on the foundations of child development. Emphasis is placed on the characteristics of exceptionalities, observation and assessment of children, strategies for adapting the learning environment, and identification of community resources. Upon completion, students should be able to recognize diverse abilities, describe the referral process, and depict collaboration with families/professionals to plan/implement, and promote best practice.

**EDU 234 Infants, Toddlers, & Twos**

**3-0-3**

*Prerequisite: EDU 119*

*Corequisite: DRE 098*

This course covers the unique needs and rapid changes that occur in the first three years of life and the inter-related factors that influence development. Emphasis is placed on recognizing and supporting developmental milestones through purposeful strategies, responsive care routines and identifying elements of quality, inclusive early care and education. Upon completion, students should be able to

demonstrate respectful relationships that provide a foundation for healthy infant/toddler/twos development, plan/select activities/materials, and partner with diverse families.

**EDU 235 School-Age Development and Program 2-0-2**

*Prerequisite: DRE 098*

This course includes developmentally appropriate practices in group settings for school-age children. Emphasis is placed on principles of development, environmental planning, and positive guidance techniques. Upon completion, students should be able to discuss developmental principles for all children ages five to twelve and plan and implement developmentally-appropriate activities.

**EDU 252 Math and Sci Activities 3-0-3**

*Corequisites: DRE 098*

This course introduces discovery experiences in math and science. Topics include concepts, facts, phenomena, and skills in each area. Upon completion, students should be able to identify, plan, select materials and equipment, and implement and evaluate developmentally appropriate curriculum materials.

**EDU 259 Curriculum Planning 3-0-3**

*Prerequisite: EDU 119*

*Corequisite: DRE 098*

This course is designed to focus on curriculum planning for three to five year olds. Topics include philosophy, curriculum models, indoor and outdoor environments, scheduling, authentic assessment, and planning developmentally appropriate experiences. Upon completion, students should be able to evaluate children's development, critique curriculum, plan for individual and group needs, and assess and create quality environments.

**EDU 261 Early Childhood Admin I 3-0-3**

*Corequisites: EDU 119 & DRE 098*

This course introduces principles of basic programming and staffing, budgeting/financial management and marketing and rules and regulations of diverse early childhood programs. Topics include program structure and philosophy, standards of NC child care programs, finance, funding resources, and staff and organizational management. Upon completion, students should be able to develop components of program/personnel handbooks, a program budget, and demonstrate knowledge of fundamental marketing strategies and NC standards.

**EDU 262 Early Childhood Admin II 3-0-3**

*Prerequisite: EDU 261*

*Corequisites: EDU 119 & DRE 098*

This course focuses on advocacy/leadership, public relations/community outreach and program quality/evaluation for diverse early childhood programs. Topics include program evaluation/accreditation, involvement in early childhood

professional organizations, leadership/mentoring, family, volunteer and community involvement and early childhood advocacy. Upon completion, students should be able to define and evaluate all components of early childhood programs, develop strategies for advocacy and integrate community into programs.

**EDU 263 School-Age Program Admin 2-0-2**

*Corequisite: DRE 098*

This course introduces the methods and procedures for development and administration of school-age programs in the public or proprietary setting. Emphasis is placed on the construction and organization of the physical environment. Upon completion, students should be able to plan, develop and administer a quality school-age program.

**EDU 271 Educational Technology 2-2-3**

*Local Prerequisites: CIS 110 or CIS 111*

*Corequisites: DRE 098*

This course introduces the use of technology to enhance teaching and learning in all educational settings. Topics include technology concepts, instructional strategies, materials, and adaptive technology for children with exceptionalities, facilitation of assessment/evaluation, and ethical issues surrounding the use of technology. Upon completion, students should be able to apply technology enhanced instructional strategies, use a variety of technology resources, and demonstrate appropriate technology skills in educational environments.

**EDU 280 Language and Literacy 3-0-3**

*Corequisite: DRE 098*

This course is designed to expand students' understanding of children's language and literacy development and provides strategies for enhancing language/literacy experiences in an enriched environment. Topics include selection of diverse literature and interactive media, the integration of literacy concepts throughout the curriculum, appropriate observations/assessments and inclusive practices. Upon completion, students should be able to select, plan, implement and evaluate developmentally appropriate and diverse language/literacy experiences.

**EDU 284 Early Childhood Capstone Prac 1-9-4**

*Prerequisites: Take One Set:*

Set 1: EDU-119, EDU-144, EDU-145, EDU-146, and EDU-151

Set 2: EDU-119, PSY-244, PSY-245, EDU-146, and EDU-151

Set 3: EDU-119, PSY-245, EDU-144, EDU-146, and EDU-151

Set 4: EDU-119, PSY-244, EDU-145, EDU-146, and EDU-151

*Corequisites: DRE 098*

This course is designed to allow students to apply skills in a three star (minimum) or NAEYC accredited or equivalent, quality early childhood environment. Emphasis is placed on designing, implementing and evaluating developmentally appropriate activities and environments for all children; supporting/involving families; and modeling reflective and professional practices. Upon completion, students should be able to demonstrate developmentally appropriate

plans/assessments, appropriate guidance techniques and ethical/professional behaviors as indicated by assignments and onsite faculty visits.

**EDU 287 Leadership Early Child Education 3-0-3**

*Prerequisites: Take One Set:*

Set 1: EDU 119, EDU 131, EDU 144, EDU 145

Set 2: EDU 119, EDU 131, PSY 244, PSY 245

*Corequisites: Take DRE 098*

This course is designed to facilitate and guide the development of early childhood professionals preparing for leadership roles in improving community early childhood services. Topics include principles of social change, characteristics of effective leaders, techniques of action research, childcare funding mechanisms, quality initiatives, and key issues in early care. Upon completion, students should be able to identify key issues; develop strategic plans; establish relationships with community leaders; and identify opportunities and barriers for advocacy.

## ENGINEERING

### C-L-SHC

**EGR 131 Introduction To Electronics Technology 1-2-2**

This course introduces the basic skills required for electrical/electronics technicians. Topics include soldering/desoldering, safety practices, test equipment, scientific calculators, AWG wire table, the resistor color code, electronic devices, problem solving, and use of hand tools. Upon completion, students should be able to solder/desolder, operate test equipment, apply problem solving techniques, and use a scientific calculator.

**EGR 150 Intro to Engineering 1-2-2**

This course is an overview of the engineering profession. Topics include goal setting and career assessment, ethics, public safety, the engineering method and design process, written and oral communication, interpersonal skills and team building, and computer applications. Upon completion, students should be able to understand the engineering process, the engineering profession, and utilize college resources to meet their educational goals. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 210 Intro to Elec/Comp Eng Lab 1-3-2**

*Prerequisites: Take MAT 271 and PHY 251*

This course provides an overview of electrical and computer engineering, through a lecture and laboratory setting. Topics include fundamental concepts, electronic circuits, digital circuits, communication systems, and signal processing. Upon completion, students should be able to discuss the wide range of fields available to the electrical or computer engineer. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 212 Logic System Design I 3-0-3**

*Prerequisite: Take MAT 271 and PHY 251*

This course provides an introduction to digital circuits and analysis. Topics include Boolean Algebra; mixed logic; design of combinational circuits; introduction to sequential systems; and MSI building blocks. Upon completion, students should be able to analyze and design digital circuits and systems. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 215 Network Theory I 3-0-3**

*Prerequisites: Take MAT 272 and PHY 251*

*Corequisites: Take PHY 252 and MAT 273*

This course provides an introduction to Kirchoff's laws and terminal equations, circuit analysis techniques and network theorems, transient and natural response, and state variable analysis. Topics include Kirchoff's laws, Ohm's law, circuit analysis techniques, Network theorems, singularity functions, transient and natural responses, power, and state variable analysis. Upon completion, students should be able to analyze electric circuits involving capacitors, inductors, and resistors to determine required parameters. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 216 Logic and Network Lab 0-3-1**

*Prerequisites: Take MAT 272 and PHY 251*

*Corequisites: Take EGR 212 and EGR 215*

This course provides laboratory experiments in network measurements and logic design and laboratory equipment and techniques. Topics include network measurement and applications, experimental logic design and introduction to laboratory equipment and techniques. Upon completion, students should be able to complete network measurement logic design and be able to use laboratory equipment with proper techniques. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 220 Engineering Statics 3-0-3**

This course introduces the concepts of engineering based on forces in equilibrium. Topics include concentrated forces, distributed forces, forces due to friction, and inertia as they apply to machines, structures, and systems. Upon completion, students should be able to solve problems which require the ability to analyze systems of forces in static equilibrium. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**EGR 228 Intro to Solid Mechanics 3-0-3**

*Prerequisite: Take EGR 220*

This course provides an introduction to engineering theory of deformable solids and applications. Topics include stress and deformation resulting from axial, torsion, and bending loads; shear and moment diagrams; Mohr's circle of stress; and strain and buckling of columns. Upon completion, students should be able to analyze solids subject to various

forces and design systems using a variety of materials. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## ELECTRICITY

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|--|--|--|---------------------|--|---------------------|---|---------------------|---|---------------------|--|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|
| <p><b>ELC 111 Introduction to Electricity</b><br/>This course introduces the fundamental concepts of electricity and test equipment to non-electrical/electronics majors. Topics include basic DC and AC principles (voltage, resistance, current, impedance); components (resistors, inductors, and capacitors); power; and operation of test equipment. Upon completion, students should be able to construct and analyze simple DC and AC circuits using electrical test equipment.</p> | <p><b>C-L-SHC</b><br/><b>2-2-3</b></p> | <p><b>ELC 112 DC/AC Electricity</b><br/>This course introduces the fundamental concepts of and computations related to DC/AC electricity. Emphasis is placed on DC/AC circuits, components, operation of test equipment; and other related topics. Upon completion, students should be able to construct, verify, and analyze simple DC/AC circuits.</p> | <p><b>3-6-5</b></p> | <p><b>ELC 113 Residential Wiring</b><br/>This course introduces the care/usage of tools and materials used in residential electrical installations and the requirements of the National Electrical Code. Topics include NEC, electrical safety, and electrical print reading; planning, layout, and installation of electrical distribution equipment; lighting; overcurrent protection; conductors; branch circuits; and conduits. Upon completion, students should be able to properly install conduits, wiring, and electrical distribution equipment associated with basic electrical installations.</p> | <p><b>2-6-4</b></p> | <p><b>ELC 114 Commercial Wiring</b><br/><i>Local Prerequisites: ELC 113</i><br/>This course provides instruction in the application of electrical tools, materials, and test equipment associated with electrical installations. Topics include the NEC; safety; electrical blueprints; planning, layout, and installation of equipment and conduits; and wiring devices such as panels and overcurrent devices. Upon completion, students should be able to properly install equipment and conduit associated with electrical installations.</p> | <p><b>2-6-4</b></p> | <p><b>ELC 117 Motors and Controls</b><br/><i>Local Prerequisites: ELC 112</i><br/>This course introduces the fundamental concepts of motors and motor controls. Topics include ladder diagrams, pilot devices, contactors, motor starters, motors, and other control devices. Upon completion, students should be able to properly select, connect, and troubleshoot motors and control circuits.</p> | <p><b>2-6-4</b></p> | <p><b>ELC 118 National Electrical Code</b><br/>This course covers the use of the current National Electrical Code. Topics include the NEC history, wiring methods, overcurrent protection, materials, and other related topics. Upon completion, students should be able to effectively use the NEC.</p> | <p><b>1-2-2</b></p> | <p><b>ELC 122 Advanced Residential Wiring</b><br/><i>Prerequisites: ELC 113</i><br/>This course introduces advanced topics in residential electrical installations including the requirements of the National Electrical Code (NEC). Topics include NEC, special purpose outlets, telephone and low voltage signal systems, swimming pool electrical systems, home automation systems, standby power systems and residential utility-interactive photovoltaic systems. Upon completion, students should be able to properly install conduits, wiring, electrical distribution equipment, low voltage, standby power, automated systems, and utility-interactive photovoltaic systems associated with advanced residential electrical installations.</p> | <p><b>2-4-4</b></p> | <p><b>ELC 125 Diagrams and Schematics</b><br/>This course covers the interpretation of electrical diagrams, schematics, and drawings common to electrical applications. Emphasis is placed on reading and interpreting electrical diagrams and schematics. Upon completion, students should be able to read and interpret electrical diagrams and schematics.</p> | <p><b>1-2-2</b></p> | <p><b>ELC 127 Software for Technicians</b><br/>This course introduces computer software which can be used to solve electrical/electronics problems. Topics include electrical/electronics calculations and applications. Upon completion, students should be able to utilize a personal computer for electrical/electronics-related applications.</p> | <p><b>1-3-2</b></p> | <p><b>ELC 128 Introduction to PLC</b><br/><i>Local Prerequisite: ELC 112 or ELC 131 or Permission of Instructor</i><br/>This course introduces the programmable logic controller (PLC) and its associated applications. Topics include ladder logic diagrams, input/output modules, power supplies, surge protection, selection/installation of controllers, and interfacing of controllers with equipment. Upon completion, students should be able to install PLC systems and create simple programs.</p> | <p><b>2-3-3</b></p> | <p><b>ELC 131 Circuit Analysis I</b><br/><i>Local Corequisites: MAT 121 or MAT 161</i><br/>This course introduces DC and AC electricity with an emphasis on circuit analysis, measurements, and operation of test equipment. Topics include DC and AC principles, circuit analysis laws and theorems, components, test equipment operation, circuit simulation, and other related topics. Upon completion, students should be able to interpret circuit schematics; design, construct, verify, and analyze DC/AC circuits; and properly use test equipment.</p> | <p><b>3-3-4</b></p> |
|--|--|--|---------------------|--|---------------------|---|---------------------|---|---------------------|--|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|---|---------------------|

**ELC 131A Circuit Analysis I Lab** 0-3-1

*Corequisites: ELC 131*

This course provides laboratory assignments as applied to fundamental principles of DC/AC electricity. Emphasis is placed on measurements and evaluation of electrical components, devices and circuits. Upon completion, the students will gain hands-on experience by measuring voltage, current, and opposition to current flow utilizing various meters and test equipment.

**ELC 213 Instrumentation** 3-2-4

This course covers the fundamentals of instrumentation used in industry. Emphasis is placed on electric, electronic, and other instruments. Upon completion, students should be able to install, maintain, and calibrate instrumentation.

**ELC 220 Photovoltaic Sys Tech** 2-3-3

This course introduces the concepts, tools, techniques, and materials needed to understand systems that convert solar energy into electricity with photovoltaic (pv) technologies. Topics include site analysis for system integration, building codes, and advances in photovoltaic technology. Upon completion, students should be able to demonstrate an understanding of the principles of photovoltaic technology and current applications.

**ELC 221 Adv PV Sys Designs** 2-3-3

*Prerequisites: ELC 220*

This course introduces specific elements in photovoltaic (pv) systems technologies including efficiency, modules, inverters, charge controllers, batteries, and system installation. Topics include National Electrical Code (NEC), electrical specifications, photovoltaic system components, array design and power integration requirements that combine to form a unified structure. Upon completion, students should be able to demonstrate an understanding of various photovoltaic designs and proper installation of NEC compliant solar electric power systems.

**ELC 228 PLC Applications** 2-6-4

*Local Prerequisite: ELC 128*

This course covers programming and applications of programmable logic controllers. Emphasis is placed on programming techniques, networking, specialty I/O modules, and system troubleshooting. Upon completion, students should be able to specify, implement, and maintain complex PLC controlled systems.

**ELC 229 Applications Project** 1-3-2

*Local Prerequisite: HYD 121 and ELC 112*

This course provides an individual and/or integrated team approach to a practical project as approved by the instructor. Topics include project selection and planning, implementation and testing, and a final presentation. Upon completion, students should be able to plan and implement an applications-oriented project.

## ELECTRONICS

**ELN 131 Analog Electronics I** C-L-SHC 3-3-4

*Local Prerequisite: ELC 112 or ELC 131*

This course introduces the characteristics and applications of semiconductor devices and circuits. Emphasis is placed on analysis, selection, biasing, and applications. Upon completion, students should be able to construct, analyze, verify, and troubleshoot analog circuits using appropriate techniques and test equipment.

**ELN 132 Analog Electronic II** 3-3-4

*Local Prerequisite: ELN 131 or ELC 140*

This course covers additional applications of analog electronic circuits with an emphasis on analog and mixed signal integrated circuits (IC). Topics include amplification, filtering, oscillation, voltage regulation, and other analog circuits. Upon completion, students should be able to construct, analyze, verify, and troubleshoot analog electronic circuits using appropriate techniques and test equipment.

**ELN 133 Digital Electronics** 3-3-4

*Local Prerequisite: EGR 131 or ELC 131 or Instructor Approval*

This course covers combinational and sequential logic circuits. Topics include number systems, Boolean algebra, logic families, medium scale integration (MSI) and large scale integration (LSI) circuits, analog to digital (AD) and digital to analog (DA) conversion, and other related topics. Upon completion, students should be able to construct, analyze, verify, and troubleshoot digital circuits using appropriate techniques and test equipment.

**ELN 231 Industrial Controls** 2-3-3

*Local Prerequisite: ELC 112*

This course introduces the fundamental concepts of control of rotating machinery and associated peripheral devices. Topics include rotating machine theory, ladder logic, electromechanical and solid state relays, motor controls, pilot devices, three-phase power systems, and other related topics. Upon completion, students should be able to interpret schematics and demonstrate an understanding of electromechanical and electronic control of rotating machinery.

**ELN 232 Introduction to Microprocessors** 3-3-4

*Local Prerequisite: ELN 133 or Instructor Approval*

This course introduces microprocessor architecture and microcomputer systems including memory and input/output interfacing. Topics include low-level language programming, bus architecture, I/O systems, memory systems, interrupts, and other related topics. Upon completion, students should be able to interpret, analyze, verify, and troubleshoot fundamental microprocessor circuits and programs using appropriate techniques and test equipment.



**ELN 234 Communication Systems 3-3-4***Prerequisite: Take one: ELN 132 or ELN 140*

This course introduces the fundamentals of electronic communication systems. Topics include the frequency spectrum, electrical noise, modulation techniques, characteristics of transmitters and receivers, and digital communications. Upon completion, students should be able to interpret analog and digital communication circuit diagrams, analyze transmitter and receiver circuits, and use appropriate communication test equipment.

**ELN 236 Fiber Optics and Lasers 3-2-4**

This course introduces the fundamentals of fiber optics and lasers. Topics include the transmission of light; characteristics of fiber optic and lasers and their systems; fiber optic production; types of lasers; and laser safety. Upon completion, students should be able to understand fiber optic communications and basic laser fundamentals.

**ELN 247 Electronic Application Project 1-3-2***Local Prerequisite: ELN 131 and either ELN 132 or ELN 140*

This course provides a structured approach to an application-oriented electronics project. Emphasis is placed on selecting, planning, implementing, testing, and presenting an application-oriented project. Upon completion, students should be able to present and demonstrate an electronics application-oriented project.

**ELN 260 Prog Logic Controllers 3-3-4***Local Prerequisites: ELC 128*

This course provides a detailed study of PLC applications, with a focus on design of industrial controls using the PLC. Topics include PLC components, memory organization, math instructions, documentation, input/output devices, and applying PLCs in industrial control systems. Upon completion, students should be able to select and program a PLC system to perform a wide variety of industrial control functions.

**ELN 275 Troubleshooting 1-3-2***Local Prerequisites: ELN 133 and either ELN 132 or ELN 140*

This course covers techniques of analyzing and repairing failures in electronic equipment. Topics include safety, signal tracing, use of service manuals, and specific troubleshooting methods for analog, digital, and other electronics-based circuits and systems. Upon completion, students should be able to logically diagnose and isolate faults and perform necessary repairs to meet manufacturers' specifications.

