San Jacinto Community College District

Course Descriptions

- Academic and Technical Courses
- Continuing and Professional Development Courses
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An alphabetic prefix called a rubric, usually containing four characters, is used to designate the subject area of the course or department through which the course is offered.

Each course is given a four-character numeric code, called the course number. The first digit denotes the academic level or year in which college-level courses are usually taken. The number “1” indicates freshman or first-year courses; the number “2” indicates sophomore or second-year courses. When the first number is “0,” the course is College Preparatory level. The second digit represents the semester credit hour (SCH) value of the course. The third and fourth digits are for departmental sequencing and make the course number unique within the subject area of the department. Consecutive numbers are not always used; however, in general, higher numbers are used for the more advanced courses while lower numbers are used for less advanced courses.

Numbers in parentheses at the end of each course description indicate the following: first digit, semester credit hours; second digit, lecture hours per week; third digit, laboratory hours per week.
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<td>VNSG</td>
<td>Vocational Nursing</td>
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<td>WLDG</td>
<td>Non-Destructive Testing Technology</td>
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<td>WLDG</td>
<td>Welding Technology</td>
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**DEFINITIONS**

**Course Number:** A four letter rubric (subject) and four digit number: SUBJ 1234. First digit “0” indicates College Preparatory, “1” indicates freshman level; “2” indicates sophomore level. Second digit indicates number of semester hours of credit. Third and fourth digits uniquely identify the course.

**Course Title:** Descriptive title for transcript

**Description:** A short description of the course content.

**Course Prerequisites:** Courses or basic skill levels as defined by Texas Success Initiative required before enrollment.

**(SCH:LEC-LAB):** SCH = Semester credit hours of the course; LEC = Lecture contact hours per week for a 16-week course; LAB = Lab contact hours in a 16-week course.
Listed on the following pages are the course descriptions for classes available at San Jacinto Community College. The descriptions will help you choose courses which best fit your degree plan, career goals, and/or transfer requirements.

The information about each course includes the course rubric and number, title, a brief description, any prerequisites or co-requisites, the semester credit hour, and the weekly lecture and/or lab hours.

An Index to Disciplines and an Index of Course Rubrics are located on the front part of this section along with helpful definitions.

Note: Courses may not be offered online every semester.

ABDR 1303 Vehicle Design and Structural Analysis
This introduction to the collision repair industry emphasizes safety, professionalism, and vehicle structural design. Prerequisite: Reading level 4 (3:2-2)

ABDR 1307 Collision Repair Welding
This is a study of collision repair welding and cutting procedures. Prerequisite: Reading level 4 (3:2-2)

ABDR 1315 Vehicle Trim and Hardware
This is an in-depth study of vehicle trim and glass service. Prerequisite: Reading level 4 (3:2-2)

ABDR 1323 Front and Rear Wheel Alignment
This is an in-depth study of vehicle steering components including alignment, tire rotation, and balancing. Prerequisite: Reading level 4 (3:2-2)

ABDR 1349 Auto Plastic and Sheet Molding Compound Repair
This is a comprehensive course in repair of interior and exterior plastics, including the use of various types of adhesives and state-of-the-art plastic welding. (3:1-3)

ABDR 1431 Basic Refinishing
This is an introduction to current refinishing products, shop safety, and equipment used in the automotive refinishing industry. Emphasis is on surface preparation, masking techniques, and refinishing of replacement parts. Prerequisite: Reading level 4 (4:3-3)

ABDR 1441 Structural Analysis and Damage Report I
This course offers expanded training in the roughing and shaping procedures on automotive sheet metal necessary to make satisfactory body repairs. Emphasis is on the alignment of component parts such as doors, hoods, front-end assemblies, and deck lids. Prerequisite: Reading level 4 (4:3-3)

ABDR 1449 Automotive Plastic and Sheet Molding Compound Repair
This is a comprehensive course in repair of interior and exterior plastics, including the use of various types of adhesives. Prerequisite: Reading level 4 (4:3-3)

ABDR 1519 Basic Metal Repair
This course offers in-depth coverage of basic metal principles and working techniques, including proper tool usage and product application. Prerequisite: Reading level 4 (5:3-5)

ABDR 1555 Non-Structural Metal Repair
This course demonstrates sheet metal repair skills using mechanical and hydraulic equipment. Emphasis is on attachment devices used to straighten and align exterior body panels. (5:3-5)

ABDR 1558 Intermediate Refinishing
This course offers expanded training in mixing and spraying of automotive topcoats. Emphasis is on formula ingredients, reducing, thinning, and special spraying techniques. This course also introduces partial panel refinishing techniques and current industry paint removal techniques. Prerequisite: Reading level 4 (5:3-5)

ABDR 2255 Collision Repair Estimating
This is an advanced course in collision estimating and development of an accurate damage report. Prerequisite: Reading level 4 (2:2-1)

ABDR 2257 Collision Shop Management
This course covers examination of shop management functions and decision-making processes including planning, organizing, leading and staffing used in collision repair shops to ensure operational profitability. (2:2-1)

ABDR 2353 Color Analysis and Paint Matching
This is an advanced course in color theory, analysis, tinting, and advanced blending techniques for commercially acceptable paint matching. Prerequisite: Reading level 4 (3:2-2)
ABDR 2380 Cooperative Education - Autobody/Collision and Repair Technology
Career-related activities encountered in the student’s area of specialization are offered through an individualized agreement among the College, employer, and student. Under the supervision of the College and the employer, the student combines classroom learning with work experience. This course also includes a lecture component. This may be a paid or unpaid experience. Prerequisite: Reading level 4 (3:1-14)

ABDR 2502 Auto Body Mechanical and Electrical Service
This is a course in the repair, replacement, and/or service of collision damaged mechanics or electrical systems. Topics include drive train removal, reinstallation and service; cooling system service and repair; exhaust system service; and emission control systems. Additional topics include wire and connector repair, reading diagrams, and troubleshooting. Prerequisite: Reading level 4 (5:3-5)

ABDR 2549 Advanced Refinishing
This course focuses on application of multi-stage refinishing techniques and advanced skill development solving refinishing problems. Includes application of multi-stage refinishing with emphasis on formula mixing and special spraying techniques. (5:3-5)

ABDR 2551 Specialized Refinishing Techniques
This course focuses on advanced topics in specialty automotive refinishing. Emphasis is on refinishing of plastics, fiberglass, aluminum and galvanized panels, as well as custom graphics and current industry innovations. Prerequisite: Reading level 4 (5:3-5)

ACCT 2301 Principles of Financial Accounting
This course is an introduction to the fundamental concepts of financial accounting as prescribed by U.S. generally accepted accounting principles (GAAP) as applied to transactions and events that affect business organizations. Students will examine the procedures and systems to accumulate, analyze, measure, and record financial transactions. Students will use recorded financial information to prepare a balance sheet, income statement, statement of cash flows, and statement of shareholders’equity to communicate the business entity’s results of operations and financial position to users of financial information who are external to the company. Students will study the nature of assets, liabilities, and owners’equity while learning to use reported financial information for purposes of making decisions about the company. Students will be exposed to International Financial Reporting Standards (IFRS). Prerequisite: Reading level 7, Math Level 9 (3:3-1.5)

ACCT 2302 Principles of Managerial Accounting
This course is an introduction to the fundamental concepts of managerial accounting appropriate for all organizations. Students will study information from the entity’s accounting system relevant to decisions made by internal managers, as distinguished from information relevant to users who are external to the company. The emphasis is on the identification and assignment of product costs, operational budgeting and planning, cost control, and management decision making. Topics include product costing methodologies, cost behavior, operational and capital budgeting, and performance evaluation. Prerequisite: ACCT 2301 (3:3-1.5)

ACNT 1303 Introduction to Accounting I
This course focuses on analyzing, classifying, and recording business transactions in a manual and computerized environment. Emphasis is on understanding the complete accounting cycle and preparing financial statements, bank reconciliations, and payroll. (ACNT 1303 may not count for degree or certificate purposes if the student receives credit for ACCT 2301.) ACNT 1303 and 1304 will not satisfy the business administration transfer program degree accounting requirements. (3:3-0)

ACNT 1304 Introduction to Accounting II
This course focuses on accounting for merchandising, notes payable, notes receivable, valuation of receivables and equipment, and valuation of inventories in a manual and computerized environment. Prerequisite: ACNT 1303 (ACNT 1304 may not count for degree or certificate purposes if the student receives credit for ACCT 2301.) ACNT 1303 and 1304 will not satisfy the business administration transfer program degree accounting requirements. (3:3-0)

ACNT 1311 Introduction to Computerized Accounting
This course provides an introduction to utilizing the computer in maintaining accounting records, making management decisions, and processing common business applications, with primary emphasis on a general ledger package and spreadsheet applications. Typical areas covered include the general ledger, accounts payable, accounts receivable, and payroll. It is recommended that students have prior knowledge and/or experience in accounting. (3:3-0)

ACNT 1313 Computerized Accounting Application
This course makes use of the computer to develop and maintain accounting records and to process common business applications for managerial decision-making. Prerequisite: ACNT 1311 (3:3-0)

ACNT 1329 Payroll and Business Tax Accounting
This is a study of payroll procedures, taxing entities, and reporting requirements of local, state, and federal taxing authorities in a manual and computerized environment. Prerequisite: Reading level 4 (3:3-0)
ACNT 1331 Federal Income Tax: Individual
This course provides basic instruction in the tax laws as currently implemented by the Internal Revenue Services and in tax preparation for the individual and sole proprietorship. Prerequisite: Reading level 4 (3:3-0)

ACNT 2303 Intermediate Accounting I
The focus of this course is critical analysis of generally accepted accounting principles, concepts, and theory underlying the preparation of financial statements. Emphasis is on current theory and practice. Prerequisite: ACCT 2301 (3:3-0)

ACNT 2304 Intermediate Accounting II
The focus of this course is in-depth analysis of generally accepted accounting principles underlying the preparation of financial statements, including comparative analysis and statement of cash flow. Prerequisite: ACCT 2301 (3:3-0)

ACNT 2309 Cost Accounting
This course focuses on budgeting, cost analysis, and cost control systems, using traditional and contemporary costing methods and theories in decision making. It includes a detailed study of manufacturing cost accounts; reports; job order costing; process costing; and an introduction to alternative costing methods such as activity-based and just-in-time costing. Prerequisite: ACCT 2302 or equivalent (3:3-0)

ACNT 2366 Practicum-Accounting
This course offers practical general training and experiences in the workplace. The College, with the employer, develops and documents an individualized plan for the student. The plan relates the workplace training and experiences to the student, general and technical course of study. The guided external experiences may be paid or unpaid. The course may be repeated if topics and learning outcomes vary, but no more than three times for credit. Prerequisite: ACCT 2301 and 2302 or approval of department chair. (3:0-21)

AFSC 1201 Foundations of United States Air Force I
This course introduces the concept of war and the role the Air Force plays. Students will learn about the career opportunities available, benefits afforded an Air Force member, and develop productive life skills. Basic oral and written communication skills will be demonstrated. Course is on developing basic knowledge and comprehension of Air Force leadership dimensions, while gaining a big picture understanding of ROTC course, its purpose in the Air Force and its advantages for the student. (2:1-2)

AFSC 1202 Foundations of United States Air Force II
This course explores the basic verbal and written communication skills and an operational understanding of the Air Force core values. Students will learn the importance of managing diversity and the concepts and consequences of harassment. The basic concepts of Air Force leadership, as well as, the concept of effective team building will be developed. Case studies will provide a tangible context for learning the Soldier’s Creed and Warrior Ethos as they apply in the contemporary operating environment. (2:1-2)

AFSC 2201 The Evolution of USAF Air and Space Power I
This course covers key historical events and milestones in the development of air power as a primary instrument of United States national security. Students will learn core values and competencies of leaders in the United States Air Force and tenets of leadership and ethics. (2:1-2)

AFSC 2202 The Evolution of USAF Air and Space Power II
The course overviews the key terms and definitions used to describe air and space power. Students will know the milestone and historical events, leaders, and technological advancements which surround the evolution and employment of USAF air and space power. Basic verbal and written communication skills along with an operational understanding of Air Force Core Values and ethics will be demonstrated. (2:1-2)

AGRI 1131 The Agricultural Industry
This course is an overview of world agriculture, nature of the industry, resource conservation, and the American agricultural system, including production, distribution, and marketing. Prerequisite: Reading level 6 (1:1-0)

AGRI 1309 Computer in Agriculture
This course focuses on the use of computers in agricultural applications. Includes introduction to programming languages, word processing, electronic spreadsheets, and agricultural software. Prerequisite: Reading level 6 (3:3-0)

AGRI 1315 Horticulture
This course covers structure, growth and development of horticultural plants from a practical and scientific approach. Includes environment effects, basic principles of propagation, greenhouse and outdoor production, nutrition, pruning, chemical control of growth, pest control, and landscaping. Prerequisite: Reading level 6 (3:3-0)

AGRI 1319 Introductory Animal Science
This course covers scientific animal agriculture. Includes importance of livestock and meat industries; selection, reproduction, nutrition, management, and marketing of beef cattle, swine, sheep, goats, and horses. Prerequisite: Reading level 6 (3:2-2)

AGRI 1407 Agronomy
This course covers principles and practices in the development, production, and management of field crops including plant breeding, plant diseases, soils, insect control and weed control. Prerequisite: Reading level 6 (3:3-0)

AGRI 2313 Plant Protection
This course covers principles and practices of controlling and preventing economic loss caused by plant pests. Includes instruction in entomology, plant pathology, weed science, crop science, environmental toxicology, and related environmental protection measures. Prerequisite: Reading level 7 (3:2-2)
COURSE DESCRIPTIONS

