

# North Central Texas College Course Catalog

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## **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) and 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).

Upon completion, students will be able to:

- Use basic accounting terminology and the assumptions, principles, and constraints of the accounting environment
- Identify the difference between accrual and cash basis accounting
- Analyze and record business events in accordance with U.S. generally accepted accounting principles (GAAP)
- Prepare adjusting entries and close the general ledger
- Prepare financial statements in an appropriate U.S. GAAP format, including the following: income statement, balance sheet, statement of cash flows, and statement of shareholders' equity
- Analyze and interpret financial statements using financial analysis techniques
- Describe the conceptual differences between International Financial Reporting Standards and U.S. generally accepted accounting principles

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **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.

Upon completion, students will be able to:

- Identify the role and scope of financial and managerial accounting and the use of accounting information in the decision making process of managers
- Define operational and capital budgeting, and explain its role in planning, control, and decision making
- Prepare an operating budget, identify its major components, and explain the interrelationships among its various components
- Explain methods of performance evaluation
- Use appropriate financial information to make operational decisions
- Demonstrate use of accounting data in the areas of product costing, cost behavior, cost control, and operational and capital budgeting for management decisions

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [ACCT 2301](#) - PRINCIPLES OF FINANCIAL ACCOUNTING
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## **ACNT 1303 - INTRODUCTION TO ACCOUNTING I**

A study of analyzing, classifying, and recording business transactions in a manual and computerized environment. Emphasis on understanding the complete accounting cycle and preparing financial statements, bank reconciliations and payroll. Lab fees apply

Upon completion, students will be able to:

- Define accounting terminology
- Analyze and record business transactions in a manual and computerized environment
- Complete the accounting cycle
- Prepare financial statements
- Apply accounting concepts related to cash and payroll
- Prepare bank reconciliations
- Correct accounting errors

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ACNT 1311 - INTRODUCTION TO COMPUTERIZED ACCOUNTING**

Introduction to utilizing the computer in maintaining accounting records with primary emphasis on a general ledger package. Lab fees apply

Upon completion, students will be able to:

- Utilize an application software to perform accounting tasks
- Maintain records
- Prepare reports
- Analyze reports for a business entity
- Complete a comprehensive project
- Explain the components of general ledger software

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 2331 - ADVANCED LANDSCAPE DESIGN**

In-depth coverage of advanced practices in landscape planning for commercial and residential landscapes. Topics include advanced design analysis, architectural elements, space articulation, and land engineering concepts. Lab fees apply

Upon completion, students will be able to:

- Design landscape plans including construction and planting details and specifications
- Produce a graphic drawing of a landscape

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSC 2325 - ADVANCED LINUX**

Provides instruction in advance open-source Linux operating system. Develops directory services for clients, support users remotely, and install and configure network services. Lab fees apply

Upon completion, students will be able to:

- Install, administer, and manage advanced network environment using a Linux system
- Demonstrate advanced skills and proficiency with Linux utilities and configurations
- Deploy secure networks

- Integrate Linux networks with existing networks

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSC 1316](#) - LINUX INSTALLATION AND CONFIGURATION
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## **AGAH 1291 - SPECIAL TOPICS IN ANIMAL SCIENCES, GENERAL**

Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Lab fees apply Learning outcomes and objectives are determined by local occupational need and business and industry trends.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **AGAH 1372 - AGRICULTURAL SPANISH**

This is an industry specific Spanish course designed for agricultural students. The scope of this course will include the English to Spanish translation for terminology and phrases associated with production agriculture. The primary goal of this course is to provide students some basic communication skills so that they will be able to interact with Spanish speaking employees in different work environments and under different situations within their specific agricultural fields. Lab fees apply NOTE: This is not a University Transfer course. This course does not fulfill any core curriculum requirements at NCTC.

Upon completion, students will be able to:

- Demonstrate proficiency in Spanish terminology that may be needed in a farm or ranch workplace safety or emergency situation
- Demonstrate recollection and pronunciation of common colors, numbers, mathematical units, weights and measures
- Demonstrate ability to provide mock employees work details in Spanish related to farm, ranch and equine workplace situations
- Demonstrate the ability to discuss wages and employment terms with farm and ranch employees

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGAH 1443 - ANIMAL HEALTH**

An overview of anatomy and physiology as it relates to animal health. Topics include disease symptoms, basic immunology, diagnosis, prevention, and control of infectious and non-infectious diseases of animals. Lab fees apply

Upon completion, students will be able to:

- Summarize the importance of livestock diseases and animal health
- Diagnose symptoms and identify causes of various animal diseases
- Implement preventative and treatment methods for various animal diseases

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGAH 1453 - BEEF CATTLE PRODUCTION**

An overview of the beef cattle industry. Topics include the organization and operation of beef cattle enterprises, selection breeding, reproduction, health, nutrition, management, and marketing. Lab fees apply

Upon completion, students will be able to:

- Summarize the importance of the beef cattle industry and its role in food production
- Identify beef cattle breeds, classes, and products
- Implement managerial practices designed to increase the efficiency of beef cattle production

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGAH 2270 - ARTIFICIAL INSEMINATION**

A course to train persons to inseminate cattle. In addition to spending many hours learning the inseminating technique, various management practices to insure a successful overall program will be presented. These subjects include handling of frozen semen and equipment, reproductive problems and diseases, heat detection, cycle control, nutrition and methods of bull evaluation for maximum genetics and conformation progress. Lab fees apply

Upon completion, students will be able to:

- Discover the value of artificial insemination in livestock breeding and reproduction
- Examine the anatomy and physiology of reproduction
- Identify the importance of nutrition to reproduction
- Identify reproductive problems and diseases
- Show the economic advantages of artificial insemination
- Handle frozen semen and equipment
- Use artificial insemination to improve the quality of beef and dairy herds
- Discover methods of bull evaluation for maximum genetics and conformation progress
- Utilize technology in agriculture using the Ag Network Satellite program

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **AGAH 2271 - CATTLE REPRODUCTION**

This is a training course in the reproductive management and artificial insemination of cattle. Students will become familiar with and learn the anatomy of the cow reproductive tract. This course is designed to acquaint students with the techniques of artificial insemination and pregnancy diagnosis in the cow, and to familiarize students with the collection, evaluation, processing, and handling of semen. The class will also participate in a mock embryo transfer in order to acquaint students with estrus synchronization, drug protocols, and the mechanics of uterine flushing. Lab fees apply

Upon completion, students will be able to:

- Demonstrate knowledge of animal physiology and management considerations for an artificial insemination and/or rectal palpation
- Describe changes in the uterus and uterine horns in relation to the different stages of pregnancy
- Demonstrate basic skills required to successfully perform artificial insemination in cattle and/or demonstrate basic skills in using rectal palpation method of determining cattle pregnancy
- Demonstrate proper semen handling technique from the storage tank up to being placed in the cow

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **AGAH 2313 - PRINCIPLES OF FEEDS & FEEDING**

Study of the role and application of feed nutrients and additives. Topics include comparative aspects of digestion, absorption, and metabolism of nutrients. Emphasis on identification of nutrient requirements and formulation of dietary feeding regimen. Lab fees apply

Upon completion, students will be able to:

- Outline the roles and functions of feed nutrients and non-nutritive feed additives
- Describe and compare digestion, absorption, and metabolism
- Compute dietary feeding regimens
- Identify nutritional problems as related to digestive systems

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Lab hours:** 16.0

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## **AGCR 1371 - SUSTAINABLE AGRICULTURE**

Introduction to history, principles, and practices of sustainable agriculture as applied to local and global agriculture. A comparison and evaluation of sustainability of conventional agricultural practices will be made from the environmental, economic, and social perspectives ("planet, profit, and people"). Case studies and other tools will be used to relate principles of sustainable agriculture to basic farming practices.

Upon completion, students will be able to:

- Describe and demonstrate various techniques and management practices used to optimize agriculture from an environmental, social, and financial perspective
- Identify environmental, social and financial factors which are important in both sustainable and conventional
- Express and discuss the importance of sustainable agriculture as it compares to conventional agriculture
- Utilize computer programs and agriculture related programs associated with this course and various aspects of the agriculture related industry
- Demonstrate the implementation of planning, establishing, and maintaining agricultural operations under sustainable practices

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGCR 1441 - FORAGE & PASTURE MANAGEMENT**

Study of the production and management of forage crops and pastures including establishment, fertilization, weed control, grazing systems, hay, seed production, and harvesting.

Upon completion, students will be able to:

- Develop techniques and management practices to optimize pasture and forage production
- Determine forage nutritive quality in relation to livestock production
- Identify forage and pasture plants and weed species

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGCR 2405 - ENTOMOLOGY**

Study of the morphology, physiology, and classification of the common insect orders and related arthropods with emphasis on species of economic or biological importance. Emphasis on integrated pest management concepts and proper use of pesticides. Lab fees apply

Upon completion, students will be able to:

- Describe basic insect morphology and physiology
- Classify insects to the order level
- Identify common insect and arthropod pest and beneficial species
- Interpret pesticide labels and state and federal laws
- Explain pesticide application procedures
- Apply integrated pest management techniques to specific pest situations

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGEQ 1205 - EQUINE ENTERPRISE MANAGEMENT**

Overview of the equine industry. Includes equine industry segments, job market and economic impact. Course is designed as a business survey of the equine industry as a whole. Topics will include all areas involved directly and indirectly with the equine industry and the applied management techniques that are involved with these areas. Lecture will be supplemented with guest speakers and field trips to area farms and businesses. Lab fees apply

Upon completion, students will be able to:

- Define the various equine industry segments and explain their economic significance
- Identify employment opportunities in the equine industry

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **AGEQ 1291 - CATTLE REPRODUCTION**

This is a training course in the reproductive management and artificial insemination of cattle. Students will become familiar with and learn the anatomy of the cow reproductive tract. This course is designed to acquaint students with the techniques of artificial insemination and pregnancy diagnosis in the cow, and to familiarize student with the collection, evaluation, processing, and handling of semen. The class will also participate in a mock embryo transfer in order to acquaint students with estrus synchronization, drug protocols, and the mechanics of uterine flushing. Lab fees apply Learning outcomes and objectives are determined by local occupational need and business and industry trends.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **AGEQ 1300 - ENGLISH EQUITATION I**

Course in basic equitation skills, including handling, saddling, bridling, mounting, riding, grooming, safety, and basic health care. Topics will include correct riding position, leg strengthening exercises, and balance exercises. NCTC School horse and appropriate tack will be provided for use. Lab fees apply

Upon completion, students will be able to:

- Identify and employ basic handling and riding safety practices
- Identify and care for equipment and tack
- Demonstrate proper leg, seat, and hand positions as they relate to riding techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGEQ 1315 - HORSE EVALUATION I**

Instruction in evaluation and selection of horses based on breed and performance criteria. Topics include basic anatomy and its relation to function, breed type, and characteristics, and standard performance classes. Emphasis will be given to breed standards and rules of judging performance horses. Lab fees apply

Upon completion, students will be able to:

- Relate conformation to equine functions
- Prioritize and utilize criteria as related to evaluation and selection
- Employ appropriate terminology used in discussing evaluation and selection processes

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGEQ 1319 - WESTERN HORSEMANSHIP I**

Instruction in basic horsemanship skills including handling, saddling, bridling, mounting, riding, grooming, safety, and basic health care. Emphasis will be given to proper riding techniques, use of aids and cues, and proper leg, seat, and hand position. NCTC School horse and appropriate tack will be provided for use.

Upon completion, students will be able to:

- Recognize and employ basic handling and riding safety practices
- Identify and care for equipment and tack
- Demonstrate proper leg, seat, and hand positions as they relate to riding techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGEQ 1322 - FUNDAMENTALS OF RIDING INSTRUCTION**

Methodologies of riding instruction. Includes safety, horsemanship, teaching techniques, group control, and professionalism. Students will develop basic skills needed to become an effective riding instructor. Through classroom and arena exercises students will gain skills in organization, development of lesson plans, and a variety of teaching techniques. Students will be working with first year students.

Upon completion, students will be able to:

- Develop teaching techniques in riding instruction
- Implement safe practices
- Evaluate risk management factors
- Demonstrate effective communication skills

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [AGEQ 1300](#) - ENGLISH EQUITATION I
- [AGEQ 1319](#) - WESTERN HORSEMANSHIP I
- [AGEQ 1370](#) - LOCAL NEEDS - PRINCIPLES OF RANCH HORSE RIDING I

**Restrictions:**

- Course requires approval of instructor.

## **AGEQ 1350 - EQUINE REPRODUCTION**

Reproductive anatomy, physiological functions, and common management practices related to equine reproductive facilities. Lecture portion of this course is conducted in the first 6 weeks of the semester with emphasis on anatomy and physiology of the mare and stallion as it relates to management for maximum reproductive efficiency. Basic principles of artificial insemination, embryonic development, parturition, and care of the pregnant mare and newborn will be discussed. Semen collection, evaluation, and shipping will also be discussed. The lab portion is the remainder of the semester, and consists of students working on well-respected breeding farms in the area. Lab fees apply

Upon completion, students will be able to:

- Identify equine reproductive organs and functions
- Relate endocrinology to the reproductive process
- Implement managerial practices designed to improve reproductive efficiency

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

## **AGEQ 1370 - LOCAL NEEDS - PRINCIPLES OF RANCH HORSE RIDING I**

Instruction in the basic principles of Ranch Horse riding. To include, but not limited to handling, saddling, bridling, mounting, riding, grooming, safety, basic health care, basic

rope handling, basic cow handling and tactics for competing in Ranch Horse events.  
Lab fees apply

Upon completion, students will be able to:

- Recognize and employ basic handling and riding safety practices
- Identify and care for equipment and tack
- Demonstrate proper leg, seat, and hand positions as they relate to basic principles of Ranch Horse riding
- Identify core areas of focus for training the versatile ranch horse
- Generalize rules and procedures related to Ranch Horse competitions

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

**Restrictions:**

- Must have instructor approved personally owned horse to be in this course.
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## **AGEQ 1371 - LOCAL NEEDS - PRINCIPLES OF RANCH HORSE RIDING II**

Introduction to the advanced principles of Ranch Horse riding. To include, but not limited to handling, saddling, bridling, mounting, riding, grooming, safety, health care, advanced rope handling, advanced cow handling and tactics for competing in Ranch Horse events. Lab fees apply

Upon completion, students will be able to:

- Assess and rate individual horses based upon their performance and abilities as a versatile ranch horse
- Interpret horse reaction to various headgear/bit selections and further use this information in selecting the best headgear & bit for each individual horse
- Propose and implement a conditioning and training schedule for their own horse
- Demonstrate proper and safe rope handling from horseback
- Exhibit proper use of the mechanical cow for training purposes
- Employ tactics facilitated in the course during the working of live cattle

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

**Restrictions:**

- Must have instructor approved personally owned horse to be in this course.
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## **AGEQ 1391 - SPECIAL TOPICS III**

This course will address recently identified current events, skills, knowledge, and behaviors pertinent to the equine industry and relevant to the professional development of the student. Lab fees apply Learning outcomes and objectives are determined by local occupational need and business and industry trends.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Lab hours:** 64.0

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## **AGEQ 1401 - EQUINE BEHAVIOR & TRAINING I**

Instruction in basic equine behavior and training methods will be discussed. Topics will include anatomy and physiology, safety, behavior, health care and management, and training methods. Students will use a systematic approach to training a yearling and a weanling horse while learning proper safety and training techniques used in the industry. Horses and appropriate tack and equipment will be provided for use in this course.

Upon completion, students will be able to:

- Recognize behavioral patterns as they relate to training methods and desired results
- Implement appropriate training strategies
- Evaluate progress and adapt training method(s) accordingly

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 16.0

**Lab hours:** 144.0

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## **AGEQ 1411 - EQUINE SCIENCE I**

An introduction to the horse industry. Includes history, organization and operation of equine enterprises, selection, breeds, breeding, reproduction, health, nutrition, management, and marketing. Topics will also include basic management techniques and theories related to horses and horse facilities. Laboratory exercises will be supplemented by lecture presentations, guest speakers, and field trips to area farms and businesses. Lab fees apply

Upon completion, students will be able to:

- Explain the historical significance of the horse to society
- Identify horse breeds
- Identify basic anatomy and physiological functions
- Outline managerial practices relevant to the horse industry

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0  
**Lab hours:** 32.0

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## **AGEQ 2310 - EQUINE BUSINESS MANAGEMENT**

Instruction in the management of the equine business will be discussed. Topics will include record keeping, insurance and liability, show management, equine promotion and sales, as well as employer relationships. Lectures will be supplemented with industry speakers and students will complete an in-depth business plan of their choice.