**ENGLISH****C-L-SHC****ENG 102 Applied Communications II 3-0-3**

This course is designed to enhance writing and speaking skills for the workplace. Emphasis is placed on generating short writings such as job application documents, memoranda, and reports and developing interpersonal communication skills with employees and the public. Upon

completion, students should be able to prepare effective, short, and job-related written and oral communications. The computer is used as a writing and design tool for this course. This is a diploma-level course.

**ENG 110 Freshman Composition 3-0-3***Prerequisites: Take One Set: ENG 090 and RED 080; DRE 097; or appropriate placement test scores**Corequisite: None*

This course is designed to develop informative and business writing skills. Emphasis is placed on logical organization of writing, including effective introductions and conclusions, precise use of grammar, and appropriate selection and use of sources. Upon completion, students should be able to produce clear, concise, well-organized short papers.

**ENG 111 Writing and Inquiry 3-0-3***Prerequisites: Take one set: RED 090 and ENG 090, ENG 095, DRE 098, or appropriate placement test scores; or Multiple Measures waiver.*

This course is designed to develop the ability to produce clear writing in a variety of genres and formats using a recursive process. Emphasis includes inquiry, analysis, effective use of rhetorical strategies, thesis development, audience awareness, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.

**ENG 112 Writing/Research in the Disciplines 3-0-3***Prerequisite: ENG 111*

This course, the second in a series of two, introduces research techniques, documentation styles, and writing strategies. Emphasis is placed on analyzing information and ideas and incorporating research findings into documented writing and research projects. Upon completion, students should be able to evaluate and synthesize information from primary and secondary sources using documentation appropriate to various disciplines. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in English Composition.

**ENG 113 Literature-Based Research 3-0-3***Prerequisite: ENG 111*

This course, the second in a series of two, expands the concepts developed in ENG 111 by focusing on writing that involves literature-based research and documentation. Emphasis is placed on critical reading and thinking and the analysis and interpretation of prose, poetry, and drama: plot, characterization, theme, cultural context, etc. Upon completion, students should be able to construct mechanically-sound, documented essays and research papers that analyze and respond to literary works. Students should be able to respond to literature orally in class discussions and in small group and individual presentations. This course has been approved for transfer under the CAA

and ICAA as a general education course in English Composition

**ENG 114 Professional Research and Reporting 3-0-3**

*Prerequisite: ENG 111*

This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. The computer is used as a writing and design tool for this course. This course has been approved for transfer under the CAA and ICAA as a general education course in English Composition.

**ENG 115 Oral Communication 3-0-3**

This course introduces the basic principles of oral communication in both small group and public settings. Emphasis is placed on the components of the communication process, group decision-making, and public address. Upon completion, students should be able to demonstrate the principles of effective oral communication in small group and public settings.

**ENG 116 Technical Report Writing 3-0-3**

*Prerequisite: Take one: ENG 110 or ENG 111*

This course, the second in a series of two, introduces layout and design of technical reports used in business and industry. Emphasis is placed on audience analysis, data collection and analysis, technical writing style and organization, oral presentation of technical data, and the appropriate use of graphics in written and oral presentations. Upon completion, students should be able to produce written and oral reports using a variety of technical communication models.

**ENG 125 Creative Writing I 3-0-3**

*Prerequisite: ENG 111*

This course is designed to provide students with the opportunity to practice the art of creative writing. Emphasis is placed on writing, fiction, poetry, and sketches. Upon completion, students should be able to craft and critique their own writing and critique the writing of others. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ENG 126 Creative Writing II 3-0-3**

*Prerequisite: ENG 125*

This course is designed as a workshop approach for advancing imaginative and literary skills. Emphasis is placed on the discussion of style, techniques, and challenges for first publications. Upon completion, students should be able to submit a piece of their writing for publication. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**ENG 231 American Literature I 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course covers selected works in American literature from its beginnings to 1865. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ENG 232 American Literature II 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course covers selected works in American literature from 1865 to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ENG 233 Major American Writers 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course provides an intensive study of the works of several major American authors. Emphasis is placed on American history, culture, and the literary merits. Upon completion, students should be able to interpret, analyze, and evaluate the works studied. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ENG 241 British Literature I 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course covers selected works in British literature from its beginnings to the Romantic Period. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ENG 242 British Literature II 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course covers selected works in British literature from the Romantic Period to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to literary works in their historical and cultural contexts. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**ENG 243 Major British Writers 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course provides an intensive study of the works of several major British authors. Emphasis is placed on British history, culture, and the literary merits. Upon completion, students should be able to interpret, analyze, and evaluate the works studied. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ENG 261 World Literature I 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from their literary beginnings through the seventeenth century. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ENG 262: World Literature II 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course introduces selected works from the Pacific, Asia, Africa, Europe, and the Americas from the eighteenth century to the present. Emphasis is placed on historical background, cultural context, and literary analysis of selected prose, poetry, and drama. Upon completion, students should be able to interpret, analyze, and respond to selected works. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**ENG 273 African-American Literature 3-0-3**

*Prerequisite: Take one: ENG 112, ENG 113, or ENG 114*

This course provides a survey of the development of African-American literature from its beginnings to the present. Emphasis is placed on historical and cultural context, themes, literary traditions, and backgrounds of the authors. Upon completion, students should be able to interpret, analyze, and respond to selected texts. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**FOOD SERVICE****C-L-SHC****FST 100 Introduction to Foodservice Industry 3-0-3**

This course is designed to develop an understanding of the foodservice industry, its terminology, mathematics, and measurements. Emphasis is placed on employability skills, vocabulary, and culinary math including fractions, ratio and proportion, and percents. Upon completion, students should be able to identify career paths, convert recipes, and differentiate standard measurements. This course is restricted to the Foodservice Technology program and is approvable for offering only at designated Department of Correction facilities.

**FST 101 Quantity Baking I 1-4-3**

This course introduces fundamental concepts, skills, and techniques in quantity baking. Topics include yeast and quick breads, cookies, cakes, and other baked goods. Upon completion, students should be able to prepare and evaluate baked products. This course is restricted to the Foodservice Technology program and is approvable for offering only at designated Department of Correction facilities.

**FST 102 Foodservice Skills I 4-8-8**

*Corequisites: Take One: FST 103 or CUL 110*

This course introduces the concepts, skills, and techniques for volume food production in an institutional setting. Emphasis is placed on development of skills in knife, tool, and equipment handling and applying principles of food preparation to produce varieties of food products. Upon completion, students should be able to demonstrate entry-level skills in a quantity foodservice operations. This course is restricted to the Foodservice Technology program and is approvable for offering only at designated Department of Correction facilities.

**FST 103 Foodservice Sanitation 1-0-1**

This course provides practical experience with basic principles of safety and sanitation in the foodservice industry. Emphasis is placed on personal hygiene habits, safety regulations, and food handling practices (H.A.C.C.P.) that protect the health of the consumer. Upon completion, students should be able to demonstrate appropriate safety and sanitation practices required in the foodservice industry. This course is restricted to the Foodservice Technology program and is approved only for designated Department of Correction facilities.

**FST 103A Foodservice Sanitation Lab 0-2-1**

*Corequisites: Take One: FST 103 or CUL 110*

This course provides a laboratory experience for enhancing student skills in the basic principles of sanitation and safety in the foodservice industry. Emphasis is placed on the practical experiences that enhance personal hygiene habits, safety regulations, and food handling practices that protect the health of the consumer. Upon completion, students should be able to demonstrate the application of sanitation and safety production procedures in foodservice operations. This course is restricted to the Foodservice Technology program and is approvable for offering only at designated

**GEOLOGY****C-L-SHC****GEL 111 Introductory Geology 3-2-4**

This course introduces basic landforms and geological processes. Topics include rocks, minerals, volcanoes, fluvial processes, geological history, plate tectonics, glaciers, and coastal dynamics. Upon completion, students should be able to describe basic geological processes that shape the earth. This course has been approved for transfer

under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**GEL 113 Historical Geology 3-2-4**

*Prerequisite: Take one: GEL 111 or GEL 120*

This course covers the geological history of the earth and its life forms. Emphasis is placed on the study of rock strata, fossil groups, and geological time. Upon completion, students should be able to identify major fossil groups and associated rock strata and approximate ages of geological formations. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences.

**GEL 230 Environmental Geology 3-2-4**

*Prerequisite: Take one: GEL 111, GEL 120, or PHS 130*

This course provides insights into geologic forces that cause environmental changes influencing man's activities. Emphasis is placed on natural hazards and disasters caused by geologic forces. Upon completion, students should be able to relate major hazards and disasters to the geologic forces responsible for their occurrence. This course has been approved for transfer under the CAA and ICAA as a general education course in Natural Sciences.

## **GEOGRAPHY**

**GEO 111 World Regional Geography 3-0-3**

This course introduces the regional concept, which emphasizes the spatial association of people and their environment. Emphasis is placed on the physical, cultural, and economic systems that interact to produce the distinct regions of the earth. Upon completion, students should be able to describe variations in physical and cultural features of a region and demonstrate an understanding of their functional relationships. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

## **HEALTH**

**HEA 110 Personal Health/Wellness 3-0-3**

This course provides an introduction to basic personal health and wellness. Emphasis is placed on current health issues such as nutrition, mental health, and fitness. Upon completion, students should be able to demonstrate an understanding of the factors necessary to the maintenance of health and wellness. This course has been approved for transfer under the CAA and ICAA pre-major and/or elective requirement.

**HEA 112 First Aid & CPR 1-2-2**

This course introduces the basics of emergency first aid treatment. Topics include rescue breathing, CPR, first aid for choking and bleeding, and other first aid procedures. Upon completion, students should be able to demonstrate skills in providing emergency care for the sick and injured until medical help can be obtained. This course has been

approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## **HISTORY**

**HIS 111 World Civilizations I 3-0-3**

This course introduces world history from the dawn of civilization to the early modern era. Topics include Eurasian, African, American, and Greco-Roman civilizations and Christian, Islamic, and Byzantine cultures. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in pre-modern world civilizations. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**HIS 112 World Civilizations II 3-0-3**

This course introduces world history from the early modern era to the present. Topics include the cultures of Africa, Europe, India, China, Japan, and the Americas. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern world civilizations. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**HIS 115 Introduction to Global History 3-0-3**

This course introduces the study of global history. Emphasis is placed on topics such as colonialism, industrialism, and nationalism. Upon completion, students should be able to analyze significant global historical issues. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**HIS 121 Western Civilization I 3-0-3**

This course introduces western civilization from pre-history to the early modern era. Topics include ancient Greece, Rome, and Christian institutions of the Middle Ages and the emergence of national monarchies in western Europe. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early western civilization. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**HIS 122 Western Civilization II 3-0-3**

This course introduces western civilization from the early modern era to the present. Topics include the religious wars, the Industrial Revolution, World Wars I and II, and the Cold War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in modern western civilization. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**HIS 131 American History I 3-0-3**

This course is a survey of American history from pre-history through the Civil War era. Topics include the migrations to the Americas, the colonial and revolutionary periods, the development of the Republic, and the Civil War. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early American history. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**HIS 132 American History II 3-0-3**

This course is a survey of American history from the Civil War era to the present. Topics include industrialization, immigration, the Great Depression, the major American wars, the Cold War, and social conflict. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in American history since the Civil War. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**HIS 151 Hispanic Civilization 3-0-3**

This course surveys the cultural history of Spain and its impact on the New World. Topics include Spanish and Latin American culture, literature, religion, and the arts. Upon completion, students should be able to analyze the cultural history of Spain and Latin America. This course has been approved to satisfy the Comprehensive Articulation premajor and/or elective requirement.

**HIS 222 African-American History I 3-0-3**

This course covers African-American history through the Civil War period. Topics include African origins, the nature of slavery, African-American participation in the American Revolution, abolitionism, and the emergence of a distinct African-American culture. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in early African-American history. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**HIS 223 African-American History II 3-0-3**

This course covers African-American history from the Civil War to the present. Topics include Reconstruction, the Jim Crow era, urbanization, the Harlem Renaissance, the Civil Rights movement, and the philosophies of major African-American leaders. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in African-American history since the Civil War. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**HIS 226 The Civil War 3-0-3**

This course examines the social, political, economic, and ideological forces that led to the Civil War and Reconstruction. Topics include regional conflicts and sectionalism, dissolution of the Union, military campaigns, and the War's socioeconomic impact, aftermath, and consequences. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in the United States during the era of the Civil War. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**HIS 236 North Carolina History 3-0-3**

This course is a study of geographical, political, economic, and social conditions existing in North Carolina from America's discovery to the present. Topics include native and immigrant backgrounds; colonial, antebellum, and Reconstruction periods; party politics; race relations; and the transition from an agrarian to an industrial economy. Upon completion, students should be able to analyze significant political, socioeconomic, and cultural developments in North Carolina. This course has been approved for transfer under the CAA and ICAA a premajor and/or elective course requirement.

**HEALTH INFORMATION TECHNOLOGY****HIT 110 Fundamentals of HIM 3-0-0-3**

This course introduces Health Information Management (HIM) and its role in healthcare delivery systems. Topics include standards, regulations and initiatives; payment and reimbursement systems, healthcare providers and disciplines; and electronic health records (EHRs). Upon completion, students should be able to demonstrate an understanding of health information management and healthcare organizations, professions and trends

**HIT 112 Health Law & Ethics 3-0-0-3**

This course covers legislative and regulatory processes, legal terminology, and professional-related and practice-related ethical issues. Topics include confidentiality; privacy and security policies, procedures and monitoring; release of information policies and procedures; and professional-related and practice-related ethical issues. Upon completion, students should be able to apply policies and procedures for access and disclosure of Protected Health Information and apply and promote ethical standards.

**HIT 114 Health Data Sys/Standards 2-3-0-3**

This course covers concepts and techniques for managing and maintaining manual and electronic health records (EHR). Topics include structure and use of health information including data collection and analysis, data sources/sets, archival systems, and quality and integrity of healthcare data. Upon completion, students should be able to monitor and apply system-wide clinical documentation guidelines and comply with regulatory standards.

**HIT 124 Prof Practice Exp II 0-0-3-1**

This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.

**HIT 210 Healthcare Statistics 2-2-0-3**

*Prerequisite: Take one: MAT 110 or MAT 143*

This course covers maintenance, compilation, analysis, and presentation of healthcare statistics and research protocols and techniques. Topics include basic statistical principles, indices, databases, registries, vital statistics, descriptive statistics, research protocol monitoring, Institutional Review Board processes, and knowledge-based research techniques. Upon completion, students should be able to apply, interpret, and present healthcare statistics and utilize research techniques to gather and interpret healthcare data.

**HIT 211 ICD Coding 2-6-0-4**

This course covers ICD diagnostics and procedural coding conventions and guidelines for inpatient, outpatient and ambulatory care. Emphasis is placed on a comprehensive application of anatomy, physiology and interrelationships among organ systems. Upon completion, students should be able to accurately assign and sequence diagnostic and procedural codes for patient outcomes, statistical and reimbursement purposes.

**HIT 214 BPT/Other Coding 1-3-0-2**

*Prerequisite: HIT 211*

This course covers application of principles and guidelines of CPT/HCPCS coding. Topics include clinical classification/nomenclature systems such as SNOMED, DSM, ICD-O and the use of encoders. Upon completion, students should be able to apply coding principles to correctly assign CPT/HCPCS codes.

**HIT 215 Reimbursement Methodology 1-2-0-2**

This course covers reimbursement methodologies used in all healthcare settings as they relate to national billing, compliance, and reporting requirements. Topics include prospective payment systems, billing process and procedures, chargemaster maintenance, regulatory guidelines, reimbursement monitoring, and compliance strategies and reporting. Upon completion, students should be able to perform data quality reviews to validate code assignment and comply with reimbursement and reporting requirements.

**HIT 216 Quality Management 1-3-0-2**

*Prerequisite: HIT 114*

This course introduces principles of quality assessment and improvement, and utilization, risk, and case management, in healthcare. Topics include Continuous Quality Improvement, and case management processes, data analysis/reporting techniques, credentialing, regulatory quality monitoring requirements, and outcome measures and monitoring. Upon completion, students should be able to

abstract, analyze, and report clinical data for facility-wide quality management/performance improvement programs and monitor compliance measures.

**HIT 218 Mgmt Principles in HIT 3-0-0-3**

This course covers organizational management concepts as applied to healthcare settings. Topics include roles/functions of teams/committees, leadership, communication and interpersonal skills, designing and implementing orientation/training programs, monitoring workflow, performance standards, revenue cycles, and organizational resources. Upon completion, students should be able to apply management, leadership, and supervisory concepts to various healthcare settings.

**HIT 220 Health Informatics & EHRs 1-2-0-2**

*Prerequisites: HIT 114 and CIS 110*

This course covers EHR systems, design, implementation and application. Topics include EHR, Informatics, speech & imaging technology, information/network security & integrity, data dictionaries, modeling and warehousing. Upon completion, students should be able to facilitate usage of electronic health record systems and other technologies.

**HIT 221 Lifecycle of HER 2-2-0-3**

This course covers the system selection, design and implementation of an electronic health record (EHR) in integrated delivery networks. Topics include the system development life cycle, analysis of existing systems, required resources, and common resource constraints. Upon completion, students should be able to understand system development life cycles, analyze design and engineering, and make recommendations to improve efficiency of operations.

**HIT 222 Prof Practice Exp III 0-0-6-2**

This course provides supervised clinical experience in healthcare settings. Emphasis is placed on practical application of curriculum concepts to the healthcare setting. Upon completion, students should be able to apply health information theory to healthcare facility practices.

**HIT 225 Healthcare Informatics 3-2-0-4**

This course covers data analysis to support decision making, patient care, and regulatory compliance. Topics include clinical terminology and vocabulary systems, data capture methodology, data presentation and reporting, and initiatives to improve the quality of patient care. Upon completion, students should be able to identify data elements and sets, analyze capture methodology in healthcare settings, analyze compliance issues and make improvement recommendations.

**HIT 226 Principles of Disease 3-0-0-3**

*Prerequisite: Take one: BIO 166 or BIO 169*

This course covers disease etiology and organ system involvement, including physical signs and symptoms, prognoses, and common complications and their management. Topics include basic microbiology, basic

pharmacology, and principles of disease. Upon completion, students should be able to relate disease processes to etiology, physical signs and symptoms, prognosis, and common complications and their management.

**HIT 227 Informatics Project Mgt 2-2-0-3**

This course covers the required skills needed for implementing healthcare IT applications, with emphasis on electronic health records (EHR). Topics include leadership development skills, interdisciplinary collaboration, organizational change management, project management software, and the study of communication skills required across healthcare disciplines. Upon completion, students should be able to effectively collaborate and communicate with healthcare disciplines to implement informatics projects within the healthcare setting.

**HIT 280 Professional Issues 2-0-0-2**

*Prerequisite: HIT 211*

This course provides a comprehensive discussion of topics common to the health information profession. Emphasis is placed on application of professional competencies, job search tools, and preparation for the certification examination. Upon completion, students should be able to demonstrate competence in entry-level domains and subdomains for health information technologies.

**HEALTHCARE MANAGEMENT**

**C-L-SHC**

**HMT 110 Intro to Healthcare Mgt 3-0-3**

This course introduces the functions, practices, organizational structures, and professional issues in healthcare management. Emphasis is placed on planning, controlling, directing, and communicating within health and human services organizations. Upon completion, students should be able to apply the concepts of management within a healthcare service environment.

**HMT 210 Medical Insurance 3-0-3**

*Prerequisites: MED 122 or OST 142*

This course introduces the concepts of medical insurance. Topics include types and characteristics of third-party payers, coding concepts, payment systems, and manual/electronic claims form preparation. Upon completion, students should be able to process third-party claims forms.