AGRI 2317 Introduction to Agricultural Economics
This course covers the fundamental economic principles and their applications to the problems of the industry of agriculture. Prerequisite: Reading level 7, Writing level 7, Math level 7 (3:3-0)

AGRI 2321 Livestock Evaluation I
This course focuses on selection, evaluation, and classification of livestock and livestock products. Prerequisite: Reading level 7 (3:3-0)

AIRP 1215 Private Flight
This course is flight training to prepare the student for the completion of the Federal Aviation Administration private pilot certification process. Prerequisites: Reading level 6. Federal Aviation Regulation (FAR) Part 141, Ground School Training and aeronautical department chair approval. (AIRP 1301, AIRP 1307, and AIRP 1311) (2:1-4)

AIRP 1301 Air Navigation
Students receive instruction in visual flight navigation rules in the National Airspace System. Topics include sectional charts, flight computers, plotters, and navigation logs and publications. It qualifies as part of a program leading to Federal Aviation Administration certification. One of three Private Pilot Ground School courses. (3:3-0)

AIRP 1307 Aviation Meteorology
This course provides in-depth coverage of meteorological phenomena affecting aircraft flight. Topics include basic concepts of aviation meteorology in the study of temperature, pressure, moisture, stability, clouds, air masses, fronts, thunderstorms, icing, and fog. It also includes analysis and use of weather data for flight planning. It qualifies as part of a program leading to FAA certification, and is one of three Private Pilot Ground School courses. (3:3-0)

AIRP 1311 Flight Theory
This course provides instruction in basic flight information of the National Aerospace System. Topics include publications, regulations, aircraft systems, and performance. Qualifies as part of a program leading to Federal Aviation Administration certification and is one of three private pilot ground school courses. (3:3-0)

AIRP 1341 Advanced Air Navigation
This course helps students develop advanced airplane systems and performance skills, including radio navigation and cross-country flight planning. Includes an introduction to instrument flight operations and navigation. This course may be used as part of a program leading to Federal Aviation Administration certification. Prerequisite: AIRP 1301 or a Private Pilot Certificate (3:3-0)

AIRP 1343 Aerodynamics
This is a study of the general principles of the physical laws of flight. Topics include physical terms and the four forces of flight: lift, weight, thrust, and drag. Aircraft design, stability control, and high-speed flight characteristics are also included. Prerequisites: AIRP 1311 or Private Pilot Certificate, Math level 7 (3:3-0)

AIRP 1345 Aviation Safety
This course is a study of the fundamentals essential to the safety of flight. A survey of the aviation industry including decision-making factors, accident reporting, accident investigation, air traffic systems, and aircraft technologies. (3:3-0)

AIRP 1347 Human Factors in Aviation
This course provides instruction in flight physiology, the decision-making process, pilot health maintenance, psychological aspects of flight, human behavior as related to the aircraft flight deck, and aeronautical information of significance to flight crews. (3:3-0)

AIRP 1451 Instrument Ground School
This course is a study of basic instrument radio and navigation fundamentals used in instrument flight. Topics include a description and practical use of navigation systems and instruments, charts used for instrument flight, and Federal Aviation Administration regulations. It qualifies as part of a program leading to Federal Aviation Administration certification. Prerequisites: AIRP 1301, 1311, 1307, and 1215 or Private Pilot Certificate. (4:4-0)

AIRP 2236 Certified Flight Instructor-Airplane
This course covers flight and ground instruction required to qualify for the Federal Aviation Administration Certified Flight Instructor - Airplane certificate. Prerequisites: Commercial Pilot Certificate with Instrument Rating and aeronautical department chair approval. (2:1-4)

AIRP 2239 Commercial Flight (Commercial Pilot)
The flight instruction in this course is necessary to qualify for the Federal Aviation Administration Commercial Pilot Certificate. Instruction includes both dual and solo flight training to prepare the student to perform commercial pilot maneuvers. A total of 48 hours of instruction is provided, including 27 hours of dual flight, 11 hours of solo flight, 5 hours of flight simulator, and 5 hours of pre-flight and post-flight instruction and briefing. Prerequisite: Private Pilot Certificate (2:1-4)

AIRP 2242 Flight Instructor-Instrument Airplane
This course assists with Flight and ground instruction required to qualify for the Federal Aviation Administration Certified Flight Instructor-Instrument Airplane certificate. Prerequisites: Commercial Pilot Certificate with Instrument Rating and aeronautical department chair approval. (2:1-4)

AIRP 2243 Flight Instructor-Multiengine Airplane
The flight instruction in this course is necessary to qualify for the Federal Aviation Administration Flight Instructor-Multiengine Airplane Rating. Includes combined ground and flight instruction and analysis of flight maneuvers. Prerequisites: Commercial Pilot Certificate with Instrument and Multiengine Rating and aeronautical department approval. (2:1-4)
ANSP 2250 Instrument Flight (Instrument Pilot)
This course prepares students for completion of the Federal Aviation Administration Instrument Pilot Rating with mastery of all instrument flight procedures. Prerequisites: AIRP 1215 or a valid Private Pilot Certificate and aeronautical department chair approval. Prerequisite: Reading level 6. Prerequisite or co-requisite: FAR Part 141 ground school training (AIRP 1451) (2:1-4)

AIRP 2251 Multi-Engine Flight
This course is preparation for the multiengine class rating which will be added to a current pilot certificate. It includes explanation and demonstration of all required Federal Aviation Administration normal and emergency operations and procedures. Prerequisites: Private Pilot Certificate with Instrument Rating and aeronautical department chair approval. (2:1-4)

AIRP 2333 Advanced Meteorology
This course prepares advanced aviation students to apply knowledge of varying meteorological factors (including weather hazards to flight) to flight. It teaches techniques for minimizing weather hazards and for using aviation weather services. Prerequisites: AIRP 1307 or Private Pilot Certificate. (3:3-0)

AIRP 2337 Commercial Ground School
This is a study of advanced aviation topics that can be used for Federal Aviation Administration certification at the commercial pilot level. It includes preparation for the FAA Commercial Airplane written test. Prerequisite: AIRP 1451 (3:3-0)

AIRP 2355 Propulsion Systems
This course provides in-depth coverage of aircraft engine theory and principles of operation of various types of aircraft engines, including reciprocating, turboprop, turbojet, and turbofan. Topics include propellers, superchargers, engine accessories, control, and instrumentation. (3:3-0)

AIRP 2357 Turbine Aircraft Systems Ground School
This course provides instruction in the systems of specific turbine aircraft. Emphasis is on the "glass-cockpit," auxiliary power, aircraft systems, and the first officer's operational role. Prerequisites: AIRP 2433 and AIRP 2337 (3:3-0)

AIRP 2443 Aircraft Systems
This is a study of the general principles, operation, and application of pneumatic, hydraulic, electrical, fuel, environment, protection, and warning systems. Emphasis on subsystems and control systems. Prerequisite: AIRP 1311 or Private Pilot Certificate (4:4-0)

ANTH 2301 Introduction to Physical Anthropology
The study of human origins and bio-cultural adaptations. Topics may include primatology, genetics, human variation, forensics, health, and ethics in the discipline. Prerequisites: Reading level 7, Writing level 7 (3:3-0)

ANTH 202 Introduction to Archaeology
The study of the human past through material remains. The course includes a discussion of methods and theories relevant to archeological inquiry. Topics may include the adoption of agriculture, response to environmental change, the emergence of complex societies, and ethics in the discipline. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

ANTH 2346 General Anthropology
The study of human beings, their antecedents, related primates, and their cultural behavior and institutions. Introduces the major subfields: physical and cultural anthropology, archeology, linguistics, their applications, and ethics in the discipline. Prerequisites: Reading level 6 and Writing level 6 (3:3-0)

ANTH 2351 Cultural Anthropology
The study of human cultures. Topics may include social organization, institutions, diversity, interactions between human groups, and ethics in the discipline. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

ARCE 1421 Architectural Illustration
This course focuses on architectural illustration and rendering techniques. Emphasizes architectural structures in 3-D or pictorially either by hand or computer software. (4:3-3)

ARCE 1452 Structural Drafting
This course is a study of structural systems including concrete foundations and frames, wood framing and trusses, and structural steel framing systems, including detailing of concrete, wood, and steel to meet industry standards of the American Institute of Steel Construction and The American Concrete Institute. Prerequisites: DFTG 1305 and DFTG 1409 or department chair approval (4:3-3)

ARTC 1302 Digital Imaging I
This course teaches digital imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image acquisitions. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

ARTC 1317 Design Communication I
This is an introductory study of design development relating to graphic design terminology, tools, media, and layout and design concepts. Topics include integration of type, images, and other design elements, and developing computer skills in industry standard computer programs. Students will not receive credit for both ARTC 1317 and ARTS 2313. Prerequisite: ARTC 1325 or ARTS 2348 or concurrent enrollment with ARTC 1325 or ARTS 2348 with department chair approval (3:2-4)

ARTC 1321 Illustration
This is a study of illustration techniques in various media. Emphasis is on creative interpretation and disciplined craftsmanship for visual communication of ideas. Prerequisite: ARTC 1317 or ARTS 2313 or department chair approval (3:2-4)
ARTC 1325 Introduction to Computer Graphics
This is a survey of computer design concepts, terminology, processes, and procedures. Topics include computer graphics hardware, electronic images, electronic publishing, vector-based graphics, and interactive multimedia. Students will not receive credit for both ARTC 1325 and ARTS 2348. (3:2-4)

ARTC 1327 Typography
A study of letter forms and typographic concepts as elements of graphic communication. Emphasis is on developing a current, practical typographic knowledge based on industry standards. (3:2-4)

ARTC 1353 Computer Illustration
Students explore computer programs with applications to illustration and photo manipulation and file management for reproduction. Emphasis is on concept development in print for digital delivery. Prerequisite: ARTC 1321 or approval of department chair (3:2-4)

ARTC 2331 Illustration Concepts
This is an advanced study of different painting media utilizing both digital and traditional tools. Emphasis is on conceptualization and composition as they relate to “real world” assignments. Prerequisites: ARTC 1353 or approval of department chair (3:2-4)

ARTC 2335 Portfolio Development for Graphic Design
Students prepare a portfolio comprised of completed graphic design projects. Evaluation and demonstration of portfolio presentation methods based on the student’s specific area of study are explored. (3:2-4)

ARTC 2347 Design Communication II
This course is an advanced study of the design process and art direction. The emphasis is on form and content through the selection, creation, and integration of typographic, photographic, illustrative, and design elements. Students will not receive credit for both ARTC 2347 and ARTS 2314. Prerequisite: ARTC 1317 or ARTS 2313. (3:2-4)

ARTC 2366 Field Experience-Graphic Design, Commercial Art and Illustration
This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student. The plan relates the workplace training and experience to the student’s general and technical course of study. The guided external experiences may be paid or unpaid. May be taken for credit in conjunction with each degree or certificate earned. Prerequisites: ARTS 2314 or ARTC 2347 or approval of department chair (3:1-20)

ARTS 1301 Art Appreciation
This is a general introduction to the visual arts designed to create an appreciation of the vocabulary, media, techniques, and purposes of the creative process. Students will critically interpret and evaluate works of art within formal, cultural, and historical contexts. Prerequisite: Reading level 6 (3:3-0)

ARTS 1303 Art History I (Prehistoric to the 14th century)
This is a chronological analysis of the historical and cultural contexts of the visual arts from prehistoric times to the 14th century. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

ARTS 1304 Art History II (14th century to the present)
This is a chronological analysis of the historical and cultural contexts of the visual arts from the 14th century to the present day. Prerequisites: Reading level 7 and Writing level 7 (3:3-0)

ARTS 1311 Design I (2-dimensional)
This is an introduction to the fundamental terminology, concepts, theory, and application of two-dimensional design. (3:2-4)

ARTS 1312 Design II (3-dimensional)
This is an introduction to the fundamental terminology, concepts, theory, and application of three-dimensional design. Prerequisite: ARTS 1311 (3:2-4)

ARTS 1316 Drawing I
This is a foundation studio course exploring drawing with emphasis on descriptive, expressive and conceptual approaches. Students will learn to see and interpret a variety of subjects while using diverse materials and techniques. Course work will facilitate a dialogue in which students will engage in critical analysis and begin to develop their understanding of drawing as a discipline. (3:2-4)

ARTS 1317 Drawing II
This is a studio course exploring drawing with continued emphasis on descriptive, expressive and conceptual approaches. Students will further develop the ability to see and interpret a variety of subjects while using diverse materials and techniques. Course work will facilitate a dialogue in which students will employ critical analysis to broaden their understanding of drawing as a discipline. Prerequisite: ARTS 1316 (3:2-4)

ARTS 2311 Design III
This course covers elements and principles of art using two- and three-dimensional concepts. This in-depth study of current concerns and practices in the visual arts stresses individually directed studio work. Topics may include, but are not limited to design, drawing, painting, sculpture, ceramics, photography and design communication. Producing a transfer or job-oriented portfolio will be emphasized. Prerequisite: Department chair approval. (3:2-4)

ARTS 2312 Design IV
This course is a continuation of ARTS 2311 Design III. It includes elements and principles of art using two- and three-dimensional concepts. This in-depth study of current concerns and practices in the visual arts stresses individually directed studio work. Topics may include, but are not limited to design, drawing, painting, sculpture, ceramics, photography and design communication. Producing a transfer or job-oriented portfolio will be emphasized. Prerequisite: ARTS 2311 (3:2-4)
ARTS 2313 Design Communications I
This is an introductory study of design development relating to graphic design technology, tools, media, and layout and design concepts. Topics include integration of type, images, and other design elements, and developing computer skills in industry standard computer programs. Students will not receive credit for both ARTS 2313 and ARTC 1317. Prerequisite: ARTC 1325 or ARTS 2348 or concurrent enrollment with ARTC 1325 or ARTS 2348 with department chair approval (3:2-4)