Upon completion, students will be able to:

- Initiate equine business records
- Explain insurance and liability needs
- Outline and demonstrate the proper procedures for show management
- Summarize equine marketing
- Identify the socioeconomic factors involved in the equine industry

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0  
**Prerequisites:**

- [AGEQ 1205](#) - EQUINE ENTERPRISE MANAGEMENT
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## **AGEQ 2311 - EQUINE SCIENCE II**

Study of advanced concepts in horse production. Emphasis on management practices utilized in the horse industry. Topics include advanced anatomy, physiology and nutrition of the horse as it relates to exercise and fitness. Discussion will focus on techniques and theories related to management of the horse for athletic events. Lab fees apply

Upon completion, students will be able to:

- Identify and assess needs in the production & management of horses
- Employ critical thinking skills in management decisions
- Implement management practices

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0  
**Prerequisites:**

- [AGEQ 1411](#) - EQUINE SCIENCE I
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## **AGEQ 2315 - HORSE EVALUATION II**

Study of the advanced concepts in evaluation and selection of horses. Students in this course will be part of the horse judging team and participate in judging contests on a state and national level. Students will also learn how to organize a judging contest, perfect oral reason presentation and learn to judge other's oral reasons. Students must be enrolled in this course to travel with the judging team. Lab fees apply

Upon completion, students will be able to:

- Evaluate conformation as it applies to equine functions
- Evaluate western and English performance classes
- Organize, apply, and defend criteria as related to the evaluation and selection of horses

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [AGEQ 1315](#) - HORSE EVALUATION I

**Restrictions:**

- Requires Instructor/Coach approval
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## **AGEQ 2339 - WESTERN HORSEMANSHIP II**

Instruction in advanced horsemanship skills including cues, lead changes, head-set, side-pass, and pivots. Emphasis will be given to proper use of cues, legs, and seat during maneuvers; as well as proper training concepts and methods of working horses for specific performance areas. NCTC School horse and appropriate tack will be provided for use. Lab fees apply

Upon completion, students will be able to:

- Demonstrate a balanced seat and posture in all natural gaits
- Maintain correct leads
- Develop and utilize proper cues

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGEQ 2359 - ENGLISH EQUITATION II**

Advanced equitation skills. Includes cues, lead changes, headset, side-pass, and pivots. Topics will include supplying exercises for the horse and rider, ground pole exercises to gain strength and stability, in addition to exercises in stride length and rhythm. NCTC School horse and appropriate tack will be provided for use. Lab fees apply

Upon completion, students will be able to:

- Demonstrate a balanced seat and posture in all natural gaits
- Maintain correct leads
- Develop and utilize proper cues

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [AGEQ 1300](#) - ENGLISH EQUITATION I

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## **AGEQ 2370 - LOCAL NEEDS - REINING**

Fundamentals of selecting, training, working and showing reining horses will be taught. Topics include history, development, rules, judging, conditioning, training and showing reining horses. Showing in at least on competition is required. Student must provide their own horse for training and or competition. Lab fees apply

Upon completion, students will be able to:

- Describe the kind of horse that is most likely to succeed in reining competition
- Recognize which families of horses are most likely to succeed as reining horses based on past success in show ring
- Demonstrate industry recognized training methods
- Explain and develop proper riding techniques
- Exhibit basic reining maneuvers and patterns
- Evaluate effective training equipment
- Distinguish the proper use and function of bits
- Develop proper showmanship and sportsmanship

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Restrictions:**

- Must have instructor/coach approved personal horse to be in this course. NCTC School Horse is not provided.
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## **AGEQ 2371 - LOCAL NEEDS - ADVANCED RANCH HORSE RIDING**

An advanced course in the principles and fundamentals of finishing and riding the versatile ranch horse; instruction will focus on the use of the horse to assist in the management of cattle as commonly utilized for both ranch work and cowhorse competitions. Topics will include reading cattle, roping, handling cattle on the end of the rope, sorting and control of an individual cow. Course will also include techniques for tuning and elevating the performance of finished horses in the area of cow work. Lab fees apply

Upon completion, students will be able to:

- Demonstrate industry recognized training methods for finishing horses in the area of cow work
- Exhibit the ability to rope live cattle and properly handle cattle in a manner which is safe for both horse and rider
- Summarize the fundamentals to be employed when reading cattle for handling purposes
- Show the ability to handle and manipulate the movement of an individual cow
- Identify and appraise the characteristics of individual horses and their abilities when performing cow work
- Demonstrate progressive ability in completing a competitive cow horse pattern

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Restrictions:**

- Must have instructor approved personal horse to be in this course. NCTC School Horse is not provided.
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## **AGEQ 2372 - LOCAL NEEDS - ADVANCED REINING**

Advanced principles in training, working and showing reining horses will be taught. Topics include rules, judging, conditioning, and advanced showmanship. Students will also learn methods for keeping their horses healthy and in competitive condition during the rigors of traveling to and from shows. Showing in at least two competitions is required. Student must provide their own horse for training and or competition. Lab fees apply

Upon completion, students will be able to:

- Demonstrate the ability to judge and properly score a reining horse in competition
- Explain and outline a proper conditioning routine for a horse that will be shown in advanced levels of reining competition
- • Demonstrate advancement in riding skill by scoring higher in all required maneuvers performed in reining
- Explain areas of concern during hauling to competitions as well as strategies for addressing these concerns as it relates to horse health and competitive condition

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

## **AGEQ 2373 - INTRODUCTION TO EQUINE VETERINARY TECHNOLOGY**

Basic concepts of equine veterinary care will be taught. The course will be a survey of equine veterinary medicine from the physical exam to medical terminology, preventive medicine and pharmacology as well as basic principles of alternative therapies, diagnostic imagery, medical records and client communication.

Upon completion, students will be able to:

- Calculate correct drug dosage for frequently used equine pharmaceuticals
- Design a vaccination protocol for different types of equine operations
- Identify anatomic parts of the equine patient in medical terminology
- Interpret clinical pathology results
- Explain proper restraint methods of an equine patient for various veterinary procedures

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [AGEQ 1411](#) - EQUINE SCIENCE I
- [AGEQ 2311](#) - EQUINE SCIENCE II

## **AGEQ 2374 - BASICS OF DRESSAGE**

The fundamental principles of dressage will be addressed. Basic riding exercises and dressage movements will be introduced emphasizing horse and rider fitness, and the development of the equine athlete through the classical and sequential training scale of rhythm, relaxation, connection, impulsion, straightness, and finally collection. Western Dressage principles will also be discussed and use of a western, hunt seat, or traditional

dressage saddle will be acceptable. NCTC School horse and appropriate tack will be provided for use. Use of personal horse and tack is accepted per instructor approval. Classic dressage saddles are not provided, but western and hunt seat saddles are available and acceptable for use in this class. Lab fees apply

Upon completion, students will be able to:

- Demonstrate progressive ability to ride a horse forward with rhythm, relaxation, and connection, with the goal of achieving impulsion, straightness and finally collection through a variety of basic dressage movements. (USDF Pyramid of Training adapted from the German training scale)
- Understand and demonstrate elements of a balanced riding position and the coordination and timing of the aids. Circle of the Aids
- Exhibit ability to successfully complete an appropriate level Classical or Western Dressage test

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGEQ 2386 - INTERNSHIP - EQUINE SCIENCE**

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. Each student will be placed in the horse industry under the supervision of a prominent person who specializes in the student's main areas of interest. The student's industry training will be supervised by the instructor as well as their immediate supervisor on the job. Internship is typically completed 8 weeks, full time hours, during the summer, or part time hours during the fall or spring semester. This course serves as the external or capstone experience.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Restrictions:**

- Departmental approval required for registration in this course.
-

## **AGEQ 2401 - EQUINE BEHAVIOR & TRAINING II**

A study of advanced concepts in equine behavioral patterns that is relevant to specific performance training strategies. Emphasis will be given to safety, and different training methods involved with working a young horse. Students will use a systematic approach to training a two-year old horse from the ground to working specified maneuvers and patterns. Lab fees apply

Upon completion, students will be able to:

- Identify appropriate equine training methods for specific results
- Identify equine behavioral patterns
- Implement appropriate equine training procedures for desired results

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 16.0

**Lab hours:** 144.0

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## **AGME 1307 - AGRICULTURE EQUIPMENT & TOOLS**

Introduction to hand tool and shop equipment skills and safety. Lab fees apply

Upon completion, students will be able to:

- Identify hand tools and shop equipment
- Demonstrate their applications, maintenance, and safe operational procedures

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **AGME 1315 - FARM & RANCH SHOP SKILLS**

Study and application of shop skills used in agricultural processes including arc welding, oxyacetylene cutting and welding, drawing and planning projects, tool maintenance, metal working, woodworking, plumbing, and concrete. Lab fees apply

Upon completion, students will be able to:

- Demonstrate oxyacetylene cutting procedures
- Demonstrate arc welding
- Identify shop tools
- Utilize shop plans
- Describe construction processes

**Grade Basis:** L

**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 64.0

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## **AGME 1415 - FARM & RANCH SHOP SKILLS I**

Study and application of shop skills used in agricultural processes including arc welding, oxyacetylene cutting and welding, drawing and planning projects, tool maintenance, metal working, woodworking, plumbing, and concrete. Lab fees apply

Upon completion, students will be able to:

- Demonstrate oxyacetylene cutting procedures
- Demonstrate arc welding
- Identify shop tools
- Utilize shop plans
- Describe construction processes

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0  
**Lab hours:** 32.0

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## **AGME 1449 - FARM & RANCH EQUIPMENT**

Planning and application of farm and ranch maintenance equipment. Includes basic repair and adjustment to tractors and other agricultural equipment and design and use of maintenance records. Lab fees apply

Upon completion, students will be able to:

- Summarize maintenance of farm and ranch equipment
- Demonstrate repair and adjustment of equipment

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0  
**Lab hours:** 32.0

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## **AGMG 2280 - COOPERATIVE EDUCATION - AGRICULTURAL BUSINESS & MANAGEMENT, GENERAL**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 4.0

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## **AGMG 2301 - LIVESTOCK BUSINESS MANAGEMENT**

Instruction in contracts, leases, laws and regulations, estate planning, and applications of personnel and management principles.

Upon completion, students will be able to:

- Discuss contract terms related to livestock and real estate
- Explain laws and regulations pertaining to the livestock industry
- Illustrate the importance of estate planning
- Compare the personnel and management techniques employed in the livestock industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **AGMG 2480 - COOPERATIVE EDUCATION - AGRICULTURAL BUSINESS & MANAGEMENT, GENERAL**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 16.0  
**Lab hours:** 336.0

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## **AGRI 1131 - THE AGRICULTURE INDUSTRY**

Overview of world agriculture, nature of the industry, resource conservation, and the American agricultural system, including production, distribution, and marketing.

Upon completion, students will be able to:

- Identify the principles of food science related to food production, quality, safety, nutrition, and distribution
- Describe common and emerging technologies in food science
- Explain how engineering, microbiology, and chemistry are applied in food production and processing systems
- Describe food safety procedures in U.S. production systems
- Demonstrate appropriate food handling/food safety procedures
- Explain nutrient composition and the link between nutrition and health
- Examine the dynamics of global food supply

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 16.0

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## **AGRI 1309 - COMPUTERS IN AGRICULTURE**

Use of computers in agricultural applications. Introduction to programming languages, word processing, electronic spreadsheets, and agricultural software. Lab fees apply

Upon completion, students will be able to:

- Demonstrate a basic understanding and use of word processing, spreadsheet, presentation, and communication software in agriculture
- Identify common uses of computers in agriculture
- Demonstrate appropriate use of the internet for agricultural purposes

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

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## **AGRI 1325 - MARKETING OF AGRICULTURE PRODUCTS**

Operations in the movement of agricultural commodities from producer to consumer, including the essential marketing functions of buying, selling, transporting, storing, financing, standardizing, pricing, and risk bearing.

Upon completion, students will be able to:

- Explain the essential marketing functions of buying, selling, transporting, storing, financing, standardizing, pricing, and risk bearing
- Apply economic principles to the marketing of agricultural products
- Identify alternatives in marketing of agricultural commodities/products
- Examine the structure of agricultural markets

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **AGRI 1407 - AGRONOMY**

Principles and practices in the development, production, and management of field crops including plant breeding, plant diseases, soils, insect control, and weed control. Lab fees apply

Upon completion, students will be able to:

- Summarize the role of climate and geography in present and past crop production
- Explain the growth and development of crops
- Analyze the impact of climate on crops
- Assess the interactions of soils, water, and fertility on crop production
- Contrast methods of pest management in crop production
- Differentiate production methods based on geography and crop selection
- Apply scientific reasoning to investigate questions and utilize scientific and agronomic tools to collect and analyze data and demonstrate methods
- Use critical thinking and scientific problem-solving to make informed decisions
- Communicate effectively the results of scientific investigations
- Summarize the role of climate and geography in present and past crop production

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGRI 1419 - INTRODUCTORY ANIMAL SCIENCE**

Scientific animal agriculture. Importance of livestock and meat industries. Selection, reproduction, nutrition, management, and marketing of livestock. Lab fees apply

Upon completion, students will be able to:

- Explain the role of animal agriculture in providing benefits for mankind
- Identify common livestock breeds and classes
- Define terminology specific to animal science disciplines
- Demonstrate understanding of fundamental animal science principles including selection, reproduction, nutrition, and health
- Apply animal science principles by solving common problems
- Identify animal issues of interest to society, and related responsibilities
- Apply scientific reasoning to investigate questions and utilize animal science tools to collect and analyze data and demonstrate methods
- Use critical thinking and scientific problem-solving to make informed decisions
- Communicate effectively the results of scientific investigations

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **AGRI 2301 - AGRICULTURAL POWER UNITS**

Fundamentals of internal combustion engines: gasoline, diesel, and liquefied petroleum. Maintenance and adjustments of the electrical, ignition, fuel, lubricating, and cooling systems of agricultural power machinery. Lab fees apply

Upon completion, students will be able to:

- Recount the operating fundamentals of both four-stroke and two-stroke internal combustion engines
- Demonstrate ability to disassemble and reassemble small single cylinder gasoline engine
- Identify important points in maintenance of an internal combustion engine
- Discuss considerations when selecting a lubricating fluid or grease

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **AGRI 2303 - AGRICULTURAL CONSTRUCTION I**

Selection, use, and maintenance of hand and power tools; arc and oxy-acetylene welding; and construction materials and principles. Lab fees apply

Upon completion, students will be able to:

- Demonstrate proper safety procedures in an agricultural construction laboratory

- Determine the proper usage of common hand and power tools
- Demonstrate principles of project layout (e.g. measurements, squaring, leveling)
- Demonstrate proper use of metal cutting and welding equipment
- Apply basic wiring and plumbing techniques
- Illustrate the principles of surveying and concrete layout

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **AGRI 2317 - INTRODUCTION TO AGRICULTURAL ECONOMICS**

Fundamental economic principles and their applications to the problems of the industry of agriculture.

Upon completion, students will be able to:

- Describe fundamental macro- and micro-economic principles
- Apply economic principles to agricultural production, marketing, and consumption
- Describe the different agricultural economics fields (e.g. food industry, demand theory, supply theory, competitive environments)

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **AGRI 2321 - LIVESTOCK EVALUATION I**

Evaluation and grading of market cattle, swine, sheep, and goats and their carcasses and wholesale cuts. Emphasis will be placed on value determination. Selection and evaluation of breeding cattle, sheep, swine, and goats with emphasis on economically important traits. Lab fees apply

Upon completion, students will be able to:

- Accurately evaluate and grade meat animals (cattle, swine, sheep, and goats), their carcasses, and wholesale cuts according to USDA and industry standards
- Determine market value for meat animals, carcasses, and whole cuts
- Evaluate and select breeding animals based upon their economic potential in common production scenarios
- Apply knowledge of both subjective and objective techniques, tools, and information in order to make evaluation, grading, and selection decisions in practical production scenarios

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 48.0

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## **AGRI 2330 - WILDLIFE CONSERVATION & MANAGEMENT**

Principles and practices used in the production and improvement of wildlife resources. Aesthetic, ecological, and recreational uses of public and private lands. Lab fees apply

Upon completion, students will be able to:

- Explain basic ecological principles of population dynamics, habitat, succession, and ecosystems
- Describe how these ecological principles can be applied to manage wildlife populations and habitats
- Contrast wildlife management strategies for different purposes (i.e. recreation, conservation, and preservation)
- Use critical thinking and scientific problem-solving to make informed decisions about wildlife and natural resources management strategies
- Discuss the impact of current trends and societal issues on wildlife and increased demands on natural resources

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ANTH 2346 - GENERAL ANTHROPOLOGY**

The study of human beings, their antecedents and related primates, and their cultural behaviors and institutions. Introduces the major sub-fields: physical and cultural anthropology, archaeology, linguistics, their applications, and ethics in the discipline. Meets NCTC Core Curriculum Requirements

Upon completion, students will be able to:

- Describe the key concepts and methods of anthropology
- Compare and contrast the sub-fields of anthropology, including but not limited to physical anthropology, cultural anthropology, and archaeology
- Demonstrate an understanding of anthropological approaches to human diversity

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **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. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTC 1302 - DIGITAL IMAGING I: PHOTOSHOP**

Digital Imaging using raster image editing and/or image creation software: scanning, resolution, file formats, output devices, color systems, and image-acquisitions. Lab fees apply

Upon completion, students will be able to:

- Identify terminology, advantages and limitations of image editing software
- Distinguish bit-mapped resolutions for image acquisitions and output devices
- Use digital editing and painting tools
- Use basic half-tone theory in production of images, manipulate, create, and edit digital images for print and for web
- Specify appropriate file formats

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ARTC 1325 - INTRODUCTION TO COMPUTER GRAPHICS**

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. Lab fees apply

Upon completion, students will be able to:

- Define computer terminology
- Identify peripherals
- Demonstrate page layout, multimedia, and peripherals software use

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ARTS 1301 - ART APPRECIATION**

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. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1303 - ART HISTORY I: Prehistoric to 14th Century**

A chronological analysis of the historical and cultural contexts of the visual arts from prehistoric times to the 14th century.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1304 - ART HISTORY II: 14th Century to Present**