**HMT 211 Long-Term Care Admin 3-0-3**

*Prerequisite: HMT 110*

This course introduces the administration of long-term care facilities and services. Emphasis is placed on nursing home care, home health care, hospice, skilled nursing facilities, and other long-term care services. Upon completion, students should be able to administer state and national standards and regulations as they apply to long-term care.

**HMT 212 Mgt of Healthcare Org 3-0-3**

*Prerequisite: HMT 110*

This course examines current issues affecting the management of healthcare delivery systems. Topics include current problems, changes, and challenges in the healthcare environment. Upon completion, students should be able to identify current health care issues and their impact on healthcare management.

**HMT 220 Healthcare Financial Mgmt 4-0-4**

*Prerequisites: HMT 110 and ACC 121*

This course covers the methods and techniques utilized in the financial management of healthcare programs. Topics include cost determination, pricing of services, financial statement analysis, forecasting/projections, third-party billing, reimbursement, Medicare, Medicaid, and budgeting. Upon completion, students should be able to interpret and apply the principles of financial management in a healthcare environment.

**HORTICULTURE**

**C-L-SHC**

**HOR 130 Greenhouse Design 3-0-3**

This course covers greenhouse facilities planning and equipment selection. Topics include types of greenhouses, location factors, materials, glazing selection, calculation of heating/cooling requirements, lighting, benches, and energy conservation. Upon completion, students should be able to demonstrate knowledge of material selection, facilities planning, equipment need selection, and appropriate calculations.

**HOR 168 Plant Propagation 2-2-3**

This course is a study of sexual and asexual reproduction of plants. Emphasis is placed on seed propagation, grafting, stem and root propagation, micro-propagation, and other propagation techniques. Upon completion, students should be able to successfully propagate ornamental plants.

**HOTEL & RESTAURANT MANGEMANT**

**C-L-SHC**

**HRM 245 Human Resource Mgmt-Hosp 3-0-3**

This course introduces a systematic approach to human resource management in the hospitality industry. Topics include training/development, staffing, selection, hiring, recruitment, evaluation, benefit administration, employee relations, labor regulations/laws, discipline, motivation, productivity, shift management, contract employees and organizational culture. Upon completion, students should be able to apply human resource management skills for the hospitality industry.

**Health Sciences**

**HSC 110 Orientation to Health Careers 1-0-1**

This course is a survey of health care professions. Topics include professional duties and responsibilities, working environments, and career choices. Upon completion, students should be able to demonstrate an understanding of

the health care professions and be prepared to make informed career choices.

## HUMAN SERVICES

### **HSE 110 Introduction to Human Services** **C-L-SHC** **2-2-3**

This course introduces the human services field, including the history, agencies, roles, and careers. Topics include personal/professional characteristics, diverse populations, community resources, disciplines in the field, systems, ethical standards, and major theoretical and treatment approaches. Upon completion, students should be able to identify the knowledge, skills, and roles of the human services worker.

### **HSE 112 Group Process I** **1-2-2**

*Local Prerequisite: Enrollment in the HSE program*

This course introduces interpersonal concepts and group dynamics. Emphasis is placed on self-awareness facilitated by experiential learning in small groups with analysis of personal experiences and the behavior of others. Upon completion, students should be able to show competence in identifying and explaining how people are influenced by their interactions in group settings.

### **HSE 123 Interviewing Techniques** **2-2-3**

This course covers the purpose, structure, focus, and techniques employed in effective interviewing. Emphasis is placed on observing, attending, listening, responding, recording, and summarizing of personal histories with instructor supervision. Upon completion, students should be able to perform the basic interviewing skills needed to function in the helping relationship.

### **HSE 125 Counseling** **2-2-3**

*Prerequisite: PSY 150*

This course covers the major approaches to psychotherapy and counseling, including theory, characteristics, and techniques. Emphasis is placed on facilitation of self-exploration, problem solving, decision-making, and personal growth. Upon completion, students should be able to understand various theories of counseling and demonstrate counseling techniques.

### **HSE 210 Human Services Issues** **2-0-2**

*Local Prerequisite: Successful completion of 12 SHC in the HSE program*

This course covers current issues and trends in the field of human services. Emphasis is placed on contemporary topics with relevance to special issues in a multi-faceted field. Upon completion, students should be able to integrate the knowledge, skills, and experiences gained in classroom and clinical experiences with emerging trends in the field.

### **HSE 225 Crisis Intervention** **3-0-3**

This course introduces the basic theories and principles of crisis intervention. Emphasis is placed on identifying and demonstrating appropriate and differential techniques for

intervening in various crisis situations. Upon completion, students should be able to assess crisis situations and respond appropriately.

## HUMANITIES

### **HUM 110 Technology and Society** **C-L-SHC** **3-0-3**

This course considers technological change from historical, artistic, and philosophical perspectives and its effect on human needs and concerns. Emphasis is placed on the causes and consequences of technological change. Upon completion, students should be able to critically evaluate the implications of technology. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **HUM 115 Critical Thinking** **3-0-3**

*Prerequisites: DRE 098*

This course introduces the use of critical thinking skills in the context of human conflict. Emphasis is placed on evaluating information, problem solving, approaching cross-cultural perspectives, and resolving controversies and dilemmas. Upon completion, students should be able to demonstrate orally and in writing the use of critical thinking skills in the analysis of appropriate texts. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **HUM 120 Cultural Studies** **3-0-3**

This course introduces the distinctive features of a particular culture. Topics include art, history, music, literature, politics, philosophy, and religion. Upon completion, students should be able to appreciate the unique character of the study culture. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **HUM 122 Southern Culture** **3-0-3**

This course explores the major qualities that make the South a distinct region. Topics include music, politics, literature, art, religion, race relations, and the role of social class in historical and contemporary contexts. Upon completion, students should be able to identify the characteristics that distinguish Southern culture. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **HUM 150 American Women's Studies** **3-0-3**

This course provides an inter-disciplinary study of the history, literature, and social roles of American women from Colonial times to the present. Emphasis is placed on women's roles as reflected in American language usage, education, law, the workplace, and mainstream culture. Upon completion, students should be able to identify and analyze the roles of women as reflected in various cultural forms. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.



**HUM 160 Introduction to Film 2-2-3**

This course introduces the fundamental elements of film artistry and production. Topics include film styles, history, and production techniques, as well as the social values reflected in film art. Upon completion, students should be able to critically analyze the elements covered in relation to selected films. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**HUM 211 Humanities I 3-0-3**

*Prerequisite: ENG 111*

This course introduces the humanities as a record in literature, music, art, history, religion, and philosophy of humankind's answers to the fundamental questions of existence. Emphasis is placed on the interconnectedness of various aspects of cultures from ancient through early modern times. Upon completion, students should be able to identify significant figures and cultural contributions of the periods studied. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**HUM 220 Human Values and Meaning 3-0-3**

*Prerequisite: ENG 111*

This course presents some major dimensions of human experience as reflected in art, music, literature, philosophy, and history. Topics include the search for identity, the quest for knowledge, the need for love, the individual and society, and the meaning of life. Upon completion, students should be able to recognize interdisciplinary connections and distinguish between open and closed questions and between narrative and scientific models of understanding. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**HYDRAULICS****HYD 110 Hydraulics/Pneumatics I 2-3-3****C-L-SHC**

This course introduces the basic components and functions of hydraulic and pneumatic systems. Topics include standard symbols, pumps, control valves, control assemblies, actuators, FRL, maintenance procedures, and switching and control devices. Upon completion, students should be able to understand the operation of a fluid power system, including design, application, and troubleshooting.

**HYD 121 Hydraulics/Pneumatics II 1-3-2**

*Prerequisite: HYD 110*

This course is a continuation of HYD 110 and provides further investigation into fluid power systems. Topics include advanced system components, troubleshooting, and other related topics. Upon completion, students should be able to demonstrate an understanding of the installation, application, operation, and maintenance of fluid power components and systems.

**INTERNATIONAL BUSINESS****INT 110 International Business 3-0-3****C-L-SHC**

This course provides an overview of the environment, concepts, and basic differences involved in international business. Topics include forms of foreign involvement, international trade theory, governmental influences on trade and strategies, international organizations, multinational corporations, personnel management, and international marketing. Upon completion, students should be able to describe the foundation of international business.

**INDUSTRIAL SCIENCE****ISC 110 Workplace Safety 1-0-1****C-L-SHC**

This course introduces the basic concepts of workplace safety. Topics include fire, ladders, lifting, lock-out/tag-out, personal protective devices, and other workplace safety issues related to OSHA compliance. Upon completion, students should be able to demonstrate an understanding of the components of a safe workplace.

**ISC 121 Environmental Health and Safety 3-0-3**

This course covers workplace environmental, health, and safety concepts. Emphasis is placed on managing the implementation and enforcement of environmental health and safety regulations and on preventing accidents, injuries, and illnesses. Upon completion, students should be able to demonstrate an understanding of basic concepts of environmental, health, and safety.

**ISC 221 Statistical Qual Control 3-0-3**

*Local Prerequisites: Completion of curriculum mathematics requirement*

This course covers the principles and techniques of statistical process control for the improvement of productivity. Emphasis is placed on basic statistics for quality control, organization and procedures for efficient quality control including inspections, process control, and tests of significance. Upon completion, students should be able to apply statistical principles and techniques to enhance production.

**ISC 278 cGMP Quality Systems 2-0-2**

This course focuses on the development, implementation, and on-going maintenance of a quality system in a cGMP environment. Topics include the cGMP standard, components of cGMP quality systems, quality function roles and training, and development of documentation such as SOPs and system review procedures. Upon completion, the student should be able to identify the components of a quality system and develop a quality system manual utilizing the cGMP standard.

## LASERS AND OPTICS

### **LEO 111 Lasers and Applications** **C-L-SHC** **1-3-2**

*Corequisite: MAT 122*

This course covers the basic principles of laser operations and applications with a particular emphasis on laser safety. Topics include the properties of laser light, laser components, laser beam characteristics, and laser safety. Upon completion, students should be able to make measurements of laser beam characteristics and conduct a safety audit and hazards analysis of a laser facility.

### **LEO 211 Photonics Technology** **5-6-7**

*Prerequisites: ELN 133*

This course covers optical theory, optical equipment, optical components, and laser systems. Topics include generation and control of light using optical components such as lasers, lenses, mirrors, diffraction gratings, filters, and polarizers. Upon completion, students should be able to construct, analyze, verify, and troubleshoot optical systems using appropriate techniques and equipment.

### **LEO 212 Photonics Applications** **3-3-4**

*Local Corequisite: LEO 211*

This course provides knowledge and skills related to emerging photonics applications in North Carolina industry. Topics include applications such as materials processing, bar code scanning, surgical applications, optical data storage, and optical computers. Upon completion, students should be able to describe and analyze the critical issues attendant to a variety of photonics applications.

### **LEO 213 Advanced Photonic Applications** **3-3-4**

*Prerequisites: LEO 212*

This course covers advanced knowledge and skills related to industrial photonics applications in industry. Topics include applications such as light emitting diode (LED) semiconductor processing, LED photonics operational testing, fiber optics, and spectroscopy. Upon completion, students should be able to describe and analyze the critical issues attendant to a variety of photonics applications.

### **LEO 222 Photonics Applications Project** **1-3-2**

*Prerequisites: ELN 132 and LEO 211*

This course provides a structured approach to an applications-oriented photonics project. Emphasis is placed on selecting, planning, implementing, testing, and presenting the project. Upon completion, students should be able to present and demonstrate their photonics project.

## LEGAL EDUCATION

### **LEX 110 Intro to Paralegal Study** **C-L-SHC** **2-0-2**

This course introduces the paralegal profession and the legal system, and an emphasis is placed on the role of professional and legal ethics. Topics include regulations, ethics, case analysis, legal reasoning, career opportunities, professional organizations, terminology, and other related

topics. Upon completion, the student should be able to explain the role of a paralegal and identify the skills, knowledge, and ethics required of paralegals.

### **LEX 120 Legal Research/Writing I** **2-2-3**

*Local Corequisite: LEX 180*

This course introduces the techniques of legal research and writing. Emphasis is placed on locating, analyzing, applying, and updating sources of law; effective legal writing, including proper citation; and the use of electronic research methods. Upon completion, students should be able to perform legal research and writing assignments using techniques covered in the course.

### **LEX 121 Legal Research/Writing II** **2-2-3**

*Prerequisite: LEX 120*

This course covers advanced topics in legal research and writing. Topics include more complex legal issues and assignments involving preparation of legal memos, briefs, and other documents and the advanced use of electronic research methods. Upon completion, students should be able to perform legal research and writing assignments using techniques covered in the course.

### **LEX 130 Civil Injuries** **3-0-3**

This course covers traditional tort concepts and the evolving body of individual rights created by statute. Topics include intentional and non-intentional torts with emphasis on negligence, strict liability, civil rights, workplace and environmental liability, remedies, and damages. Upon completion, students should be able to recognize, explain, and evaluate elements of civil injuries and related defenses.

### **LEX 140 Civil Litigation I** **3-0-3**

This course introduces the structure of the legal system and the rules governing civil litigation. Topics include jurisdiction, state and federal rules of civil procedure, and evidence. Upon completion, students should be able to assist an attorney in the preparation of pleadings and motions.

### **LEX 141 Civil Litigation II** **2-2-3**

*Prerequisite: LEX 140*

This course covers advanced topics in the civil litigation process. Topics include motions, discovery, and trial and appellate procedures. Upon completion, students should be able to assist an attorney in preparing and organizing documents for trial, settlement, and post-trial practice.

### **LEX 150 Commercial Law I** **2-2-3**

This course covers legally enforceable agreements, forms of organization, and selected portions of the Uniform Commercial Code. Topics include drafting and enforcement of contracts, leases, and related documents and selection and implementation of business organization forms, sales, and commercial papers. Upon completion, students should be able to apply the elements of a contract, prepare various business documents, and understand the role of commercial paper.

**LEX 160 Criminal Law & Procedure 2-2-3**

This course introduces substantive criminal law and procedural rights of the accused. Topics include elements of state/federal crimes, defenses, constitutional issues, pre-trial and trial process, and other related topics. Upon completion, students should be able to explain elements of specific crimes and assist an attorney in preparing a criminal case.

**LEX 180 Case Analysis & Reasoning 1-2-2**

*Corequisite: LEX 120*

This course covers the techniques of reading and applying legal opinions and the skills of case analysis. Emphasis is placed on the components of opinions and on types of legal writing. Upon completion, students should be able to read, analyze, and brief opinions and prepare legal memoranda, briefs, and other legal documents.

**LEX 210 Real Property I 3-0-3**

This course introduces the study of real property law. Topics include the distinction between real and personal property, various estates, mechanics of conveyance and encumbrance, recordation, special proceedings, and other related topics. Upon completion, students should be able to identify estates, forms of deeds, requirements for recording, and procedures to enforce rights to real property.

**LEX 211 Real Property II 1-4-3**

*Prerequisite: LEX 210*

This course continues the study of real property law relating to title examination and preparation of closing documents. Topics include use of courthouse and other public records in title examination and preparation of documents required in real estate transactions and closings. Upon completion, students should be able to plot/draft a description, perform complete title examination, and draft closing documents, including title insurance forms and prepare disbursement reconciliation.

**LEX 220 Corporate Law 2-0-2**

This course covers the legal aspects of forming, operating, and maintaining a business. Emphasis is placed on the business corporation with additional coverage of sole proprietorships and partnerships. Upon completion, students should be able to draft basic partnership and corporate documents and file these documents as required.

**LEX 240 Family Law 3-0-3**

This course covers laws governing domestic relations. Topics include marriage, separation, divorce, child custody, support, property division, adoption, domestic violence, and other related topics. Upon completion, students should be able to interview clients, gather information, and draft documents related to family law.

**LEX 250 Wills, Estates, & Trusts 2-2-3**

This course covers various types of wills, trusts, probate, estate administration, and intestacy. Topics include types of

wills and execution requirements, caveats and dissents, intestate succession, inventories and accountings, distribution and settlement, and other related topics. Upon completion, students should be able to draft simple wills, prepare estate forms, understand administration of estates, including taxation and explain terms regarding trusts.

**LEX 260 Bankruptcy & Collections 3-0-3**

This course provides an overview of the laws of bankruptcy and the rights of creditors and debtors. Topics include bankruptcy procedures and estate management, attachment, claim and delivery, repossession, foreclosure, collection, garnishment, and post-judgment collection procedure. Upon completion, students should be able to prepare and file bankruptcy forms, collection letters, statutory liens, and collection of judgments.

**LEX 270 Law Office Mgt/Technology 1-2-2**

This course provides an overview of law office management and organization. Topics include office forms, filing systems, billing/time keeping, computer systems, calendar systems, library administration, case management, office/personnel procedures, ethics, and technology. Upon completion, students should be able to establish and maintain various law office systems, monitor case progress, and supervise non-lawyer personnel.

**LEX 271 Law Office Writing 1-2-2**

This course covers the basics of writing for the law office including the drafting of general correspondence, the briefing of cases, and the preparation of settlement brochures. Emphasis is placed on legal vocabulary in the context of letter writing, briefing judicial opinions, and the preparation of the settlement brochure. Upon completion, students should be able to draft letters to clients, opposing counsel, government entities, and insurance companies and prepare the settlement brochure.

**LEX 280 Ethics & Professionalism 2-0-2**

This course reinforces legal ethics and the role of the paralegal in a professional work environment. Topics include a review of ethics, employment opportunities, and search techniques; paralegal certification; and other related topics. Upon completion, students should be able to understand the paralegal's role in the ethical practice of law.

## LIBRARY AND INFORMATION TECHNOLOGY

**C-L-SHC**

**LIB 110 Introduction to Libraries 3-0-3**

This course includes the history and future of libraries, a survey of library types, and an overview of library organization, services, and community relationships. Emphasis is placed on societal roles of the library, literary and intellectual freedom, comparisons and contrasts of library types, and the roles of professional organizations. Upon completion, students should be able to discuss literacy

and intellectual freedom, describe library organization, and compare types of libraries, their materials, and services.

**LIB 111 Lib. Info. Resources/Svcs 2-2-3**

This course provides introductory skills for selecting and using general and specialized information resources in print and electronic formats and related copyright issues.

Emphasis is placed on selection tools, print and electronic censorship, core collection materials in various disciplines, compiling bibliographies, and interpreting and referring reference questions. Upon completion, students should be able to use numerous resources to answer directional and factual questions and to decide when to refer difficult reference questions.

**LIB 112 Library Coll. Dev./Acq. 2-2-3**

This course covers library collection development and acquisitions policies and procedures. Emphasis is placed on evaluating mission statements, needs assessment studies, purchasing materials using selection criteria and tools, and related collection development and acquisitions activities. Upon completion, students should be able to evaluate mission statements, conduct needs assessments using selected criteria, and complete related collection development and acquisitions activities.

**LIB 113 Lib. Cataloging & Classification 2-2-3**

This course covers standards and procedures for copy cataloging and types of classification systems. Emphasis is placed on selecting bibliographic records, maintaining and using authority records, and the importance of the catalog to the library mission. Upon completion, students should be able to select the appropriate MARC record, search OCLC, and demonstrate an understanding of authority files.

**LIB 114 Lib. Public Serv. Oper. 2-2-3**

This course covers effective library orientations, effective patron service, automated circulation systems, statistics and reports, reserves, and security. Emphasis is placed on public relations, problem solving, communication skills, circulation systems and policies, interlibrary loan procedures, shelving, and display options. Upon completion, students should be able to deal with diverse patrons, conduct library orientations, compile reports from statistical data, initiate interlibrary loans, and prepare displays.

**LIB 210 Electronic Lib. Databases 2-2-3**

*Prerequisite: LIB 111 and WEB 110*

This course covers developing search strategies for using electronic resources in the humanities, social and behavioral sciences, physical and life sciences, and health-related fields. Emphasis is placed on the reference interview, teaching Boolean logic and other search strategies, retrieving and evaluating information, and citing it in APA/MLA style. Upon completion, students should be able to describe methods of information retrieval, use search strategies to teach basic research using databases, and cite resources appropriately.