ARTS 2314 Design Communications II
This course offers general practice in commercial art and production. Students will not receive credit for both ARTS 2314 and ARTC 2347. Prerequisite: ARTC 1317 or ARTS 2313 (3:2-4)

ARTS 2316 Painting I
This course explores the potentials of painting media, with emphasis on color and composition. (3:2-4)

ARTS 2317 Painting II
This is a continuation of painting I with emphasis on individual expression. Prerequisite: ARTS 2316 or approval of department chair (3:2-4)

ARTS 2323 Life Drawing I
Life drawing I is a studio course emphasizing structure and action of the human figure. Prerequisite: ARTS 1316 (3:2-4)

ARTS 2324 Life Drawing II
This is a further investigation of drawing the human figure with emphasis on individual expression. Prerequisite: ARTS 2323 (3:2-4)

ARTS 2326 Sculpture I
This is an exploration of various sculptural approaches in a variety of media, including additive and subtractive techniques. (3:2-4)

ARTS 2327 Sculpture II
A continuation of sculpture I, this course emphasizes individual expression. Prerequisite: ARTS 2326 or approval of department chair (3:2-4)

ARTS 2333 Printmaking I
This is an introduction to printmaking, including monoprints, relief, intaglio, and serigraphy. (3:2-4)

ARTS 2334 Printmaking II
A continuation of printmaking I, this emphasizes individual expression. Prerequisite: ARTS 2333 or approval of department chair (3:2-4)

ARTS 2341 Art Metals I
This course offers the exploration of ideas using basic techniques in jewelry and metal construction. This is a beginning course in the design of metal art focusing on the implementation of basic processes and techniques associated with jewelry and metalsmithing. (3:2-4)

ARTS 2342 Art Metals II
This course offers the exploration of ideas using expanded techniques in jewelry and metal construction. This is an intermediate course in the design of metal art focusing on the continued implementation of processes and techniques associated with jewelry and metalsmithing. Prerequisite: ARTS 2341(3:2-4)

ARTS 2346 Ceramics I
A studio course, this is an introduction to basic ceramic processes and an exploration of clay as an artistic medium, including mechanical (wheel-thrown) and hand-built techniques, and glazing and firing processes. (3:2-4)

ARTS 2347 Ceramics II
A studio course, this continuation of ARTS 2346 explores clay as an artistic medium, concentrating on combinations of mechanical and hand-built techniques. Prerequisite: ARTS 2346 (3:2-4)

ARTS 2348 Digital Art I
This studio art course explores the potential of computer hardware and software medium for their visual, conceptual, and practical uses in visual arts. Students will not receive credit for both ARTC 1325 and ARTS 2348. (3:2-4)

ARTS 2349 Digital Art II
This studio art course expands upon Digital Art I (ARTS 2348). This course stresses the use of industry standard software applications such as Adobe Photoshop. Course will emphasize both creative and technical elements of image creation, image acquisition, file formats, output devices, and color systems. Prerequisite: Reading level 6, Writing level 6 (3:2-4)

ARTS 2356 Fine Arts Photography I
This is a beginning course in the taking, developing, and printing of photographs. Students receive instruction in photographic principles and are given assignments to complete in the laboratory periods or outside class. The College furnishes darkroom facilities and a limited number of cameras. Students will not receive credit for both ARTS 2356 and COMM 1318. (3:2-4)

ARTS 2357 Fine Arts Photography II
This course offers continued development of techniques, with emphasis on content and composition of photographs, including a variety of professional and technical areas. Students will not receive credit for both ARTS 2357 and COMM 1319. Prerequisite: COMM 1318 or ARTS 2356 or approval of department chair (3:2-4)

ARTS 2366 Watercolor I
This course introduces the basic techniques and materials of transparent and opaque watercolors. (3:2-4)

ARTS 2367 Watercolor II
A continuation of watercolor I, this course places emphasis on individual expression. Prerequisite: ARTS 2366 or approval of department chair (3:2-4)
**ARTS 2389 Academic Cooperative-Art**
This course is an instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the student will set specific goals and objectives in the study of studio art and/or art history. Prerequisites: ARTS 2348 and ARTS 2349, Reading level 6, Writing level 6 (3:1-8)

**ARTV 1303 Basic Animation**
This course provides an examination of animation concepts, principles, and storyboard for basic production. It emphasizes creating movement and expression utilizing traditionally or digitally generated image sequences. Prerequisite: ART 1325 or ARTS 2348 (3:2-4)

**ARTV 1341 3-D Animation I**
This course is an intermediate level 3-D course introducing animation tools and techniques used to create movement. It emphasizes using the principles of animation. Prerequisite: ARTV 1345 or approval of department chair (3:2-4)

**ARTV 1345 3-D Modeling and Rendering**
The student will receive instruction in the techniques of three-dimensional (3-D) modeling utilizing industry standard software. This includes the creation and modification of 3-D geometric shapes, use of a variety of rendering techniques, camera, light sources, texture, and surface mapping. (3:2-4)

**ARTV 1351 Digital Video**
This is a course in producing and editing video and sound for multimedia or web productions. It emphasizes the capture, editing, and outputting of video using a desktop digital video workstation. Prerequisite: ARTC 1325 or ARTS 2348 (3:2-4)

**ARTV 2301 2-D Animation I**
This course specializes in skill development in the use of software to develop storyboards and two-dimensional animation including creating, importing, and sequencing media elements to create multimedia presentations. Emphasis will be on conceptualization, creativity, and visual aesthetics. Prerequisite: ARTV 1303 (3:2-4)

**ARTV 2341 Advanced Digital Video**
Advanced digital video consists of techniques for post-production. Emphasizes integration of special effects and animation for film, video, and the Internet. Exploration of new and emerging compression and video streaming technologies. Prerequisite: ARTV 1351 or approval of department chair (3:2-4)

**ARTV 2351 3-D Animation II**
This course is an advanced level 3-D course utilizing animation tools and techniques used to develop movement. The emphasis is on advanced animation techniques. Prerequisite: ARTV 1341 (3:2-4)

**AVIM 1301 Introduction to Aviation Management**
An introduction to small aviation business management, this course emphasizes financial marketing, human resources, and administrative and information systems essential for successful business operations. (3:3-0)

**AVIM 2331 Airline Management**
This is an examination of the organization, operation, and management of airlines. Topics include financing, aircraft selection, route feasibility studies, load factors, and marketing. (3:3-0)

**AVIM 2335 Airport Management**
This is a study of the major functions of airport management, including facilities and services, organization, human resources, maintenance, planning and zoning, operations, revenues and expenses, public relations, ecology, and safety. (3:3-0)

**AVIM 2337 Aviation Law**
This course is a study of domestic and international aviation law including the historical development of aviation law, with in-depth coverage of constitutional, criminal, civil, common, and international law as related to aviation activities. (3:3-0)

**AVIM 2339 Aviation Marketing**
This is a study of significance and functions of airline marketing, including market research, sales, advertising and promotion, traffic demand analysis, and price determination theory. (3:3-0)

**AUMT 1213 Theory of Automotive Suspension and Steering Systems**
This course is a study of automotive suspension and steering systems including the theory of wheel and tire construction and alignment angles and procedures. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (2:2-0)

**AUMT 1241 Theory of Automotive Climate Control Systems**
This course is the study of the theory of automotive climate control systems. Emphasis on the basic refrigeration cycle and system malfunctions. Includes manual and electronic climate control systems. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (2:2-0)

**AUMT 1253 Theory of Automotive Electrical Systems**
This is a course in automotive electrical systems including operational theory, testing and diagnosis of batteries, charging and starting systems, and electrical accessories. Includes use of electrical schematic diagrams and service. Prerequisites: Reading level 7, Writing level 6, Math level 6 (2:2-0)

**AUMT 1257 Theory of Automotive Brake Systems**
This course is the study of the theory and principles related to the design, operation, and servicing of automotive braking systems. Includes disc and drum-type brakes, hydraulic systems, power assist components, anti-lock brake systems, and diagnosis and reconditioning procedures. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (2:2-0)
AUMT 1271 Manufacturers Maintenance and Pre-Delivery
This course provides an overview of manufacturers specific automotive quick services and new/used vehicle preparation. Topics include vehicle inspections, preparing estimates, changing fluids and filters, proper hazardous waste disposal, minor electrical repairs and road-testing techniques using manufacturers information systems, forms, and maintenance/repair procedures. Students will learn how to inspect and evaluate vehicle systems to determine if advanced levels of repairs are needed. They also learn how to identify and operate necessary equipment and tools. (2:1-3)

AUMT 1307 Automotive Electrical Systems Lab
This course is an overview of automotive electrical systems including topics in operational theory, testing, diagnosis, and repair of, charging and starting systems, and electrical accessories. Emphasis on electrical principles, schematic diagrams, and service manuals. May be taught manufacturer specific. Co-requisite: AUMT 1253. Prerequisites: Reading level 7, Writing level 6, Math level 6 (3:1-5)

AUMT 1310 AUMT 1310 Automotive Brake Systems Lab
This course is the study of the operation and repair of drum/disc type brake systems. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems, and parking brakes. May be taught with manufacturer specific instructions. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 1257 (3:1-5)

AUMT 1316 Automotive Suspension and Steering
This course is the study of the diagnosis and repair of automotive suspension and steering systems including electronically controlled systems. Includes component repair, alignment procedures, and tire and wheel service. May be taught manufacturer specific. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 1213 (3:1-5)

AUMT 1319 Automotive Engine Repair Lab
This course is the study of the fundamentals of engine operation, diagnosis and repair. Emphasis on identification, inspection, measurements, disassembly, repair, and reassembly of the engine. May be taught manufacturer specific. Prerequisites: AUMT 2231 and 2317, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 2205 (3:1-5)

AUMT 1345 Automotive Climate Control Systems
This course is a study of the diagnosis and repair of manual/electronic climate control systems; includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 1241 (3:1-5)

AUMT 1407 Automotive Electrical Systems
This course provides an overview of automotive electrical systems including topics in operational theory, testing, diagnosis, and repair of charging and starting systems and electrical accessories. Emphasis is on electrical principles, schematic diagrams and service manuals. May be taught manufacturer specific. Prerequisites: Reading level 7, Writing level 6, Math level 6 (4:2-6)

AUMT 1410 Automotive Brake Systems Lab
This course is the study of the operation and repair of drum/disc type brake systems. Topics include brake theory, diagnosis, and repair of power, manual, anti-lock brake systems, and parking brakes. May be taught with manufacturer specific instructions. (4:2-6)

AUMT 1416 Automotive Suspension and Steering Systems
This course is the study of the diagnosis and repair of automotive suspension and steering systems including electronically controlled systems. Includes component repair, alignment procedures, and tire and wheel service. May be taught manufacturer specific. (4:2-6)

AUMT 1419 Automotive Engine Repair
This course covers the fundamentals of engine operation, diagnosis and repair. Emphasis on identification, inspection, measurements, disassembly, repair, and reassembly of the engine. May be taught manufacturer specific. Prerequisites: AUMT 2434, Reading level 7, Writing level 6, Math level 6. Prerequisite: Reading level 4 (4:2-6)

AUMT 1445 Automotive Climate Control Systems
This course is a study of the diagnosis and repair of manual/electronic climate control systems. Includes the refrigeration cycle and EPA guidelines for refrigerant handling. May be taught manufacturer specific. (4:2-6)

AUMT 2188 Internship - Automotive Technology
This is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Department Chair/Program Coordinator Approval (1:0-6)

AUMT 2205 Theory of Automotive Engine Repair
This course is the study of the fundamentals of engine operation and diagnosis including lubrication and cooling systems. Emphasis on identification of components, measurements, inspections, and repair methods. Prerequisites: AUMT 2231 and 2317, Reading level 7, Writing level 6, Math level 6 (2:2-0)

AUMT 2209 Theory of Automotive Drive Train and Axles
This course is a study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials. Emphasis on theory of transmission/transaxle and drive line components. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (2:2-0)
AUMT 2215 Theory of Engine Performance Analysis I
This course is a study of the operation and diagnosis of basic engine dynamics including the study of the ignition system, fuel delivery systems, and the use of engine performance diagnostic equipment. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (2:2-0)

AUMT 2223 Theory of Automotive Automatic Transmission and Transaxle
This course is the study of the theory of operation, hydraulic principles, and electronic circuits of modern automatic transmissions and transaxles. Discussion of diagnosing and repair techniques. Prerequisites: AUMT 2209 and 2313, Reading level 7, Writing level 6, Math level 6. (2:2-0)

AUMT 2231 Theory of Automotive Engine Performance Analysis II
This course is a study of emission systems, computerized engine performance, and advanced ignition and fuel systems, including advanced engine performance diagnostic equipment. Prerequisites: AUMT 2215, Reading level 7, Writing level 6, Math level 6 (2:2-0)

AUMT 2288 Internship - Automotive Technology
This course is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Department Chair/Program Coordinator Approval (2:0-12)

AUMT 2313 Manual Drive Train and Axles
This is a study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials with emphasis on diagnosis and repair. May be taught with manufacturer specific instructions. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 2209 (3:1-5)