A chronological analysis of the historical and cultural contexts of the visual arts from the 14th century to the present day.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1311 - DESIGN I: 2-Dimensional**

An introduction to the fundamental terminology, concepts, theory, and application of two-dimensional design.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1312 - DESIGN II: 3-Dimensional**

An introduction to the fundamental terminology, concepts, theory, and application of three-dimensional design.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1316 - DRAWING I**

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.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ARTS 1317 - DRAWING II**

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.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ASTR 1403 - STARS AND GALAXIES**

Study of stars, galaxies, and the universe outside our solar system. May or may not include a laboratory. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **ASTR 1404 - SOLAR SYSTEM**

Study of the sun and its solar system, including its origin.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **CHEF 1301 - BASIC FOOD PREPARATION**

A study of the fundamental principles of food preparation and cookery to include Brigade System, cooking techniques, material handling, heat transfer, sanitation, safety, nutrition, and professionalism. Lab fees apply

Upon completion, students will be able to:

- Demonstrate skills in knife tool and equipment handling
- Operate equipment safely and correctly
- Demonstrate proficiency in dry and moist heat cooking methods
- Produce a variety of food products applying principles of food handling and preparation
- Implement professional standards in food production

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 48.0

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## **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. Lab fees apply

Upon completion, students will be able to:

- Describe the fundamentals of Information Technology (IT) infrastructure components: hardware, software, and data communications systems
- Explain the guiding principles of professional behavior in computing
- Demonstrate proper file management techniques to manipulate electronic files and folders in a local and networked environment
- Use business productivity software to manipulate data and find solutions to business problems
- Explain the concepts and terminology used in the operation of application systems in a business environment
- Identify emerging technologies for use in business applications
- Complete projects that integrate business software applications

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **BIOL 1322 - NUTRITION & DIET THERAPY I**

This course introduces general nutritional concepts in health and disease and includes practical applications of that knowledge. Special emphasis is given to nutrients and nutritional processes including functions, food sources, digestion, absorption, and metabolism. Food safety, availability, and nutritional information including food labels, advertising, and nationally established guidelines are addressed.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **BIOL 1406 - BIOLOGY FOR SCIENCE MAJORS I**

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. This laboratory-based course accompanies Biology 1306, Biology for Science Majors I. Laboratory activities will reinforce the fundamental principles of living organisms, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Study and examination of the concepts of cytology, reproduction, genetics, and scientific reasoning are included. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **BIOL 1407 - BIOLOGY FOR SCIENCE MAJORS II**

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. Lab required. This laboratory-based course accompanies Biology 1307, Biology for Science Majors II. Laboratory activities will reinforce study of the diversity and classification of life, including animals, plants, protists, fungi, and prokaryotes. Special emphasis will be given to anatomy, physiology, ecology, and evolution of plants and animals. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **BIOL 1408 - BIOLOGY FOR NON-SCIENCE MAJORS I**

Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. This laboratory-based course accompanies BIOL 1308, Biology for Non-Science Majors I. Laboratory activities will reinforce a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **BIOL 1411 - GENERAL BOTANY**

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. This laboratory-based course accompanies Biology 1311, General Botany. Laboratory activities will reinforce 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. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **BIOL 1413 - GENERAL ZOOLOGY**

Fundamental biological concepts relevant to animals, including systematics, evolution, structure, and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. This course is intended for science majors. This laboratory-based course accompanies Biology 1313, General Zoology. Laboratory activities will reinforce fundamental biological concepts relevant to animals, including systematics, evolution, structure and function, cellular and molecular metabolism, reproduction, development, diversity, phylogeny, and ecology. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **BIOL 2401 - HUMAN ANATOMY AND PHYSIOLOGY I**

Anatomy and Physiology I is the first part of a two-course sequence. It is a study of the structure and function of the human body including cells, tissues and organs of the following systems: integumentary, skeletal, muscular, nervous and special senses. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include integumentary, skeletal, muscular, nervous, and special senses. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **BIOL 2402 - HUMAN ANATOMY AND PHYSIOLOGY II**

Anatomy and Physiology II is the second part of a two-course sequence. It is a study of the structure and function of the human body including the following systems: endocrine, cardiovascular, immune, lymphatic, respiratory, digestive including nutrition, urinary including fluid and electrolyte balance, and reproductive including human development and genetics. Emphasis is on interrelationships among systems and regulation of physiological functions involved in maintaining homeostasis. The lab provides a hands-on learning experience for exploration of human system components and basic physiology. Systems to be studied include endocrine, cardiovascular, immune, lymphatic, respiratory, digestive including nutrition, urinary including fluid and electrolyte balance, and reproductive including human development and genetics. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **BIOL 2406 - ENVIRONMENTAL BIOLOGY**

Principles of environmental systems and ecology, including biogeochemical cycles, energy transformations, abiotic interactions, symbiotic relationships, natural resources and their management, lifestyle analysis, evolutionary trends, hazards and risks, and approaches to ecological research. This laboratory-based course accompanies Biology 2306, Environmental Biology. Laboratory activities will reinforce principles of environmental systems and ecology, including biogeochemical cycles, energy transformations, abiotic interactions, symbiotic relationships, natural resources and their management, lifestyle analysis, evolutionary trends, hazards and risks, and approaches to ecological research. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0  
**Lab hours:** 32.0

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## **BIOL 2420 - MICROBIOLOGY - For Pre-Nursing or Health Science Majors**

This course covers basic microbiology and immunology and is primarily directed at pre-nursing, pre-allied health, and non-science majors. It provides an introduction to historical concepts of the nature of microorganisms, microbial diversity, the importance of microorganisms and acellular agents in the biosphere, and their roles in human and animal diseases. Major topics include bacterial structure as well as growth, physiology, genetics, and biochemistry of microorganisms. Emphasis is on medical microbiology, infectious diseases, and public health. This course covers basics of culture and identification of bacteria and microbial ecology. This course is primarily directed at pre-nursing and other pre-allied health majors and covers basics of microbiology. Emphasis is on medical microbiology, infectious diseases, and public health. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0  
**Lab hours:** 32.0

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## **BMGT 1327 - PRINCIPLES OF MANAGEMENT**

Concepts, terminology, principles, theories, and issues in the field of management.

Upon completion, students will be able to:

- Explain various theories, processes, and functions of management
- Apply theories to a business environment
- Identify leadership roles in organizations
- Describe elements of the communication process

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

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## **BMGT 2309 - LEADERSHIP**

Leadership and its relationship to management. Prepares the student with leadership and communication skills needed to motivate and identify leadership styles.

Upon completion, students will be able to:

- Determine individual leadership styles

- Distinguish differences between leadership and management
- Explain the effects of leadership style in various organizational environments
- Apply principles of leadership

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **BUSG 1301 - INTRODUCTION TO BUSINESS**

Fundamental business principles including structure, functions, resources, and operational processes.

Upon completion, students will be able to:

- Identify business functions of accounting, management, marketing, and economics
- Describe the relationships of social responsibility, ethics, and law
- Describe the scope of global business enterprise

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **BUSG 1304 - FINANCIAL LITERACY**

A study of the financial principles when managing financial affairs. Includes topics such as budgeting, retirement, property ownership, savings, and investment planning.

Upon completion, students will be able to:

- Identify the concepts associated with the time value of money
- Identify the differences among various savings and investment programs and classes of securities
- Identify the options for insurance
- Describe retirement and estate planning techniques
- Explain owning versus renting real property
- Describe consumer protection legislation

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **BUSG 2305 - BUSINESS LAW & CONTRACTS**

Principles of law which form the legal framework for business activity including applicable statutes, contracts, and agency.

Upon completion, students will be able to:

- Define fundamental legal terminology regarding contracts, torts, property, and wills.
- Differentiate between business ethics and legal issues.
- Explain required elements of torts, requirements of contracts, and various consumer laws as applied to business and individuals.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **BUSG 2380 - COOPERATIVE EDUCATION - BUSINESS & COMMERCE, GENERAL**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- As outlined in the learning plan, apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Will demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

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## **CETT 1302 - ELECTRICITY PRINCIPLES**

Principles of electricity including proper use of test equipment, A/C and D/C circuits, and component theory and operation. Lab fees apply

Upon completion, students will be able to:

- Identify basic principles of electricity (A/C and D/C), voltage, current, and circuitry
- Apply Ohm's law to electrical calculations
- Use test equipment to measure continuity, voltage, and current values
- Use electrical safety practices

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **CHEM 1406 - INTRODUCTORY CHEMISTRY**

Survey course introducing chemistry. Topics may include inorganic, organic, biochemistry, food/physiological chemistry, and environmental/consumer chemistry. Designed for allied health students and for students who are not science majors. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **CHEM 1411 - GENERAL CHEMISTRY I**

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. Basic laboratory experiments supporting theoretical principles presented in CHEM 1406; introduction of the scientific method, experimental design, data collection and analysis, and preparation of laboratory reports. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

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## **CHEM 1412 - GENERAL CHEMISTRY II**

Chemical equilibrium; phase diagrams and spectrometry; acid-base concepts; thermodynamics; kinetics; electrochemistry; nuclear chemistry; an introduction to organic chemistry and descriptive inorganic chemistry. A continuation of CHEM1411. Basic laboratory experiments supporting theoretical principles presented in CHEM 1312; introduction of the scientific method, experimental design, chemical instrumentation, data collection and analysis, and preparation of laboratory reports. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Prerequisites:**

- [CHEM 1411](#) - GENERAL CHEMISTRY I
-

## CHEM 2423 - ORGANIC CHEMISTRY I

Fundamental principles of organic chemistry will be studied, including the structure, bonding, properties, and reactivity of organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. This course is intended for students in science or pre-professional programs. This laboratory-based course accompanies CHEM 2323, Organic Chemistry I. Laboratory activities will reinforce fundamental principles of organic chemistry, including the structure, bonding, properties, and reactivity of organic molecules, and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Methods for the purification and identification of organic compounds will be examined. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Prerequisites:**

- [CHEM 1412](#) - GENERAL CHEMISTRY II
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## CHEM 2425 - ORGANIC CHEMISTRY II

Advanced principles of organic chemistry will be studied, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules; and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. This course is intended for students in science or pre-professional programs. This laboratory-based course accompanies CHEM 2325, Organic Chemistry II. Laboratory activities reinforce advanced principles of organic chemistry, including the structure, properties, and reactivity of aliphatic and aromatic organic molecules, and properties and behavior of organic compounds and their derivatives. Emphasis is placed on organic synthesis and mechanisms. Includes study of covalent and ionic bonding, nomenclature, stereochemistry, structure and reactivity, reaction mechanisms, functional groups, and synthesis of simple molecules. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Prerequisites:**

- [CHEM 2423](#) - ORGANIC CHEMISTRY I
-

## **CJCR 1304 - PROBATION & PAROLE**

A survey of the structure, organization, and operation of probation and parole services. Emphasis on applicable state statutes and administrative guidelines.

Upon completion, students will be able to:

- Describe the professional qualifications for employment as a probation or parole practitioner
- Demonstrate skills in management and treatment practices
- Create and develop community relations strategies

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1317 - JUVENILE JUSTICE SYSTEM**

A study of the juvenile justice process to include specialized juvenile law, role of the juvenile law, role of the juvenile courts, role of police agencies, role of correctional agencies, and theories concerning delinquency.

Upon completion, students will be able to:

- Describe the juvenile law and the role of juvenile courts
- Explain the roles of police and correctional agencies concerning delinquency
- Review and contrast the theories of delinquent conduct

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1325 - CRIMINOLOGY**

Current theories and empirical research pertaining to crime and criminal behavior and its causes, methods of prevention, systems of punishment, and rehabilitation.

Upon completion, students will be able to:

- Identify and explain the various theories of causation of criminal behavior
- Identify and appraise the avenue of prevention
- Outline the various research methods/methodology used in criminological research
- Identify the categories and sources of criminological data utilized in interpreting crime trends

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1330 - CYBER CRIMES**

An introduction to cybercrime. Topics include specific laws, investigative techniques, and criminological theories applicable to computer crime.

Upon completion, students will be able to:

- Identify and describe the major types of internet crimes and their elements
- List the trends involving digital crime; outline the investigative process in cyber crimes
- Apply existing laws to actions and events in computer crime investigations
- Identify future areas of legal concern in computer crime cases

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1342 - CRIMINAL INVESTIGATION**

Investigative theory; collection and preservation of evidence, sources of information, interview and interrogation, uses of forensic sciences, case and trial preparation.

Upon completion, students will be able to:

- Define the goals and objectives of criminal investigation
- Demonstrate ability to conduct proper crime scene investigations
- Illustrate the use of forensic science for various statutory offenses
- Organize the criminal case including field notes, reports, crime scene activities, and mandatory documentation of statutory warning

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1348 - ETHICS IN CRIMINAL JUSTICE**

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.

Upon completion, students will be able to:

- Explain the foundation of ethics
- Compare and contrast theories of ethics with personal and professional practices
- Interpret and apply ethical considerations in policing, the courts, and corrections

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 1351 - USE OF FORCE**

Study of the use of force including introduction to and statutory authority for the use of force, 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.

Upon completion, students will be able to:

- Identify the status pertaining to use of force
- Explain the use of force continuum
- Describe key elements of major court cases involving use of force issues

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 2331 - CHILD ABUSE - PREVENTION & INVESTIGATION**

Forms of child abuse and neglect and the traits of typical abusers. Includes strategies to investigate abuse, interview victims and witnesses, document evidence in accordance with state law, and conduct case studies.

Upon completion, students will be able to:

- Identify forms of abuse and neglect
- Compare and contrast characteristics of typical abusers
- Outline investigative strategies

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 2334 - CONTEMPORARY ISSUES IN CRIMINAL JUSTICE**

A series of lectures and class participation exercises presenting selected topics currently confronting criminal justice personnel and the public they serve.

Upon completion, students will be able to:

- Explore an assigned contemporary topic in criminal justice
- List specific problems within the topic and suggest solutions

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CJSA 2388 - INTERNSHIP**

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.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

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## **CJSA 2302 - POLICE MANAGEMENT, SUPERVISION, AND RELATED TOPICS**

Techniques and theories regarding dealing with people, their performance, and problems. Topics include basic supervision, leadership, time management, first-line supervision, and management by objectives.

Upon completion, students will be able to:

- Describe the various leadership/management theories, skills, and styles.
- Apply human relations aspects of leadership role.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CNBT 1311 - CONSTRUCTION METHODS & MATERIALS**

Introduction to construction materials and methods and their applications. Lab fees apply

Upon completion, students will be able to:

- Identify construction materials
- List their applications

- Describe the various methods of construction
- Explain the development and use of new materials being introduced to the construction industry under sustainable building standards

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSC 2380 - COOPERATIVE EDUCATION - COMPUTER & INFORMATION SCIENCES, GENERAL**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry.
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Restrictions:**

- Division Chair approval required unless student is in last semester of the Information Technology degree.
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## **COSC 1436 - PROGRAMMING FUNDAMENTALS I**

This course introduces the fundamental concepts of structured programming, and provides a comprehensive introduction to programming for computer science and technology majors. 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.

Upon completion, students will be able to:

- Describe how data are represented, manipulated, and stored in a computer

- Categorize different programming languages and their uses
- Understand and use the fundamental concepts of data types, structured programming, algorithmic design, and user interface design
- Demonstrate a fundamental understanding of software development methodologies, including modular design, pseudo code, flowcharting, structure charts, data types, control structures, functions, and arrays
- Develop projects that utilize logical algorithms from specifications and requirements statements
- Demonstrate appropriate design, coding, testing, and documenting of computer programs that implement project specifications and requirements
- Apply computer programming concepts to new problems or situations

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **COSC 1437 - 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.

Upon completion, students will be able to:

- Identify and explain a programming development lifecycle, including planning, analysis, design, development, and maintenance
- Demonstrate a basic understanding of object-oriented programming by using structs and classes in software projects
- Use object-oriented programming techniques to develop executable programs that include elements such as inheritance and polymorphism
- Document and format code in a consistent manner
- Apply basic searching and sorting algorithms in software design
- Apply single- and multi-dimensional arrays in software
- Use a symbolic debugger to find and fix runtime and logical errors in software
- Demonstrate a basic understanding of programming methodologies, including object-oriented, structured, and procedural programming
- Describe the phases of program translation from source code

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **COSC 2425 - 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. Lab fees apply

Upon completion, students will be able to:

- Explain contemporary computer system organization
- Describe data representation in digital computers
- Explain the concepts of memory hierarchy, interrupt processing, and input/output mechanisms
- Measure the performance of a computer system
- Design and develop assembly language applications
- Explain the interfaces between software and hardware components
- Explain the design of instruction set architectures
- Develop a single-cycle processor
- Explain the concept of virtual memory and how it is realized in hardware and software
- Explain the concepts of operating system virtualization

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

**Prerequisites:**

- [COSC 1436](#) - PROGRAMMING FUNDAMENTALS I
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## **COSC 2436 - PROGRAMMING FUNDAMENTALS III**

Further applications of programming techniques, introducing the fundamental concepts of data structures and algorithms. Topics include data structures including stacks, queues, linked lists, hash tables, trees, and graphs, searching, sorting, recursion, and algorithmic analysis. Programs will be implemented in an appropriate object oriented language. This course is included in the Field of Study Curriculum for Computer Science. Lab fees apply

Upon completion, students will be able to:

- Design and develop programs that implement basic data structures, including stacks, queues, linked lists, hash tables, trees, and graphs
- Apply recursive techniques and algorithms to solve problems
- Implement searching and sorting algorithms

- Understand algorithm efficiency, Big-O notation, and why it should be considered in programming
- Analyze and select appropriate data structures to implement a solution to a problem
- Design and implement data structures using classes and incorporating object-oriented concepts
- Demonstrate best practices of software development including testing, validation, and documentation

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

**Prerequisites:**

- [COSC 1437](#) - PROGRAMMING FUNDAMENTALS II

## **CRIJ 1301 - INTRODUCTION TO CRIMINAL JUSTICE**

This course provides a historical and philosophical overview of the American criminal justice system, including the nature, extent, and impact of crime; criminal law; and justice agencies and processes.