**LIB 211 Library Program Develop 3-0-3**

This course covers the purpose of library programs and various methods used for program design, promotion, delivery, and evaluation. Topics include serving library communities through appropriate program activities such as storytelling, puppet shows, book clubs, lectures, reading aloud, workshops, special collections, and outreach. Upon completion, students should be able to prepare, promote, deliver, and evaluate appropriate library programs.

**LIB 212 Lib. Services/Spec. Needs 3-0-3**

This course covers basic information for serving library users with special needs. Emphasis is placed on ADA guidelines, the location and use of appropriate resources, and accessibility options. Upon completion, students should be able to access appropriate information about ADA guidelines, locate and use appropriate resources, and be aware of accessibility options.

**LIB 213 Cataloging Nonprint Mat. 2-2-3**

*Prerequisite: LIB 113*

This course continues the study and application of information cataloging practices. Emphasis is placed on cataloging information resources, updating bibliographic materials in databases, an overview of Dublin Core, and non-print materials cataloging practices. Upon completion, students should be able to catalog nonprint and electronic resources.

**LIB 214 Lib. Services/Children 3-0-3**

This course covers the location, evaluation, acquisition, and presentation of children's materials in libraries. Emphasis is placed on locating, evaluating, acquiring, and presenting children's literature, video and audio materials, and web sites through programs, displays, talks, and instruction. Upon completion, students should be able to locate, evaluate, acquire, and present a wide range of children's materials to library users.

**LIB 215 Library Management 3-0-3**

This course covers basic management duties specific to the field of Library and Information Science. Topics include supervisory skills, delegation, time management, conflict resolution, training and coaching others, communication techniques, organizational theory, leadership and decision making in the library setting. Upon completion, students should be able to demonstrate knowledge of successful library operations, including key management concepts and strategies.

## **MACHINING**

**C-L-SHC**

**MAC 111 Machining Technology I 2-12-6**

This course introduces machining operations as they relate to the metalworking industry. Topics include machine shop safety, measuring tools, lathes, drilling machines, saws,

milling machines, bench grinders, and layout instruments. Upon completion, students should be able to safely perform the basic operations of measuring, layout, drilling, sawing, turning, and milling.

**MAC 112 Machining Technology II 2-12-6**

*Local Prerequisite: MAC 111*

This course provides additional instruction and practice in the use of precision measuring tools, lathes, milling machines, and grinders. Emphasis is placed on setup and operation of machine tools including the selection and use of work holding devices, speeds, feeds, cutting tools, and coolants. Upon completion, students should be able to perform basic procedures on precision grinders and advanced operations of measuring, layout, drilling, sawing, turning, and milling.

**MAC 113 Machining Technology III 2-12-6**

*Local Prerequisite: MAC 112*

This course provides an introduction to advanced and special machining operations. Emphasis is placed on working to specified tolerances with special and advanced setups. Upon completion, students should be able to produce a part to specifications.

**MAC 122 CNC Turning 1-3-2**

This course introduces the programming, setup, and operation of CNC turning centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC turning centers.

**MAC 124 CNC Milling 1-3-2**

This course introduces the manual programming, setup, and operation of CNC machining centers. Topics include programming formats, control functions, program editing, part production, and inspection. Upon completion, students should be able to manufacture simple parts using CNC machining centers.

**MAC 151 Machining Calculations 1-2-2**

This course introduces basic calculations as they relate to machining occupations. Emphasis is placed on basic calculations and their applications in the machine shop. Upon completion, students should be able to perform basic shop calculations.

**MAC 153 Compound Angles 1-2-2**

*Local Prerequisite: MAT 121*

This course introduces the application of basic types and uses of compound angles. Emphasis is placed on problem solving by tilting and rotating adjacent angles to resolve an unknown compound angle. Upon completion, students should be able to set up and develop compound angles on parts using problem-solving techniques.

**MAC 171 Measure/Material & Safety 0-2-1**

This course introduces precision measuring instruments, process control and adjustment, inspection, material handling and workplace safety. Topics include properly identifying and handling various measurement instruments and materials, process control, adjustment and improvement, personal protective equipment (PPE) and OSHA safety regulations. Upon completion, students should be able to safely demonstrate effective measurement techniques, identify and handle various materials, and explain safe industry practices.

**MAC 224 Advanced CNC Milling 1-3-2**

*Local Prerequisite: MAC 124*

This course covers advanced methods in setup and operation of CNC machining centers. Emphasis is placed on programming and production of complex parts. Upon completion, students should be able to demonstrate skills in programming, operations, and setup of CNC machining centers.

**MAC 226 CNC EDM Machining 1-3-2**

This course introduces the programming, setup, and operation of CNC electrical discharge machines. Topics include programming formats, control functions, program editing, production of parts, and inspection. Upon completion, students should be able to manufacture simple parts using CNC electrical discharge machines.

**MAC 241 Jigs and Fixtures I 2-6-4**

*Local Prerequisite: MAC 112*

This course introduces the application and use of jigs and fixtures. Emphasis is placed on design and manufacture of simple jigs and fixtures. Upon completion, students should be able to design and build simple jigs and fixtures.

**MAC 243 Die Making I 2-6-4**

*Local Prerequisite: MAC 112*

This course introduces the principles and applications of die making. Topics include types, construction, and application of dies. Upon completion, students should be able to design and build simple dies.

**MAC 244 Die Making II 1-9-4**

*Local Prerequisite: MAC 243*

This course provides continued study in the application and use of dies. Emphasis is placed on the design and manufacturing of complex dies. Upon completion, students should be able to design and build complex dies.

**MAC 245 Mold Construction I 2-6-4**

*Local Prerequisite: MAC 112*

This course introduces the principles of mold making. Topics include types, construction, and application of molds. Upon completion, students should be able to design and build simple molds.

**MAC 246 Mold Construction II 1-9-4***Local Prerequisite: MAC 245*

This course provides continued study in the application and use of molds. Emphasis is placed on design and manufacturing of complex molds. Upon completion, students should be able to design and build complex molds.

**MASONRY****MAS 110 Masonry I C-L-SHC 5-15-10**

This course introduces the basic principles of construction with masonry units. Topics include history of the masonry field, safety practices, blueprint reading, and principles of laying masonry units to the line using tools, equipment, and materials. Upon completion, students should be able to demonstrate knowledge of safety practices, blueprint reading, and basic tool use; identify materials; operate machinery; and lay masonry units.

**MAS 120 Masonry II 5-15-10**

This course provides practical experience in cost estimating, foundations, bonding variations, expansion joints, wall ties, building codes, and other related topics. Emphasis is placed on material estimation, layout of footing, construction of walls, reinforcements, scaffolding, insulating, and building codes. Upon completion, students should be able to determine cost, plan sound building procedures, construct masonry projects, and apply building codes.

**MAS 130 Masonry III 6-6-8**

This course provides fundamentals and skills used in masonry construction. Emphasis is placed on building chimneys, fireplaces, columns, concrete masonry, and arches; using materials economically; satisfying needs and expectations; and proper work ethics. Upon completion, students should be able to build structures covered in the course, demonstrate increased speed and accuracy, and make smooth transitions between construction stages.

**MAS 140 Introduction to Masonry 1-2-2**

This course introduces basic principles and practices of masonry. Topics include standard tools, materials, and practices used in basic masonry and other related topics. Upon completion, students should be able to demonstrate an understanding of masonry and be able to use basic masonry techniques.

**MATHEMATICS****MAT 110 Math Measurement & Literacy C-L-SHC 2-2-3**

*Prerequisite: Take one set: Set 1: DMA 010, DMA 020, and DMA 030 Set 2: MAT 060 and MAT 070 Set 3: MAT 060 and MAT 080 Set 4: MAT 060 and MAT 090 Set 5: MAT 095 or appropriate placement scores.*

This course provides an activity-based approach that develops measurement skills and mathematical literacy

using technology to solve problems for non-math intensive programs. Topics include unit conversions and estimation within a variety of measurement systems; ratio and proportion; basic geometric concepts; financial literacy; and statistics including measures of central tendency, dispersion, and charting of data. Upon completion, students should be able to demonstrate the use of mathematics and technology to solve practical problems, and to analyze and communicate results.

**MAT 121 Algebra/Trigonometry I 2-2-3**

*Prerequisite: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DMA 060*

This course provides an integrated approach to technology and the skills required to manipulate, display, and interpret mathematical functions and formulas used in problem solving. Topics include the properties of plane and solid geometry, area and volume, and basic proportion applications; simplification, evaluation, and solving of algebraic equations and inequalities and radical functions; complex numbers; right triangle trigonometry; and systems of equations. Upon completion, students will be able to demonstrate the ability to use mathematics and technology for problem-solving, analyzing and communicating results.

**MAT 122 Algebra/Trigonometry II 2-2-3**

*Prerequisite: MAT 121*

This course is designed to cover concepts in algebra, function analysis, and trigonometry. Topics include exponential and logarithmic functions, transformations of functions, Law of Sines, Law of Cosines, vectors, and statistics. Upon completion, students should be able to demonstrate the ability to use mathematics and technology for problem-solving, analyzing and communicating results.

**MAT 143 Quantitative Literacy 2-2-3**

*Prerequisite: Appropriate test scores or Multiple Measures waiver or take one set: Set 1: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DRE-098 Set 2: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and ENG-095 Set 3: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and ENG-090 and RED-090*

This course is designed to engage students in complex and realistic situations involving the mathematical phenomena of quantity, change and relationship, and uncertainty through project- and activity-based assessment. Emphasis is placed on authentic contexts which will introduce the concepts of numeracy, proportional reasoning, dimensional analysis, rates of growth, personal finance, consumer statistics, practical probabilities, and mathematics for citizenship. Upon completion, students should be able to utilize quantitative information as consumers and to make personal, professional, and civic decisions by decoding, interpreting, using, and communicating quantitative information found in modern media and encountered in everyday life. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 152 Statistics I 3-2-4**

*Prerequisite: Appropriate test scores or Multiple Measures waiver or this set: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DRE 098*

This course provides a project-based approach to introductory statistics with an emphasis on using real-world data and statistical literacy. Topics include descriptive statistics, correlation and regression, basic probability, discrete and continuous probability distributions, confidence intervals and hypothesis testing. Upon completion, students should be able to use appropriate technology to describe important characteristics of a data set, draw inferences about a population from sample data, and interpret and communicate results. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics

**MAT 171 Precalculus Algebra 3-2-4**

*Prerequisite: Appropriate test scores or Multiple Measures waiver or take one set: Set 1: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, DMA 060, DMA 070, DMA 080 Set 2: DMA 010, DMA 020, DMA 030, DMA 040, DMA 050, and DMA 065 Set 3: MAT 121*

This course is designed to develop topics which are fundamental to the study of Calculus. Emphasis is placed on solving equations and inequalities, solving systems of equations and inequalities, and analysis of functions (absolute value, radical, polynomial, rational, exponential, and logarithmic) in multiple representations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to algebra-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 172 Precalculus Trigonometry 3-2-4**

*Prerequisite: MAT 171*

This course is designed to develop an understanding of topics which are fundamental to the study of Calculus. Emphasis is placed on the analysis of trigonometric functions in multiple representations, right and oblique triangles, vectors, polar coordinates, conic sections, and parametric equations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to trigonometry-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 263 Brief Calculus 3-2-4**

*Prerequisite: MAT 171*

This course is designed to introduce concepts of differentiation and integration and their applications to solving problems. Topics include graphing, differentiation, and integration with emphasis on applications drawn from business, economics, and biological and behavioral

sciences. Upon completion, students should be able to demonstrate an understanding of the use of basic calculus and technology to solve problems and to analyze and communicate results. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 271 Calculus I 3-2-4**

*Prerequisite: MAT 172 or A score of 2 or higher on the AP Calculus AB Exam or A grade of C or higher in an AP Calculus course and an unweighted HS GPA of 3.0 or higher or A score of 90 or higher on the ACCUPLACER College-Level Math (CLM) test or A score of 46 or higher on the trigonometry section of the ACT Compass Math Placement Test or A score of 580 or higher on the SAT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state or A score of 27 or higher on the ACT Math and a grade of C or higher in the North Carolina Standard Course of Study Pre-Calculus course or an equivalent course from another state or A score of 560 or higher on the SAT Subject Test in Mathematics Level 2*

This course is designed to develop the topics of differential and integral calculus. Emphasis is placed on limits, continuity, derivatives and integrals of algebraic and transcendental functions of one variable. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to derivative-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 272 Calculus II 3-2-4**

*Prerequisite: MAT 271*

This course is designed to develop advanced topics of differential and integral calculus. Emphasis is placed on the applications of definite integrals, techniques of integration, indeterminate forms, improper integrals, infinite series, conic sections, parametric equations, polar coordinates, and differential equations. Upon completion, students should be able to select and use appropriate models and techniques for finding solutions to integral-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Mathematics.

**MAT 273 Calculus III 3-2-4**

*Prerequisite: MAT 272*

This course is designed to develop the topics of multivariate calculus. Emphasis is placed on multivariate functions, partial derivatives, multiple integration, solid analytical geometry, vector valued functions, and line and surface integrals. Upon completion, students should be able to select and use appropriate models and techniques for finding the solution to multivariate-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a general education course in Mathematics.

**MAT 280 Linear Algebra 2-2-3***Prerequisite: MAT 271*

This course provides an introduction to linear algebra topics. Emphasis is placed on the development of abstract concepts and applications for vectors, systems of equations, matrices, determinants, vector spaces, multi-dimensional linear transformations, eigenvectors, eigenvalues, diagonalization and orthogonality. Upon completion, students should be able to demonstrate understanding of the theoretical concepts and select and use appropriate models and techniques for finding solutions to linear algebra-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**MAT 285 Differential Equations 2-2-3***Prerequisite: MAT 272*

This course provides an introduction to topics involving ordinary differential equations. Emphasis is placed on the development of abstract concepts and applications for first-order and linear higher-order differential equations, systems of differential equations, numerical methods, series solutions, eigenvalues and eigenvectors, and Laplace transforms. Upon completion, students should be able to demonstrate understanding of the theoretical concepts and select and use appropriate models and techniques for finding solutions to differential equations-related problems with and without technology. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**MOTORCYCLE MECHANICS****C-L-SHC****MCM 111 Motorcycle Mechanics 3-8-7**

This course covers the proper nomenclature of parts and components of motorcycles, ATVs, and personal watercraft. Topics include theory of operation, differences of operation, preventive maintenance, and operating principles involved in servicing and repairing motorcycles, ATVs, and personal watercraft. Upon completion, students should be able to perform basic inspection, diagnosis, repair, and/or adjustment of motorcycles, ATVs, and personal watercraft.

**MCM 114 Motorcycle Fuel Systems 2-6-5**

This course introduces various types of fuels and fuel systems used in motorcycle internal combustion engines. Emphasis is placed on the theory and principles of carburetion and fuel injection. Upon completion, students should be able to service, disassemble, inspect, reassemble, and adjust to manufacturers' specifications the components of various fuel systems.

**MCM 115 Motorcycle Chassis 1-6-3**

This course covers chassis adjustments, components, and types and uses of frames and suspensions. Emphasis is placed on proper and safe use of tools and equipment in servicing and maintaining motorcycle chassis. Upon

completion, students should be able to service and repair motorcycle chassis systems and suspension components.

**MCM 117 Motorcycle Dyno Tuning I 1-4-3**

This course introduces the theory and safe operation of motorcycle chassis dynamometers. Topics include types of dynamometers, theory of operation, differences of operations, preventative maintenance and safe operating principles involved in motorcycle dynamometer tuning and diagnostics. Upon completions, students should be able to safely use motorcycle dynamometers to measure horsepower and torque, to optimize air-fuel metering and exhaust-flow, and to diagnose performance problems.

**MCM 122 Motorcycle Engines 2-9-5**

This course covers the construction and operation of components in internal combustion engines used in modern motorcycles. Topics include two- and four-cycle engines, power trains, and final drive systems. Upon completion, students should be able to disassemble, inspect, measure, reassemble, and operationally test two- and four-cycle motorcycle engines.

**MCM 217 Motorcycle Dyno Tuning II 1-4-3***Prerequisites: MCM 117*

This course provides advanced instruction in motorcycle dynamometers that are utilized in high performance engine tuning. Topics include safe modification and customization of components and their effect on horsepower, torque, air-fuel metering, exhaust flow, fuel economy, acceleration and speed. Upon completions, students will safely use motorcycle dynamometers to optimize performance when customizing motorcycles and/or ATV's for racing and high performance street or off-road use.

**MECHANICAL****C-L-SHC****MEC 110 Introduction to CAD/CAM 1-2-2**

This course introduces CAD/CAM. Emphasis is placed on transferring part geometry from CAD to CAM for the development of a CNC-ready program. Upon completion, students should be able to use CAD/CAM software to produce a CNC program.

**MEC 111 Machine Processes I 1-4-3**

This course introduces shop safety, hand tools, machine processes, measuring instruments, and the operation of machine shop equipment. Topics include use and care of tools, safety, measuring tools, and the basic setup and operation of common machine tools. Upon completion, students should be able to manufacture simple parts to specified tolerance.

**MEC 142 Physical Metallurgy 1-2-2**

This course covers the heat treating of metals. Emphasis is placed on the effects of hardening, tempering, and annealing



on the structure and physical properties of metals. Upon completion, students should be able to heat treat materials.

**MEC 161 Manufacturing Processes I 3-0-3**

This course provides the fundamental principles of value-added processing of materials into usable forms for the customer. Topics include material properties and traditional and non-traditional manufacturing processes. Upon completion, students should be able to specify appropriate manufacturing processing for common engineering materials.

**MEC 161A Manufacturing Proc I Lab 0-3-1**

*Corequisites: MEC 161*

This course is a laboratory for MEC 161. Emphasis is placed on experiences that enhance the materials presented in MEC 161. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in MEC 161.

**MEC 180 Engineering Materials 2-3-3**

This course introduces the physical and mechanical properties of materials. Topics include materials testing, pre- and post-manufacturing processes, and material selection of ferrous and non-ferrous metals, plastics, composites, and non-conventional materials. Upon completion, students should be able to utilize basic material property tests and select appropriate materials for applications.

**MEDICAL ASSISTING**

**C-L-CI-SHC**

**MED 110 Orientation to Medical Assisting 1-0-0-1**

This course covers the history of medicine and the role of the medical assistant in the health care setting. Emphasis is placed on professionalism, communication, attitude, behaviors, and duties in the medical environment. Upon completion, students should be able to project a positive attitude and promote the profession of medical assisting.

**MED 118 Medical Law and Ethics 2-0-0-2**

*Local Prerequisites: DRE 098 or appropriate placement.*

This course covers legal relationships of physicians and patients, contractual agreements, professional liability, malpractice, medical practice acts, informed consent, and bioethical issues. Emphasis is placed on legal terms, professional attitudes, and the principles and basic concepts of ethics and laws involved in providing medical services. Upon completion, students should be able to meet the legal and ethical responsibilities of a multi-skilled health professional.

**MED 121 Medical Terminology I 3-0-0-3**

This course introduces prefixes, suffixes, and word roots used in the language of medicine. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able

to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

**MED 122 Medical Terminology II 3-0-0-3**

*Prerequisite: MED 121*

This course is the second in a series of medical terminology courses. Topics include medical vocabulary and the terms that relate to the anatomy, physiology, pathological conditions, and treatment of selected systems. Upon completion, students should be able to pronounce, spell, and define medical terms as related to selected body systems and their pathological disorders.