AUMT 2317 Automotive Engine Performance Analysis I Lab
This course is the study of the theory, operation, diagnosis of drivability concerns, and repair of ignition, and fuel delivery systems. Includes use of current engine performance diagnostic equipment. May be taught with manufacturer specific instructions. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 2215 (3:1-5)

AUMT 2321 Automotive Electrical Diagnosis and Repair
This is a course in repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. This course may be taught with manufacturer-specific focus. Prerequisites: Reading level 7, Writing level 6, Math level 6 (3:2-4)

AUMT 2325 Automotive Automatic Transmission and Transaxles Lab
This course is a study of the operation, hydraulic circuits and electronic controls of modern automatic transmissions/transaxles. Includes diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and repair techniques. May be taught manufacturer specific. Prerequisites: AUMT 2209 and 2313, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 2223 (3:1-5)

AUMT 2334 Automotive Engine Performance Analysis II Lab
This course is the study of the diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems. Includes use of advanced engine performance diagnostic equipment. May be taught manufacturer specific. Prerequisites: AUMT 2215 and 2317, Reading level 7, Writing level 6, Math level 6. Co-requisite: AUMT 2231 (3:1-5)

AUMT 2388 Internship - Automotive Technology
This course offers experience external to the College for an advanced student in a specialized field, involving a written agreement between the educational institution and a business or industry. Monitored and supervised by a workplace employee, the student achieves objectives that are developed and documented by the College and are directly related to specific occupational outcomes. This may be a paid or unpaid experience. The course may be repeated if topics and learning outcomes vary. (3:0-15)

AUMT 2413 Manual Drivetrain and Axles
This is a study of automotive clutches, clutch operation devices, manual transmissions/transaxles, and differentials with emphasis on diagnosis and repair. May be taught with manufacturer specific instructions. (4:2-6)

AUMT 2417 Automotive Engine Performance Analysis I
This course focuses on the theory, operation, diagnosis of drivability concerns, and repair ignition, and fuel delivery systems. Includes use of current engine performance diagnostic equipment. May be taught with manufacturer specific instructions. Prerequisites: AUMT 2421, Reading level 7, Writing level 6, Math level 6 (4:2-6)

AUMT 2421 Automotive Electrical Diagnosis and Repair
This is a course in repair of automotive electrical subsystems, lighting, instrumentation, and accessories. Emphasis on accurate diagnosis and proper repair methods using various troubleshooting skills and techniques. This course may be taught with manufacturer-specific focus. (4:2-6)
AUMT 2425 Automotive Automatic Transmission and Transaxles
This is a study of the operation, hydraulic circuits and electronic controls of modern automatic transmissions/transaxles. It covers diagnosis, disassembly, and assembly procedures with emphasis on the use of special tools and repair techniques. May be taught manufacturer specific. Prerequisites: Reading level 7, Writing level 6, Math level 6 (4:2-6)

AUMT 2434 Automotive Engine Performance Analysis II
This is a course in diagnosis and repair of emission systems, computerized engine performance systems, and advanced ignition and fuel systems. Includes use of advanced engine performance diagnostic equipment. May be taught manufacturer specific. Prerequisites: AUMT 2417, Reading level 7, Writing level 6, Math level 6 (4:2-6)

BCIS 1305 Business Computer Applications
Students will study computer terminology, hardware, and software related to the business environment. The focus of this course is on business productivity software applications and professional behavior in computing, including word processing (as needed), spreadsheets, databases, presentation graphics, and business-oriented utilization of the Internet. (3:3-1)

BIOL 1106 Biology for Science Majors I (lab)
In this lab course, the fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. A student may not use both BIOL 1306 & 1106 and 1308 & 1108 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1306 (1:0-3)

BIOL 1107 Biology for Science Majors II (lab)
In this lab course, the diversity and classification of life will be studied, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. A student may not use both BIOL 1307 & 1107 and 1309 & 1109 to satisfy the core. Prerequisite: Reading level 7; co-requisite BIOL 1307 (1:0-3)

BIOL 1108 Biology for Non-Science Majors I (lab)
This lab course provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. THIS COURSE IS NOT INTENDED FOR SCIENCE MAJORS. A student may not use both BIOL 1306 & 1106 and 1308 & 1108 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1308 (1:0-3)

BIOL 1109 Biology for Non-Science Majors II (lab)
This lab course will provide a survey of biological principles with an emphasis on humans, including evolution, ecology, plant and animal diversity, and physiology. THIS COURSE IS NOT INTENDED FOR SCIENCE MAJORS. A student may not use both BIOL 1307 & 1107 and 1309 & 1109 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1309 (1:0-3)

BIOL 1111 General Botany (lab)
This is a lab course in the fundamental biological concepts relevant to animals including systematics, evolution, structure, function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny and ecology. (This course is intended for science majors.) Recommended prerequisite: MATH 1314 - Successful completion of College Algebra is recommended. Prerequisite: Reading level 7; co-requisite: BIOL 1311 (1:0-3)

BIOL 1113 General Zoology (lab)
This is a lab course in the fundamental biological concepts relevant to animals including systematics, evolution, structure, function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny and ecology. (This course is intended for science majors.) Recommended prerequisite: MATH 1314 - Successful completion of College Algebra is recommended. Prerequisite: Reading level 7; co-requisite: BIOL 1313 (1:0-3)

BIOL 1306 Biology for Science Majors I (lecture)
In this lecture course, the fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included. A student may not use both BIOL 1306 & 1106 and 1308 & 1108 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1106 (3:3-0)

BIOL 1307 Biology for Science Majors II (lecture)
In this lecture course, the diversity and classification of life will be studied, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. A student may not use both BIOL 1307 & 1107 and 1309 & 1109 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1107 (3:3-0)

BIOL 1308 Biology for Non-Science Majors I (lecture)
This lecture course provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. THIS COURSE IS NOT INTENDED FOR SCIENCE MAJORS. A student may not use both BIOL 1306 & 1106 and 1308 & 1108 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1108 (3:3-0)
BIOL 1309 Biology for Non-Science Majors
II (lecture)
This lecture course will provide a survey of biological principles with an emphasis on humans, including evolution, ecology, plant and animal diversity, and physiology. THIS COURSE IS NOT INTENDED FOR SCIENCE MAJORS. A student may not use both BIOL 1306 & 1107 and 1309 & 1109 to satisfy the core. Prerequisite: Reading level 7; co-requisite: BIOL 1109 (3:3-0)

BIOL 1311 General Botany (lecture)
This is a lecture course in the fundamental biological concepts relevant to plant physiology, life cycle, growth and development, structure and function, and cellular and molecular metabolism. The role of plants in the environment, evolution and phylogeny of major plant groups, algae, and fungi. (This course is intended for science majors.) Recommended prerequisite: MATH 1314 - Successful completion of College Algebra is recommended. Prerequisite: Reading level 7; co-requisite: BIOL 1111 (3:3-0)

BIOL 1313 General Zoology (lecture)
This is a lecture course in the fundamental biological concepts relevant to animals including systematics, evolution, structure, function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny and ecology. (This course is intended for science majors.) Recommended prerequisite: MATH 1314 - Successful completion of College Algebra is recommended. Prerequisite: Reading level 7; co-requisite: BIOL 1111 (3:3-0)

BIOL 1414 Introduction to Biotechnology
This course is an overview of classical genetics, DNA structure, the flow of genetic information, DNA replication, gene transcription, and protein translation. Principles of major molecular biology and genetic engineering techniques are covered, including restriction enzymes and their uses, major types of cloning vectors, construction of libraries, Southern and Northern blotting, hybridization, PCR, and DNA typing. The course also covers applications of these techniques in human health and welfare, medicine, agriculture and the environment. Introduction to the human genome project, gene therapy, molecular diagnostics, forensics, creation and uses of transgenic plants and animal and animal cloning and of the ethical, legal, and social issues and scientific problems associated with these technologies. Relevant practical exercises in the above areas. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:3-3)

BIOL 2101 Human Anatomy and Physiology I (lab)
This lab course is a study of the structure and function of human anatomy, including the integumentary, musculoskeletal, and neuroendocrine systems. Chemical, cellular, and tissue levels of organization are also studied. This course is primarily designed for health science majors. BIOL 1306/1106 (or BIOL 1406) is highly recommended for success in BIOL 2301/2101, but it is not required. Prerequisite: Reading level 7; co-requisite: BIOL 2301(1:0-3)

BIOL 2102 Human Anatomy and Physiology II (lab)
This lab course is a study of the structure and function of human anatomy, including the digestive, urinary, reproductive, respiratory, and circulatory systems. Basic principles of human genetics are included. This course is primarily designed for health science majors. Prerequisites: BIOL 2301/2101 (recommended to be met with a C or better), and Reading level 7; co-requisite: BIOL 2302 (1:0-3)

BIOL 2106 Environmental Biology (lab)
The lab course is designed to study human interaction and its effects upon plant and animal communities, with a focus on conservation, pollution, energy, sustainability, and other contemporary ecological problems. It includes a general study of ecological concepts, an introduction to natural resources, the study of the biotic and abiotic interrelationships and the energy transfer through food chains and food webs. This course introduces biological and chemical principles as they relate to the environment. It also introduces laboratory and field approaches to the study of the environment. A student may not receive credit for both BIOL 2306/2106 and BIOL 2406. Prerequisites: Reading level 7, BIOL 1306/1106; 1307/1107; 1310/1107; 1311/1111; or 1313/1113; co-requisite: BIOL 2306 (1:0-3)

BIOL 2116 Principles of Genetics: Heredity (lab)
This lab course is a study of the principles of molecular and classical genetics. May include population genetics and genetic engineering. Prerequisites: BIOL 1306/1106 and 1307/1107, or BIOL 1311/1111 and 1313/1113, or approval of department chair, and Reading level 7; co-requisite: BIOL 2316 (1:0-3)

BIOL 2120 Microbiology and Pathology (lab)
This lab course is a study of morphology, physiology, and taxonomy of representative groups of pathogenic and nonpathogenic microorganisms. Pure cultures of microorganisms grown on selected media are used in learning laboratory techniques. Includes a brief preview of food microbes, public health and immunology. The course emphasizes the causes, symptoms, and prevention of disease and is primarily designed for students pursuing a degree as a registered nurse. (A student may not receive credit for both BIOL 2320/2120 and BIOL 2321/2121. Prerequisites: BIOL 2301/2101 or 2302/2102 (recommended to be met with a C or better) or approval by department chair, and Reading level 7; co-requisite: BIOL 2320 (1:0-3)

BIOL 2121 Introductory Microbiology: Bacteriology (lab)
This lab course focuses on the morphology, physiology, and taxonomy of microorganisms. It also covers the relation of man to microorganisms in agriculture, industry, sanitation, and disease. (A student may not receive credit for both BIOL 2320/2120 and BIOL 2321/2121.) Prerequisites: BIOL 1306/1106 and BIOL 1307/1107, or BIOL 1311/1111 and 1313/1113, or approval of department chair, and Reading level 7; co-requisite: BIOL 2321. Some prerequisites may be waived with permission of department chair. (1:0-3)
Biol 2301 Human Anatomy and Physiology I (lecture)
This lecture course is a study of the structure and function of human anatomy, including the integumentary, musculoskeletal, and neuroendocrine systems. Chemical, cellular, and tissue levels of organization are also studied. This course is primarily designed for health science majors. BIOL 1306/1106 is highly recommended for success in BIOL 2301, but it is not required. Prerequisite: Reading level 7; co-requisite: BIOL 2101 (3:3-0)

Biol 2302 Human Anatomy and Physiology II (lecture)
This course is a study of the structure and function of human anatomy, including the digestive, urinary, reproductive, respiratory, and circulatory systems. Basic principles of human genetics are included. This course is primarily designed for health science majors. Prerequisites: BIOL 2301/2101 (recommended to be met with a C or better), and Reading level 7; co-requisite: BIOL 2102 (3:3-0)

Biol 2305 Pathophysiology
Pathophysiology is a three-credit lecture course appropriate for students preparing for a nursing career or as an elective for a biology major. This is a specialized study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems as they relate to the study of human disease. Objectives include a study of general physiological factors involved in the disease process as well as pathology affecting different human systems. Prerequisites: BIOL 2301/2101 OR BIOL 2302/2102 OR BIOL 1306/1106 AND BIOL 1307/1107 (formerly BIOL 2401 or BIOL 2402 or BIOL 1406 and BIOL 1407) (3:3-0)

Biol 2306 Environmental Biology (lecture)
The lecture course is designed to study human interaction and its effects upon plant and animal communities, with a focus on conservation, pollution, energy, sustainability, and other contemporary ecological problems. It includes a general study of ecological concepts, an introduction to natural resources, the study of the biotic and abiotic interrelationships and the energy transfer through food chains and food webs. This course introduces biological and chemical principles as they relate to the environment. It also introduces laboratory and field approaches to the study of the environment. A student may not receive credit for both BIOL 2306/2106 and BIOL 2406. Prerequisites: Reading level 7, BIOL 1306/1106; 1307/1107; 1311/1111; or 1313/1113; co-requisite: BIOL 2106 (3:3-0)

Biol 2316 Principles of Genetics (Heredity) (lecture)
This lecture course is a study of the principles of molecular and classical genetics and the function and transmission of hereditary material. May include population genetics and genetic engineering. Prerequisites: BIOL 1306/1106 and 1307/1107, or BIOL 1311/1111 and 1313/1113 or approval of department chair, and Reading level 7; co-requisite: BIOL 2116 (3:3-0)