Upon completion, students will be able to:

- Describe the history and philosophy of the American criminal justice system
- Explain the nature and extent of crime in America
- Analyze the impact and consequences of crime
- Evaluate the development, concepts, and functions of law in the criminal justice system
- Describe the structure of contemporary federal, state, and local justice agencies and processes

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

## **CRIJ 1306 - COURT SYSTEMS & PRACTICES**

This course is a study of the court system as it applies to the structures, procedures, practices and sources of law in American courts, using federal and Texas statutes and case law.

Upon completion, students will be able to:

- Describe the American judicial systems (civil, criminal, and juvenile) , their jurisdiction, development, and structure

- Analyze the function and dynamics of the courtroom work group
- Identify judicial processes from pretrial to appeal
- Describe the significant Constitutional Amendments, doctrines, and other sources of law in the American judicial system

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CRIJ 1310 - FUNDAMENTALS OF CRIMINAL LAW**

This course is the study of criminal law including application of definitions, statutory elements, defenses, and penalties using Texas statutes, the Model Penal Code, and case law. The course also analyzes the philosophical and historical development of criminal law and criminal culpability.

Upon completion, students will be able to:

- Identify the elements of crimes and defenses under Texas statutes, Model Penal Code, and case law
- Classify offenses and articulate penalties for various crimes
- Compare culpable mental states when assigning criminal responsibility
- Assess the impact of history and philosophy on current criminal laws
- Evaluate the application of criminal law to other areas of criminal justice such as law enforcement and corrections

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CRIJ 2313 - CORRECTIONAL SYSTEMS & PRACTICES**

This course is a survey of institutional and non-institutional corrections. Emphasis will be placed on the organization and operation of correctional systems, treatment and rehabilitation, populations served, Constitutional issues, and current and future issues.

Upon completion, students will be able to:

- Describe the organization and operation of correctional systems and alternatives to institutionalization
- Describe treatment and rehabilitative programs
- Differentiate between the short-term incarceration and long-term institutional environments
- Evaluate current and future correctional issues
- Identify the Constitutional rights applicable to the correctional setting

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CRIJ 2328 - POLICE SYSTEMS & PRACTICES**

This course examines the establishment, role and function of police in a democratic society. It will focus on types of police agencies and their organizational structure, police-community interaction, police ethics, and use of authority.

Upon completion, students will be able to:

- Describe the types of police agencies and explain the role of police in America within the context of a democratic society
- Describe means and methods utilized to ensure police accountability
- Explain the historical development of policing
- Describe the selection process for police officers
- Compare and contrast organizational structures, policies, strategies and tactics employed to ensure police effectiveness, efficiency and equity

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **CSME 1248 - PRINCIPLES OF SKIN CARE**

An introduction of the theory and practice of skin care.

Upon completion, students will be able to:

- Define terminology related to skin care treatments
- Demonstrate skin care procedures
- Practice safety and sanitation according to the laws and rules of the state licensing agency
- Exhibit workplace competencies in skin care

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 64.0

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## **CSME 1401 - ORIENTATION TO COSMETOLOGY**

An overview of the skills and knowledge necessary for the field of cosmetology. Lab fees apply

Upon completion, students will be able to:

- Demonstrate introductory skills, professional ethics, safety, and sanitation
- Explain the laws and rules of the state

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 128.0

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## **CSME 1405 - FUNDAMENTALS OF COSMETOLOGY**

A course in the basic fundamentals of cosmetology. Topics include safety and sanitation, service preparation, manicure, facial, chemical services, shampoo, haircut, wet styling, and comb out. Lab fees apply

Upon completion, students will be able to:

- Identify fundamental concepts related to skills required by the Texas Department of Licensing and Regulation (TDLR)
- Demonstrate basic required skills by TDLR standards

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 128.0

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## **CSME 1410 - INTRODUCTION TO HAIR-CUTTING & RELATED THEORY**

Introduction to the theory and practice of hair cutting. Topics include terminology, implements, sectioning and finishing techniques.

Upon completion, students will be able to:

- Define terminology
- Practice basic workplace competencies related to hair-cutting and finishing techniques
- Demonstrate use of implements, sectioning, hair-cutting, and finishing skills

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 128.0

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## **CSME 1420 - ORIENTATION TO FACIAL SPECIALIST**

An overview of the skills and knowledge necessary for the field of facials and skin care.

Upon completion, students will be able to:

- Demonstrate facial and skin care skills
- Practice safety and sanitation according to the rules of the state licensing agency
- Practice professional ethics

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **CSME 1421 - PRINCIPLES OF FACIAL & SKIN CARE TECHNOLOGY I**

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. Lab fees apply

Upon completion, students will be able to:

- Explain the basic anatomy and physiology of the skin and demonstrate the related skills of skin care and cosmetics

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **CSME 1443 - MANICURING & RELATED THEORY**

Presentation of the theory and practice of nail services. Topics include terminology, application, and workplace competencies related to nail services. Lab fees apply

Upon completion, students will be able to:

- Define terminology related to nail services
- Demonstrate the basic procedures of nail services
- Practice safety and sanitation according to the laws and rules of the state licensing agency
- Exhibit workplace competencies in nail services

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **CSME 1545 - PRINCIPLES OF FACIAL & SKIN CARE TECHNOLOGY II**

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.

Upon completion, students will be able to:

- Demonstrate the use of facial machines
- Explain the chemical composition of products
- Practice advanced applications of skin care and cosmetics
- Remove superfluous hair

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 32.0

**Lab hours:** 144.0

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## **CSME 1447 - PRINCIPLES OF SKIN CARE, FACIALS & RELATED THEORY**

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.

Upon completion, students will be able to:

- Define terminology related to the skin, products, and treatments
- Demonstrate applications related to skin care and cosmetics
- Practice safety and sanitation according to the laws and rules of the state licensing agency
- Exhibit workplace competencies in skin care and cosmetics

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 128.0

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## **CSME 1453 - CHEMICAL REFORMATION & RELATED THEORY**

Presentation of the theory and practice of chemical reformation including terminology, application, and workplace competencies. Lab fees apply

Upon completion, students will be able to:

- Define terminology related to chemical reformation
- Follow safety and sanitation laws and rules according to the state licensing agency
- Exhibit workplace competencies related to chemical reformation

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 32.0  
**Lab hours:** 128.0

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## **CSME 1534 - COSMETOLOGY INSTRUCTOR I**

The fundamentals of instruction of cosmetology students.

Upon completion, students will be able to:

- Demonstrate classroom/clinic management
- Differentiate teaching methodologies
- Identify different learning styles
- Assess lesson plans

**Grade Basis:** L  
**Credit hours:** 5.0  
**Lecture hours:** 32.0  
**Lab hours:** 144.0

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## **CSME 1535 - ORIENTATION TO THE INSTRUCTION OF COSMETOLOGY**

An overview of the skills and knowledge necessary for the instruction of cosmetology students. Lab fees apply

Upon completion, students will be able to:

- Identify teaching methodologies
- Observe lesson plan implementation
- Monitor various learning settings

**Grade Basis:** L  
**Credit hours:** 5.0  
**Lecture hours:** 32.0  
**Lab hours:** 144.0

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## **CSME 2237 - ADVANCED COSMETOLOGY TECHNIQUES**

Mastery of advanced cosmetology techniques including hair designs, professional cosmetology services, and workplace competencies. Lab fees apply

Upon completion, students will be able to:

- Utilize a variety of hair techniques
- Perform professional cosmetology services

- Demonstrate workplace competencies

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 64.0

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## **CSME 2410 - ADVANCED HAIR-CUTTING AND RELATED THEORY**

Advanced concepts and practice of haircutting. Topics include haircuts utilizing scissors, razor, and/or clippers.

Upon completion, students will be able to:

- Utilize correct terminology related to advanced hair-cutting techniques
- Demonstrate work place competencies related to advanced hair-cutting techniques

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 16.0

**Lab hours:** 128.0

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## **CSME 2343 - SALON DEVELOPMENT**

Procedures necessary for salon development. Topics include professional ethics, goal setting, salon operation, and record keeping. Lab fees apply

Upon completion, students will be able to:

- Create a salon portfolio or business plan
- Demonstrate organizational skills related to salon operation and management

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

---

## **CSME 2501 - PRINCIPLES OF HAIR COLORING & RELATED THEORY**

Presentation of the theory, practice, and chemistry of hair color. Topics include terminology, application, and workplace competencies related to hair color. Lab fees apply

Upon completion, students will be able to:

- Define terminology
- Demonstrate hair color application

- Practice safety and sanitation according to the laws and rules of the state licensing agency
- Practice workplace competencies related to hair color

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 32.0

**Lab hours:** 144.0

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## **CSME 2431 - PRINCIPLES OF FACIALS & SKIN CARE TECHNOLOGY III**

Advanced concepts and principles of skin care and other related technologies.

Upon completion, students will be able to:

- Demonstrate professional ethics
- Design salon management
- Perform advanced skin care services
- Exhibit related skills in preparation for the state licensing examination

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **CSME 2441 - PREPARATION FOR TEXAS DEPARTMENT OF LICENSING & REGULATIONS**

Preparation for the state licensing examination. Lab fees apply

Upon completion, students will be able to:

- Review for the written state licensing exam
- Prepare for the practical state licensing exam
- Practice safety and sanitation according to the laws and rules of the state licensing agency

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 128.0

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## **CSME 2514 - COSMETOLOGY INSTRUCTOR II**

A continuation of the fundamentals of instruction of cosmetology students.

Upon completion, students will be able to:

- Demonstrate effective classroom and clinic management
- Implement teaching methodologies
- Develop lesson plans

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 32.0

**Lab hours:** 144.0

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## **DANC 2303 - DANCE APPRECIATION I**

Survey of primitive, classical, and contemporary dance and its interrelationship with cultural developments and other art forms. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

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## **DFTG 1305 - TECHNICAL DRAFTING**

Introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, and auxiliary views. Lab fees apply

Upon completion, students will be able to:

- Create technical sketches, geometric constructions, orthographic projections, pictorial/sectional views, dimension drawings, and apply lettering techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **DFTG 1309 - BASIC COMPUTER-AIDED DRAFTING**

An introduction to computer-aided drafting. Emphasis is placed on setup; creating and modifying geometry, storing and retrieving predefined shapes, placing, rotating, and scaling objects, adding text and dimensions, using layers, coordinate systems, and plot/print to scale. Lab fees apply

Upon completion, students will be able to:

- Identify terminology and basic functions used with CAD software
- Use CAD hardware and software to create, organize, display, and plot/print working drawings

- Use file management techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **DFTG 1317 - ARCHITECTURAL DRAFTING-RESIDENTIAL**

Architectural drafting procedures, practices, terms, and symbols. Preparation of detailed working drawings for residential structures. Emphasis on light frame construction methods. Lab fees apply

Upon completion, students will be able to:

- Utilize architectural terms, symbols, residential construction materials, and processes to produce a set of residential construction drawings including site plan, floor plan, elevations, wall sections, schedules, details, and foundation plan using reference materials.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **DFTG 1333 - MECHANICAL DRAFTING**

Study of mechanical drawings using dimensioning and tolerances, sectioning techniques, orthographic projection, and pictorial drawings. Lab fees apply

Upon completion, students will be able to:

- Develop a set of working drawings including assembly, detail, and pictorial

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **DFTG 1358 - ELECTRICAL & ELECTRONICS DRAFTING**

Electrical and electronic drawings stressing modern representation used for block diagrams, schematic diagrams, logic diagrams, wiring/assembly drawings, printed circuit board layouts, motor control diagrams, power distribution diagrams, and electrical one-line diagrams. Lab fees apply

Upon completion, students will be able to:

- Layout components and symbols, both electronic and electrical
- Apply basic math and the theory of electricity
- Utilize component identification including schematics, block, wiring, and logic
- Perform diagram construction and drafting

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **DFTG 1391 - SPECIAL TOPICS IN DRAFTING & DESIGN TECHNOLOGY**

Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Lab fees apply

Upon completion, students will be able to:

- Learning outcomes & objectives are determined by local occupational need and business and industry trends

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2300 - INTERMEDIATE ARCHITECTURAL DRAFTING - RESIDENTIAL**

Continued application of principles and practices used in residential construction. Lab fees apply

Upon completion, students will be able to:

- Define the principles of design and implementation of advanced residential construction
- Incorporate site and environmental considerations in planning a residential development
- Select materials
- Apply codes and standards in the creation of construction drawings
- Write specifications

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2302 - MACHINE DRAFTING**

Production of detail and assembly drawings of machines, threads, gears, utilizing tolerances, limit dimensioning, and surface finishes. Lab fees apply

Upon completion, students will be able to:

- Interpret terms used in tolerancing
- Identify dimensions of two mating parts
- Draw spur and/or bevel gears
- Draw details and assemblies
- Identify interference and clearance fits
- Identify types of threads forms
- Interpret thread notes

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2306 - MACHINE DESIGN**

Theory and practice of design. Projects in problem-solving, including press fit, bolted and welded joints, and transmission components. Lab fees apply

Upon completion, students will be able to:

- Utilize the steps used in the design process, terminology, mechanical processes to produce drawings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2317 - DESCRIPTIVE GEOMETRY**

Graphical solutions to problems involving points, lines, and planes in space. Lab fees apply

Upon completion, students will be able to:

- Describe spatial relationships
- Use sequential thinking

- Create views necessary to show object's true size and shape/development using points, lines, and planes in space

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2319 - INTERMEDIATE COMPUTER-AIDED DRAFTING**

A continuation of practices and techniques used in basic computer-aided drafting including the development and use of prototype drawings, construction of pictorial drawings, extracting data, and basics of 3D. Lab fees apply

Upon completion, students will be able to:

- Produce 2D and 3D drawings and pictorial drawings
- Use external referencing of multiple drawings to construct a composite drawing
- Import and extract data utilizing attributes

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2323 - PIPE DRAFTING**

A study of pipe fittings, symbols, specifications and their applications to a piping process system. Creation of symbols and their usage in flow diagrams, plans, elevations, and isometrics. Lab fees apply

Upon completion, students will be able to:

- Create drawings of foundations, structural supports, and process equipment
- Identify symbols and research specifications
- Generate a bill of material list
- Use charts and standards
- Generate isometric drawings
- Calculate measurements for pipe fittings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2328 - ARCHITECTURAL DRAFTING - COMMERCIAL**

Architectural drafting procedures, practices, governing codes, terms and symbols, including the preparation of detailed working drawings for a commercial building, with emphasis on commercial construction methods. Lab fees apply

Upon completion, students will be able to:

- Apply commercial construction materials and processes
- Produce a set of commercial construction drawings including a site plan, floor plans, reflected ceiling plan, sections, elevations, schedules, and details

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2330 - CIVIL DRAFTING**

An in-depth study of drafting methods and principles used in civil engineering.

Upon completion, students will be able to:

- Interpret field notes
- Develop documents for a civil project
- Analyze and layout drainage and utilities infrastructure
- Perform related calculations

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2332 - ADVANCED COMPUTER-AIDED DRAFTING**

Application of advanced CAD techniques. Lab fees apply

Upon completion, students will be able to:

- Use a customized CAD system to create documents and/or solid models
- Use OLE with external software

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2338 - FINAL PROJECT - ADVANCED DRAFTING**

A drafting course in which students participate in a comprehensive project from conception to conclusion. Lab fees apply This course is the program capstone course and should be taken the last semester of the program.