**MED 130 Administrative Office Procedures I 1-2-0-2**

This course introduces medical office administrative procedures. Topics include appointment processing, written and oral communications, medical records, patient orientation, and safety. Upon completion, students should be able to perform basic administrative skills within the medical environment.

**MED 131 Administrative Office Procedures II 1-2-0-2**

*Local Prerequisite: MED 130*

This course provides medical office procedures in both economic and management skills. Topics include physical plant maintenance, equipment and supplies, liability coverage, medical economics, and introductory insurance procedures. Upon completion, students should be able to manage the economics of the medical office and supervise personnel.

**MED 140 Exam Room Procedures I 3-4-0-5**

This course provides instruction in clinical examining room procedures. Topics include asepsis, infection control, assisting with exams and treatment, patient education, preparation and administration of medications, EKG, vital signs, and medical emergencies. Upon completion, students should be able to demonstrate competence in exam room procedures.

**MED 150 Laboratory Procedures I 3-4-0-5**

This course provides instruction in basic lab techniques used by the medical assistant. Topics include lab safety, quality control, collecting and processing specimens, performing selective tests, phlebotomy, screening and follow-up of test results, and OSHA/CLIA regulations. Upon completion, students should be able to perform basic lab tests/skills based on course topics.

**MED 230 Administrative Office Procedures III 1-2-0-2**

*Prerequisite: MED 131*

This course provides advanced medical office administrative procedures. Emphasis is placed on management skills including personnel supervision, practice management, public relations, and insurance coding. Upon completion, students should be able to exhibit advanced managerial medical assisting skills.

**MED 232 Medical Insurance Coding 1-3-0-2**

This course is designed to develop coding skills. Emphasis is placed on advanced diagnostic and procedural coding in the outpatient facility. Upon completion, students should be able to demonstrate proficiency in coding for reimbursement.

**MED 240 Exam Room Procedures II 3-4-0-5**

*Prerequisite: MED 140*

This course is designed to expand and build upon skills presented in MED 140. Emphasis is placed on advanced exam room procedures. Upon completion, students should be able to demonstrate enhanced competence in selected exam room procedures.

**MED 260 MED Clinical Practicum 0-0-15-5**

*Local Prerequisites: MED 150, MED 240*

This course provides the opportunity to apply clinical, laboratory, and administrative skills in a medical facility. Emphasis is placed on enhancing competence in clinical and administrative skills necessary for comprehensive patient care and strengthening professional communications and interactions. Upon completion, students should be able to function as an entry-level health care professional.

**MED 264 Medical Assisting Overview 2-0-0-2**

This course provides an overview of the complete medical assisting curriculum. Emphasis is placed on all facets of medical assisting pertinent to administrative, laboratory, and clinical procedures performed in the medical environment. Upon completion, students should be able to demonstrate competence in the areas covered on the national certification examination for medical assistants.

**MED 270 Symptomatology 2-2-0-3**

This course covers the study of disease symptoms and the appropriate actions taken by medical assistants in a medical facility in relation to these symptoms. Emphasis is placed on interviewing skills and appropriate triage, preparing patients for procedures, and screening test results. Upon completion, students should be able to recognize how certain symptoms relate to specific diseases, recognize emergency situations, and take appropriate actions.

**MED 272 Drug Therapy 3-0-0-3**

This course focuses on major drug groups, including their side effects, interactions, methods of administration, and proper documentation. Emphasis is placed on the theory of drug administration. Upon completion, students should be able to identify, spell, recognize side effects of, and document the most commonly used medications in a physician's office.

**MED 274 Diet Therapy/Nutrition 3-0-0-3**

This course introduces the basic principles of nutrition as they relate to health and disease. Topics include basic nutrients, physiology, dietary deficiencies, weight management, and therapeutic nutrition in wellness and disease. Upon completion, students should be able to

interpret clinical and dietary data and provide patient counseling and education.

**MED 276 Patient Education 1-2-0-2**

This course is designed to provide communication skills, basic education principles, and knowledge of available community resources and to apply this knowledge to the clinical setting. Emphasis is placed on identifying appropriate community resources, developing patient education materials, and perfecting written and oral communication skills. Upon completion, students should be able to instruct, communicate effectively, and act as a liaison between the patient and community agencies.

## MARKETING

**C-L-SHC**

**MKT 120 Principles of Marketing 3-0-3**

This course introduces principles and problems of marketing goods and services. Topics include promotion, placement, and pricing strategies for products. Upon completion, students should be able to apply marketing principles in organizational decision-making.

**MKT 123 Fundamentals of Selling 3-0-3**

This course is designed to emphasize the necessity of selling skills in a modern business environment. Emphasis is placed on sales techniques involved in various types of selling situations. Upon completion, students should be able to demonstrate an understanding of the techniques covered.

**MKT 220 Advertising & Sales Promotion 3-0-3**

This course covers the elements of advertising and sales promotion in the business environment. Topics include advertising and sales promotion appeals, selection of media, use of advertising and sales promotion as a marketing tool, and means of testing effectiveness. Upon completion, students should be able to demonstrate an understanding of the concepts covered through application.

**MKT 223 Customer Service 3-0-3**

This course stresses the importance of customer relations in the business world. Emphasis is placed on learning how to respond to complex customer requirements and to efficiently handle stressful situations. Upon completion, students should be able to demonstrate the ability to handle customer relations.

**MKT 232 Social Media Marketing 3-2-4**

This course is designed to build students' social media marketing skills by utilizing projects that give students hands on experience implementing social media marketing strategies. Topics include integrating different social media technologies into a marketing plan, creating social media marketing campaigns, and applying appropriate social media tools. Upon completion, students should be able to use social media technologies to create and improve marketing efforts for businesses.

**MAINTENANCE****C-L-SHC****MNT 110 Introduction to Maintenance Procedures 1-3-2**

This course covers basic maintenance fundamentals for power transmission equipment. Topics include equipment inspection, lubrication, alignment, and other scheduled maintenance procedures. Upon completion, students should be able to demonstrate knowledge of accepted maintenance procedures and practices according to current industry standards.

**MNT 111 Maintenance Practices 2-2-3**

This course provides in-depth theory and practical applications relating to predictive and preventive maintenance programs. Emphasis is placed on equipment failure analysis, maintenance management software, and techniques such as vibration and infrared analysis. Upon completion, students should be able to demonstrate an understanding of modern analytical and documentation methods.

**MNT 230 Pumps and Piping Systems 1-3-2**

This course covers pump installation and maintenance and related valves and piping systems. Topics include various types of pump systems and their associated valves, piping requirements, and other related topics. Upon completion, students should be able to select and install pump and piping systems and demonstrate proper maintenance and troubleshooting procedures.

**MNT 240 Industrial Equipment Troubleshoot 1-3-2**

*Local Prerequisite: ELC 112 or ELC 131*

This course covers the various service procedures, tools, instruments, and equipment necessary to analyze and repair typical industrial equipment. Emphasis is placed on electro-mechanical and fluid power equipment troubleshooting, calibration, and repair, including common techniques and procedures. Upon completion, students should be able to troubleshoot and repair industrial equipment.

**MNT 270 Bioprocess Equipment Maintenance 1-3-2**

*Prerequisite: MNT 110*

This course covers the equipment used in a bioprocess manufacturing facility and the techniques used to maintain and troubleshoot it. Topics include types of equipment, the role of equipment in the bioprocess manufacturing facility, troubleshooting bioprocess equipment, and the role of a bioprocess maintenance technician. Upon completion, students should be able to maintain and troubleshoot bioprocess equipment in a biotechnology manufacturing facility using work techniques appropriate for the biotechnology industry.

**MNT 280 Bioprocess Operating System 1-3-2**

*Prerequisite: ELC 128*

This course covers the specific SCADA (Supervisory Control and Data Acquisition) software used to operate

bioprocess equipment in a modern biotechnology manufacturing facility. Topics include the operation, configuration, applications, and problem solving of standard bioprocess control software. Upon completion, students should be able to safely utilize bioprocess control software when required in the maintenance and operation of bioprocess equipment.

**MUSIC****C-L-SHC****MUS 110 Music Appreciation 3-0-3**

This course is a basic survey of the music of the Western world. Emphasis is placed on the elements of music, terminology, composers, form, and style within a historical perspective. Upon completion, students should be able to demonstrate skills in basic listening and understanding of the art of music. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**MUS 112 Introduction to Jazz 3-0-3**

This course introduces the origins and musical components of jazz and the contributions of its major artists. Emphasis is placed on the development of discriminating listening habits, as well as the investigation of the styles and structural forms of the jazz idiom. Upon completion, students should be able to demonstrate skills in listening and understanding this form of American music. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

**NURSING ASSISTANT****C-L-CI-SHC****NAS 101 Nurse Aide I 3-4-3-6**

This course includes basic nursing skills required to provide safe, competent personal care for individuals. Emphasis is placed on person-centered care, the aging process, communication, safety/emergencies, infection prevention, legal and ethical issues, vital signs, height and weight measurements, elimination, nutrition, basic restorative care/rehabilitation, dementia, mental health and end-of-life care. Upon completion, students should be able to demonstrate knowledge and skills and be eligible to test for listing on the North Carolina Nurse Aide I Registry.

**NAS 102 Nurse Aide II 3-2-6-6**

*Prerequisites: NAS 101*

This course provides training in Nurse Aide II tasks. Emphasis is placed on the role of the Nurse Aide II, sterile technique and specific tasks such as urinary catheterization, wound care, respiratory procedures, ostomy care, peripheral IV assistive activities, and alternative feeding methods. Upon completion, students should be able to demonstrate knowledge and skills and safe performance of skills necessary to be eligible for listing on the North Carolina Nurse Aide II Registry.

## NETWORKING TECHNOLOGY

### NET 115 Telecommunication Fundamentals **C-L-SHC** **1-2-2**

This course covers the fundamentals of the electronic transfer of information for those who have not received credit for NET 110. Topics include terminal emulation software usage, file transfer methods, PC-based fax/modem/voice-mail operations, accessing and navigating the Internet, and bulletin boards. Upon completion, students should be able to access and use online services and the Internet, send and receive email, and perform other basic telecommunication operations.

### NET 125 Networking Basics **1-4-3**

This course introduces the networking field. Emphasis is placed on network terminology and protocols, local-area networks, wide-area networks, OSI model, cabling, router programming, Ethernet, IP addressing, and network standards. Upon completion, students should be able to perform tasks related to networking mathematics, terminology, and models, media, Ethernet, subnetting, and TCP/IP Protocols.

### NET 126 Routing Basics **1-4-3**

*Local Prerequisite: NET 125*

This course focuses on initial router configuration, router software management, routing protocol configuration, TCP/IP, and access control lists (ACLs). Emphasis will be placed on the fundamentals of router configuration, managing router software, routing protocol, and access lists. Upon completion, students should have an understanding of routers and their role in WANs, router configuration, routing protocols, TCP/IP, troubleshooting, and ACLs.

### NET 225 Routing and Switching I **1-4-3**

*Local Prerequisite: NET 126*

This course focuses on advanced IP addressing techniques, intermediate routing protocols, command-line interface configuration of switches, Ethernet switching, VLANs, STP, and VTP. Emphasis will be placed on application and demonstration of skills acquired in prerequisite courses. Upon completion, students should be able to perform tasks related to VLSM, routing protocols, switching concepts and configuration, STP, VLANs, and VTP.

### NET 226 Routing and Switching II **1-4-3**

*Local Prerequisite: NET 225*

This course introduces WAN theory and design, WAN technology, PPP, Frame Relay, ISDN, and additional case studies. Topics include network congestion problems, TCP/IP transport and network layer protocols, advanced routing and switching configuration, ISDN protocols, PPP encapsulation operations on a router. Upon completion, students should be able to provide solutions for network routing problems, identify ISDN protocols, and describe the Spanning Tree protocol.

### NET 230 Wide Area Networking **2-2-3**

*Prerequisite: NET 110 or NET 125*

This course is designed to introduce significant aspects of network interconnectivity. Topics include LAN-to-LAN, LAN-to-host, LAN-to-WAN connectivity, Internet connections, and voice-video-data transmission. Upon completion, students should be able to demonstrate an understanding of wide-area networking.

### NET 241 Introduction to VOIP **2-3-3**

This course introduces students to the terms and definitions of analog phone systems and voice over internet protocol (VOIP) networks and how to configure, maintain, and troubleshoot said networks. Topics include configuring and maintaining an internet protocol (IP) telephony system, provisioning phones and users, configuring call features, and establishing voicemail over VOIP networks. Upon completion, students should be able to discuss the terms and definitions of VOIP as well as configure and maintain an IP telephony system, provision phones and users, configure call features and voicemail.

### NET 289 Networking Project **1-4-3**

*Prerequisites: CTI 110, CTI 120 and CTS 115*

*Corequisite: NET 226*

This course provides an opportunity to complete a significant networking project from the design phase through implementation with minimal instructor support. Emphasis is placed on project definition, documentation, installation, testing, presentation, and training. Upon completion, students should be able to complete a project from the definition phase through implementation.

## NETWORKING OPERATING SYSTEM

**C-L-SHC**

### NOS 110 Operating Systems Concepts **2-3-3**

This course introduces students to a broad range of operating system concepts, including installation and maintenance. Emphasis is placed on operating system concepts, management, maintenance, and resources required. Upon completion of this course, students will have an understanding of OS concepts, installation, management, maintenance, using a variety of operating systems.

### NOS 120 Linux/UNIX Single User **2-2-3**

This course develops the necessary skills for students to develop both GUI and command line skills for using and customizing a Linux workstation. Topics include Linux file system and access permissions, GNOME Interface, VI editor, X Window System expression pattern matching, I/O redirection, network and printing utilities. Upon completion, students should be able to customize and use Linux systems for command line requirements and desktop productivity roles.

### NOS 130 Windows Single User **2-2-3**

This course introduces operating system concepts for single-user systems. Topics include hardware management, file

and memory management, system configuration/optimization, and utilities. Upon completion, students should be able to perform operating systems functions at the support level in a single-user environment.

**NOS 220 Linux/UNIX Administration I 2-2-3**

*Prerequisite: NOS 120*

This course introduces the Linux file system, group administration, and system hardware controls. Topics include installation, creation and maintaining file systems, NIS client and DHCP client configuration, NFS, SMB/Samba, Configure X, Gnome, KDE, basic memory, processes, and security. Upon completion, students should be able to perform system administration tasks including installation, configuring, and attaching a new Linux workstation to an existing network.

**NOS 230 Windows Administration I 2-2-3**

This course covers the installation and configuration of a Windows Server operating system. Emphasis is placed on the basic configuration of core network services, Active Directory and group policies. Upon completion, students should be able to install and configure a Windows Server operating system.

**PRACTICAL NURSING**

**C-L-CI-SHC**

**NUR 101 Practical Nursing I**

**7-6-6-11**

This course introduces the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts within each domain including assessment, clinical decision making, professional behaviors, caring interventions, biophysical and psychosocial concepts, communication, collaboration, teaching/learning, safety, ethical principles, legal issues, informatics, and evidence-based practice. Upon completion, students should be able to provide safe nursing care across the lifespan incorporating the concepts identified in this course.

**NUR 102 Practical Nursing II 7-0-9-10**

*Prerequisites: NUR 101*

This course is designed to further develop the concepts within the three domains of the individual, nursing, and healthcare. Emphasis is placed on the concepts within each domain including clinical decision making, caring interventions, biophysical and psychosocial concepts, communication, collaboration, teaching and learning, accountability, safety, informatics, and evidence-based practice. Upon completion, students should be able to provide safe nursing care across the lifespan incorporating the concepts identified in this course.

**NUR 103 Practical Nursing III 6-0-9-9**

*Prerequisites: NUR 101*

This course is designed to assimilate the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on biophysical and psychosocial

concepts, professional behaviors, healthcare systems, health policy, and quality improvement. Upon completion, students should be able to demonstrate the knowledge, skills, and attitudes necessary to provide safe, quality, and individualized entry level nursing care.

**ASSOCIATE DEGREE NURSING**

**C-L-CI-SHC**

**NUR 111 Intro to Health Concepts**

**4-6-6-8**

*Local Prerequisite: Admission into Associate Degree Nursing program*

This course introduces the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts within each domain including medication administration, assessment, nutrition, ethics, interdisciplinary teams, informatics, evidence-based practice, individual-centered care, and quality improvement. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.

**NUR 112 Health-Illness Concepts 3-0-6-5**

*Prerequisites: NUR 111*

This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of acid-base, metabolism, cellular regulation, oxygenation, infection, stress/coping, health-wellness-illness, communication, caring interventions, managing care, safety, quality improvement, and informatics. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.

**NUR 113 Family Health Concepts 3-0-6-5**

*Prerequisites: NUR 111*

This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of oxygenation, sexuality, reproduction, grief/loss, mood/affect, behaviors, development, family, health-wellness-illness, communication, caring interventions, managing care, safety, and advocacy. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.

**NUR 114 Holistic Health Concepts 3-0-6-5**

*Prerequisites: NUR 111*

This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of cellular regulation, perfusion, inflammation, sensory perception, stress/coping, mood/affect, cognition, self, violence, health-wellness-illness, professional behaviors, caring interventions, and safety. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.

**NUR 211 Health Care Concepts 3-0-6-5**

*Prerequisites: NUR 111*

This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of cellular regulation, perfusion, infection, immunity, mobility, comfort, behaviors, health-wellness-illness, clinical decision-making, caring interventions, managing care, and safety. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course.

**NUR 212 Health System Concepts 3-0-6-5**

*Prerequisites: NUR 111*

This course is designed to further develop the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of grief/loss, violence, health-wellness-illness, collaboration, managing care, safety, advocacy, legal issues, policy, healthcare systems, ethics, accountability, and evidence-based practice. Upon completion, students should be able to provide safe nursing care incorporating the concepts identified in this course

**NUR 213 Complex Health Concepts 4-3-15-10**

*Prerequisites: NUR 111*

*Corequisites: NUR 112, NUR 113, NUR 114, NUR 211 and NUR 212*

This course is designed to assimilate the concepts within the three domains of the individual, healthcare, and nursing. Emphasis is placed on the concepts of fluid/electrolytes, metabolism, perfusion, mobility, stress/coping, violence, health-wellness-illness, professional behaviors, caring interventions, managing care, healthcare systems, and quality improvement. Upon completion, students should be able to demonstrate the knowledge, skills, and attitudes necessary to provide quality, individualized, entry level nursing care.

## **NUTRITION**

**NUT 110 Nutrition**

**C-L-SHC**

**3-0-3**

This course covers basic principles of nutrition and their relationship to human health. Topics include meeting nutritional needs of healthy people, menu modification based on special dietary needs, food habits, and contemporary problems associated with nutrition. Upon completion, students should be able to apply basic nutritional concepts as they relate to health and well-being.

## **OFFICE ADMINISTRATION**

**OST 131 Keyboarding**

**C-L-SHC**

**1-2-2**

This course covers basic keyboarding skills. Emphasis is placed on the touch system, correct techniques, and development of speed and accuracy. Upon completion,

students should be able to key at an acceptable speed and accuracy level using the touch system.

**OST 132 Keyboard Skill Building**

**1-2-2**

*Local Prerequisite: OST 131*

This course is designed to increase speed and improve accuracy in keyboarding. Emphasis is placed on diagnostic tests to identify accuracy and speed deficiencies followed by corrective drills. Upon completion, students should be able to keyboard rhythmically with greater accuracy and speed.

**OST 134 Text Entry & Formatting**

**2-2-3**

*Local Prerequisite: OST 131*

This course is designed to provide the skills needed to increase speed, improve accuracy, and format documents. Topics include letters, memos, tables, and business reports. Upon completion, students should be able to produce documents and key timed writings at speeds commensurate with employability.

**OST 135 Adv Text Entry & Format**

**3-2-4**

*Prerequisite: OST 134*

This course is designed to incorporate computer application skills in the generation of office documents. Emphasis is placed on advanced document production. Upon completion, students should be able to make independent decisions regarding planning, style, and method of presentation.