Biol 2320 Microbiology and Pathology (lecture)
This lecture course is a study of morphology, physiology, and taxonomy of representative groups of pathogenic and nonpathogenic microorganisms. Pure cultures of microorganisms grown on selected media are used in learning laboratory techniques. Includes a brief preview of food microbes, public health and immunology. The course emphasizes the causes, symptoms, and prevention of disease and is primarily designed for students pursuing a degree as a registered nurse. (A student may not receive credit for both BIOL 2320/2120 and BIOL 2321/2121.) Prerequisites: BIOL 2301/2101 or 2302/2102 (recommended to be met with a C or better) or approval by department chair, and Reading level 7; co-requisite: BIOL 2120 (3:3-0)

Biol 2321 Introductory Microbiology (Bacteriology) (lecture)
This course focuses on the morphology, physiology, and taxonomy of microorganisms. It also covers the relation of man to microorganisms in agriculture, industry, sanitation, and disease. (A student may not receive credit for both BIOL 2320/2120 and BIOL 2321/2121.) Prerequisites: BIOL 1306/1106 and BIOL 1307/1107 or BIOL 1311/1111 and 1313/1113, CHEM 1311/1111 and 1312/1112, and sophomore standing. Reading level 7. Some prerequisites may be waived with permission of department chair. Co-requisite: BIOL 2121 (3:3-0)

Biol 2389 Academic Cooperative
This is an instructional program designed to integrate on-campus study with practical hands-on work experience in the biological sciences/life sciences. In conjunction with class seminars, the individual student will set specific goals and objectives of study of living organisms and their systems. Prerequisite: Eight hours of biology and/or environment science; Reading level 7, Writing level 7, Math level 7 (3:1-8)

Biol 2404 Introduction to Anatomy and Physiology
This course is a study of the structure and function of human anatomy, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. Content may be either integrated or specialized. Program Note: This course is designed specifically for Non-Nursing Allied Health Programs - Medical Imaging, Respiratory Care, and Surgical Technology programs. Students seeking a baccalaureate nursing degree must take BIOL 2301/2101 and BIOL 2302/2102 (formerly BIOL 2401 and 2402). Prerequisite: Reading level 7 (4:3-3)

Biom 1309 Applied Biomedical Equipment Technology
This course is an introduction to biomedical instrumentation as related to anatomy and physiology. Includes medical devices for monitoring, diagnosis, and treatment of anatomical systems. (3:2-4)
BIOM 1315 Medical Equipment Networks
This course covers the identification of basic principles of medical equipment networking including hardware, software, and connectivity issues of medical equipment in healthcare facilities. Prerequisite: BIOM 1309 (3:2-2)

BIOM 1341 Medical Circuits Troubleshooting
This course covers development of skills in troubleshooting of medical electronic circuits and utilization of test equipment. Prerequisite: BIOM 1309 (3:2-4)

BIOM 1350 Diagnostic Ultrasound Imaging Systems
This course covers diagnostic ultrasound imaging systems including basic systems troubleshooting and problem solving. Prerequisite: BIOM 1309 (3:2-4)

BIOM 1355 Medical Electronic Applications
This course covers the presentation of sensors, transducers, and supporting circuits used in medical instrumentation devices. Prerequisite: BIOM 1309 (3:2-4)

BIOM 2301 Safety in Health Care Facilities
This course is a study of codes, standards and management principles related to biomedical instrumentation emphasizing application of safety test equipment, preventive maintenance procedures, and documentation of work performed. Prerequisite: BIOM 1309 (3:3-1)

BIOM 2311 General Medical Equipment I
This course is a study in analysis of selected current paths from a larger schematic including discussion of equipment and disassembly and reassembly of equipment. Prerequisite: BIOM 1309 (3:2-4)

BIOM 2315 Physiological Instruments I
This course is the theory of operation, circuit analysis, and troubleshooting physiological instruments. Prerequisite: BIOM 1309 (3:2-4)

BIOM 2319 Fundamentals of X-Ray and Medical Imaging Systems
This course is a study in radiation theory and safety hazards, fundamental circuits, and application of X-ray systems including circuit analysis and troubleshooting. Prerequisite: BIOM 1309 (3:2-4)

BIOM 2343 General Medical Equipment II
This course covers the theory and principles of operation of a variety of basic electro-mechanical equipment with emphasis on repair and service of actual medical equipment. Prerequisite: BIOM 2311 (3:2-4)

BIOM 2389 Internship - Biomedical Technology/Technician
This course is a work-based training experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisites: BIOM 1309, 1315, 1341, 1355, and 2311. (3:0-18)

BMGT 1301 Supervision
This study of the role of the supervisor examines managerial functions as applied to leadership, counseling, motivation, and human skills. Prerequisite: Reading level 4 (3:3-0)

BMGT 1309 Information and Project Management
This course teaches the fundamentals of critical path methods for planning and controlling projects. Includes time/cost tradeoffs, resource utilization, stochastic considerations, task determination, time management, scheduling management, status reports, budget management, customer service, professional attitude, and project supervision. (3:3-0)

BMGT 1313 Principles of Purchasing
This course focuses on the purchasing process as it is related to such topics as inventory control, price determination, vendor selection, supply chain management, negotiation techniques, and ethical issues in purchasing. Prerequisite: Reading level 4 (3:3-0)

BMGT 1327 Principles of Management
This course focuses on the concepts, terminology, principles, theory, and issues relevant to management in organizations. Prerequisite: Reading level 4 (3:3-0)

BMGT 1331 Production and Operations Management
This course teaches fundamentals of the various techniques used in the practice of production and operations management, including location, design, and resource allocation. Prerequisite: Reading level 4 (3:3-0)

BMGT 1341 Business Ethics
This course offers discussion of ethical issues, the development of a moral frame of reference, and the need for an awareness of social justice in management practices and business activities. Review of ethical responsibilities and relationships between organizational departments, divisions, executive management, and the public. Prerequisite: Reading level 4 (3:3-0)

BMGT 2309 Leadership
This course explores the concepts and styles of leadership, their relation to management, and their impact on the organization. It prepares the student with leadership and communication skills necessary to motivate and identify appropriate principles of leadership in individual, group, and organizational settings. Prerequisite: Reading level 4 (3:3-0)

BMGT 2368 Practicum (or Field Experience)
This course offers practical training and experience in the workplace supported by an individualized learning plan developed and documented by the employer, College, and student. This allows the student to apply classroom theories, concepts, and skills in a workplace environment. The student must be working 20 hours per week in a paid or unpaid position. Prerequisites: Six hours of Business Management courses or approval of the program director, and Reading level 4 (3:0-21)
COURSE DESCRIPTIONS

**COURSE DESCRIPTIONS**

**BMGT 2369 BMGT 2369 Practicum - Business Administration and Management**
This course offers practical, general workplace training and experience supported by an individualized learning plan developed by the employer, college, and students. Prerequisites: Six hours of Business Management courses or approval of the program director. Reading level 4 (3:0-21)

**BUSG 1341 Small Business Financing**
This course focuses on understanding the financial structure of a small business. Topics include: business financing, budgeting, record keeping, taxation, insurance, and banking. Prerequisite: Reading level 4 (3:3-0)

**BUSG 2309 Small Business Management**
This is a course on how to start and operate, and grow a small business. Topics include facts about a small business, essential management skills, how to prepare a business plan, accounting, financial needs, staffing, marketing strategies, and legal issues. Prerequisite: Reading level 4 (3:3-0)

**BUSI 2304 Business Communications**
This is a study of the practical principles of word usage, language structure, and writing mechanics. Detailed attention is given to report writing and to the construction of letters concerned with sales, credits, collections, inquiries, adjustments, orders, recommendations, and applications for employment. Prerequisite: Reading level 4 (3:3-0)

**BUSI 1304 Business Report Writing and Correspondence**
This study of the principles of effective written and oral communication in business situations focuses on grammar, spelling, punctuation, and sentence structure. This course stresses common communication weaknesses identified in today’s business employees. (3:3-0)

**BUSI 2301 Business Law**
The course provides the student with foundational information about the U.S. legal system and dispute resolution, and their impact on business. The major content areas will include general principles of law, the relationship of business and the U.S. Constitution, state and federal legal systems, the relationship between law and ethics, contracts, sales, torts, agency law, intellectual property, and business law in the global context. Prerequisite: High school coursework in U.S. history and government, or equivalent. Prerequisite: Reading level 7 (3:3-0)

**COURSE DESCRIPTIONS**

**BUSI 1301 Business Principles**
This course provides a survey of economic systems, forms of business ownership, and considerations for running a business. Students will learn various aspects of business, management, and leadership functions; organizational considerations; and decision-making processes. Financial topics are introduced, including accounting, money and banking, and securities markets. Also included are discussions of business challenges in the legal and regulatory environment, business ethics, social responsibility, and international business. Emphasized is the dynamic role of business in everyday life. Prerequisite: Reading level 6 (3:3-0)

**CBFM 1307 Boiler Operation**
This course covers basic boiler operation with emphasis on high pressure and low pressure systems. Prerequisites: Reading level 7, Writing level 7, Math level 7 (3:3-1)

**CDEC 1303 Families, School and Community**
This course focuses on the study of the child, family, community, and schools. Includes parent education and involvement, family and community lifestyles, child abuse, and current family life issues. Course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. Requires students to participate in a minimum of 16 hours field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. (Note: Credit will not be given for both CDEC 1303 and TECA 1303.) (3:3-1)

**CDEC 1311 Educating Young Children**
This is an introduction to the education of the young child. Includes developmentally appropriate practices and programs, theoretical and historical perspectives, ethical and professional responsibilities, and current issues. Course content is aligned with state Board for Educator Certification Pedagogy and Professional Responsibilities standards. This course requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for both CDEC 1311 and TECA 1311. (3:3-1)

**CDEC 1318 Wellness of the Young Child**
This course focuses on factors impacting the well-being of young children. Includes healthy behavior, food, nutrition, fitness, and safety practices. The course focuses on local and national standards and legal implications of relevant policies and regulations. Course content is aligned with state Board of Educator Certification Pedagogy and Professional Responsibilities standards. The course requires students to participate in a minimum of 16 hours of field experience with children from infancy through age 12 in a variety of settings with varied and diverse populations. Credit will not be given for both CDEC 1318 and TECA 1318. (3:3-1)

**COURSE DESCRIPTIONS**
CDEC 1319 Child Guidance
This is an exploration of guidance strategies for promoting prosocial behaviors with individual and groups of children. Emphasis on positive guidance principles and techniques, family involvement, and cultural influences. (3:3-1)

CDEC 1321 The Infant and Toddler
This course is a study of appropriate infant and toddler programs (birth to age 3), including an overview of development, quality routines, appropriate environments, materials and activities, and teaching/guidance techniques. (3:3-0)

CDEC 1323 Observation and Assessment
This course is a study of observation skills, assessment techniques, and documentation of children’s development. (3:3-1)

CDEC 1354 Child Growth and Development
This course covers physical, emotional, social, and cognitive factors impacting growth and development of children through adolescence. Credit will not be given for both CDEC 1354 and TECA 1354. (3:3-0)

CDEC 1356 Emergent Literacy for Early Childhood
This course explores the principles, methods, and materials for teaching young children language and literacy through a play-based, integrated curriculum. (3:3-0)

CDEC 1413 Curriculum Resources for Early Childhood Programs
This course is a study of the fundamentals of developmentally appropriate curriculum design and implementation in early care and education programs for children birth through age eight. (4:3-3)

CDEC 1417 Child Development Associate Training I
This course is based on the requirements for the Child Development Associate credential (CDA). Topics include CDA overview, observation skills, and child growth and development overview. The four functional areas of study are creative, cognitive, physical, and communication. (4:3-4)

CDEC 1458 Creative Arts for Early Childhood
This course is an exploration of principles, methods, and materials for teaching music, movement, visual arts, and dramatic play through process-oriented experiences to support divergent thinking for children birth through age eight. (4:3-3)

CDEC 2315 Diverse Cultural/Multilingual Education
This course is an overview of diverse cultural and multilingual education including familial relationships, community awareness, diversity and the needs of each and every child. (3:3-0)

CDEC 2326 Administration of Programs for Children I
This course includes the application of management procedures for early child care and education programs. Includes planning, operating, supervising, and evaluating programs. Topics cover philosophy, types of programs, policies, fiscal management, regulations, staffing, evaluation, and communication. (3:3-0)

CDEC 2328 Administration of Programs for Children II
This course includes an in-depth study of the skills and techniques in managing early care and education programs, including legal, ethical issues, personnel management, team building, leadership, conflict resolution, stress management, advocacy, professionalism, fiscal analysis, planning parent education/partnerships, and technical applications in programs. (3:3-0)

CDEC 2336 Administration of Programs for Children III
This is an advanced study of the skills and techniques in managing early child care education programs. Prerequisites: Six hours of child development courses to include CDEC 2326 and CDEC 2328 or department chair approval. (3:3-0)

CDEC 2341 The School Age Child
This is a study of programs for the school age child, including an overview of development, learning environments, materials, activities, and guidance techniques. (3:3-0)

CDEC 2366 Practicum (or Field Experience) - Child Care Provider/Assistant
This course includes practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student’s general and technical course of study. The guided external experiences may be for pay or no pay. This course may be repeated if topics and learning outcomes vary. Prerequisite or co-requisite: CDEC 1319 (3:0-21)

CDEC 2407 Math and Science for Early Childhood
This course is an exploration of principles, methods, and materials for teaching children math and science concepts and process skills through discovery and play. (4:3-3)
CDEC 2422 Child Development Associate Training II
This course is a continuation of the study of the requirements for the Child Development Associate (CDA). The six functional areas of study include safe, healthy, learning environment, self, social, and guidance. (4:3-4)