Upon completion, students will be able to:

- Conceptualize, design and present a complete project in a prescribed discipline
- Integrate problem solving and related technologies to identify solutions
- Use discipline specific industry standards, and produce documentation

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2340 - SOLID MODELING & DESIGN**

A computer-aided modeling course. Development of three-dimensional drawings and models from engineering sketches and orthographic drawings and utilization of three-dimensional models in design work. Lab fees apply

Upon completion, students will be able to:

- Create three-dimensional solid model objects
- Generate pictorial and orthographic drawings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DFTG 2358 - ADVANCED MACHINE DESIGN**

Design process skills for the production of complete design package, including jig and fixture design, extrusion dies, and injection mold design. Lab fees apply

Upon completion, students will be able to:

- Analyze design problems and prepare solutions to complete a set of drawings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **DRAM 1120 - THEATER PRACTICUM I**

Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

---

## **DRAM 1121 - THEATER PRACTICUM II**

Continuation of DRAM1120. Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Prerequisites:**

- [DRAM 1120](#) - THEATER PRACTICUM I
- 

## **DRAM 1310 - INTRODUCTION TO THEATER**

Survey of theater including its history, dramatic works, stage techniques, production procedures, and relation to other art forms. Participation in productions may be required. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **DRAM 1330 - STAGECRAFT I**

Study and application of the methods and components of theatrical production which may include one or more of the following: theater facilities, scenery construction and painting, properties, lighting, costume, makeup, sound, and theatrical management. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **DRAM 1351 - ACTING I**

An introduction to the fundamental principles and tools of acting as used in auditions, rehearsals, and performances. This may include ensemble performing, character and

script analysis, and basic theater terminology. This exploration will emphasize the development of the actor's instrument: voice, body and imagination.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **DRAM 1352 - ACTING II**

Exploration and further training within the basic principles and tools of acting, including an emphasis on critical analysis of oneself and others. The tools include ensemble performing, character and script analysis, and basic theater terminology. This will continue the exploration of the development of the actor's instrument: voice, body and imagination.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [DRAM 1351](#) - ACTING I
- 

## **DRAM 2120 - THEATER PRACTICUM III**

Continuation of DRAM1120 and DRAM1121. Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Prerequisites:**

- [DRAM 1120](#) - THEATER PRACTICUM I
  - [DRAM 1121](#) - THEATER PRACTICUM II
- 

## **DRAM 2121 - THEATER PRACTICUM IV**

Continuation of DRAM1120, DRAM1121 and DRAM2120. Practicum in theater open to all students with emphasis on technique and procedures with experience gained in play productions.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Prerequisites:**

- [DRAM 1120](#) - THEATER PRACTICUM I
  - [DRAM 1121](#) - THEATER PRACTICUM II
  - [DRAM 2120](#) - THEATER PRACTICUM III
- 

## **DRAM 2331 - STAGECRAFT II**

Continued study of DRAM1330 and the application of the methods and components of theatrical production which may include one or more of the following: theater facilities, scenery construction, and painting, properties, lighting, costume, makeup, sound and theatrical management.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [DRAM 1330](#) - STAGECRAFT I
- 

## **DRAM 2366 - INTRODUCTION TO CINEMA**

Survey and analyze cinema including history, film techniques, production procedures, selected motion pictures, and cinema's impact on and reflection of society. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ECON 2301 - PRINCIPLES OF MACROECONOMICS**

An analysis of the economy as a whole including measurement and determination of Aggregate Demand and Aggregate Supply, national income, inflation, and unemployment. Other topics include international trade, economic growth, business cycles, and fiscal policy and monetary policy. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ECON 2302 - PRINCIPLES OF MICROECONOMICS**

Analysis of the behavior of individual economic agents, including consumer behavior and demand, producer behavior and supply, price and output decisions by firms under

various market structures, factor markets, market failures, and international trade.  
Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **EDUC 1300 - LEARNING FRAMEWORK**

A study of research and theory in the psychology of learning, cognition, and motivation, factors that impact learning, and application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the conceptual basis for the introduction of the college-level student academic strategies. Students use assessment instruments (e.g. learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. Cross-listed as PSYC 1300 Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

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## **EDUC 1301 - INTRODUCTION TO THE TEACHING PROFESSION**

An enriched, integrated pre-service course and content experience that: Provides active recruitment and institutional support of students interested in a teaching career, especially in high need fields Provides students with opportunities to participate in early field observations at all levels of P-12 schools with varied and diverse students populations Provides students with support from college and school faculty for the purpose of introduction to and analysis of the culture of schooling and classrooms Course content is aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards Course must include a minimum of 16 contact hours of field experience in P-12 classrooms.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Lab hours:** 16.0

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## **EDUC 2301 - INTRODUCTION SPECIAL POPULATIONS**

An enriched, integrated pre-service course and content experience that provides an overview of schooling and classrooms from the perspectives of language, gender, socioeconomic status, ethnic and academic diversity, and equity with an emphasis on factors that facilitate learning. The course provides students with opportunities to participate in early field observations of P- 12 special populations and should be aligned

as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards. Must include a minimum of 16 contact hours of field experience in P-12 classrooms with special populations.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Lab hours:** 16.0

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## **EECT 1300 - TECHNICAL CUSTOMER SERVICE**

General principles of customer service within a technical environment. Topics include internal/external customer relationships, time-management, best practices, and verbal and non-verbal communications skills.

Upon completion, students will be able to:

- Discuss internal and external customer relationships
- Respond to customer questions and complaints in a polite and thorough manner
- Update customers on work progress to maintain customer satisfaction and public relations
- Communicate technical information in a clear, precise and logical manner
- Identify verbal and non-verbal communications skills

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ELPT 1319 - FUNDAMENTALS OF ELECTRICITY I**

An introduction to basic direct current (DC) theory including electron theory and direct current applications. Lab fees apply

Upon completion, students will be able to:

- Explain atomic structure and basic electrical values such as voltage, current, resistance, and power
- Calculate electrical values for series, parallel, and combination circuits
- Calculate voltage drop based on conductor length, type of material, and size
- Summarize the principles of magnetism; and utilize electrical measuring instruments

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **ELPT 1325 - NATIONAL ELECTRICAL CODE I**

An introductory study of the National Electric Code (NEC) for those employed in fields requiring knowledge of the Code. Emphasis on wiring design, protection, methods, and materials; equipment for general use; and basic calculations.

Upon completion, students will be able to:

- Locate and interpret the sections in the NEC that pertain to electrical installations
- Calculate the size of conductors, boxes, raceways, and overcurrent protective devices for branch circuits supplying electrical equipment
- Calculate conductors, over-current protection, and service equipment as applied to building services
- Compute the size of branch circuits, feeders, and equipment for motors

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ELPT 1341 - MOTOR CONTROL**

Operating principles of solid-state and conventional controls along with their practical applications. Includes braking, jogging, plugging, safety interlocks, wiring, and schematic diagram interpretations. Lab fees apply

Upon completion, students will be able to:

- Identify practical applications of jogging and plugging
- Describe the types of motor braking and their operating principles
- Explain different starting methods for large motors
- Demonstrate proper troubleshooting methods on circuits using wiring and schematic diagrams

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **ELPT 2305 - MOTORS & TRANSFORMERS**

Operation of single- and three-phase motors and transformers. Includes transformer banking, power factor correction, and protective devices. Lab fees apply

Upon completion, students will be able to:

- Match the type of single-phase motor with its principles of operation
- Compare the operating characteristics of the three types of three-phase motors

- Explain the advantages of Wye and Delta connections in motor and transit applications
- Size over-current, short circuit, and ground fault protective devices
- Utilize nameplate information

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ELPT 2319 - PROGRAMMABLE LOGIC CONTROLLERS I**

Fundamental concepts of programmable logic controllers, principles of operation, and numbering systems as applied to electrical controls. Lab fees apply

Upon completion, students will be able to:

- Identify and describe digital logic circuits and explain numbering systems
- Explain the operation of programmable logic controllers
- Convert ladder diagrams into programs
- Incorporate timers and counters utilizing programmable logic controllers
- Execute and evaluate programs

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **EMSP 1160 - CLINICAL - EMERGENCY MEDICAL TECHNICIAN/ TECHNOLOGY**

A method of instruction providing detailed education, training and work-based experience, and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation, and placement are the responsibility of the college faculty. Clinical experiences are unpaid external learning experiences. Course may be repeated if topics and learning outcomes vary.

**Grade Basis:** L

**Credit hours:** 1.0

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## **EMSP 1338 - INTRODUCTION TO ADVANCED PRACTICE**

Lab fees apply

Upon completion, students will be able to:

- Understand the roles and responsibilities of a paramedic within the EMS system
- Apply the basic concepts of development, pathophysiology and pharmacology to assessment and management of emergency patients
- Properly administer medications
- Communicate effectively with patients
- Understand the medical, legal, and ethical issues relating to EMS practice as well as the issues impacting the well being of the paramedic

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **EMSP 1355 - TRAUMA MANAGEMENT**

A detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with traumatic injuries. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **EMSP 1356 - PATIENT ASSESSMENT & AIRWAY MANAGEMENT**

A detailed study of the knowledge and skills required to reach competence in performing patient assessment and airway management. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **EMSP 1501 - EMERGENCY MEDICAL TECHNICIAN**

Introduction to the level of Emergency Medical Technician (EMT) - Basic. Includes all the skills necessary to provide emergency medical care at a basic life support level with an ambulance service or other specialized services. Lab fees apply

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **EMSP 2206 - EMERGENCY PHARMACOLOGY**

Utilization of medications in treating emergency situations.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **EMSP 2261 - CLINICAL I - EMERGENCY MEDICAL TECHNICIAN/ PARAMEDIC**

A method of instruction providing detailed education, training and work-based experience, and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation, and placement are the responsibility of the college faculty. Clinical experiences are unpaid external learning experiences. Course may be repeated if topics and learning outcomes vary.

**Grade Basis:** L

**Credit hours:** 2.0

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## **EMSP 2262 - CLINICAL II - EMERGENCY MEDICAL TECHNICIAN/ PARAMEDIC**

A method of instruction providing detailed education, training and work-based experience, and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation, and placement is the responsibility of the college faculty. Clinical experiences are unpaid external learning experiences. Course may be repeated if topics and learning outcomes vary.

**Grade Basis:** L

**Credit hours:** 2.0

---

## **EMSP 2305 - EMS OPERATIONS**

Knowledge and skills to safely manage multi-casualty incidents and rescue situations, utilize air medical resources, identify hazardous materials, and other specialized incidents.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 64.0

---

## **EMSP 2338 - EMERGENCY MEDICAL OPERATIONS**

A detailed study of the knowledge and skills necessary to reach competence to safely manage the scene of an emergency. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

---

## **EMSP 2352 - EMERGENCY MEDICAL SERVICES RESEARCH**

Primary and/or secondary research in current and emerging issues in EMS. Basic research principles, scientific inquiry, and interpretation of professional literature are emphasized. Students will demonstrate computer competencies during this course. Students will be required to present research data utilizing the internet. Data presentation shall include, but not be limited to PowerPoint, Excel or other Windows platforms.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **EMSP 2434 - MEDICAL EMERGENCIES**

A detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with medical emergencies. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **EMSP 2544 - CARDIOLOGY**

A detailed study of the knowledge and skills necessary to reach competence in the assessment and management of patients with cardiac emergencies.

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **EMSP 2553 - EMERGENCY MEDICAL SERVICES CERTIFICATION FOR THE REGISTERED NURSE, PHYSICIAN'S ASSISTANT, REGISTERED RESPIRATORY THERAPIST & LICENSED NURSE PRACTITIONER**

Preparation of the R.N., R.R.T., L.P.N., or P.A. (Licensed to Practice in Texas) for Emergency Medical Services (EMS) certification. In addition to completing this course, students must also successfully complete an EMS internship. Students that meet all the listed requirements are eligible to apply for certification as an Emergency Medical Technician-Paramedic.

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 64.0

---

## **EMSP 2563 - CLINICAL - EMT-P INTERNSHIP**

A method of instruction providing detailed education, training and work-based experience, and direct patient/client care, generally at a clinical site. Specific detailed learning objectives are developed for each course by the faculty. On-site clinical instruction, supervision, evaluation, and placement are the responsibility of the college faculty. Clinical experiences are unpaid external learning experiences. Course may be repeated if topics and learning outcomes vary.

**Grade Basis:** L

**Credit hours:** 5.0

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## **ENGL 0300 - FUNDAMENTALS OF ENGLISH I**

In this course, students will learn to write clear, well-developed paragraphs. Students will also learn to identify and correct major sentence errors, including fragments, comma splices, and run-ons. Other topics include subject-verb agreement, pronoun usage, and basic punctuation. This course does not count toward graduation at NCTC.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 0305 - FUNDAMENTALS OF ENGLISH II**

In this course, students will learn to compose unified, well-developed essays with an introduction, a body, and a conclusion. The thesis statement and topic sentences will be emphasized. Students will also review and practice the basic grammar skills taught in ENGL 0300 and then move to more advanced topics, including modifiers and parallelism. This course does not count toward graduation at NCTC.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ENGL 1301 - COMPOSITION I**

Intensive study of and practice in writing processes, from invention and researching to drafting, revising, and editing, both individually and collaboratively. Emphasis on effective rhetorical choices, including audience, purpose, arrangement, and style. Focus on writing the academic essay as a vehicle for learning, communicating, and critical analysis. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **ENGL 1302 - COMPOSITION II**

Intensive study of and practice in the strategies and techniques for developing research-based expository and persuasive texts. Emphasis on effective and ethical rhetorical inquiry, including primary and secondary research methods; critical reading of verbal, visual, and multimedia texts; systematic evaluation, synthesis, and documentation of information sources; and critical thinking about evidence and conclusions. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2307 - CREATIVE WRITING**

Practical experience in the techniques of imaginative writing. May include fiction, nonfiction, poetry, screenwriting, or drama.

**Grade Basis:** L

**Credit hours:** 3.0

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## **ENGL 2311 - TECHNICAL & BUSINESS WRITING**

Intensive study of and practice in professional settings. Focus on the types of documents necessary to make decisions and take action on the job, such as proposals, reports, instructions, policies and procedures, e-mail messages, letters, and descriptions of products and services. Practice individual and collaborative processes involved in the creation of ethical and efficient documents. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2322 - BRITISH LITERATURE I**

A survey of the development of British literature from the Anglo-Saxon period to the Eighteenth Century. Students will study works of prose, poetry, drama, and fiction in relation to their historical, linguistic, and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2323 - BRITISH LITERATURE II**

A survey of the development British literature from the Romantic period to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2327 - AMERICAN LITERATURE I**

A survey of American literature from the period of exploration and settlement through the Civil War. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2328 - AMERICAN LITERATURE II**

A survey of American literature from the Civil War to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from among a diverse group of authors for what they reflect and reveal about the evolving American experience and character. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2332 - WORLD LITERATURE I**

A study of world literature from the ancient world through the sixteenth century. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **ENGL 2333 - WORLD LITERATURE II**

A survey of world literature from the seventeenth century to the present. Students will study works of prose, poetry, drama, and fiction in relation to their historical and cultural contexts. Texts will be selected from a diverse group of authors and traditions. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **FIRS 1103 - FIREFIGHTER AGILITY & FITNESS PREPARATION**

Physical ability testing methods. Rigorous training in skills and techniques needed in typical fire department physical ability tests.

**Grade Basis:** L

**Credit hours:** 1.0

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## **FIRS 1301 - FIREFIGHTER CERTIFICATION I**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification III, IV, V, and VI to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 80.0

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## **FIRS 1313 - FIREFIGHTER CERTIFICATION III**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification I, IV, V, and VI to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 80.0

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## **FIRS 1319 - FIREFIGHTER CERTIFICATION IV**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, II, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 96.0

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## **FIRS 1323 - FIREFIGHTER CERTIFICATION V**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, II, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 96.0

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## **FIRS 1329 - FIREFIGHTER CERTIFICATION VI**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, II, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 80.0

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## **FIRS 1333 - FIREFIGHTER CERTIFICATION VII**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 64.0

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## **FIRS 1407 - FIREFIGHTER CERTIFICATION II**

One in a series of courses in basic preparation for a new firefighter. Should be taken in conjunction with Firefighter Certification II, III, IV, V, VI, and VII to satisfy the Texas Commission on Fire Protection (TCFP) curriculum for Basic Structural Fire Suppression, Course #100. This course may be offered only by institutions certified as a training facility by the Texas Commission on Fire Protection (TCFP).

**Grade Basis:** L

**Credit hours:** 4.0

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## **FIRT 1301 - FUNDAMENTALS OF FIRE PROTECTION**

Orientation to the fire service, career opportunities, and related fields.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FIRT 1307 - FIRE PREVENTION CODES & INSPECTIONS**

Examination of building codes and requirements, construction types, and building materials. Includes walls, floorings, foundations, and various roof types and the associated dangers of each. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 64.0

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## **FIRT 1309 - FIRE ADMINISTRATION I**

Introduction to the organization and management of a fire department and the relationship of government agencies to the fire service. Emphasis on fire service leadership from the perspective of the company officer.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FIRT 1315 - HAZARDOUS MATERIAL I**

The chemical characteristics and behavior of various materials. Storage, transportation, handling hazardous emergency situations, and the most effective methods of hazard mitigation.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FIRT 1319 - FIREFIGHTER HEALTH & SAFETY**

Course Description: Firefighter occupational safety and health in emergency and non-emergency situations. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 96.0

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## **FIRT 1329 - BUILDING CODES & CONSTRUCTION**

Local building and fire prevention codes. Fire prevention inspections, practices, and procedures. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 80.0

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## **FIRT 1333 - FIRE CHEMISTRY**

Chemical nature and properties of compounds as related to the fire service. Fundamental laws of chemistry, states of matter, gas laws, chemical bonding, and thermodynamics. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FIRT 1338 - FIRE PROTECTION SYSTEMS**

Design and operation of fire detection and alarm systems, heat and smoke control systems, special protection and sprinkler systems, water supply for fire protection, and portable fire extinguishers. This course meets Fire and Emergency Services Higher Education (FESHE) Model Curriculum core requirements.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FIRT 2188 - INTERNSHIP-FIRE PROTECTION & SAFETY TECHNOLOGY**

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. This may be a paid or unpaid experience.

**Grade Basis:** L

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## **FIRT 2309 - FIREFIGHTING STRATEGIES & TACTICS**

Analysis of the nature of fire problems and selection of initial strategies and tactics including an in-depth study of efficient and effective use of staffing and equipment to mitigate the emergency.