**OST 136 Word Processing**

**2-2-3**

This course is designed to introduce word processing concepts and applications. Topics include preparation of a variety of documents and mastery of specialized software functions. Upon completion, students should be able to work effectively in a computerized word processing environment.

**OST 137 Office Software Applications**

**2-2-3**

*Local Prerequisite: OST 131*

This course introduces the concepts and functions of software that meets the changing needs of the community. Emphasis is placed on the terminology and use of software through a hands-on approach. Upon completion, students should be able to use software in a business environment.

**OST 138 Advanced Software Appl**

**2-2-3**

*Prerequisite: Take One: OST 137, CIS 110, or CIS 111*

This course is designed to improve the proficiency in the utilization of software applications used in business offices through a hands-on approach. Emphasis is placed on in-depth usage of software to create a variety of documents applicable to current business environments. Upon completion, students should be able to master the skills required to design documents that can be customized using the latest software applications.

**OST 141 Med Terms I-Med Office**

**3-0-3**

This course uses a language-structure approach to present the terminology and vocabulary that will be encountered in

medical office settings. Topics include word parts that relate to systemic components, conditions, pathology, and disorder remediation in approximately one-half of the systems of the human body. Upon completion, students should be able to relate words to systems, pluralize, define, pronounce, and construct sentences with the included terms.

**OST 142 Medical Terms II-Med Office 3-0-3**

*Prerequisite: OST 141*

This course is a continuation of OST 141 and continues the study, using a language-structure approach, of medical office terminology and vocabulary. Topics include word parts that relate to systemic components, conditions, pathology, and disorder remediation in the remaining systems of the human body. Upon completion, students should be able to relate words to systems, pluralize, define, pronounce, and construct sentences with the included terms.

**OST 148 Med Coding Billing & Insurance 3-0-3**

*Corequisite: OST 141*

This course introduces fundamentals of medical coding, billing, and insurance. Emphasis is placed on the medical billing cycle to include third-party payers, coding concepts, and form preparation. Upon completion, students should be able to explain the life cycle of and accurately complete a medical insurance claim.

**OST 149 Med Legal Issues 3-0-3**

This course introduces the complex legal, moral, and ethical issues involved in providing health care services. Emphasis is placed on the legal requirements of medical practices; the relationship of physician, patient, and office personnel; professional liabilities; and medical practice liability. Upon completion, students should be able to demonstrate a working knowledge of current medical law and accepted ethical behavior.

**OST 164 Text Editing Applications 3-0-3**

This course provides a comprehensive study of editing skills needed in the workplace. Emphasis is placed on grammar, punctuation, sentence structure, proofreading, and editing. Upon completion, students should be able to use reference materials to compose and edit text.

**OST 181 Into to Office Systems 2-2-3**

This course introduces the skills and abilities needed in today's office. Topics include effectively interacting with co-workers and the public, processing simple financial and informational documents, and performing functions typical of today's offices. Upon completion, students should be able to display skills and decision-making abilities essential for functioning in the total office context.

**OST 184 Records Management 2-2-3**

This course includes the creation, maintenance, protection, security, and disposition of records stored in a variety of media forms. Topics include alphabetic, geographic, subject, and numeric filing methods. Upon completion,

students should be able to set up and maintain a records management system.

**OST 233 Office Publications Design 2-2-3**

*Prerequisite: OST 136*

This course provides entry-level skills in using software with desktop publishing capabilities. Topics include principles of page layout, desktop publishing terminology and applications, and legal and ethical considerations of software use. Upon completion, students should be able to design and produce professional business documents and publications.

**OST 236 Adv Word/Information Proc 2-2-3**

*Prerequisite: OST 136*

This course develops proficiency in the utilization of advanced word/information processing functions. Emphasis is placed on advanced word processing features. Upon completion, students should be able to produce a variety of complex business documents.

**OST 241 Med Ofc Transcription I 1-2-2**

*Prerequisite: MED 121 or OST 141*

This course introduces machine transcription techniques as applied to medical documents. Emphasis is placed on accurate transcription, proofreading, and use of reference materials as well as vocabulary building. Upon completion, students should be able to prepare accurate and usable transcripts of voice recordings in the covered specialties.

**OST 242 Med Ofc Transcription II 1-2-2**

*Prerequisite: OST 241*

This course continues building machine transcription techniques as applied to medical documents. Emphasis is placed on accurate transcription and text editing, efficient use of reference materials, increasing transcription speed and accuracy, and improving understanding of medical terminology. Upon completion, students should be able to display competency in accurately transcribing medical documents.

**OST 243 Med Office Simulation 2-2-3**

This course introduces medical systems used to process information in the automated office. Topics include traditional and electronic information resources, storing and retrieving information, and the billing cycle. Upon completion, students should be able to use the computer accurately to schedule, bill, update, and make corrections.

**OST 248 Diagnostic Coding 1-2-2**

*Prerequisite: MED 121 or OST 141*

This course provides an in-depth study of diagnostic coding. Emphasis is placed on ICD coding system. Upon completion, students should be able to properly code diagnoses in a medical facility.

**OST 281 Emerg Issues in the Med Ofc 3-0-3**

This course provides a comprehensive discussion of topics familiar to the health care setting. Topics include emerging

issues in the health care setting. Upon completion, students should be able to demonstrate an understanding of current medical office procedures and treatments.

**OST 285 Adv Emerg Issues in Medical Ofc 3-0-3**

*Prerequisites: OST 281*

This course provides an advanced comprehensive discussion of topics familiar to the health care setting. Topics include advanced emerging issues in the health care setting such as homeostasis, pharmacology, laboratory and pathology tests, and new surgical procedures. Upon completion, students should be able to demonstrate an understanding of advanced medical procedures and treatments.

**OST 286 Professional Development 3-0-3**

This course covers the personal competencies and qualities needed to project a professional image in the office. Topics include interpersonal skills, health lifestyles, appearance, attitude, personal and professional growth, multicultural awareness, and professional etiquette. Upon completion, students should be able to demonstrate these attributes in the classroom, office, and society.

**OST 289 Administrative Office Mgt. 2-2-3**

*Prerequisites: Take One Set: Set 1: OST 134 and OST 164; Set 2: OST 136 and OST 164*

This course is designed to be a capstone course for the office professional and provides a working knowledge of modern office procedures. Emphasis is placed on scheduling, telephone procedures, travel arrangements, event planning, office design, and ergonomics. Upon completion, students should be able to adapt in an office environment.

**PROCESS CONTROL INSTRUMENTATION**

**C-L-SHC**

**PCI 170 DAQ and Control 3-3-4**

This course is a survey of data acquisition and control applications in an industrial setting. Topics include remote I/O systems, PC-based data acquisition, real-time monitoring, and other related topics. Upon completion, students should be able to demonstrate an understanding of data acquisition circuits.

**PHYSICAL EDUCATION**

**C-L-SHC**

**PED 110 Fit and Well for Life 1-2-2**

This course is designed to investigate and apply the basic concepts and principles of lifetime physical fitness and other health-related factors. Emphasis is placed on wellness through the study of nutrition, weight control, stress management, and consumer facts on exercise and fitness. Upon completion, students should be able to plan a personal, lifelong fitness program based on individual needs, abilities, and interests. This course has been

approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 113 Aerobics I 0-3-1**

This course introduces a program of cardiovascular fitness involving continuous, rhythmic exercise. Emphasis is placed on developing cardiovascular efficiency, strength, and flexibility and on safety precautions. Upon completion, students should be able to select and implement a rhythmic aerobic exercise program. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 114 Aerobics II 0-3-1**

*Prerequisite: PED 113*

This course provides a continuation of a program of cardiovascular fitness involving rhythmic exercise. Emphasis is placed on a wide variety of aerobic activities which include cardiovascular efficiency, strength, and flexibility. Upon completion, students should be able to participate in and design a rhythmic aerobic exercise routine. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 115 Step Aerobics I 0-3-1**

This course introduces the fundamentals of step aerobics. Emphasis is placed on basic stepping up and down on an adjustable platform; cardiovascular fitness; and upper body, floor, and abdominal exercises. Upon completion, students should be able to participate in basic step aerobics. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 116 Step Aerobics II 0-3-1**

*Prerequisite: PED 115*

This course provides a continuation of step aerobics. Emphasis is placed on a wide variety of choreographed step patterns; cardiovascular fitness; and upper body, abdominal, and floor exercises. Upon completion students should be able to participate in and design a step aerobics routine. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement..

**PED 117 Weight Training I 0-3-1**

This course introduces the basics of weight training. Emphasis is placed on developing muscular strength, muscular endurance, and muscle tone. Upon completion, students should be able to establish and implement a personal weight training program. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 118 Weight Training II 0-3-1**

*Prerequisite: PED 117*

This course covers advanced levels of weight training. Emphasis is placed on meeting individual training goals and addressing weight training needs and interests. Upon



completion, students should be able to establish and implement an individualized advanced weight training program. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 121 Walk, Jog, Run 0-3-1**

This course covers the basic concepts involved in safely and effectively improving cardiovascular fitness. Emphasis is placed on walking, jogging, or running as a means of achieving fitness. Upon completion, students should be able to understand and appreciate the benefits derived from these activities. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 128 Golf-Beginning 0-2-1**

This course emphasizes the fundamentals of golf. Topics include the proper grips, stance, alignment, swings for the short and long game, putting, and the rules and etiquette of golf. Upon completion, students should be able to perform the basic golf shots and demonstrate a knowledge of the rules and etiquette of golf. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 130 Tennis-Beginning 0-2-1**

This course emphasizes the fundamentals of tennis. Topics include basic strokes, rules, etiquette, and court play. Upon completion, students should be able to play recreational tennis. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 139 Bowling-Beginning 0-2-1**

This course introduces the fundamentals of bowling. Emphasis is placed on ball selection, grips, stance, and delivery along with rules and etiquette. Upon completion, students should be able to participate in recreational bowling. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 143 Volleyball-Beginning 0-2-1**

This course covers the fundamentals of volleyball. Emphasis is placed on the basics of serving, passing, setting, spiking, blocking, and the rules and etiquette of volleyball. Upon completion, students should be able to participate in recreational volleyball. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 145 Basketball-Beginning 0-2-1**

This course covers the fundamentals of basketball. Emphasis is placed on skill development, knowledge of the rules, and basic game strategy. Upon completion, students should be able to participate in recreational basketball. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 148 Softball 0-2-1**

This course introduces the fundamental skills and rules of softball. Emphasis is placed on proper techniques and strategies for playing softball. Upon completion, students should be able to participate in recreational softball. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 149 Flag Football 0-2-1**

This course introduces the fundamentals and rules of flag football. Emphasis is placed on proper techniques and strategies for playing in game situations. Upon completion, students should be able to participate in recreational flag football. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 155 Water Aerobics 0-3-1**

This course introduces rhythmic aerobic activities performed in water. Emphasis is placed on increasing cardiovascular fitness levels, muscular strength, muscular endurance, and flexibility. Upon completion, students should be able to participate in an individually-paced exercise program. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 160 Canoeing-Basic 0-2-1**

This course provides basic instruction for the beginning canoeist. Emphasis is placed on safe and correct handling of the canoe and rescue skills. Upon completion, students should be able to demonstrate basic canoeing, safe-handling, and self-rescue skills. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 219 Disc Golf 0-2-1**

This course introduces the fundamentals of disc golf. Emphasis is placed on basic throwing techniques, putting, distance driving, scoring, and single and doubles play. Upon completion, students should be able to perform the skills required in playing situations. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PED 254 Coaching Basketball 1-2-2**

This course introduces the theory and methods of coaching basketball. Emphasis is placed on rules, game strategies, and selected techniques of coaching basketball. Upon completion, students should be able to demonstrate competent coaching skills in basketball. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## PHILOSOPHY

### **PHI 210 History of Philosophy** **C-L-SHC** **3-0-3**

*Prerequisite: ENG 111*

This course introduces fundamental philosophical issues through an historical perspective. Emphasis is placed on such figures as Plato, Aristotle, Lao-Tzu, Confucius, Augustine, Aquinas, Descartes, Locke, Kant, Wollstonecraft, Nietzsche, and Sartre. Upon completion, students should be able to identify and distinguish among the key positions of the philosophers studied. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **PHI 215 Philosophical Issues** **3-0-3**

*Prerequisite: ENG 111*

This course introduces fundamental issues in philosophy considering the views of classical and contemporary philosophers. Emphasis is placed on knowledge and belief, appearance and reality, determinism and free will, faith and reason, and justice and inequality. Upon completion, students should be able to identify, analyze, and critique the philosophical components of an issue. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **PHI 230 Introduction to Logic** **3-0-3**

*Prerequisite: ENG 111*

This course introduces basic concepts and techniques for distinguishing between good and bad reasoning. Emphasis is placed on deduction, induction, validity, soundness, syllogisms, truth functions, predicate logic, analogical inference, common fallacies, and scientific methods. Upon completion, students should be able to analyze arguments, distinguish between deductive and inductive arguments, test validity, and appraise inductive reasoning. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### **PHI 240 Introduction to Ethics** **3-0-3**

*Prerequisite: ENG 111*

This course introduces theories about the nature and foundations of moral judgments and applications to contemporary moral issues. Emphasis is placed on utilitarianism, rule-based ethics, existentialism, relativism versus objectivism, and egoism. Upon completion, students should be able to apply various ethical theories to individual moral issues such as euthanasia, abortion, crime and punishment, and justice. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Humanities/Fine Arts.

## PHYSICAL SCIENCE

### **PHS 110 Survey of Physical Science** **C-L-SHC** **3-2-4**

This course introduces the physical environment with emphasis on the laws and physical concepts that impact the

world and universe. Topics include astronomy, geology, meteorology, general chemistry, and general physics. Upon completion, students should be able to describe the forces and composition of the earth and universe. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

## PHYSICS

### **PHY 110 Conceptual Physics** **C-L-SHC** **3-0-3**

*Corequisite: PHY 110A*

This course provides a conceptually-based exposure to the fundamental principles and processes of the physical world. Topics include basic concepts of motion, forces, energy, heat, electricity, magnetism, and the structure of matter and the universe. Upon completion, students should be able to describe examples and applications of the principles studied. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

### **PHY 110A Conceptual Physics Laboratory** **0-2-1**

*Corequisite: PHY 110*

This course is a laboratory for PHY 110. Emphasis is placed on laboratory experiences that enhance materials presented in PHY 110. Upon completion, students should be able to apply the laboratory experiences to the concepts presented in PHY 110. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

### **PHY 121 Applied Physics I** **3-2-4**

This algebra-based course introduces fundamental physical concepts as applied to industrial and service technology fields. Topics include systems of units, problem solving methods, graphical analyses, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to demonstrate an understanding of the principles studied as applied in industrial and service fields.

### **PHY 131 Physics-Mechanics** **3-2-4**

*Prerequisite: Take one: MAT 121, or MAT 171*

This algebra/trigonometry-based course introduces fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem solving methods, graphical analysis, vectors, motion, forces, Newton's laws of motion, work, energy, power, momentum, and properties of matter. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

### **PHY 133 Physics-Sound and Light** **3-2-4**

*Prerequisite: PHY 131*

This algebra/trigonometry-based course is a study of fundamental physical concepts as applied to engineering technology fields. Topics include systems of units, problem

solving methods, graphical analysis, wave motion, sound, light, and modern physics. Upon completion, students should be able to apply the principles studied to applications in engineering technology fields.

**PHY 151 College Physics I 3-2-4**

*Prerequisite: MAT 171*

This course uses algebra and trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vectors, linear kinematics and dynamics, energy, power, momentum, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem solving ability for the topics covered. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**PHY 152 College Physics II 3-2-4**

*Prerequisite: PHY 151*

This course uses algebra/trigonometry-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem solving ability for the topics covered. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**PHY 251 General Physics I 3-3-4**

*Prerequisite: MAT 271*

*Corequisite: MAT 272*

This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include units and measurement, vector operations, linear kinematics and dynamics, energy, power, momentum, rotational mechanics, periodic motion, fluid mechanics, and heat. Upon completion, students should be able to demonstrate an understanding of the principles involved and display analytical problem solving ability for the topics covered. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

**PHY 252 General Physics II 3-3-4**

*Prerequisites: MAT 272 and PHY 251*

This course uses calculus-based mathematical models to introduce the fundamental concepts that describe the physical world. Topics include electrostatic forces, electric fields, electric potentials, direct-current circuits, magnetostatic forces, magnetic fields, electromagnetic induction, alternating-current circuits, and light. Upon completion, students should be able to demonstrate an

understanding of the principles involved and display analytical problem solving ability for the topics covered. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Natural Sciences.

## PLUMBING

**PLU 111 Intro to Basic Plumbing 1-3-2**

This course introduces basic plumbing tools, materials, and fixtures. Topics include standard tools, materials, and fixtures used in basic plumbing systems and other related topics. Upon completion, students should be able to demonstrate an understanding of a basic plumbing system.

## POWER MECHANICS

**PME 101 Small Engine Repair I C-L-SHC  
1-15-6**

This course covers the rebuilding of small, air-cooled, single-cylinder engines under fifteen cubic inch displacement. Emphasis is placed on complete engine rebuilding, including all internal engine components, following safe shop procedures. Upon completion, students should be able to safely disassemble, repair, and reassemble small engines according to industry standards

**PME 103 Small Engine Carburetion 1-9-4**

This course is an in-depth study of carburetion principles, design, and application. Emphasis is placed on developing a working knowledge of the carburetor systems used on small engines. Upon completion, students should be able to safely disassemble, rebuild, install, and test carburetors and fuel systems.

**PME 106 Small Engine Transmissions 2-6-4**

This course covers the knowledge and skills needed to repair small engine transmissions, transaxles, and right angle drive systems. Topics include schematics, gears, shafts, bearings, shifter forks, axles, lubrication, and safety procedures. Upon completion, students should be able to safely service, repair, or rebuild manual transmission, transaxles, and right-angle drive systems to industry standards.

## POLITICAL SCIENCE

**POL 120 American Government C-L-SHC  
3-0-3**

This course is a study of the origins, development, structure, and functions of American national government. Topics include the constitutional framework, federalism, the three branches of government including the bureaucracy, civil rights and liberties, political participation and behavior, and policy formation. Upon completion, students should be able to demonstrate an understanding of the basic concepts and participatory processes of the American political system. This course has been approved for transfer under the CAA

and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**POL 130 State and Local Government 3-0-3**

This course includes state and local political institutions and practices in the context of American federalism. Emphasis is placed on procedural and policy differences as well as political issues in state, regional, and local governments of North Carolina. Upon completion, students should be able to identify and discuss various problems associated with intergovernmental politics and their effect on the community and the individual. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**POL 210 Comparative Government 3-0-3**

This course provides a cross-national perspective on the government and politics of contemporary nations such as Great Britain, France, Germany, and Russia. Topics include each country's historical uniqueness, key institutions, attitudes and ideologies, patterns of interaction, and current political problems. Upon completion, students should be able to identify and compare various nations' governmental structures, processes, ideologies, and capacity to resolve major problems. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**POL 220 International Relations 3-0-3**

This course provides a study of the effects of ideologies, trade, armaments, and alliances on relations among nation-states. Emphasis is placed on regional and global cooperation and conflict, economic development, trade, non-governmental organizations, and international institutions such as the World Court and UN. Upon completion, students should be able to identify and discuss major international relationships, institutions, and problems. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

## **PSYCIAL FITNESS TECHNOLOGY**

**PSF 110 Exercise Science 4-0-0-4**

This course is a survey of scientific principles, methodologies, and research as applied to exercise and physical adaptations to exercise. Topics include the basic elements of kinesiology, biomechanics, and motor learning. Upon completion, students should be able to identify and describe physiological responses and adaptations to exercise.