CDEC 2424 Child Development Associate Training III
This course is a continuation of the requirements for the Child Development Associate (CDA). The three functional areas of study include family, program management and professionalism. (4:3-4)

CDEC 2471 The Hospitalized Child
This course focuses on children in the health care environment. The course will explore the impact of illness and injury on a child and their family. This includes the theoretical framework for how children and families adapt to stressful and life-threatening situations, and strategies health care professionals can use to foster patient-and family-centered care. This course will specifically explore the field of child life, the official documents and scope of practice, and how this field makes an immediate and positive impact on children and families in the healthcare setting. This course will be taught by a Certified Child Life Specialist. This course will satisfy the requirements outlined by the Child Life Council. Students will be required to do 3 hours of field experience per week. Co-requisite: TECA 1354 (4:3-3)

CETT 1302 Electricity Principles
This course covers principles of electricity including proper use of test equipment, A/C and D/C circuits, and component theory and operation. Prerequisites: Reading level 6, Writing level 6, Math level 6 (3:2-2)

CETT 1303 DC Circuits
This is a study of the fundamentals of direct current including Ohm’s law, Kirchhoff’s laws, and circuit analysis techniques. Emphasis is on circuit analysis of resistive networks and DC measurements. (3:2-2)

CETT 1305 AC Circuits
This is a study of the fundamentals of alternating current, including series and parallel AC circuits, phasors, capacitive and inductive networks, transformers, and resonance. Prerequisite: CETT 1303 or department chair approval (3:2-2)

CETT 1325 Digital Fundamentals
This entry level course in digital electronics covers number systems, binary mathematics, digital codes, logic gates, Boolean algebra, Karnaugh maps, and combinational logic, with an emphasis on circuit logic analysis and troubleshooting digital circuits. (3:2-2)

CETT 1329 Solid State Devices
This course is a study of diodes, transistor characteristics and other semiconductor devices, including analysis of static and dynamic characteristics, biasing techniques, and thermal considerations. (3:2-2)

CETT 1345 Microprocessor
This introductory course in microprocessor software and hardware focuses on architecture, timing sequence operation, and programming. It also reviews appropriate software diagnostic language and tools. Prerequisite: CETT 1325 or department chair approval (3:2-2)

CETT 1349 Digital Systems
This course in electronics covers digital systems. Emphasis is on application and troubleshooting digital systems using counters, registers, code converters, multiplexes, analog-to-digital-to-analog circuits, and large-scale integrated circuits. Prerequisite: CETT 1325 or department chair approval (3:2-2)

CETT 1357 Linear Integrated Circuits
This is a study of the characteristics, operations, stabilization, testing, and feedback techniques of linear integrated circuits. It focuses on computation, measurements, instrumentation, and active filtering. Prerequisite: CETT 1329 or department chair approval (3:2-2)

CETT 1409 DC-AC Circuits
This course is a study of the fundamentals of DC circuits and AC circuits operation including Ohm’s law, Kirchhoff’s laws, networks, transformers, resonance, phasors, capacitive and inductive and circuit analysis techniques. (3:2-6)

CETT 2449 Research and Project Design
This course focuses on the principles of electrical/ electronics design, encompassing schematics wiring diagrams, materials lists, operating characteristics, completion schedules, and cost estimates. (4:3-3)

CHEF 1205 Sanitation and Safety
This is a study of personal cleanliness; sanitary practices in food preparation, causes, investigation, control of illness caused by food contamination (Hazard Analysis Critical Control Points; and workplace safety standards. (2:2-0)

CHEF 1313 Food Service Operation/Systems
This course is an overview of the information needs of food and lodging properties. Emphasis is on both front, back, and material management utilizing computer systems. (3:3-0)

CHEF 1314 A La Carte Cooking
This course covers a la carte “cooking to order” concepts. Topics include menu and recipe interpretation and conversion, organization of work station, employment of appropriate cooking methods, plating, and saucing principles. Prerequisite: CHEF 1205 (3:2-4)

CHEF 1345 International Cuisine
This course covers the study of classical cooking skills associated with the preparation and service of international and ethnic cuisines. Topics include similarities between food production systems used in the United States and in other regions of the world. Pre-requisite: CHEF 1401, Co-requisite: CHEF 1205 (3:1-6)
CHEF 1401 Basic Food Preparation
This is a study of the fundamental principles of food preparation and cookery to include the Brigade System, cooking techniques, material handling, heat transfer, sanitation, safety, nutrition, and professionalism. Study will include basic skills and terminology. Co-requisite: CHEF 1205 (4:3-3)

CHEF 1402 Principles of Healthy Cuisine
This course is an introduction to the principles of planning, preparation, and presentation of nutritionally balanced meals. It covers adoption of basic cooking techniques to lower the fat caloric content. Alternative methods and ingredients will be used to achieve a healthier cooking style. Prerequisite: CHEF 1401 (4:3-3)

CHEF 1410 Garde Manger
This is a study of cold foods and garnishes, with an emphasis on design, techniques, and display of fine foods. It also emphasizes basic garde manger principles and training techniques for food service professionals. Prerequisite: CHEF 1401 or PSTR 1301 and Co-requisite: CHEF 1205 (4:2-4)

CHEF 2302 Saucier
This course focuses on instruction in the preparation of stocks, soups, classical sauces, contemporary sauces, accompaniments, and the pairing of sauces with a variety of foods. Prerequisite: CHEF 1401 (3:2-4)

CHEF 2365 Practicum (or Field Experience) - Culinary Arts/Chef Training
This course offers practical general workplace training supported by an individualized learning plan developed by the employer, the College, and student. The plan relates workplace training and experiences to the student’s general and technical course of study. The guided external experiences may be paid or not for pay. The course may be repeated for topics and learning outcomes vary. Prerequisite: Departmental Approval required: 11 completed credit hours to include CHEF 1205, CHEF 1401 and 6 additional credit hours in CHEF, PSTR, IFWA, or RSTO prior to taking CHEF 2365 Practicum. (3:0-21)

CHEM 1105 Introductory Chemistry I (lab)
This survey course is introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and non-allied health students. Prerequisites: Reading level 7, Writing level 6, and Math level 9; co-requisite: CHEM 1305 (1:0-3)

CHEM 1107 Introductory Chemistry II (lab)
This lab survey course is introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and non-allied health students. Prerequisites: CHEM 1305/1105; co-requisite: CHEM 1307 (1:0-3)

CHEM 1111 General Chemistry I (lab)
This lab course covers the fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Prerequisites: Reading level 7, Math level 9 and Math 1314 or higher; co-requisite: CHEM 1311 (1:0-3)

CHEM 1112 General Chemistry II (lab)
This second semester of the general inorganic chemistry lab covers chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. Prerequisites: CHEM 1311/1111, Reading level 7 and Math level 9; co-requisite: CHEM 1312 (1:0-3)

CHEM 1305 Introductory Chemistry I (lecture)
This lecture survey course is introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and non-allied health students. Prerequisites: Reading level 7, Writing level 6, and Math level 6; co-requisite: CHEM 1105 (3:3-0)

CHEM 1307 Introductory Chemistry II (lecture)
This lecture course is introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for non-science and non-allied health students. Prerequisites: CHEM 1305/1105; co-requisite: CHEM 1107 (3:3-0)

CHEM 1311 General Chemistry I (lecture)
This lecture course covers the fundamental principles of chemistry for majors in the sciences, health sciences, and engineering; topics include measurements, fundamental properties of matter, states of matter, chemical reactions, chemical stoichiometry, periodicity of elemental properties, atomic structure, chemical bonding, molecular structure, solutions, properties of gases, and an introduction to thermodynamics and descriptive chemistry. Prerequisites: Reading level 7, Math level 9 and Math 1314 or higher; co-requisite: CHEM 1111 (3:3-0)

CHEM 1312 General Chemistry II (lecture)
This second semester of the general inorganic chemistry lecture covers chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. Prerequisites: CHEM 1311/1111, Reading level 7 and Math level 9; co-requisite: CHEM 1112 (3:3-0)

CHEM 2123 Organic Chemistry I (lab)
This introductory organic chemistry course includes the study of covalent bonding, isomerism, nomenclature, alkyl halides, substitution and elimination reactions, free radical reactions, alkenes, alcohols, ethers and spectroscopy. Prerequisite: CHEM 1312/1112; co-requisite: 2323 (1:0-3)
CHEM 2125 Organic Chemistry II (lab)
This second semester of introductory organic chemistry lab course includes the study of alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxylic acids and their derivatives, polycyclic and heterocyclic compounds, carbohydrates, amino acids, and proteins. Prerequisite: CHEM 2323/2123; co-requisite: CHEM 2325 (1:0-3)

CHEM 2323 Organic Chemistry I (lecture)
This introductory organic chemistry lecture course includes the study of covalent bonding, isomerism, nomenclature, alkyl halides, substitution and elimination reactions, free radical reactions, alkenes, alcohols, ethers and spectroscopy. Prerequisite: CHEM 1312/1112; co-requisite: CHEM 2123 (3:3-0)

CHEM 2325 Organic Chemistry II (lecture)
This second semester of introductory organic chemistry lecture course includes the study of alkenes, alkynes, aromatic compounds, aldehydes, ketones, carboxylic acids and their derivatives, polycyclic and heterocyclic compounds, carbohydrates, amino acids, and proteins. Prerequisite: CHEM 2323/2123; co-requisite: CHEM 2125 (3:3-0)

CHEM 2389 Academic Cooperative
This is an instructional program designed to integrate on-campus study with practical hands-on work experience in the physical sciences. In conjunction with class seminars, the individual student will set specific goals and objectives in the scientific study of inanimate objects, processes of matter and energy, and associated phenomena. Prerequisites: Eight hours of chemistry; Reading level 7, Writing level 7, Math level 7 (3:1-8)

CHIN 1411 Beginning Chinese I
This course is basic Chinese language skills in listening, speaking, reading, and writing within a cultural framework. Students will acquire the vocabulary and grammatical structures necessary to communicate and comprehend at the beginner level. Prerequisite: Reading level 6 (4:3-2)

CHIN 1412 Beginning Chinese II
This course is a continued development of basic Chinese language skills in listening, speaking, reading, and writing within a cultural framework. Students acquire the vocabulary and grammatical structures necessary to communicate and comprehend at the high beginner to low intermediate level. Prerequisite: CHIN 1411 (4:3-2)

CHIN 2311 Intermediate Chinese I
This course covers a review and application skills in listening comprehension, speaking, reading and writing. It emphasizes conversation, vocabulary acquisition, reading, composition, and culture. This course is designed to give the student who has completed CHIN 1411 and CHIN 1412 increased fluency and confidence in the use of the Chinese language. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: CHIN 1412 (3:3-0)

CHIN 2312 Intermediate Chinese II
This course is a review and application of skills in listening comprehension, speaking, reading and writing, emphasizing conversation, vocabulary acquisition, reading, composition, and culture. This course is a continuation of CHIN 2311. Although no lab is scheduled, students will have access to tapes and other lab materials and will be encouraged to use these supplemental learning tools. Prerequisite: CHIN 2311 (3:3-0)

CJCR 1304 Probation and Parole
This is a survey of the structure, organization, and operation of probation and parole services. Emphasis on applicable state statutes and administrative guidelines. Prerequisite: Reading level 4 (3:3-0)

CJCR 1307 Correctional Systems and Practices
This is a study on corrections in the criminal justice system; organization of correctional systems; correctional role; institutional operations; alternatives to institutionalization; treatment and rehabilitation; current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CJCR 1307 and CRIJ 2313. (3:3-0)

CJCR 2324 Community Resources in Corrections
This course is an overview of diversionary practices and treatment programs available to offenders in a local context. Topics include selected recognized models and future trends in community treatment. Prerequisite: Reading level 4. Credit will not be given for both CJCR 2324 and CRIJ 2301. (3:3-0)

CJCR 2325 Legal Aspects of Corrections
This is a study of the operation, management, and legal issues affecting corrections. Analysis of constitutional issues involving rights of the convicted, as well as civil liability of correctional agencies and staff. Prerequisite: Reading level 4 (3:3-0)

CJLE 1327 Interviewing and Report Writing for Criminal Justice Professions
This course covers instruction and skill development in interviewing, note taking, and report writing in the criminal justice context; development of skills to conduct investigations by interviewing witnesses, victims, and suspects properly; and organization of information regarding incidents into effective written reports. Prerequisite: Reading level 4 (3:3-0)

CJLE 1333 Traffic Law and Investigation
This course covers instruction in the basic principles of traffic control, traffic law enforcement, court procedures, and traffic law. Emphasis is on the need for a professional approach in dealing with traffic law violators, and the police role in accident investigation and traffic supervision. Prerequisite: Reading level 4 (3:3-0)
COURSE DESCRIPTIONS

CJSA 1308 Criminalistics I
This course is an introduction to the field of criminalistics. Topics include the application of scientific and technical methods in the investigation of crime including location, identification, and handling of evidence for scientific analysis. Prerequisite: Reading level 4 (3:3-0)

CJSA 1322 Introduction to Criminal Justice
This course is a history and philosophy of criminal justice and ethical considerations; crime defined; its nature and impact; overview of criminal justice system; law enforcement; court system; prosecution and defense; trial process; corrections. Prerequisite: Reading level 4 (Note: credit will not be given for both CJSA 1322 and CRIJ 1301.) (3:0-21)

CJSA 1348 Ethics in Criminal Justice
This course is a study of ethical philosophies and issues pertaining to the various professions in the criminal justice system. Includes ethical issues emanating from constitutional conflict with public protection and individual rights, civil liberties, and correctional policies. Prerequisite: Reading level 4 (3:3-0)