**Grade Basis:** L

**Credit hours:** 3.0

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## **FMKT 1301 - FLORAL DESIGN**

Principles and elements of floral art with an emphasis on commercial design. Topics include basic design styles and color harmonies, identification, use, and care of processing of cut flowers and foliage, mechanical aids and containers, personal flowers, holiday designs, and plant identification and care. History of floral art in society. Lab fees apply

Upon completion, students will be able to:

- Apply principles and elements of design
- Identify floral design styles
- Identify cut flowers and foliage
- Explain the care and processing methods for extended vase life
- Select containers and mechanical aids
- Create basic floral arrangements

**Grade Basis:** L

**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

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## **FMKT 2331 - ADVANCED FLORAL DESIGN**

An in-depth coverage of advanced floral design practices for the retail floral industry. Topics include contemporary floral arrangement styles and trends. Lab fees apply

Upon completion, students will be able to:

- Create contemporary floral designs
- Identify specialty flowers and foliage used in retail flower shops
- Determine care and processing techniques
- Select mechanical aids
- Calculate price by various methods

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

**Prerequisites:**

- [FMKT 1301](#) - FLORAL DESIGN
- 

## **ENGL 2341 - FORMS OF LITERATURE**

The study of one or more literary genres including, but not limited to, poetry, fiction, drama, and film.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

**Prerequisites:**

- [ENGL 1301](#) - COMPOSITION I
- 

## **FREN 1411 - BEGINNING FRENCH I**

Emphasis on the development of elementary listening, speaking, reading, and writing skills applied to present situations and events relevant to students' lives and to the understanding of French-speaking communities. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **FREN 1412 - BEGINNING FRENCH II**

Continuation of FREN 1411 with emphasis on elementary listening, speaking, reading and writing skills. Includes basic vocabulary, grammatical structures, and culture. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

---

## **FREN 2311 - INTERMEDIATE FRENCH I**

Review and application of skills in listening comprehension, speaking, reading, and writing. Emphasizes conversation, vocabulary acquisition, reading, composition, and culture.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **FREN 2312 - INTERMEDIATE FRENCH II**

Review and application of skills in listening comprehension, speaking, reading, and writing. Emphasizes conversation, vocabulary acquisition, reading, composition, and culture.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PSTR 1301 - FUNDAMENTALS OF BAKING**

Fundamentals of baking including dough, quick breads, pies, cakes, cookies, and tarts. Instruction in flours, fillings, and ingredients. Topics include baking terminology, tool and equipment use, formula conversions, functions of ingredients, and the evaluation of baked products. Lab fees apply

Upon completion, students will be able to:

- Identify and explain baking terms, ingredients, equipment, and tools
- Scale and measure ingredients
- Convert and cost recipes
- Operate baking equipment and tools

- Prepare yeast products, quick breads, pies, tarts, cookies, various cakes, and icings
- Demonstrate fundamental decorating techniques
- Demonstrate fundamental decorating techniques
- Produce commercially acceptable baked products

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **GAME 1303 - INTRODUCTION TO GAME DESIGN & DEVELOPMENT**

Introduction to electronic game development and game development careers. Includes examination of history and philosophy of games, the game production process, employee factors for success in the field, and current issues and practices in the game development industry.

Upon completion, students will be able to:

- Describe the history and evolution of video and computer games and game genres
- Identify the phases and processes involved in developing a computer game
- Design a simple computer game from initial concept to final design document
- Describe current trends in the game industry with regards to hiring practices, working conditions, etc

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **GAME 1306 - DESIGN AND CREATION OF GAMES**

Introduction to game and simulation development. Includes analysis of existing applications and creation of a game using an existing game engine. In-depth coverage of the essential elements of game design. Also covers an overview of cultural history of electronic games, survey of the major innovators, and examination of the trends and taboos that motivate game design. Lab fees apply

Upon completion, students will be able to:

- Summarize the evolution of the electronic game industry
- Explain essential game and simulation elements
- Evaluate the strengths and limitations of game and simulation systems
- Identify programmatic and graphical elements of a development system
- Develop a concept document and simple game

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **GAME 1309 - INTRODUCTION TO ANIMATION PROGRAMMING**

Mathematical elements and algorithms involved in basic animation. Includes generating graphics, viewing 3D environments such as visible line detection and 3D surfaces, image processing techniques, and special effects. Lab fees apply

Upon completion, students will be able to:

- Develop programs that apply the basic character animation techniques, build and pose animated characters, and implement proper timing within animations

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **GAME 1328 - VIDEO GAME DESIGN**

Characters, environments, architecture, static objects, user interface, and storyboards for games. Emphasizes applying 2D design concepts. Lab fees apply

Upon completion, students will be able to:

- Solve design problems
- Demonstrate refinement and enhancement of preliminary design concepts
- Demonstrate techniques for communicating complex design criteria and inspiration to artists and non-artists

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **GAME 1343 - GAME AND SIMULATION PROGRAMMING I**

Game and simulation programming. Includes advanced pointer manipulation techniques and pointer applications, points and vectors, sound, and graphics. Lab fees apply

Upon completion, students will be able to:

- Perform game and simulation programming
- Use advanced pointer manipulation techniques and pointer applications, points and vectors, sound, and graphics

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

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## **GAME 2308 - PORTFOLIO FOR GAME DEVELOPMENT**

Design and management of an industry standard portfolio. Includes techniques in self-promotion, resume writing, portfolio distribution systems, and interviewing.

Upon completion, students will be able to:

- Design a professional portfolio for various delivery systems
- Create resume, business card, web page, demo reel, and hardcopy

**Grade Basis:** L  
**Credit hours:** 3.0

### **Restrictions:**

- Department Chair approval required unless student is in last semester of their Application Development degree
- 

## **GAME 2342 - GAME DEVELOPMENT USING C++**

Skill development in C++ programming for games and simulations. Examines real-work C++ development issues.

Upon completion, students will be able to:

- Utilize standard game libraries
- Examine interfaces, exceptions, file access, and random numbers
- Create basic game or simulation frameworks building upon C++ knowledge

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

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## **GEOL 1401 - EARTH SCIENCE FOR NON-MAJORS I**

Survey of geology, meteorology, oceanography, and astronomy. This laboratory-based course accompanies GEOL 1301, Earth Sciences I. Activities will cover methods used to collect and analyze data in geology, meteorology, oceanography, and astronomy.

Lab fees apply

**Grade Basis:** L  
**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **GEOL 1402 - EARTH SCIENCES FOR NON-MAJORS II**

Extension of the study of geology, astronomy, meteorology and oceanography, focusing on natural resources, hazards and climate variability. This laboratory-based course accompanies GEOL 1302, Earth Sciences II. Activities will focus on methods used to collect and analyze data related to natural resources, hazards and climate variability. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## **GOVT 2305 - FEDERAL GOVERNMENT - FEDERAL CONSTITUTION & TOPICS**

Origin and development of the U.S. Constitution, structure and powers of the national government including the legislative, executive, and judicial branches, federalism, political participation, the national election process, public policy, civil liberties and civil rights. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **GOVT 2306 - TEXAS GOVERNMENT - TEXAS CONSTITUTION & TOPICS**

Origin and development of the Texas constitution, structure and powers of state and local government, federalism and inter-governmental relations, political participation, the election process, public policy, and the political culture of Texas. Meets Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HALT 1303 - HERBACEOUS PLANTS**

A study of herbaceous plant material. Topics include practices and procedures used in the identification, growth, propagation, maintenance, and utilization of herbaceous plants in the horticulture industry. Lab fees apply

Upon completion, students will be able to:

- Identify herbaceous plants at various growth stages
- Explain methods used to propagate herbaceous plants
- Describe the cultural requirements for care and use of herbaceous plants

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1309 - INTERIOR PLANTS**

Instruction in the identification and classification of the plants used in home and commercial interior landscapes. Topics include design characteristics for interiorscapes and environmental requirements of the plants. Lab fees apply

Upon completion, students will be able to:

- Identify interior plants
- Select care methods for specific plants
- Identify production methods of interior plants

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1325 - LANDSCAPE PLANT MATERIAL**

Study of the identification, characteristics, cultural requirements, and landscape uses of native and adapted plants. Lab fees apply

Upon completion, students will be able to:

- Identify plants
- Select plants for various landscape situations
- List characteristics of plants
- Describe cultural requirements of plants

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1331 - WOODY PLANT MATERIALS**

Study of woody plant materials used in the horticulture industry. Topics include identification, characteristics, adaptation, cultural requirements, pest and disease problems, and use in the landscape. Lab fees apply

Upon completion, students will be able to:

- Identify woody plants in various growth stages
- Describe morphological, anatomical, or other botanical features
- Explain cultural requirements of woody plants

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1333 - LANDSCAPE IRRIGATION**

Coverage of irrigation systems including equipment, design, performance, and maintenance. Topics include residential and small business applications, troubleshooting, repair, and technological advances in irrigation systems. Lab fees apply

Upon completion, students will be able to:

- Describe the basic installation techniques used to install an irrigation system
- Discuss the separation of zones for turf areas, shrubs, ground covers, and other plant groups
- Prepare a design for an irrigation system

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1353 - LANDSCAPE COMPUTER DESIGN**

A course in computer-aided landscape design. Emphasis on the application of design concepts and techniques using software. Lab fees apply

Upon completion, students will be able to:

- Design landscape plans using computer software programs
- Print a report of all hardscape and softscape materials used in the design

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [HALT 1422](#) - LANDSCAPE DESIGN
- 

## **HALT 1372 - NATURALISTIC HORTICULTURE**

An organic approach to plant production, pest management, soil fertility, and plant health. Emphasis on sustainability, xeriscaping and landscaping using native plants as well as creating wildlife landscapes. Lab fees apply

Upon completion, students will be able to:

- Demonstrate and apply sustainable horticulture techniques and principles
- Explain the benefits of biodiversity in the garden
- Produce and maintain healthy soils

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 1422 - LANDSCAPE DESIGN**

A study of the principles and elements of landscape design. Topics include client interview, site analysis, plan view, scale, plant selection, basic drawing and drafting skills, and plan preparation. Lab fees apply

Upon completion, students will be able to:

- Demonstrate procedures utilized in the development of a landscape plan
- Develop a landscape design
- Perform a site analysis and incorporate the information into the final design

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **HALT 2280 - COOPERATIVE EDUCATION**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 160.0

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## **HALT 2302 - GREENHOUSE CROP PRODUCTION**

Production of crops within the greenhouse environment. Topics include growing techniques, environmental control, crop rotation, scheduling, preparation for sale, and marketing. Lab fees apply

Upon completion, students will be able to:

- Produce crops within a greenhouse
- Explain various cultural requirements for greenhouse crops
- Implement marketing and sales
- Modify crop growth and development

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 2307 - HORTICULTURAL FOOD CROPS**

A study of commercial and home cultivated food crops including various vegetables, fruits, and nuts. Topics address planting, maintenance, harvest, and storage of the various crops. Lab fees apply

Upon completion, students will be able to:

- Demonstrate the ability to plan, design, and plant a vegetable garden or small fruit orchard and properly cultivate, fertilize, water, and harvest the garden or orchard
- Discuss various types of gardens and their applications in both commercial and residential settings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 2308 - GREENHOUSE MANAGEMENT**

Fundamentals of greenhouse construction and operation. Topics include architectural styles, construction materials, environmental systems and controls, growing media, fertilizers, post-harvest handling, marketing, and business management. Lab fees apply

Upon completion, students will be able to:

- Compare and select architectural styles and materials for greenhouse construction
- Calculate heating, cooling, and light requirements and select appropriate equipment
- Determine cultural and business methods necessary for crop production

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HALT 2321 - SMALL FARMING**

Instruction in small farming techniques with emphasis on horticulture science including comprehensive and profitable guidelines. Topics include herbs, fruits, nut, and vegetable crops. Lab fees apply

Upon completion, students will be able to:

- Identify major physical and biological factors that affect crops
- Utilize innovative production techniques for a small farming operation
- Demonstrate creative marketing techniques for small farming operations
- Design productive and profitable small farming operations

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HART 1256 - EPA RECOVERY CERTIFICATION**

Certification training for HVAC refrigerant recovery, recycle, and reclaim. Instruction will provide a review of EPA guidelines for refrigerant recovery and recycling during the installation, service, and repair of all HVAC and refrigeration systems.

Upon completion, students will be able to:

- Define refrigerant recovery, recycle, and reclaim terms
- Explain refrigerant recovery, recycle, and reclaim procedures
- Analyze refrigerant recovery, recycle, and reclaim operations
- Identify Type I, Type II, and Type III appliances
- Examine and utilize Section 608 of the Clean Air Act of 1990 Refrigerant, Recovery, Recycle, and Reclaim

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **HART 1301 - BASIC ELECTRICITY FOR HVAC**

Principles of electricity as required by HVAC, including proper use of test equipment, electrical circuits, and component theory and operation. Lab fees apply

Upon completion, students will be able to:

- Demonstrate knowledge of basic principles of electricity, electrical current, circuitry, and air conditioning devices
- Apply Ohm's law to electrical calculations
- Perform electrical continuity, voltage, and current tests with appropriate meters
- Demonstrate electrical safety

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HART 1307 - REFRIGERATION PRINCIPLES**

An introduction to the refrigeration cycle, heat transfer theory, temperature/pressure relationship, refrigerant handling, refrigeration components, and safety. Lab fees apply

Upon completion, students will be able to:

- Identify refrigeration components
- Explain operation of the basic refrigeration cycle and heat transfer
- Demonstrate proper application and/or use of tools, test equipment, and safety procedures

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HART 1341 - RESIDENTIAL AIR CONDITIONING**

A study of components, applications, and installation of mechanical air conditioning systems including operating conditions, troubleshooting, repair, and charging of air conditioning systems. Lab fees apply

Upon completion, students will be able to:

- Identify various types of system applications
- Perform charging, recovery, and evacuation procedures of an installed system
- Perform component and part diagnostics and replacement
- Perform system maintenance

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HART 2301 - AIR CONDITIONING & REFRIGERATION CODES**

HVAC standards and concepts with emphasis on the understanding, and documentation of the codes and regulations required for the state mechanical contractors license and local codes.

Upon completion, students will be able to:

- Demonstrate the ability to locate and identify information in code books and reference materials applicable to installation procedures governed by Texas Department of Licensing and Regulation (TDLR)

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HART 2342 - COMMERCIAL REFRIGERATION**

Theory and practical application in the maintenance of commercial refrigeration; medium, and low temperature applications and ice machines. Lab fees apply

Upon completion, students will be able to:

- Explain and apply medium and low temperature systems operation
- Explain and apply ice machine and packaged refrigeration system operation
- Explain application and conversion procedures of refrigerants related to specific systems

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **HART 2358 - TESTING, ADJUSTING & BALANCING HVAC SYSTEMS**

A study in the process of checking and adjusting all the building environmental systems to produce the design objectives. Emphasis on efficiency and energy savings. Lab fees apply

Upon completion, students will be able to:

- Interpret HVAC design specifications and plans
- Measure air flow, water flow, and system pressure with instruments
- Perform calculations for fan and pump laws including psychometric
- Adjust and align mechanical equipment
- Diagnose malfunctioning equipment and create a punch list
- Test air quality, humidity, noise, and temperature

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **HART 2380 - COOPERATIVE EDUCATION**

Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and the employer, the student combines learning with work experience. Includes lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

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## **HART 2445 - RESIDENTIAL AIR CONDITIONING SYSTEMS DESIGN**

Study of the properties of air and results of cooling, heating, humidifying or dehumidifying; heat gain and heat loss calculations including equipment selection and balancing the air system. Lab fees apply

Upon completion, students will be able to:

- Calculate heat loss and heat gain
- Size heating and cooling equipment to the structure
- Read and interpret detailed HVAC design plans
- Perform a load calculation using industry standards
- Design a complete air distribution system including ventilatins requirements and indoor air quality

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **HIST 1301 - UNITED STATES HISTORY I - UP TO 1865**

A survey of the social, political, economic, cultural, and intellectual history of the United States from the pre-Columbian era to the Civil War/Reconstruction period. United States History I includes the study of pre-Columbian, colonial, revolutionary, early national, slavery and sectionalism, and the Civil War/Reconstruction eras. Themes that may be addressed in United States History I include: American settlement and diversity, American culture, religion, civil and human rights, technological change, economic change, immigration and migration, and creation of the federal government. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HIST 1302 - UNITED STATES HISTORY II - FROM 1865**

A survey of the social, political, economic, cultural, and intellectual history of the United States from the Civil War and Reconstruction era to the present. United States History II examines industrialization, immigration, world wars, the Great Depression, Cold War and post-Cold War eras. Themes that may be addressed in the United States History II include American culture, religion, civil and human rights, technological change, economic change, immigration and migration, urbanization and suburbanization, the expansion of the federal government, and the study of U.S. foreign policy. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HIST 2301 - TEXAS HISTORY**

A survey of the political, social, economic, cultural, and intellectual history of Texas from the pre-Columbian era to the present. Themes that may be addressed in Texas History include: Spanish colonization and Spanish Texas, Mexican Texas, the Republic of Texas, statehood and secession, oil, industrialization, and urbanization, civil rights, and modern Texas. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HIST 2321 - WORLD CIVILIZATIONS I**

A survey of the social, political, economic, cultural, religious, and intellectual history of the world from emergence of human cultures through the 15th century. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include the emergence of early societies, the rise of civilizations, the development of political and legal systems, religion and philosophy, economic systems and trans-regional networks of exchange. The course emphasizes the development, interaction and impact of global exchange. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HIST 2322 - WORLD CIVILIZATIONS II**

A survey of the social, political, economic, cultural, religious, and intellectual history of the world from the 15th century to the present. The course examines major cultural regions of the world in Africa, the Americas, Asia, Europe, and Oceania and their global interactions over time. Themes include maritime exploration and transoceanic empires, nation/state formation and industrialization, imperialism, global conflicts and resolutions, and global economic integration. The course emphasizes the development, interaction and impact of global exchange. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HITT 1205 - MEDICAL TERMINOLOGY**

Study of medical terms through word origin and structure. Introduction to abbreviations and symbols, surgical and diagnostic procedures, and medical specialties.