**PSF 111 Fitness & Exer Testing I 3-2-0-4**

This course introduces the student to graded exercise testing. Topics include various exercise testing protocols with methods for prescribing exercise programs based on exercise tolerance tests and the use of various equipment and protocols. Upon completion, students should be able to

conduct specific exercise tests and the use of various equipment.

**PSF 116 Pmnt & Care Exer Injuries 2-2-0-3**

This course provides information about the care and prevention of exercise injuries. Topics include proper procedures, prevention techniques, and on-site care of injuries. Upon completion, students should be able to demonstrate the knowledge and skills necessary to prevent and care for exercise related injuries.

**PSF 118 Fitness Facility Mgmt 4-0-0-4**

This course provides information about the management and operation of health and fitness facilities and programs. Topics include human resources, sales and marketing, member retention, financial management, facility design and maintenance, and risk management. Upon completion, students should be able to demonstrate the knowledge and skills necessary to effectively manage a fitness facility.

**PSF 120 Group Exer Instruction 2-2-0-3**

*Prerequisite: PSF 110*

This course introduces the concepts and guidelines of instructing exercise classes. Topics include program designs, working with special populations, and principles of teaching and monitoring physical activity. Upon completion, students should be able to demonstrate basic skills in instructing an exercise class and monitoring workout intensity.

**PSF 210 Personal Training 2-2-0-3**

*Prerequisite: Take PSF 110 and PSF 111*

This course introduces the student to the aspects of personal (one-on-one) training. Topics include training systems, marketing, and program development. Upon completion, students should be able to demonstrate personal training techniques and competencies of same.

**PSF 211 Fitness & Exer Testing II 3-2-0-4**

*Prerequisite: Take PSF 110 and PSF 111*

This is an advanced course in graded exercise testing. Topics include various exercise testing protocols for physical fitness and cardiorespiratory fitness with methods for prescribing exercise programs based on exercise test results. Upon completion, students should be able to conduct specific exercise tolerance tests using a variety of equipment and protocols.

**PSF 212 Exercise Programming 2-2-0-3**

*Prerequisite: PSF 110*

This course provides information about organizing, scheduling, and implementation of physical fitness programs. Topics include programming for various age groups, competitive activities and special events, and evaluating programs. Upon completion, students should be able to organize and implement exercise activities in a competent manner.

**PSF 214 Health and Fitness Law 3-0-0-3**

This course is designed to build a greater awareness and understanding of laws and legal issues encountered in the health and fitness industry. Topics include federal/state regulations, historical/current practices, risk management, torts, employment, discrimination, contracts, waivers, health/fitness screening, client confidentiality, facility safety, equipment liability, and emergency procedures. Upon completion, students should be able to demonstrate an understanding of the legal system to prevent or minimize liability in a fitness setting.

**PSY 218 Lifestyle Change & Wellness 3-2-0-4**

This course introduces health risk appraisals and their application to lifestyle changes. Topics include nutrition, weight control, stress management, and the principles of exercise. Upon completion, students should be able to conduct health risk appraisals and apply behavior modification techniques in a fitness setting.

**PSYCHOLOGY****C-L-SHC****PSY 110 Life Span Development 3-0-3**

This course provides an introduction to the study of human growth and development. Emphasis is placed on the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span and apply this knowledge to their specific field of study.

**PSY 115 Stress Management 2-0-2**

This course covers stressors and techniques for stress management. Topics include anger, assertiveness, adaptation to change, conflict, coping skills, identification of stressors, time management, and the physiology of stress and burnout. Upon completion, students should be able to demonstrate an understanding of the effective management of stress.

**PSY 118 Interpersonal Psychology 3-0-3**

This course introduces the basic principles of psychology as they relate to personal and professional development. Emphasis is placed on personality traits, communication/leadership styles, effective problem solving, and cultural diversity as they apply to personal and work environments. Upon completion, students should be able to demonstrate an understanding of these principles of psychology as they apply to personal and professional development.

**PSY 150 General Psychology 3-0-3**

This course provides an overview of the scientific study of human behavior. Topics include history, methodology, biopsychology, sensation, perception, learning, motivation, cognition, abnormal behavior, personality theory, social psychology, and other relevant topics. Upon completion, students should be able to demonstrate a basic knowledge of the science of psychology. This course has been approved

for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

**PSY 234 Organizational Psychology 3-0-3***Prerequisite: PSY 150*

This course introduces the field of industrial and organizational psychology. Topics include employee motivation, organizational structure, leadership, selection and training, conflict resolution, communication, job satisfaction, and other related influences on performance. Upon completion, students should be able to demonstrate a basic understanding of organizational dynamics and behaviors in the workplace.

**PSY 237 Social Psychology 3-0-3***Prerequisite: Take one: PSY 150 or SOC 210*

This course introduces the study of individual behavior within social contexts. Topics include affiliation, attitude formation and change, conformity, altruism, aggression, attribution, interpersonal attraction, and group behavior. Upon completion, students should be able to demonstrate an understanding of the basic principles of social influences on behavior. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**PSY 241 Developmental Psychology 3-0-3***Prerequisite: PSY 150*

This course is a study of human growth and development. Emphasis is placed on major theories and perspectives as they relate to the physical, cognitive, and psychosocial aspects of development from conception to death. Upon completion, students should be able to demonstrate knowledge of development across the life span. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**PSY 246 Adolescent Psychology 3-0-3***Prerequisite: PSY 150*

This course provides an overview of the behavior patterns, life changes, and social issues that accompany the developmental stage of adolescence. Topics include developmental theories; physical, cognitive, and psychosocial growth; transitions to young adulthood; and socio-cultural factors that influence adolescent roles in home, school, and community. Upon completion, students should be able to identify typical and atypical adolescent behavior patterns as well as appropriate strategies for interacting with adolescents. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**PSY 281 Abnormal Psychology 3-0-3***Prerequisite: PSY 150*

This course provides an examination of the various psychological disorders, as well as theoretical, clinical, and experimental perspectives of the study of psychopathology. Emphasis is placed on terminology, classification, etiology,

assessment, and treatment of the major disorders. Upon completion, students should be able to distinguish between normal and abnormal behavior patterns as well as demonstrate knowledge of etiology, symptoms, and therapeutic techniques. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

## RELIGION

### REL 110 World Religions

C-L-SHC  
3-0-3

This course introduces the world's major religious traditions. Topics include Primal religions, Hinduism, Buddhism, Islam, Judaism, and Christianity. Upon completion, students should be able to identify the origins, history, beliefs, and practices of the religions studied. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### REL 211 Introduction to Old Testament

3-0-3

This course is a survey of the literature of the Hebrews with readings from the law, prophets, and other writings. Emphasis is placed on the use of literary, historical, archeological, and cultural analysis. Upon completion, students should be able to use the tools of critical analysis to read and understand Old Testament literature. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

### REL 212 Introduction to New Testament

3-0-3

This course is a survey of the literature of first-century Christianity with readings from the gospels, Acts, and the Pauline and pastoral letters. Topics include the literary structure, audience, and religious perspective of the writings, as well as the historical and cultural context of the early Christian community. Upon completion, students should be able to use the tools of critical analysis to read and understand New Testament literature. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

## SUBSTANCE ABUSE

### SAB 110 Substance Abuse Overview

C-L-SHC  
3-0-3

This course provides an overview of the core concepts in substance abuse and dependence. Topics include the history of drug use/abuse, effects on societal members, treatment of addiction, and preventive measures. Upon completion, students should be able to demonstrate knowledge of the etiology of drug abuse, addiction, prevention, and treatment.

## INFORMATION SYSTEMS SECURITY

### SEC 110 Security Concepts

C-L-SHC  
2-2-3

This course introduces the concepts and issues related to securing information systems and the development of policies to implement information security controls. Topics include the historical view of networking and security, security issues, trends, security resources, and the role of policy, people, and processes in information security. Upon completion, students should be able to identify information security risks, create an information security policy, and identify processes to implement and enforce policy.

### SEC 160 Security Administration I

2-2-3

*Local Prerequisite: NET 125*

This course provides an overview of security administration and fundamentals of designing security architectures. Topics include networking technologies, TCP/IP concepts, protocols, network traffic analysis, monitoring, and security best practices. Upon completion, students should be able to identify normal network traffic using network analysis tools and design basic security defenses.

## SELECTED TOPICS

### SEL 293 Selected Topics in \_\_\_\_\_

C-L-SHC  
3-9-3

This course provides an opportunity to explore areas of current interest in specific program or discipline areas. Emphasis is placed on the subject matter appropriate to the program or discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

## SOCIOLOGY

### SOC 210 Introduction to Sociology

C-L-SHC  
3-0-3

This course introduces the scientific study of human society, culture, and social interactions. Topics include socialization, research methods, diversity and inequality, cooperation and conflict, social change, social institutions, and organizations. Upon completion, students should be able to demonstrate knowledge of sociological concepts as they apply to the interplay among individuals, groups, and societies. This course has been approved for transfer under the CAA and ICAA as a universal general education transfer component (UGETC) course in Social/Behavioral Sciences.

### SOC 213 Sociology of the Family

3-0-3

This course covers the institution of the family and other intimate relationships. Emphasis is placed on mate selection, gender roles, sexuality, communication, power and conflict, parenthood, diverse lifestyles, divorce and remarriage, and economic issues. Upon completion, students should be able to analyze the family as a social institution and the social forces which influence its

development and change. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**SOC 215 Group Processes 3-0-3**

This course introduces group processes and dynamics. Emphasis is placed on small group experiences, roles and relationships within groups, communication, cooperation and conflict resolution, and managing diversity within and among groups. Upon completion, students should be able to demonstrate the knowledge and skills essential to analyze group interaction and to work effectively in a group context. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**SOC 220 Social Problems 3-0-3**

This course provides an in-depth study of current social problems. Emphasis is placed on causes, consequences, and possible solutions to problems associated with families, schools, workplaces, communities, and the environment. Upon completion, students should be able to recognize, define, analyze, and propose solutions to these problems. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**SOC 225 Social Diversity 3-0-3**

This course provides a comparison of diverse roles, interests, opportunities, contributions, and experiences in social life. Topics include race, ethnicity, gender, sexual orientation, class, and religion. Upon completion, students should be able to analyze how cultural and ethnic differences evolve and how they affect personality development, values, and tolerance. This course has been approved for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**SOC 232 Social Context of Aging 3-0-3**

This course provides an overview of the social implications of the aging process. Emphasis is placed on the roles of older adults within families, work and economics, politics, religion, education, and health care. Upon completion, students should be able to identify and analyze changing perceptions, diverse lifestyles, and social and cultural realities of older adults. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**SOC 240 Social Psychology 3-0-3**

This course examines the influence of culture and social groups on individual behavior and personality. Emphasis is placed on the process of socialization, communication, conformity, deviance, interpersonal attraction, intimacy, race and ethnicity, small group experiences, and social movements. Upon completion, students should be able to identify and analyze cultural and social forces that influence the individual in a society. This course has been approved

for transfer under the CAA and ICAA as a general education course in Social/Behavioral Sciences.

**SPANISH**

**C-L-SHC**

**SPA 111 Elementary Spanish I 3-0-3**

This course introduces the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the development of basic listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with grammatical accuracy to spoken and written Spanish and demonstrate cultural awareness. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**SPA 112 Elementary Spanish II 3-0-3**

*Prerequisite: SPA 111*

This course is a continuation of SPA 111 focusing on the fundamental elements of the Spanish language within a cultural context. Emphasis is placed on the progressive development of listening, speaking, reading, and writing skills. Upon completion, students should be able to comprehend and respond with increasing proficiency to spoken and written Spanish and demonstrate further cultural awareness. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**SPA 141 Culture and Civilization 3-0-3**

This course provides an opportunity to explore issues related to the Hispanic world. Topics include historical and current events, geography, and customs. Upon completion, students should be able to identify and discuss selected topics and cultural differences related to the Hispanic world. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**SPA 151 Hispanic Literature 3-0-3**

*Prerequisites: ENG 111*

This course includes selected readings by Hispanic writers. Topics include fictional and non-fictional works by representative authors from a variety of genres and literary periods. Upon completion, students should be able to analyze and discuss selected texts within relevant cultural and historical contexts. This course has been approved for transfer under the CAA and ICAA as a premajor and/or elective course requirement.

**SPA 211 Intermediate Spanish I 3-0-3**

*Prerequisite: SPA 112*

This course provides a review and expansion of the essential skills of the Spanish language. Emphasis is placed on the study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate effectively, accurately, and creatively about the past, present, and future. This course has been approved

for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

**SPA 212 Intermediate Spanish II 3-0-3**

*Prerequisite: SPA 211*

This course provides a continuation of SPA 211. Emphasis is placed on the continuing study of authentic and representative literary and cultural texts. Upon completion, students should be able to communicate spontaneously and accurately with increasing complexity and sophistication. This course has been approved for transfer under the CAA and ICAA as a general education course in Humanities/Fine Arts.

## **SUSTAINABILITY TECHNOLOGIES**

**SST 110 Intro to Sustainability 3-0-3**

**C-L-SHC**

This course introduces sustainability issues and individual contributions toward environmental sustainability. Topics include management processes needed to maximize renewable/nonrenewable energy resources, economics of sustainability, and reduction of environmental impacts. Upon completion, students should be able to discuss sustainability practices and demonstrate an understanding of their effectiveness and impacts.

**SST 120 Energy Use Analysis 2-2-3**

This course introduces the principles of analyzing energy use, energy auditing tools and techniques, conservation techniques, and calculating energy savings. Topics include building system control theory, calibrating digital controls, energy loss calculations, and applicable conservation techniques. Upon completion, students should be able to demonstrate an understanding of energy use, audits, and controls in the analysis of energy consumption.

**SST 130 Modeling Renewable Energy 2-2-3**

This course introduces software and other technologies used for modeling renewable energy systems. Topics include renewable energy modeling software applications, data analysis, renewable energy sources, and cost of renewable energy systems. Upon completion, students should be able to use appropriate technology to model the effectiveness of renewable energy systems.

**SST 140 Green Building & Design Concepts 3-0-3**

This course is designed to introduce the student to sustainable building design and construction principles and practices. Topics include sustainable building rating systems and certifications, energy efficiency, indoor environmental quality, sustainable building materials and water use. Upon completion, students should be able to identify the principles and practices of sustainable building design and construction.

**SST 210 Issues in Sustainability 3-0-3**

*Prerequisites: SST 110*

This course introduces the long-term impacts and difficulties of applying sustainability concepts in an organization, business, or society. Topics include the application of sustainable technologies and the analysis of affordability, efficiencies, recycling, and small and large-scale design. Upon completion, students should be able to recognize the possible limitations of sustainable technologies and be prepared to reconcile such conflicts.

**SST 250 Capstone Project 1-6-3**

*Prerequisites: SST 110*

This course introduces an integrated team approach to a sustainability topic of interest to students, faculty, or professional community. Topics include problem identification, proposal preparation, conceptual design, and an effective project work schedule. Upon completion, students should be able to integrate the many facets of a topic based on environmental sustainability into a completed project.

## **TELEPHONY**

**TCT 100 Telco Safety Regulations 1-2-2**

**C-L-SHC**

This course covers Occupational Safety and Health Administration (OSHA) and similar safety regulations and their specific application in the telecommunications industry. Emphasis is placed on applying safe working standards, acquiring permits, and working with low and high voltage electricity in confined spaces. Upon completion, students should be able to research and apply appropriate safety regulations applicable to the telecommunications industry.

**TCT 101 Vault Management 1-2-2**

This course covers locating, inspecting, managing, and maintaining a safe working environment in a telecommunications vault. Emphasis is placed on safety, ingress, egress, potential hazardous atmosphere or material engulfment, tool utilization, installation, removal, and splicing or bonding of communication media. Upon completion, students should be able to safely identify, inspect, enter, perform work in, and exit a telecommunications vault.

**TCT 102 Underground Locating 1-2-2**

This course covers underground utilities locating to include telephony, community access television (CATV), gas, power, water and sewer. Emphasis is placed on locating and properly marking underground utilities in accordance with state One-Call legislation. Upon completion, students should be able to locate, identify, and protect underground utilities.



- TCT 103 Installer Level 1 Cabling 1-2-2**  
This course covers structured premises cabling for the beginning level installer. Emphasis is placed on Installer Level 1 knowledge of standards and codes for the telecommunications industry and properly structured premises cabling techniques. Upon completion, students should be prepared to take the Building Industry Consulting Service International (BICSI) Installer Level 1 certification examination and install premises cabling systems.
- TCT 104 Installer Level 2 Copper 1-2-2**  
This course introduces the foundation for copper-based structured cabling system installation for intermediate installers. Emphasis is placed on copper transmission principles, installation, termination, testing, retrofitting, pathways and spaces, grounding, bonding and protection, fire stopping, and life safety. Upon completion, students should be prepared to take the Building Industry Consulting Service International (BICSI) ITS Installer 2, Copper examination.
- TCT 105 Installer Level 2 Fiber 1-2-2**  
This course introduces the foundation for fiber-based structured cabling system installation for intermediate installers. Emphasis is placed on fiber transmission principles, installation, termination, testing, retrofitting, pathways and spaces, grounding, bonding and protection, fire stopping, life safety, and field coordination. Upon completion, students should be prepared to take the Building Industry Consulting Service International (BICSI) ITS Installer 2, Optical Fiber examination.
- TCT 106 Technician Level Cabling 1-2-2**  
This course covers structured premises cabling at the technician level. Emphasis is placed on technician level knowledge of standards and codes for the telecommunications industry and properly structured premises cabling techniques. Upon completion, students should be prepared to take the Building Industry Consulting Service International (BICSI) technician level certification examination and install premises cabling systems.
- TEL 100 Telecommunications Basic Electricity 3-0-3**  
This course covers DC and AC theory with specific emphasis on the specialized needs of telecommunications personnel. Emphasis is placed on electron theory, conductors, insulators, Ohm's Law, capacitance, and inductance as it relates to small gauge, twisted-pair copper wire. Upon completion, students should be able to understand trouble symptoms and correct faults on the telephone physical plant network.
- TEL 102 Pole Climbing 0-2-1**  
This course covers basic skills in pole climbing and working aloft. Emphasis is placed on safety, climbing techniques, maintenance of climbing gear, working aloft, and potential hazards. Upon completion, students should be able to safely climb and work aloft.
- TEL 104 CATV I and R: Distribution 0-2-1**  
This course provides training in the fundamentals of the CATV distribution system, including home and business installations. Emphasis is placed on plant construction, subscriber terminal installation, cabling, wiring, separation and clearance, proper grounding procedures, and safety. Upon completion, students should be able to install, test, and correct faults on the CATV distribution system, including home and business installations.
- TEL 105 Fiber Optics Splicing 1-2-2**  
This course covers splicing and maintaining aerial or buried, single mode, loose tube buffered fiber optic cable. Emphasis is placed on hands-on cleaving, fusion and mechanical splicing. Upon completion, students should be able to splice, test, and locate faults using an OTDR and an OLTS to return fibers to service.
- TEL 106 Fiber Optics Connectors 1-2-2**  
This course covers installing and maintaining fiber optic cables, connectors, and patch panels in local area networks. Emphasis is placed on installing and testing connectors including ST, SC, and SFF using anaerobic, crimp and Hotmelt, and then testing using an OLTS. Upon completion, students should be able to install and test connectors and patch cords.
- TEL 108 Comdial Key Systems 0-2-1**  
This course covers programming and maintaining Comdial 616X and 816X Key Systems. Emphasis is placed on programming new systems and moves and changes in working systems. Upon completion, students should be able to install new systems, complete the initial programming, and perform routine moves and changes.
- TEL 109 T-1 Span Line Maintenance 0-2-1**  
This course provides training in design, construction, turn-up testing, troubleshooting, and maintenance of T-1 span lines. Emphasis is placed on method of transmission, troubleshooting, testing, and repair of T-1 span lines. Upon completion, students should be able to install, test, and repair T-1 span lines.
- TEL 201 Station I and R 1-2-2**  
This course covers the fundamentals of trouble-free telephone installation from aerial and buried cable in homes and businesses. Emphasis is placed on drop-wire attachments, station protection, and wire runs, as well as methods for testing and checking stations for customer satisfaction. Upon completion, students should be able to correctly install, test, and repair telephone stations and wiring up to entry into the cable plant.
- TEL 202 Cable Splicing 1-2-2**  
This course covers the cable color-code, splicing methods, and closures used throughout the telephone industry. Emphasis is placed on cable color-code, engineering drawings, proper splicing methods, and cable closures. Upon completion, students should be able to perform the

basic functions of a cable splicer and meet telephone industry standards.