CJSA 1351 Use of Force
This course is a study of the use of force including introduction to and statutory authority for the use of force, force options, deadly force, and related legal issues. Fulfills the Texas Commission on Law Enforcement Use of Force Intermediate Certificate requirement. This course was designed to be repeated multiple times to improve student proficiency. Prerequisite: Reading level 4 (3:3-0)

CJSA 2323 Criminalistics II
This course focuses on the theory and practice of crime scene investigation. Topics include report writing, blood and other body fluids, document examination, etchings, casts and molds, glass fractures, use of microscope, and firearms identification. Prerequisite: Reading level 4 (3:3-1)

CJSA 2364 Practicum (or Field Experience) - Criminal Justice/Safety Studies
This course offers practical, general workplace training supported by an individualized learning plan developed by the employer, College, and student. The plan relates the workplace training and experiences to the student’s general and technical course of study, and it includes a written agreement between the educational institution and a business or industry. Monitored and supervised by the instructor and a workplace employee, the student achieves objectives related to specific occupational outcomes. This may be a paid or unpaid experience. Prerequisite: 15 credit hours of criminal justice courses (9 of these credit hours must be earned at San Jacinto College), and an accumulative GPA of at least 2.0 is required. (Note: the student must receive approval to enroll from instructor at least 60 days prior to start of course.) (3:0-21)

CJSA 2388 Internship - Criminal Justice Studies
This is an intermediate or advanced type of work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Direct supervision is provided by the faculty or the work supervisor. An internship may be a paid or non-paid learning experience in the criminal justice profession. This course may be repeated if topics and learning outcomes vary. Prerequisite: department chair approval (3:0-9)

CNBT 1311 Construction Methods & Materials I
This course is a study of building materials and methods and their applications including an introduction to green materials and methods. (3:3-0)

CNBT 1442 Building Codes and Inspections
This course is a study of building codes, standards applicable to building construction, and inspection processes. (4:4-0)

CNBT 1446 Construction Estimating I
This course is a study of fundamentals of estimating materials and labor costs in construction. (4:3-3)

CNBT 2310 Commercial/Industrial Blueprint Reading
This course provides an introduction to blueprint reading for commercial/industrial construction. Topics of study will include architectural and engineering scales, blueprint symbols and abbreviations, interpreting a set of commercial/industrial construction contract documents, and correlation of elevations, sections, plans, and general notes. (3:2-4)

CNBT 2315 Construction Specifications and Contracts
This course is a study of the legal aspects of written construction documents. (3:3-0)

CNBT 2317 Green Building
This course provides a study of methods and materials used for buildings that conserve energy, water, and human resources. (3:2-2)
**CNBT 2342 Construction Management I**
This course is a study of management skills on the job site. Topics of study will include written and oral communications, leadership and motivation, problem solving, and decision making. (3:3-0)

**CNBT 2344 Construction Management II**
This course is a management course in contract documents, safety, planning, scheduling, production control, and law and labor issues. Topics of study include contracts, planning, cost, and production peripheral documents, and costs and work analysis. (3:3-0)

**CNBT 2366 Practicum-Construction Technology**
This course is a practical, general workplace training supported by an individual learning plan developed by the employer, college, and student. Direct supervision is provided by a faculty member or worker supervisor. A practicum may be a paid or unpaid learning experience. The job description for the worksite must relate to the general curriculum of the Construction Management program. Prerequisite: CNBT 2310 or department chair approval. (3:0-21)

**CNBT 2435 Computer-Aided Construction Scheduling**
This course provides a study of advanced construction scheduling utilizing computer scheduling software to perform various scheduling procedures. (4:3-3)

**CNBT 2440 Mechanical, Plumbing and Electrical Systems in Construction II**
This course is a study of the processes and methods used in design, selection of equipment, and installation of mechanical, plumbing, and electrical systems in commercial buildings. Topics of study will include heating and cooling systems, duct work, mechanical and electrical control systems, lighting requirements, and design of water supply and sanitary sewer systems including methods and materials used in buildings to conserve water, electricity, and natural gas. (4:3-2)

**COMM 1129 Newspaper Laboratory**
This course offers first-year participation on a weekly newspaper and it is required for COMM 2311 and 2315 students. Any student may register for the laboratory with consent of department chair. Course may be taken a maximum of two times for credit. Prerequisites: Reading level 6 and Writing level 6 (1:0-3)

**COMM 1136 Television Production I**
This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

**COMM 1137 Television Production II**
This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

**COMM 1138 Television Production III**
This course offers practical experience in the operation of television studio and control room equipment, including both pre- and post-production needs. Students will produce and direct news and public affairs programs and generate original video packages. (1:0-6)

**COMM 1307 Mass Communications**
This freshman course in the development of the mass media in America emphasizes newspapers, magazines, radio, and television with a brief study of the historical development of the mass media and social, economic and cultural responsibilities of the mass media. Prerequisite: Reading level 7 (3:3-0)

**COMM 1318 Beginning Photography**
This is a beginning course in the taking, developing, and printing of photographs. Students receive instruction in photographic principles and are given assignments to complete in the laboratory period or outside class. Darkroom facilities and a limited number of cameras are furnished by the College. Students will not receive credit for both ARTS 2356 and COMM 1318. (3:1-5)

**COMM 1319 Intermediate Photography**
This course offers further development of techniques with emphasis on content and composition of photographs, including experience in a variety of professional and technical areas. Students will not receive credit for both ARTS 2357 and COMM 1319. Prerequisite: COMM 1318 or ARTS 2356 or department chair approval. (3:1-5)

**COMM 2120 Practicum in Electronic Media I**
This course introduces the theory and practice of Electronic Media: radio, television, film, cable and the Internet. Includes the analysis of production and programming in these technologies. Lecture and laboratory instruction and participation. (1:2-4)

**COMM 2121 Practicum in Electronic Media II**
This course advances the theory and practice of Electronic Media: radio, television, film, cable and the Internet. Includes the analysis of production and programming in these technologies. Lecture and laboratory instruction and participation. (1:2-4)

**COMM 2129 Newspaper Laboratory**
This course offers second-year students participation on a weekly newspaper, and it may be taken a maximum of two times for credit. Prerequisites: Reading level 6 and Writing level 6 (1:0-3)

**COMM 2289 Academic Cooperative**
This is an instructional program designed to integrate on-campus study with practical hands-on work experience. In conjunction with class seminars, the individual student will set specific goals and objectives in the study of communication. (2:2-10)
COMM 2304 Introduction to Cinematic Production
This course introduces the concepts and techniques of basic single-camera production necessary to prepare for editing and presentation of short films in a computer-assisted digital video environment. (3:0)

COMM 2309 Editing I
This course covers the fundamentals of copy editing for newspapers, including copy reading, headline writing, and makeup. It includes studies in news value, story organization, clarity and writing and style, and typography as related to makeup. Prerequisites: COMM 2311 or consent of department chair. Reading level 7, Writing level 7 (3:2-3)

COMM 2311 Reporting I
This course features instruction and practice in interviewing and writing, and discussion of sources, news values, and types of news stories. Concurrent registration for a newspaper laboratory required. Prerequisites: Reading level 6, Writing level 7 (3:3-0)

COMM 2315 Reporting II
This course focuses on specialized fields of reporting, including feature writing, governmental and political reporting, courtroom reporting, radio and television, and analytical writing. The class works on special feature and analytical projects. Concurrent registration for a newspaper laboratory is required. Prerequisites: COMM 2311; Co-requisite: COMM 2129, Reading level 7, Writing level 7 (3:3-0)

COMM 2327 Principles of Advertising
This course covers the fundamentals of advertising, with special attention to advertising techniques for the mass media; copy preparation; headlines; and use of artwork and layout theories for newspaper and magazine advertising, direct mail, radio, television, outdoor, and other types of advertising. Prerequisite: Reading level 7 (3:3-0)

COMM 2339 Writing for Electronic Media
This course introduces gathering, editing, and presenting news and public service programs, documentaries, commercials, and special programs for radio, television and other forms of electronic media. Prerequisites: Reading level 6, Writing level 6 (3:3-0)

COSC 1336 Programming Fundamentals I
This course introduces the fundamental concepts of structured programming. Topics include software development methodology, data types, control structures, functions, arrays, and the mechanics of running, testing, and debugging. This course assumes computer literacy. This course is included in the Field of Study Curriculum for Computer Science. Prerequisite: Reading level 7 (3:2-2)

COSC 1337 Programming Fundamentals II
This course focuses on the object-oriented programming paradigm, emphasizing the definition and use of classes along with fundamentals of object-oriented design. The course includes basic analysis of algorithms, searching and sorting techniques, and an introduction to software engineering processes. Students will apply techniques for testing and debugging software. (This course is included in the Field of Study Curriculum for Computer Science.) (3:2-2)

COSC 2325 Computer Organization
The organization of computer systems is introduced using assembly language. Topics include basic concepts of computer architecture and organization, memory hierarchy, data types, computer arithmetic, control structures, interrupt handling, instruction sets, performance metrics, and the mechanics of testing and debugging computer systems. Embedded systems and device interfacing are introduced. This course is included in the Field of Study Curriculum for Computer Science. Algebra level competency is suggested to succeed in this class. Prerequisite: COSC 1336 and COSC 1337 or department chair approval (3:2-2)

COSC 2336 Programming Fundamentals III
This course explores further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. The topics include recursion, fundamental data structures (including stacks, queues, linked lists, hash tables, trees, and graphs), and algorithmic analysis. Prerequisite: COSC 1337 or department chair approval (3:2-2)

CPMT 1303 Introduction to Computer Technology
This fundamental computer procedures, hardware, and software. Emphasis is on terminology, acronyms, and hands-on activities. (3:2-2)

CPMT 1345 Computer Systems Maintenance
Students will develop skill in the use of test equipment and maintenance aids through examination of the functions of components within a computer system. Prerequisite: CPMT 1303, ITSC 1305 or department chair approval. (3:2-2)

CPMT 1349 Computer Networking Technology
This beginning course in computer networks focuses on networking fundamentals, terminology, hardware, software, and network architecture. It includes study of local/wide area networking concepts and networking installations and operations. Prerequisites: CPMT 1345, ITSC 1325 or department chair approval (3:2-2)

CPMT 2302 Home Technology Integration
This course covers integration and maintenance of various home technology subsystems. Includes home automation, security and surveillance, home networks, video and audio networks, and structured wiring. Prerequisites: EECT 1307 and (ITCC 1301 or ITNW 1325) or department chair approval (3:2-2)
**CPMT 2333 Computer Integration**
This is an advanced course in integration of hardware, software, and applications. A key focus is customization of computer systems for specific applications in engineering, multimedia, or data acquisition. Prerequisite: CPMT 1345, ITSC 1325 or department chair approval (3:2-2)

**CPMT 2345 Computer System Troubleshooting**
This course focuses on principles and practices involved in computer system troubleshooting techniques and repair procedures, including advanced diagnostic test programs and the use of specialized test equipment. Prerequisites: CPMT 1345, ITSC 1325 or department chair approval. (3:2-2)

**CPMT 2349 Advanced Computer Networking**
This is an in-depth study of network technology, with emphasis on network operating systems, network connectivity, hardware, and software. It helps students gain mastery of implementation, troubleshooting, and maintenance of LAN and/or WAN network environments. Prerequisite: CPMT 1349 or ITCC 1404 (3:2-2)

**CRIJ 1301 Introduction to Criminal Justice**
This course covers the history and philosophy of criminal justice and legal considerations; crime defined, its nature and impact, overview of criminal justice system; law enforcement; court system; prosecution and defense; trial process; and corrections. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1301 and CJSA 1322. (3:3-0)

**CRIJ 1306 Court Systems and Practices**
This course includes examination of the role of the judiciary in the criminal justice system. Topics include the structure of the American court system, prosecution, right to counsel, pretrial release, grand jury process, adjudication process, types and rules of evidence, and sentencing concepts. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1306 and CJSA 1313. (3:3-0)

**CRIJ 1307 Crime in America**
This course covers the study of crime problems in historical perspective, social and public policy factors affecting crime, impact and crime trends, social characteristics of specific crimes, and crime prevention. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1307 and CJSA 1312. (3:3-0)

**CRIJ 1310 Fundamentals of Criminal Law**
This course is a study of the nature of criminal law. Topics include philosophical and historical development; major definitions and concepts; classification of crime; elements of crimes and penalties and individual criminal responsibilities. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1310 and CJSA 1327. (3:3-0)

**CRIJ 1313 Juvenile Justice System**
This course is a study of the juvenile justice process. Topics include specialized juvenile law, role of the juvenile courts, role of police agencies, role of correctional agencies, and theories concerning delinquency. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 1313 and CJSA 1317. (3:3-0)

**CRIJ 2301 Community Resources in Corrections**
This is an overview of diversionary practices and treatment programs available to offenders in a local context. Topics include selected recognized models and future trends in community treatment. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2301 and CJCR 2324. (3:3-0)

**CRIJ 2313 Correctional Systems and Practices**
This course covers corrections in the criminal justice system; organization of correctional systems; correctional role; institutional operations; alternatives to institutionalization; treatment and rehabilitation; current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2313 and CJCR 1307. (3:3-0)

**CRIJ 2314 Criminal Investigation**
This is a study of investigative theory, the collection and preservation of evidence, sources of information, concepts of interviewing and interrogation, the use of forensic sciences; and trial preparation. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2314 and CJSA 1342. (3:3-0)