**Grade Basis:** L

**Credit hours:** 2.0

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## **SRGT HITT 1205 - MEDICAL TERMINOLOGY**

Study of the basic structure of medical words including prefixes, suffixes, roots, combining forms, plurals, pronunciation, spelling, and the definitions of medical terms. Emphasis is on building a professional vocabulary required for employment in the allied health care field.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 2.0

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## **HORT 1401 - HORTICULTURE**

Structure, growth, and development of horticultural plants. Examination of environmental effects, basic principles of reproduction, production methods ranging from outdoor to controlled climates, nutrition, and pest management. Lab fees apply

Upon completion, students will be able to:

- Identify the various horticultural industries and their roles in our society
- Investigate methods of environmental manipulation (e.g. greenhouse controls, frost management methods, hot caps)
- Apply scientific reasoning to investigate questions and utilize scientific and horticultural tools to collect and analyze data and demonstrate methods
- Use critical thinking and scientific problem - solving to make informed decisions
- Communicate effectively the results of scientific investigations
- Describe the fundamentals of plant science
- Assess the interactions of soils, water, and fertility in plant science
- Contrast the methods of plant reproduction and propagation
- Explain the impacts of production methods and technologies on plant science
- Contrast methods of pest management in plant science

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **HPRS 1201 - INTRODUCTION TO HEALTH PROFESSIONS**

An overview of roles of various members of the health care system, education requirements, and issues affecting the delivery of health care.

**Grade Basis:** L

**Credit hours:** 2.0

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## **HPRS 1304 - BASIC SKILLS I**

Study of the concepts that serve as the foundation for health profession courses, including client care and safety issues, basic client monitoring, and health documentation methods.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 1391 - SPECIAL TOPICS - INSTRUMENTS I**

The primary focus of this course is the anesthesia machine. However, all ancillary equipment, including but not limited to gas cylinders, hospital supply lines, ventilators, and absorbers will also be covered. The setup, calibration, operation, basic troubleshooting, maintenance and safety checks for each is taught.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 1392 - SPECIAL TOPICS - INSTRUMENTS II**

This course is a continuation of Anesthesia Technology Instrumentation I and expands upon the scope of anesthesia instrumentation. Various pieces of instrumentation such as cell savers, patient warmers, fluid warmers, ACT machines, pulse oximeters will be discussed.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 1563 - CLINICAL I**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 5.0

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## **HPRS 2300 - PHARMACOLOGY**

Categorize the classification of drugs, calculate drug dosages, and identify the therapeutic use, routes of administration, indicates contraindications, and adverse effects.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 2310 - BASIC SKILLS II**

Builds on previously acquired knowledge and skills relevant to the professional development of the student. Lecture and simulated laboratory experiences prepare the student to perform patient care utilizing critical thinking and advanced clinical skills.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 2331 - HEALTH PROFESSIONS MANAGEMENT**

Exploration and application of management concepts necessary for effective health profession operations.

**Grade Basis:** L

**Credit hours:** 3.0

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## **HPRS 2563 - CLINICAL II**

A health-related work based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 5.0

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## **HRPO 2301 - HUMAN RESOURCES MANAGEMENT**

Behavioral and legal approaches to the management of human resources in organizations.

Upon completion, students will be able to:

- Explain the development of human resources management
- Explain current methods of job analysis, recruitment, selection, training/development, performance management, promotion, and separation
- Describe management's ethical, social, and legal responsibilities
- Explain methods of compensation and benefits planning

- Describe the role of strategic human resources planning

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **HRPO 2307 - ORGANIZATIONAL BEHAVIOR**

The analysis and application of organizational theory, group dynamics, motivation theory, leadership concepts and the integration of interdisciplinary concepts from the behavioral sciences.

Upon completion, students will be able to:

- Explain organizational theory as it relates to management practices, employee relations, and structure of the organization to fits its environment and operation
- Analyze leadership styles and determine their effectiveness in employee situations
- Identify methods in resolving organizational problems
- Describe the impact of corporate culture on employee behavior
- Analyze team dynamics, team building strategies, and cultural diversity

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **HUMA 1301 - INTRODUCTION TO THE HUMANITIES I**

This stand-alone course is an interdisciplinary survey of cultures focusing on the philosophical and aesthetic factors in human values with an emphasis on the historical development of the individual and society and the need to recreate. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **HYDR 1345 - HYDRAULICS & PNEUMATICS**

Discussion of the fundamentals of hydraulics and pneumatics, components of each system, and the operations, maintenance, and analysis of each system. Lab fees apply

Upon completion, students will be able to:

- Demonstrate the operation of basic hydraulic and pneumatic systems including associated instruments
- Interpret schematics
- Troubleshoot systems

- Design a schematic drawing of a working system

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **IBUS 1305 - INTRODUCTION TO INTERNATIONAL BUSINESS & TRADE**

The techniques for entering the international marketplace. Emphasis on the impact and dynamics of sociocultural, demographic, economic, technological, and political-legal factors in the foreign trade environment. Topics include patterns of world trade, internationalization of the firm, and operating procedures of the multinational enterprise.

Upon completion, students will be able to:

- Explain terms used in the international business environment
- Discuss internal and external factors influencing the conduct of international business

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **IMED 1316 - WEB DESIGN I**

Instruction in web page design and related graphic design issues including mark-up languages and browser issues. Lab fees apply

Upon completion, students will be able to:

- Identify how the Internet functions with specific attention to the World Wide Web and file transfer
- Apply design techniques in the creation and optimization of graphics and other embedded elements
- Demonstrate the use of World Wide Web Consortium (W3C) formatting and layout standards
- Design, create, test, and maintain a web site

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **IMED 1345 - INTERACTIVE DIGITAL MEDIA**

Exploration of the use of graphics and sound to create interactive multimedia applications and/or animations using industry standard authoring software. Lab fees apply

Upon completion, students will be able to:

- Develop an interactive digital media presentation integrating different types of media
- Design a navigation scheme
- Demonstrate animation techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
- 

## **INEW 2334 - ADVANCED WEB PROGRAMMING**

Web programming using industry-standard languages and data stores.

Upon completion, students will be able to:

- Design, code, and implement a dynamic website
- Develop connectivity between data store and website

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
- 

## **INMT 1305 - INTRODUCTION TO INDUSTRIAL MAINTENANCE**

Basic mechanical skills and repair techniques common to most fields of industrial maintenance. Topics include precision measuring instruments and general safety rules common in industry, including lock-out/tag-out. Lab fees apply

Upon completion, students will be able to:

- Identify various types of fasteners common to industrial maintenance

- Utilize various hand and power tools
- Utilize precision measuring instruments
- Demonstrate proper lock-out/tag-out procedures

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **INMT 2303 - PUMPS, COMPRESSORS & MECHANICAL DRIVES**

A study of the theory and operations of various types of pumps and compressors. Topics include mechanical power transmission systems including gears, v-belts, and chain drives. Lab fees apply

Upon completion, students will be able to:

- Identify the principles involved in the operation of centrifugal and positive displacement pumps and compressors
- Explain the function of various components in pumps and compressors, disassemble and reassemble pumps, compressors and mechanical drives, and troubleshoot pumps, compressors and mechanical drives

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **INMT 2345 - INDUSTRIAL TROUBLESHOOTING**

An advanced study of the techniques used in troubleshooting various types of industrial equipment to include mechanical, electrical, hydraulic, and pneumatic systems and their control devices. Emphasis will be placed on the use of schematics and diagrams in conjunction with proper troubleshooting procedures. Lab fees apply

Upon completion, students will be able to:

- Demonstrate various troubleshooting techniques
- Troubleshoot hydraulic, pneumatic, electrical mechanical drive systems using schematics and diagrams

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **INMT 2380 - COOPERATIVE EDUCATION - MANUFACTURING TECHNOLOGY**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

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## **INRW 0305 - INTEGRATED READING AND WRITING**

Integration of critical reading and academic writing skills. Successful completion of this course if taught at the upper (exit) level fulfills TSI requirements for reading and/or writing.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **FDNS 1301 - INTRODUCTION TO FOODS**

A study of the composition of food and the chemical and biological changes that occur in storage and processing. Includes preparation techniques and selection principles.

Lab fees apply

Upon completion, students will be able to:

- Explain esthetic values applied to food preparation, acid/base characteristics, use of heat in cookery, protein properties, composition of milk, egg, cheese, meat and fish, and properties of starch foods
- Describe what makes a solution
- Define carbohydrates, lipids, objective food analysis
- List standards of fruit/vegetable selection

- Demonstrate approved measuring techniques, microwave cookery, and cooking principles for cereal, pasta, starch, plant protein, fruit, vegetables, cheese, poultry, fish, meat and sauces
- Explain and demonstrate principles of various dough products, quick and yeast breads, and cooking with fat

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITCC 1414 - CCNA 1: INTRODUCTION TO NETWORKS**

This course covers networking architecture, structure, and functions; introduces the principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations to provide a foundation for the curriculum. Lab fees apply  
Certification Agency: Cisco

Upon completion, students will be able to:

- Build simple LANs
- Perform basic configuration on routers and switches
- Implement IP addressing schemes

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **ITCC 1440 - CCNA 2: ROUTING AND SWITCHING ESSENTIALS**

Describes the architecture, components, and basic operation of routers and explains the basic principles of routing and routing protocols. It also provides an in-depth understanding of how switches operate and are implemented in the LAN environment for small and large networks. Lab fees apply  
Certification Agency: Cisco

Upon completion, students will be able to:

- Configure and maintain routers and switches
- Resolve common issues with routing protocols, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITCC 1414](#) - CCNA 1: INTRODUCTION TO NETWORKS
- 

## **ITCC 2412 - CCNA 3: SCALING NETWORKS**

CCNA R&S: Scaling Networks (ScaN) covers the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches using advanced protocols. Lab fees apply  
Certification Agency: Cisco

Upon completion, students will be able to:

- Configure advanced routing and switching
- Resolve common issues with OSPF, EIGRP, and STP in IP networks
- Implement a WLAN in a small-to-medium network

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **ITCC 2413 - CCNA 4: CONNECTING NETWORKS**

WAN technologies and network services required by converged applications in a complex network; enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Lab fees apply  
Certification Agency: Cisco

Upon completion, students will be able to:

- Configure and troubleshoot network devices
- Resolve common issues with data link protocols
- Resolve common issues with OSPF, EIGRP, and STP in both IPv4 and IPv6 networks
- Implement virtual private network (VPN) operations in a complex network
- Implement security best practices

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITCC 2412](#) - CCNA 3: SCALING NETWORKS
-

## **ITNW 1308 - IMPLEMENTING AND SUPPORTING CLIENT SYSTEMS**

The fundamentals of managing and configuring network clients. Lab fees apply

Upon completion, students will be able to:

- Install and configure network clients
- Setup users, groups, policies, and profiles
- Configure hardware components and applications
- Setup and maintain logon security and security for files and printers
- Configure and optimize clients in multiple environments

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITNW 1313](#) - COMPUTER VIRTUALIZATION
- 

## **ITNW 1313 - COMPUTER VIRTUALIZATION**

Implement and support virtualization of clients of servers in a networked computing environment. This course explores installation, configuration, and management of computer virtualization workstation and servers. Lab fees apply

Upon completion, students will be able to:

- Install and configure virtual machine managers
- Create and network virtual machines and set priorities for accessing resources
- Move and clone virtual machines
- Ensure high availability for applications within virtual machines

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITNW 1335 - INFORMATION STORAGE AND MANAGEMENT**

An introduction to data storage-related technologies. Topics include data storage for cloud, Big Data, mobile, social media, and software-defined data centers. Provides a strong understanding of storage technologies and prepares students for advanced concepts, technologies, and processes. 32 lecture hours + 32 laboratory hours Lab fees apply

Upon completion, students will be able to:

- Differentiate storage architectures and key data center elements
- Explain the components of storage infrastructure including subsystems, RAID and intelligent storage systems
- Demonstrate network technologies used in storage systems
- Outline the benefits and components of Storage Area Networks (SANs)
- Adapt contingency plans for backup, replication and archiving
- Evaluate information security requirements and recommend solutions
- List SAN management issues and requirements

**Grade Basis:** L

**Credit hours:** 3.0

**Prerequisites:**

- [ITSE 1346](#) - DATABASE THEORY AND DESIGN

## **ITNW 1353 - SUPPORTING NETWORK SERVER INFRASTRUCTURE**

Installing, configuring, managing, and supporting a network infrastructure. Lab fees apply

Upon completion, students will be able to:

- Install and configure DHCP, DNS, remote access, network security using public key infrastructure
- Integrate network services
- Deploy operating systems using remote installation services

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITCC 1414](#) - CCNA 1: INTRODUCTION TO NETWORKS
- [ITNW 1308](#) - IMPLEMENTING AND SUPPORTING CLIENT SYSTEMS
- [ITNW 1358](#) - NETWORK+

## **ITNW 1354 - IMPLEMENTING AND SUPPORTING SERVER ENVIRONMENT**

Implement, administer, and troubleshoot information systems that incorporate servers in a networked computing environment. Lab fees apply

Upon completion, students will be able to:

- Configure peripherals and devices

- Set up servers
- Configure directory replication
- Manage licensing
- Create and manage system policies and profiles
- Administer remote servers and disk resources
- Create and share resources
- Implement fault-tolerance
- Configure servers for interoperability
- Install and configure Remote Access Service (RAS)
- Identify and monitor performance bottlenecks and resolve configuration problems

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITCC 1414](#) - CCNA 1: INTRODUCTION TO NETWORKS
- [ITNW 1353](#) - SUPPORTING NETWORK SERVER INFRASTRUCTURE
- [ITNW 1358](#) - NETWORK+

## **ITNW 1358 - NETWORK+**

Identify and define terminology, hardware, and software components of computer networks, utilize equipment, protocols, and topologies to differentiate between various network systems, demonstrate skills in installing network hardware, software, and cable; troubleshoot network connectivity, configure network protocol, and install and configure network client software. Lab fees apply

Upon completion, students will be able to:

- Identify and define terminology, hardware, and software components of computer networks
- Utilize equipment, protocols, and topologies to differentiate between various network systems
- Demonstrate skills in installing network hardware, software, and cable
- Troubleshoot network connectivity
- Configure network protocol
- Install and configure network client software

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

## **ITNW 2280 - COOPERATIVE EDUCATION - COMPUTER SYSTEMS NETWORKING**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Restrictions:**

- Departmental Chair approval required unless student is in last semester of the Networking Degree.

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## **ITSC 1316 - LINUX INSTALLATION AND CONFIGURATION**

Introduction to Linux operating system. Includes Linux installation, basic administration, utilities and commands, upgrading, networking, security, and application installation. Emphasizes hands-on setup, administration, and management of Linux.

Upon completion, students will be able to:

- Install, administer, and manage a Linux system
- Demonstrate proficiency with Linux utilities, commands, and applications
- Identify and resolve security-based issues
- Integrate a Linux system into an existing network

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSC 1325 - PERSONAL COMPUTER HARDWARE**

A study of current personal computer hardware including assembly, upgrading, setup, configuration, and troubleshooting. Lab fees apply

Upon completion, students will be able to:

- Assemble, setup, and upgrade personal computer systems
- Diagnose and isolate faulty components
- Optimize system performance
- Install and connect peripherals

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 1302 - COMPUTER PROGRAMMING**

An introduction to computer programming including design, development, testing, implementation, and documentation. Lab fees apply

Upon completion, students will be able to:

- Design, write, test, and document computer programs

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 1303](#) - INTRODUCTION TO MySQL
  - [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
- 

## **ITSE 1303 - INTRODUCTION TO MySQL**

Introduction to fundamentals of SQL and relational databases. Lab fees apply

Upon completion, students will be able to:

- Identify database terminology and concepts
- Plan, define, and design a database
- Design and generate tables
- Devise and process queries
- Install and start the MySQL server
- Troubleshoot syntax

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
  - [ITSW 1307](#) - INTRODUCTION TO DATABASE
- 

## **ITSE 1311 - BEGINNING WEB PROGRAMMING**

Skills development in web programming including mark-up and scripting languages.