**TEL 203 Cable Fault Location 0-2-1**

This course covers identifying fault types and using test equipment to locate the faults in aerial and underground cable. Emphasis is placed on identifying fault types and correct uses of various types of test equipment to precisely locate the fault. Upon completion, students should be able to identify fault type, properly use test equipment, and locate the fault within inches.

**TEL 204 Transmission Fundamentals 2-0-2**

This course covers the basic concepts of point-to-point voice and data transmission in both inside and outside telecommunications plant facilities. Topics include test equipment, impedance matching, line characteristics, loading, impedance compensation, bridge taps, tie trunks, echo, singing point, and via net loss. Upon completion, students should be able to maintain facilities to provide fault-free voice and data transmission within the telecommunications network.

**TEL 205 Digital CO Administration 1-2-2**

This course covers data modifications in DMS-10 digital central office switches from remote or on-site locations. Emphasis is placed on normal day-to-day data modification procedures to support customer-originated service orders, including any required hardware changes. Upon completion, students should be able to successfully perform any software or hardware modifications involved in normal daily operations of the DMS-10 digital switch.

**TEL 209 ADSL Installation 0-2-1**

This course provides the hands-on skills necessary for installing and troubleshooting digital subscriber lines (DSL). Topics include DSL technology, services and operation, network wiring, cable pair specifications, computer configuration for DSL operation, and Golite technology. Upon completion, students should be able to install, test, and repair DSL services.

## TRANSPORTATION TECHNOLOGY

**C-L-SHC**

**TRN 110 Intro to Transport Tech 1-2-2**

This course covers workplace safety, hazardous materials, environmental regulations, hand tools, service information, basic concepts, vehicle systems, and common transportation industry terminology. Topics include familiarization with major vehicle systems, proper use of various hand and power tools, material safety data sheets, and personal protective equipment. Upon completion, students should be able to demonstrate appropriate safety procedures, identify and use basic shop tools, and describe government regulations regarding transportation repair facilities.

**TRN 120 Basic Transp Electricity 4-3-5**

This course covers basic electrical theory, wiring diagrams, test equipment, and diagnosis, repair and replacement of batteries, starters, and alternators. Topics include Ohm's Law, circuit construction, wiring diagrams, circuit testing, and basic troubleshooting. Upon completion, students should be able to properly use wiring diagrams, diagnose, test, and repair basic wiring, battery, starting, charging, and electrical concerns.

**TRN 120A Basic Transp Electricity 0-3-1**

*Corequisites: TRN 120*

This course provides a lab that allows students to enhance their understanding of electrical components and circuits used in the transportation industry. Topics include inspection, diagnosis, and repair of electrical components and circuits using appropriate service information for specific transportation systems. Upon completion, students should be able to diagnose and service electrical components and circuits used in transportation systems.

**TRN 130 Intro to Sustainable Transp 2-2-3**

This course provides an overview of alternative fuels and alternative fuel vehicles. Topics include composition and use of alternative fuels including compressed natural gas, biodiesel, ethanol, hydrogen, and synthetic fuels, hybrid/electric, and vehicles using alternative fuels. Upon completion, students should be able to identify alternative fuel vehicles, explain how each alternative fuel delivery system operates, and perform minor repairs.

**TRN 140 Transp Climate Control 1-2-2**

This course covers the theory of refrigeration and heating, electrical/electronic/pneumatic controls, and diagnosis and repair of climate control systems. Topics include diagnosis and repair of climate control components and systems, recovery/recycling of refrigerants, and safety and environmental regulations. Upon completion, students should be able to diagnose and repair vehicle climate control systems.

**TRN 140A Transp Climate Cont Lab 1-2-2**

*Corequisites: TRN 140*

This course provides experiences for enhancing student skills in the diagnosis and repair of transportation climate control systems. Emphasis is placed on reclaiming, recovery, recharging, leak detection, climate control components, diagnosis, air conditioning equipment, tools and safety. Upon completion, students should be able to describe the operation, diagnose, and safely service climate control systems using appropriate tools, equipment, and service information.

**TRN 145 Adv Transp Electronics 2-3-3**

*Prerequisites: TRN 120*

This course covers advanced transportation electronic systems including programmable logic controllers, on-board data networks, telematics, high voltage systems, navigation, collision avoidance systems and electronic accessories.

Topics include interpretation of wiring schematics, reprogramming PLC's, diagnosing and testing data networks and other electronic concerns. Upon completion, students should be able to reprogram PLC's, diagnose and test data networks and other electronic concerns, and work safely with high voltage systems.

**TRN 180 Basic Welding for Transp 1-4-3**

This course covers the terms and procedures for welding various metals used in the transportation industry with an emphasis on personal safety and environmental health. Topics include safety and precautionary measures, setup/operation of MIG equipment, metal identification methods, types of welds/joints, techniques, inspection methods, cutting processes and other related issues. Upon completion, students should be able to demonstrate a basic knowledge of welding operations and safety procedures according to industry standard.

**TRN 180A Basic Welding for Trans Lab 0-3-1**

*Corequisite: TRN 180*

This course provides a laboratory experience for enhancing student skills in welding and cutting procedures associated with the transportation industry. Emphasis is placed on safety and precautionary measures, setup/operation of MIG equipment, metal identification, welds/joints, techniques, inspection of welds/joints, cutting processes and other related topics. Upon completion, students should be able to demonstrate a basic knowledge of welding operations and safety procedures according to industry standards.

**VETERINARY MEDICAL TECHNOLOGY**

**C-L-SHC**

**VET 110 Animal Breeds and Husbandry 2-2-3**

This course provides a study of the individual breed characteristics and management techniques of the canine, feline, equine, bovine, porcine, ovine, caprine, and laboratory animals. Topics include physiological data, animal health management, and basic care and handling of animals. Upon completion, students should be able to identify breeds of domestic and laboratory animals, list physiological data, and outline basic care, handling, and management techniques.

**VET 114 Introduction to Veterinary Medical Technology 1-0-1**

This course introduces the standard operating procedures and responsibilities of veterinary medical technology departments, common zoonotic diseases, safety and ethical issues, and USDA/DEA/OSHA regulations/compliance. Emphasis is placed on standard operating procedures, zoonotic diseases, safety and ethical issues, and the importance of USDA/DEA/OSHA regulations and compliance. Upon completion, students should be able to perform duties assigned in veterinary medical technology, recognize potential zoonotic diseases, and establish safety protocols/regulatory compliance.

**VET 120 Veterinary Anatomy and Physiology 3-3-4**

*Local Prerequisite: Completion of one of the following: high school biology course, BIO 090, BIO 094, BIO 110, BIO 111 or by permission of the instructor*

This course covers the structure and function of the animal body with emphasis on the similarities and differences among domestic animals. Emphasis is placed on the structure and function of the major physiological systems of domestic, laboratory, and zoo animals. Upon completion, students should be able to identify relevant anatomical structure and describe basic physiological processes for the major body systems.

**VET 121 Veterinary Medical Terminology 3-0-3**

This course covers the basic medical terminology required for veterinary technicians. Topics include the pronunciation, spelling, and definition of word parts and vocabulary terms unique to the anatomy, clinical pathology, and treatment of animals. Upon completion, students should be able to demonstrate knowledge and understanding of basic medical terms as they relate to veterinary medicine.

**VET 123 Veterinary Parasitology 2-3-3**

This course covers the common internal and external parasites of companion animals, livestock, selected zoo animals, and wild animals. Emphasis is placed on laboratory diagnosis of the most common forms of the parasite through fecal, urine, skin, and blood exams. Upon completion, students should be able to identify common parasites and discuss life-cycles, treatment and prevention strategies, and public health aspects of veterinary parasitology.

**VET 125 Veterinary Diseases I 2-0-2**

This course introduces basic immunology, fundamentals of disease processes including inflammation, and common infectious diseases of animals and their prevention through immunization. Topics include fundamental disease processes, principles of medical therapy, immunologic processes, infections and zoonotic diseases of domestic animals, and prevention of disease. Upon completion, students should be able to describe basic disease and immunological processes, recognize infections and zoonotic diseases, and discuss prevention strategies.

**VET 126 Veterinary Diseases 1-3-2**

*Prerequisite: VET 125*

This course includes the study of basic disease processes, fundamentals of pathology, and other selected topics of veterinary medicine. Topics include histopathology, pathologic changes associated with common diseases of animals, necropsy procedures, specimen handling. Upon completion, students should be able to describe basic pathologic changes associated with disease, recognize histopathologic changes, and properly perform collection and submission of necropsy specimens.

**VET 131 Veterinary Laboratory Techniques 2-3-3**

*Prerequisite:* VET 123

*Corequisite:* VET 133

This course includes the fundamental study of hematology, hemostasis, and urinalysis. Emphasis is placed on basic hematology and urinalysis techniques, manual skill development, instrumentation, quality control, and applications to veterinary science. Upon completion, students should be able to perform manual and automated CBCs, hemostatic assays, and complete urinalyses and maintain laboratory equipment and quality control.

**VET 133 Veterinary Clinical Practice I 2-3-3**

*Corequisite:* VET 120

This course introduces basic practices and techniques of the veterinary clinic and biomedical research fields for dogs, cats, and laboratory animals. Topics include physical exam, husbandry, housing, sanitation, restraint and handling, administration of medications, anesthesia and euthanasia techniques, grooming, and dentistry. Upon completion, students should be able to properly restrain, medicate, examine, groom, and maintain each of the species studied.

**VET 137 Veterinary Office Practices 1-2-2**

This course is designed to teach basic administrative techniques, client communication skills, and regulations pertaining to veterinary medicine. Topics include record keeping, telephone techniques, professional liability, office procedures, state and national regulatory laws, human relations, and animal welfare. Upon completion, students should be able to demonstrate effective communication techniques, office procedures, and knowledge of regulatory laws and issues relating to animal welfare.

**VET 211 Veterinary Laboratory Techniques 2-3-3**

*Prerequisite:* VET 131

*Corequisite:* VET 213

This course covers advanced hematology, serology, immunology, and clinical chemistry. Topics include advanced hematologic, serologic, and immunologic test procedures; manual and automated clinical chemistry procedures; laboratory safety; and quality control. Upon completion, students should be able to collect, prepare, and analyze serum and plasma samples and outline quality control and safety procedures.

**VET 212 Veterinary Laboratory Techniques I 2-3-3**

*Prerequisite:* VET 211

*Corequisite:* VET 214

This course introduces the basic principles of microbiology, histology, and cytology. Emphasis is placed on collection of microbiological samples for culture and sensitivity and collection and preparation of samples for histological and cytological examination. Upon completion, students should be able to perform microbiological culture and sensitivity and evaluate cytology and histology specimens.

**VET 213 Veterinary Clinical Practice II 1-9-4**

*Prerequisite:* VET 133

This course covers basic radiography, anesthesia techniques, dentistry, sample collection and handling, surgical assistance and instrumentation, sterile techniques, and patient record keeping. Topics include basic radiography, injectable and gas anesthesia, dentistry, instrument identification and care, sterile surgical technique, specimen collection and processing, and maintenance of patient records. Upon completion, students should be able to take and process radiographs, administer and monitor anesthesia, assist in surgical procedures, collect specimens, and maintain surgical records.

**VET 214 Veterinary Clinical Practice III 1-9-4**

*Prerequisite:* VET 213

This course covers advanced anesthetic techniques, special radiographic techniques, advanced dentistry, sample collection and processing, bandaging, and emergency and critical care procedures. Topics include induction and maintenance of anesthesia, radiographic contrast studies, advanced dentistry, external coaptation, intensive care procedures, and advanced sample collection techniques. Upon completion, students should be able to demonstrate proficiency in sample collection, radiology, anesthesia, critical care and emergency procedures, and dentistry.

**VET 215 Veterinary Pharmacology 3-0-3**

*Prerequisites:* CHM 130 and CHM 130A or CHM 151

*Corequisite:* VET 213

This course introduces drugs and other substances utilized in veterinary medicine. Emphasis is placed on drug classification and methods of action, administration, effects and side effects, storing and handling of drugs, and dosage calculations. Upon completion, students should be able to properly calculate and administer medications, recognize adverse reactions, and maintain pharmaceutical inventory and administration records.

**VET 217 Large Animal Clinical Practice 2-3-3**

*Prerequisite:* VET 120

*Corequisite:* VET 213

This course covers topics relevant to the medical and surgical techniques for the common domestic large animal species. Topics include physical exam, restraint, sample collection, bandaging, emergency treatment, surgical and obstetrical procedures and instruments, herd health, and lameness topics. Upon completion, students should be able to safely perform restraint, examination, and sample collection; assist surgical, obstetrical, and emergency procedures; and discuss herd health.

**VET 237 Animal Nutrition 3-0-3**

This course covers the principles of nutrition and their application to feeding practices of domestic, farm, and companion animals. Topics include basic nutrients and nutritional needs of individual species, proximate analysis, interpretation of food and feed labels, types of animal foods, and ration formulation. Upon completion, students should

be able to select appropriate diets for animals in various stages of health and disease, analyze nutrition labels, and identify foods.

## WORK-BASED LEARNING

### **WBL 110 World of Work** **C-L-W-SHC** **1-0-1**

This course covers basic knowledge necessary for gaining and maintaining employment. Topics include job search skills, work ethic, meeting employer expectations, workplace safety, and human relations. Upon completion, students should be able to successfully make the transition from school to work.

### **WBL 111 Work-Based Learning I** **0-10-1**

*Local Prerequisite: Approval of Instructor or Department Chairperson*

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

### **WBL 112 Work-Based Learning I** **0-20-2**

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

### **WBL 112A Work-Based Learning I** **0-0-10-1**

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

### **WBL 112B Work-Based Learning I** **0-0-10-1**

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

### **WBL 115 Work-Based Learning Seminar I** **1-0-1**

*Corequisites: WBL 111 or WBL 112*

This course may accompany WBL 111 or WBL 112. Students will present their work experience and evaluate work opportunities afforded by the co-op.

### **WBL 121 Work-Based Learning II** **0-10-1**

*Local Prerequisite: Approval of Instructor or Department Chairperson*

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

### **WBL 122 Work-Based Learning II** **0-20-2**

*Local Prerequisite: Approval of Instructor or Department Chairperson*

This course provides a work-based learning experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

## WEB TECHNOLOGIES

### **WEB 110 Internet/Web Fundamentals** **C-L-SHC** **2-2-3**

This course introduces World Wide Web Consortium (W3C) standard markup language and services of the Internet. Topics include creating web pages, search engines, FTP, and other related topics. Upon completion, students should be able to deploy a hand-coded website created with mark-up language, and effectively use and understand the function of search engines.

### **WEB 140 Web Development Tools** **2-2-3**

This course provides an introduction to web development software suites. Topics include the creation of web sites and applets using web development software. Upon completion, students should be able to create entire web sites and supporting applets.

### **WEB 151 Mobile Application Dev I** **2-2-3**

This course introduces students to programming technologies, design and development related to mobile applications. Topics include accessing device capabilities, industry standards, operating systems, and programming for mobile applications using an OS Software Development Kit (SDK). Upon completion, students should be able to create basic applications for mobile devices.

### **WEB 214 Social Media** **2-2-3**

This course introduces students to social media for organizations. Topics include social media, marketing strategy, brand presence, blogging, social media analytics and technical writing. Upon completion, students should be able to utilize popular social media platforms as part of a marketing strategy, and work with social media analytics tools.

## WELDING

### C-L-SHC

#### WLD 110 Cutting Processes

1-3-2

This course introduces oxy-fuel and plasma-arc cutting systems. Topics include safety, proper equipment setup, and operation of oxy-fuel and plasma-arc cutting equipment with emphasis on straight line, curve and bevel cutting. Upon completion, students should be able to oxy-fuel and plasma-arc cut metals of varying thickness.

#### WLD 112 Basic Welding Processes

1-3-2

This course introduces basic welding and cutting. Emphasis is placed on beads applied with gases, mild steel fillers, and electrodes and the capillary action of solder. Upon completion, students should be able to set up welding and oxy-fuel equipment and perform welding, brazing, and soldering processes.

#### WLD 115 SMAW (Stick) Plate

2-9-5

This course introduces the shielded metal arc (stick) welding process. Emphasis is placed on padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, students should be able to perform SMAW fillet and groove welds on carbon plate with prescribed electrodes.

#### WLD 116 SMAW (Stick) Plate/Pipe

1-9-4

*Prerequisite: WLD 115*

This course is designed to enhance skills with the shielded metal arc (stick) welding process. Emphasis is placed on advancing manipulative skills with SMAW electrodes on varying joint geometry. Upon completion, students should be able to perform groove welds on carbon steel with prescribed electrodes in the flat, horizontal, vertical, and overhead positions.

#### WLD 117 Industrial SMAW

1-4-3

This course introduces the SMAW (stick) process for joining carbon steel components for industrial applications. Topics include padding, fillet, and groove welds in various positions with SMAW electrodes. Upon completion, student should be able to safely perform SMAW fillet and groove welds on carbon steel plate with prescribed electrodes.

#### WLD 121 GMAW (MIG) FCAW/Plate

2-6-4

This course introduces metal arc welding and flux core arc welding processes. Topics include equipment setup and fillet and groove welds with emphasis on application of GMAW and FCAW electrodes on carbon steel plate. Upon completion, students should be able to perform fillet welds on carbon steel with prescribed electrodes in the flat, horizontal, and overhead positions.

#### WLD 131 GTAW (TIG) Plate

2-6-4

This course introduces the gas tungsten arc (TIG) welding process. Topics include correct selection of tungsten, polarity, gas, and proper filler rod with emphasis placed on safety, equipment setup, and welding techniques. Upon completion, students should be able to perform GTAW fillet

and groove welds with various electrodes and filler materials.

#### WLD 141 Symbols and Specifications

2-2-3

This course introduces the basic symbols and specifications used in welding. Emphasis is placed on interpretation of lines, notes, welding symbols, and specifications. Upon completion, students should be able to read and interpret symbols and specifications commonly used in welding.

#### WLD 151 Fabrication I

2-6-4

*Local Prerequisites: WLD 110, and one of the following WLD 115 or WLD 116, or WLD 131*

This course introduces the basic principles of fabrication. Emphasis is placed on safety, measurement, layout techniques, and the use of fabrication tools and equipment. Upon completion, students should be able to perform layout activities and operate various fabrication and material handling equipment.

#### WLD 262 Inspection and Testing

2-2-3

This course introduces destructive and non-destructive testing methods. Emphasis is placed on safety, types and methods of testing, and the use of testing equipment and materials. Upon completion, students should be able to understand and/or perform a variety of destructive and non-destructive testing processes.

#### WLD 265 Automated Welding/Cutting

2-6-4

*Prerequisites: Take All: WLD 110 and WLD 121*

This course introduces automated welding equipment and processes. Topics include setup, programming, and operation of automated welding and cutting equipment. Upon completion, students should be able to set up, program, and operate automated welding and cutting equipment.