**CRIJ 2323 Legal Aspects of Law Enforcement**
This is a study of police authority; responsibilities; constitutional constraints; laws of arrest; search and seizure; police civil liability. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2323 and CJSA 2300. (3:3-0)

**CRIJ 2328 Police Systems and Practices**
This course covers exploration of the profession of police officer. Topics include: organization of law enforcement systems; the police role; police discretion; ethics; police community interaction; and current and future issues. Prerequisite: Reading level 4. Credit will not be given for both CRIJ 2328 and CJSA 1359. (3:3-0)

**CSME 1248 Principles of Skin Care**
This is an introduction of the theory and practice of skin care and nail enhancements. Prerequisites: Reading level 4 and courses taken in sequence order or department chair approval. 80 contact hours per semester. (2:1-4)

**CSME 1302 Applications of Facial and Skin Care Technology I**
This course is an introduction to the applications of facial and skin care technology. Includes identifying and utilizing professional skin care products. Prerequisite: Reading level 4. Co-requisites: CSME 1421 and 1520, or department chair approval. 80 contact hours per semester. (3:2-3)

**CSME 1310 Introduction to Haircutting and Related Theory**
Introduction to the theory and practice of hair cutting. Topics include terminology, implements, sectioning, and finishing techniques. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-6)
CSME 1330 Orientation to Nail Technology
This course is an overview of the fundamental skills and knowledge necessary for the field of nail technology. Topics include professional ethics, safety, sanitation, sterilization, basic manicuring, arm and hand massage, pedicuring and the laws and rules of the state licensing agency. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 144 contact hours per semester (3:1-8)

CSME 1354 Artistry of Hair Design I
This course is an introduction to hair design. Topics include the theory and applications of wet styling, braiding, thermal hair styling, finishing techniques, and client communication skills. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-6)

CSME 1355 Artistry of Hair Design II
This is a continuation of the study of hair design. Topics include additional theory and applications of current trends in hair design. Additional topics include salon operations and wigology. Prerequisite: Reading level 4 and courses taken in level sequence order or department chair approval (Students may not receive credit for CSME 1355 if they have previously earned credit for COSM 1232, COSM 1332 or CSME 1251.)-112 contact hours per semester (3:1-6)

CSME 1376 Principles of Eyelash Extensions
This course provides the student with the practical skills necessary to safely and effectively apply eyelash extensions. Prerequisites: Reading level 4, Co-requisite: CSME 1421 or department chair approval. 80 contact hours per semester (3:1-4)

CSME 1421 Principles of Facial and Skin Care Technology I
This is an introduction to the principles of facial and skin care technology. Topics include anatomy, physiology, theory, and related skills of facial and skin care technology. Prerequisite: Reading level 4, Co-requisites CSME 1520, CSME 1302 and courses taken in level sequence order or department chair approval. 128 contact hours per semester. (4:2-6)

CSME 1435 Orientation to the Instruction of Cosmetology
This course is an overview of skills and knowledge required for the instruction of cosmetology students, including methods and techniques of teaching skills, orientation, the theory of teaching basic unit planning and daily skill lesson plan development. Prerequisites: Reading level 6, Writing level 6, Math level 4. Co-requisite: CSME 1534, and valid Texas Department of Licensing and Regulations License, high school diploma or GED or department chair approval. 112 contact hours per semester. (4:2-5)

CSME 1457 Applications of Hair-Weaving and Braiding
This course emphasizes the application of hair weaving and braiding techniques and preparation for the State Licensing Agency examination. Prerequisite: Reading level 4. Co-requisite: CSME 1552. 144 contact hours (4:2-7)

CSME 1477 Application of Eyelash Extensions
This course provides the student with the skills necessary to perform client services using current techniques and business practices. Prerequisites: Reading level 4, Co-requisite: CSME 1376 and 1575 or department chair approval. 96 contact hours per semester (4:2-4)

CSME 1501 Orientation to Cosmetology
This course is an overview of the skills and knowledge necessary for the field of cosmetology. Topics include the theory and/or skills related to braiding, manicuring, pedicuring, anatomy, physiology, electricity, light therapy, bacteriology, contamination, infection control and laws and rules of the state licensing agency. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

CSME 1505 Fundamentals of Cosmetology
This is a course in the basic fundamentals of cosmetology for high school and dual credit students. Topics include service preparation, manicure, facial, chemical services, shampoo, haircut, wet styling, and comb out and laws and rules of the state licensing agency. The course will identify fundamental concepts related to skills required by the Texas Department of Licensing and Regulation. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (5:3-4)

CSME 1520 Orientation to Facial Specialist
This is an overview of the skills and knowledge necessary for the field of facials and skin care. Prerequisite: Reading level 4, Co-requisite: CSME 1421, CSME 1302 or department chair approval. 176 contact hours per semester. (5:3-8)

CSME 1531 Principles of Nail Technology I
This is a course in the principles of nail technology. Topics include anatomy, physiology, theory, and related skills of nail technology. Emphasis will be directed toward major structures and functions of the bones, muscles and nerves of the hands, arms, feet and lower leg. Other topics include the practice of manicuring, pedicuring, and nail enhancement sanitation and safety measures. Prerequisite: Reading level 4. 176 contact hours per semester. (5:3-8)

CSME 1534 Cosmetology Instructor I
This course covers the fundamentals of instructing cosmetology students, including methods of teaching skills in a lab situation. Prerequisites: Reading level 6, Writing level 6, Math level 4. Co-requisite: CSME 1435 or department chair approval. A valid Texas Department of Licensing and Regulation license and high school diploma or GED. 144 contact hours per semester. (5:3-6)
CSME 1541 Principles of Nail Technology II
This course is a continuation of the concepts and principles of nail technology. Topics include professional ethics, salon management, client relations and related skills of nail technology. Emphasis will be directed toward application of artificial nails, including equipment, implements and supplies for application of cosmetic fingernails. Other topics include sanitation, safety measures, hazardous chemicals and MSDS information data. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

CSME 1545 Principles of Facial and Skin Care Technology II
This course is a continuation of the concepts and principles in skin care and other related technologies. Topics include advanced instruction in anatomy, physiology, theory, and related skills of facial and skin care technology. Prerequisite: Reading level 4. Co-requisites: CSME 1520, CSME 1421, CSME 1302, CSME 2431 and CSME 2333 or department chair approval. 176 contact hours per semester. (5:3-8)

CSME 1552 Orientation to Hair-Weaving and Braiding
This course is an overview of the skills and knowledge necessary for the field of hair weaving and braiding. (Students may not receive credit for CSME 1552 if they have previously earned credit for CSME 1471 or CSME 1472.) Prerequisite: Reading level 4. Co-requisite: CSME 1457. 160 contact hours per semester. (5:3-7)

CSME 1553 Chemical Reformation and Related Theory
Presentation of the theory and practice of chemical reformation including terminology, application and workplace competencies. Emphasis on history, chemistry, hair structure, chemical texturizing techniques, service preparation, brush and scalp techniques/analysis, shampooing and conditioning. Prerequisites and co-requisites: Reading level 4, courses taken in level sequence order or department chair approval. (Students may not receive credit for CSME 2333 if they have previously earned credit for CSME 1372 or CSME 1272.) 176 contact hours per semester. (5:3-8)

CSME 1575 Orientation to Eyelash Extensions
This course is an overview of the skills and knowledge necessary for the field of eyelash extensions. Topics include the basic knowledge of chemistry, eyelash growth cycles, proper selection and application, supplies and equipment of the industry, safety, sanitation, laws and rules of the state licensing agency as they relate to eyelash extensions. Prerequisites: Reading level 4, Co-requisites: CSME 1376 and 1477 or department chair approval. 144 contact hours per semester (5:3-6)

CSME 2245 Preparation for the State Licensing Practical Examination
This course is the preparation for the state licensing practical examination and continued focus on client services. To obtain course credit conversion, students must pass this course with a grade of “C” or better or repeat the course. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 80 contact hours per semester. (2:1-4)

CSME 2310 Advanced Haircutting and Related Theory
This course focuses on advanced concepts and practice of haircutting. Topics include haircuts utilizing scissors, razors, and/or clippers. Emphasis will be directed towards men’s haircutting techniques, women’s haircutting techniques, and client services in the salon. Prerequisites: Reading level 4, CSME 1310 and courses taken in level sequence order or department chair approval. 112 contact hours per semester. (3:1-6)

CSME 2333 Application of Facial and Skin Care Technology II
This course is a continuation of the Application of Facial and Skin Care Technology I. Emphasis will be on the preparation for the state licensing Facial Specialty Exam. Prerequisite: Reading level 4. Co-requisites: CSME 1520, CSME 1421, CSME 1302, CSME 1545, and CSME 2431 or department chair approval. (Students may not receive credit for CSME 2333 if they have previously earned credit for CSME 1372 or CSME 1272.) 80 contact hours per semester. (3:2-3)

CSME 2337 Advanced Cosmetology Techniques
This course covers the mastery of advanced cosmetology techniques including hair designs, professional cosmetology services, and workplace competencies. Prerequisite: Reading level 4 and department chair approval. 80 contact hours per semester. (3:1-4)

CSME 2343 Salon Development
This course offers procedures necessary for salon development. Topics include professional ethics, goal setting, salon operation, record keeping and the creation of an employment portfolio. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 96 contact hours per semester. (3:1-5)

CSME 2344 Preparation for the State Licensing Written Examination
This course is the preparation for the state licensing written examination. The emphasis will be directed towards the preparation for the state written exam, the refinement of professional skills to serve clients and the development of business practices for successful entry into the industry. To obtain course credit conversion, students must pass this course with a grade of “C” or better or repeat the course. Prerequisite: Reading level 4 and courses taken in level sequence order or department chair approval. 96 contact hours per semester. (3:2-4)
CSME 2414 Cosmetology Instructor II
This course is a continuation of the fundamentals of instructing cosmetology students. Introduces students to methods and techniques of teaching informational theory relative to cosmetology. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2515 or department chair approval. 112 contact hours per semester. (4:2-5)

CSME 2430 Nail Enhancement
This is a course in the theory, application, and related technology of artificial nails. Emphasis will be directed toward applications of nail extensions, to include sculpture nails, tips, wraps, fiberglass, gels, odorless products and nail art. Simulated work experience provide the opportunity for the students to enhance and further develop learned skills, safety measures, human relations, employment related skills, salesmanship and public relations. 112 contact hours per semester. Prerequisite: Reading level 4 (4:3-4)

CSME 2431 Principles of Facial and Skin Care Technology III
This course focuses on advanced concepts and principles of skin care and other related technologies. Prerequisites: Reading level 4, CSME 1520, CSME 1421, and CSME 1302. Co-requisites: CSME 1545, CSME 2333 or department chair approval. 128 contact hours per semester. (4:2-6)

CSME 2445 Instructional Theory and Clinic Operation
This course is an overview of the objectives required by the Texas Department of Licensing and Regulation Instructor Examination. It provides employment-seeking skills and instructs students in the preparation of resumes and interviewing techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2544 or department chair approval. 112 contact hours per semester. (4:2-5)

CSME 2501 Principles of Hair Coloring and Related Theory
This course is a presentation of the theory, practice and chemistry of hair color. Topics include terminology, application, and workplace competencies related to hair color and chemistry. Emphasis will be directed toward hair-lightening and temporary, semi-permanent hair coloring using current applications, formulations, and mixing techniques. Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:3-8)

CSME 2515 Cosmetology Instructor III
This course covers lesson plan assignments and evaluation techniques, including assessing cosmetology student techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2414 or department chair approval. 144 contact hours per semester. (5:3-6)

CSME 2539 Advanced Hair Design
This course promotes advanced concepts in the theory and practice of hair design. Topics include the mastery of advanced cosmetology techniques, professional cosmetology services, and workplace competencies. Emphasis will be directed toward client services in a simulated salon. (Students may not receive credit for CSME 2539 if they have previously earned credit in CSME 2539) Prerequisites: Reading level 4 and courses taken in level sequence order or department chair approval. 176 contact hours per semester. (5:2-9)

CSME 2544 Cosmetology Instructor IV
This course focuses on advanced concepts of instruction in a Cosmetology program. Topics include demonstration, development and implementation of advanced evaluation and assessment techniques. Prerequisites: Reading level 6, Writing level 6, Math level 4, CSME 1435 and 1534. Co-requisite: CSME 2445 or department chair approval. 144 contact hours per semester. (5:3-6)

CTEC 2487 Internship - Chemical Technology/Technician
This course is a work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. A learning plan is developed by the college and the employer. Prerequisites: Reading level 7, Writing level 7, Math level 7 (4:0-24)

CTMT 2336 Computed Tomography Equipment and Methodology
This is a study of the actual operation and operational control of computed tomographic equipment, this course focuses on routine protocols, image quality, and quality control of computed tomography. Theory and application of computed tomographic equipment and the principles of patient imaging techniques utilizing the equipment are covered. Prerequisite: ARRT certified or registry eligible. (3:3-0)

CTMT 2360 Clinical 1 - Computed Tomography Technology/Technician
This is an advanced type of health professions work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Close and/or direct supervision is provided by the clinical professional in a clinical setting. Prerequisite: ARRT certified with Instructor approval, and Prerequisite or Co-requisite: CTMT 2336 (3:0-12)

CTMT 2361 Clinical 2 - Computed Tomography Technology/Technician
This is an advanced type of health professions work-based instruction that helps students synthesize new knowledge, apply previous knowledge, or gain experience managing the workflow. Practical experience is simultaneously related to theory. Close and/or direct supervision is provided by the clinical professional in clinical setting. Prerequisite: ARRT certified with Instructor approval, and Prerequisite or Co-requisite: CTMT 2336 (3:0-12)