Upon completion, students will be able to:

- Demonstrate the use of markup and scripting languages
- Create interactive web pages

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 1333 - MOBILE APPLICATIONS DEVELOPMENT**

An overview of different mobile platforms and their development environments. Lab fees apply

Upon completion, students will be able to:

- Design, write, and test small interactive programs for mobile platforms

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 1345 - INTRODUCTION TO ORACLE SQL**

An introduction to the design and creation of relational databases using Oracle. Topics include storing, retrieving, updating, and displaying data using Structured Query Language (SQL). Lab fees apply

Upon completion, students will be able to:

- Write Structured Query Language (SQL) statements using Oracle
- Select and sort data

- Produce reports with SQL
- Create and manage tables which include constraints
- Create Views and other database objects

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
- 

## **ITSE 1346 - DATABASE THEORY AND DESIGN**

Introduction to the analysis and utilization of data requirements and organization into normalized tables using the four normal forms of database design. Lab fees apply

Upon completion, students will be able to:

- Organize data into normalized tables by applying the four normal forms of database design
- Create Entity-Relationship models and diagrams to graphically represent their database design
- Design database tables with One-to-Many and Many-to-Many relationships
- Create tables using the SQL "create" and "insert" statements
- Retrieve data from tables using SQL "select" statement
- Maintain data in tables using the SQL "update" and "delete" statements
- Implement stored procedures, triggers, and constraints using SQL statements

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 2302 - INTERMEDIATE WEB PROGRAMMING**

Techniques for Web development. Includes server-side and client-side scripting. Lab fees apply

Upon completion, students will be able to:

- Create and use client-side and server-side scripts to design and implement dynamic websites

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [IMED 1316](#) - WEB DESIGN I
- 

## **ITSE 2310 - iOS APPLICATION PROGRAMMING**

Course explores developing applications for iOS devices. Will include Objective-C programming, use of the iOS SDK environment, and current programming issues in the iOS environment. Lab fees apply

Upon completion, students will be able to:

- Implement the procedures to become a registered Apple iOS developer
- Design interfaces for iOS applications
- Produce concept documentation
- Create iOS in native SDK
- Execute deployment procedures for various iOS devices

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 2317 - JAVA PROGRAMMING**

Introduction to object-oriented Java programming including the fundamental syntax and semantics of Java for applications and web applets. Lab fees apply

Upon completion, students will be able to:

- Design and write documented Java applications and applets

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 2300](#) - OPERATING SYSTEM SECURITY
- 

## **ITSE 2321 - OBJECT-ORIENTED PROGRAMMING**

Introduction to object-oriented programming. Emphasis on the fundamentals of design with classes, including development, testing, implementation, and documentation. Includes object-oriented programming techniques, classes, and objects.

Upon completion, students will be able to:

- Develop executable programs
- Create appropriate documentation
- Create programs using classes and objects using object-oriented programming techniques

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSE 2333 - IMPLEMENTING A DATABASE ON MICROSOFT SQL SERVER**

Skills development in the implementation of a database solution using Microsoft SQL Server client/server database management system. Lab fees apply

Upon completion, students will be able to:

- Describe the elements of Microsoft SQL Server and its operational environments
- Describe the elements of the Transact-SQL language
- Demonstrate and configure the data storage architecture of SQL server
- Write, maintain, and tune advanced queries
- Manage locking options and transactions to ensure data concurrency and recoverability
- Create views of data
- Design and create stored procedures
- Design and create triggers
- Use distributed data

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 1303](#) - INTRODUCTION TO MySQL
- 

## **ITSE 2343 - ADVANCED MOBILE PROGRAMMING**

Programming for mobile devices including file access methods, data structures, modular programming, program testing and documentation. Lab fees apply

Upon completion, students will be able to:

- Design, write, and document mobile programs

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 1333](#) - MOBILE APPLICATIONS DEVELOPMENT
  - [ITSE 2321](#) - OBJECT-ORIENTED PROGRAMMING
- 

## **ITSE 2354 - ADVANCED ORACLE PL/SQL**

A continuation of Oracle SQL. Topics include hierarchical queries, set based queries, correlated subqueries, scripting, and scripting generation. Lab fees apply

Upon completion, students will be able to:

- Retrieve data including SET operators, correlated subqueries, and hierarchical queries
- Write SQL scripts that execute remote procedure calls
- Create a package to group together variables, cursors, exceptions, procedures, and functions
- Invoke a package constraint

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 1345](#) - INTRODUCTION TO ORACLE SQL
- 

## **ITSE 2356 - ORACLE DATABASE ADMINISTRATION I**

Fundamentals of the tasks and functions required of a database administrator using Oracle. Lab fees apply

Upon completion, students will be able to:

- Create an operational database using Oracle
- Create, delete, and modify associated files, table spaces, segments, extents, and blocks
- Start up and shut down an Oracle instance and database
- Add, delete, and modify users, privileges, and resources
- Demonstrate use of National Language and Support (NLS) features

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2354](#) - ADVANCED ORACLE PL/SQL
  - [ITSW 2337](#) - ADVANCED DATABASE
- 

## **ITSE 2358 - ORACLE DATABASE ADMINISTRATION II**

A continuation of Oracle Database Administration I. Topics include the recovery procedures, logical backups, standby database capabilities, and performance tuning of the Oracle Server. Common performance problems and the use of diagnostic tools to troubleshoot and optimize throughout will be discussed. Lab fees apply

Upon completion, students will be able to:

- List the Oracle backup and recovery components
- Formulate a backup and recovery strategy
- Practice backup and recovery operations
- Use Oracle tools to diagnose performance problems
- Optimize and troubleshoot Oracle database performance

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 2356](#) - ORACLE DATABASE ADMINISTRATION I
- 

## **ITSE 2380 - COOPERATIVE EDUCATION - COMPUTER PROGRAMMER**

Career-related activities encountered in the student's area of specialization offered through an individualized agreement among the college, employer, and student. Under the supervision of the college and employer, the student combines classroom learning with work experience. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry

- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Restrictions:**

- Departmental Chair approval required unless student is in last semester of the Computer Information Degree.
- 

## **ITSW 1307 - INTRODUCTION TO DATABASE**

Introduction to database theory and the practical applications of a database. 32 lecture hours + 32 laboratory hours Lab fees apply

Upon completion, students will be able to:

- Identify database terminology and concepts
- Plan, define, and design a database
- Design and generate tables, forms, and reports
- Devise and process queries

**Grade Basis:** L

**Credit hours:** 3.0

---

## **ITSW 2337 - ADVANCED DATABASE**

Advanced concepts of database design and functionality. Lab fees apply

Upon completion, students will be able to:

- Explain relational database theory
- Collect and distribute data
- Analyze data
- Perform complex queries, data validation and table relationships

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSE 1346](#) - DATABASE THEORY AND DESIGN
  - [ITSW 1307](#) - INTRODUCTION TO DATABASE
-

## ITSY 1342 - INFORMATION TECHNOLOGY SECURITY

Instruction in security for network hardware, software, and data, including physical security, backup procedures, relevant tools, encryption, and protection from viruses. Lab fees apply

Upon completion, students will be able to:

- National Institute of Standards and Technology (NIST) Guidelines and other best practices
- Develop backup procedures to provide for data security
- Use network operating system features to implement network security
- Identify computer and network threats and vulnerabilities and methods to prevent their effects
- Use tools to enhance network security
- Use encryption techniques to protect network data

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITNW 1358](#) - NETWORK+
- 

## ITSY 2300 - OPERATING SYSTEM SECURITY

Safeguard computer operating systems by demonstrating server support skills and designing and implementing a security system. Identify security threats and monitor network security implementations. Use best practices to configure operating systems to industry security standards.

Upon completion, students will be able to:

- Identify network security risks, security design, and monitoring solutions
- Identify sources of computer threats, evaluate potential practices, tools, and technologies to protect individual network systems
- Establish and sustain an operating system security plan utilizing systems and application security tools
- Implement procedures to secure and monitor audit logs and set system administrator alerts
- Develop an organizational operating system security plan that provides for periodic reviews of security policies, procedures, authorized users list, and software update patches

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 1342](#) - INFORMATION TECHNOLOGY SECURITY
- 

## **ITSY 2301 - FIREWALL AND NETWORK SECURITY**

Identify elements of firewall design, types of security threats and responses to security attacks. Use Best Practices to design, implement, and monitor a network security plan. Examine security incident postmortem reporting and ongoing network security activities. Lab fees apply

Upon completion, students will be able to:

- Demonstrate system security skills through firewall implementation and testing
- Use system tools, practices, and relevant technologies to implement a security plan
- Evaluate practices, tools, and technologies to identify security breaches, sources of attacks, and protect mission critical systems
- Establish an appropriate level of security based on an analysis of security logs
- Use relevant tools to secure a network, respond to and follow up on various types of attacks

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **ITSY 2330 - INTRUSION DETECTION**

Computer information systems security monitoring, intrusion detection, and crisis management. Includes alarm management, signature configuration, sensor configuration, and troubleshooting components. Emphasizes identifying, resolving, and documenting network crises and activating the response team. Lab fees apply

Upon completion, students will be able to:

- Build IDS sensors and attach them to the network (hardware and software)
- Install and manage a secure communication link between all sensors and the monitor
- Install and manage event database(s)
- Analyze an event and trends
- Install, manage, and interpret syslog servers and system logs
- Identify legal and policy issues associated with system and network monitoring
- Deploy, implement, and test IDS security plan

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 2300](#) - OPERATING SYSTEM SECURITY
  - [ITSY 2301](#) - FIREWALL AND NETWORK SECURITY
- 

## **ITSY 2342 - INCIDENT RESPONSE AND HANDLING**

In-depth coverage of incident response and incident handling, including identifying courses of attacks and security breaches, analyzing security logs; recovering the system to normal, performing postmortem analysis, and implementing and modifying security measures. Lab fees apply

Upon completion, students will be able to:

- Identify sources of attacks
- Restore the system to normal operation
- Identify and prevent security threats
- Perform a postmortem analysis
- Identify computer investigation issues
- Identify the roles and responsibility of the incident response team

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 2301](#) - FIREWALL AND NETWORK SECURITY
- 

## **ITSY 2343 - COMPUTER SYSTEM FORENSICS**

In-depth study of system forensics including methodologies used for analysis of computer security breaches. Gather and evaluate evidence to perform postmortem analysis of a security breach. Lab fees apply

Upon completion, students will be able to:

- Identify computer investigation issues
- Identify legal issues associated with computer investigations
- Collect and document evidence
- Evaluate network traffic, and evaluate recovered remnant or residual data

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 2300](#) - OPERATING SYSTEM SECURITY
- 

## **ITSY 2382 - COOPERATIVE EDUCATION-COMPUTER & INFORMATION SYSTEM SECURITY**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Restrictions:**

- Departmental Chair approval required unless student is in last semester of the Cyber Security Degree.
- 

## **ITSY 2445 - NETWORK DEFENSE AND COUNTERMEASURES**

This is a practical application and comprehensive course that includes the planning, design, and construction of a complex network that will sustain an attack, document events, and mitigate the effects of the attack. Lab fees apply

Upon completion, students will be able to:

- Assemble network defense tools
- Identify network traffic to determine differences between authorized and unauthorized activity on a network
- Respond to a breach in security through the use of countermeasures designed to minimize the impact of the breach on the network
- Document network events

- Present an analysis of network breach and plan for remediation

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

---

## **MATH 0303 - PRE-ALGEBRA**

This introductory course includes a general overview of basic arithmetic: fractions, decimals, and percent. Other topics include algebraic concepts, integers, solving equations, linear equations, graphing and polynomials. Simple geometric concepts are also discussed. This course is designed for those students with little or no algebra background. This course does not count toward graduation at NCTC.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MATH 0305 - BEGINNING ALGEBRA**

This course includes basic algebraic concepts and notations, algebraic expressions and equations, factoring polynomials and graphing. Some algebra is required. This course does not count toward graduation at NCTC.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MATH 0310 - INTERMEDIATE ALGEBRA**

A study of relations and functions, inequalities, algebraic expressions and equations (absolute value, polynomial, radical, rational), with a special emphasis on linear and quadratic expressions and equations.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MATH 1314 - COLLEGE ALGEBRA (for Science & Engineering Majors)**

In-depth study and applications of polynomial, rational, radical, exponential and logarithmic functions, and systems of equations using matrices. Additional topics such as sequences, series, probability, and conics may be included. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **MATH 1316 - PLANE TRIGONOMETRY**

In-depth study and applications of trigonometry including definitions, identities, inverse functions, solutions of equations, graphing, and solving triangles. Additional topics such as vectors, polar coordinates and parametric equations may be included. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

---

## **MATH 1324 - MATHEMATICS FOR BUSINESS & SOCIAL SCIENCES**

The application of common algebraic functions, including polynomial, exponential, logarithmic, and rational, to problems in business, economics, and the social sciences are addressed. The applications include mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Restrictions:**

- Must meet TSI College Readiness Standard for Mathematics
- 

## **MATH 1325 - CALCULUS FOR BUSINESS & SOCIAL SCIENCES**

This course is the basic study of limits and continuity, differentiation, optimization, and graphing, and integration of elementary functions, with emphasis on applications in business, economics, and social sciences. This course is not a substitute for MATH 2413 Calculus I. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MATH 1314](#) - COLLEGE ALGEBRA (for Science & Engineering Majors)
  - [MATH 1324](#) - MATHEMATICS FOR BUSINESS & SOCIAL SCIENCES
-

## **MATH 1332 - CONTEMPORARY MATHEMATICS I**

General mathematics course, intended for Non STEM (Science, Technology, Engineering, and Mathematics) majors. Topics include introductory treatments of sets and logic, financial mathematics, probability and statistics with appropriate applications. Number sense, proportional reasoning, estimation, technology, and communication should be embedded throughout the course. Additional topics may be covered. Meets NCTC Core Curriculum Requirements

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **MATH 1342 - ELEMENTARY STATISTICAL METHODS**

Collection, analysis, presentation and interpretation of data, and probability. Analysis includes descriptive statistics, correlation and regression, confidence intervals and hypothesis testing. Use of appropriate technology is recommended. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MATH 1350 - MATHEMATICS FOR TEACHERS I**

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the conceptual development of the following: sets, functions, numeration systems, number theory, and properties of the various number systems with an emphasis on problem solving and critical thinking.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MATH 1314](#) - COLLEGE ALGEBRA (for Science & Engineering Majors)
- 

## **MATH 1351 - MATHEMATICS FOR TEACHERS II**

This course is intended to build or reinforce a foundation in fundamental mathematics concepts and skills. It includes the concepts of geometry, measurement, probability, and statistics with an emphasis on problem solving and critical thinking.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MATH 1314](#) - COLLEGE ALGEBRA (for Science & Engineering Majors)
- 

**MATH 2318 - LINEAR ALGEBRA**

Introduces and provides models for application of the concepts of vector algebra. Topics include finite dimensional vector spaces and their geometric significance, representing and solving systems of linear equations using multiple methods including Gaussian elimination and matrix inversion, matrices, determinants, linear transformations, quadratic forms, eigenvalues and eigenvector, and applications in science and engineering.

**Grade Basis:** L

**Credit hours:** 3.0

**Prerequisites:**

- [MATH 2414](#) - CALCULUS II
- 

**MATH 2320 - DIFFERENTIAL EQUATIONS**

Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, boundary value problems, and application of differential equations to real-world problems.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 64.0

**Prerequisites:**

- [MATH 2414](#) - CALCULUS II
- 

**MATH 2412 - PRE-CALCULUS MATH**

In-depth combined study of algebra, trigonometry, and other topics for calculus readiness. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 80.0

---

## **MATH 2413 - CALCULUS I**

Limits and continuity; the Fundamental Theorem of Calculus; definition of the derivative of a function and techniques of differentiation, applications of the derivative to maximizing or minimizing a function, the chain rule, mean value theorem, and rate of change problems, curve sketching, definite and indefinite integration of algebraic, trigonometric, and transcendental functions, with an application to calculation of areas. Meets NCTC Core Curriculum Requirement.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Prerequisites:**

- [MATH 2412](#) - PRE-CALCULUS MATH
- 

## **MATH 2414 - CALCULUS II**

Differentiation and integration of transcendental functions; parametric equations and polar coordinates, techniques of integration, sequences and series, improper integrals.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Prerequisites:**

- [MATH 2413](#) - CALCULUS I
- 

## **MATH 2415 - CALCULUS III**

Advanced topics in calculus, including vectors and vector-valued functions, partial differentiation, Lagrange multipliers, multiple integrals, and Jacobians, and application of the line integral including Green's Theorem, the Divergence Theorem, and Stokes' Theorem.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Prerequisites:**

- [MATH 2414](#) - CALCULUS II
- 

## **MCHN 1302 - PRINT READING FOR MACHINING TRADES**

A study of blueprints for machining trades with emphasis on machine drawings.

Upon completion, students will be able to:

- Identify the elements of machine drawings; interpret dimensions, tolerances, and geometric aspects of blueprints
- Explain Geometric Dimensioning and Tolerancing (GD&T) symbols and their meanings

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MCHN 1320 - PRECISION TOOLS & MEASUREMENT**

An introduction to the modern science of dimensional metrology. Emphasis on the identification, selection, and application of various types of precision instruments associated with the machining trade. Practice of basic layout and piece part measurements while using standard measuring tools. Lab fees apply

Upon completion, students will be able to:

- Describe common methods of measurement conversion
- Determine the degree of precision measurement required
- Identify various types of precision instruments and their applications
- List maintenance procedures on various types of measuring instruments
- Interpret and confirm blueprint requirements
- Convert between English and metric units
- Compute total tolerances of parts
- Calibrate various types of precision measuring instruments to a standard
- Select and use precision measurement tools

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **MCHN 1343 - MACHINE SHOP MATHEMATICS**

Designed to prepare the student with technical, applied mathematics that will be necessary in future machine shop-related courses.

Upon completion, students will be able to:

- Identify conversion methods of numbering systems
- Convert fractions to decimals and back
- Use formulas to solve measurement problems

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MCHN 1438 - BASIC MACHINE SHOP I**

A course that introduces the student to machining fundamentals. The student begins by using basic machine tools including the lathe, milling machine, drill press, power saw, and bench grinder. Machine terminology, theory, math, part layout, and bench work using common measuring tools included. Emphasis is placed on shop safety, housekeeping, and preventative maintenance. Lab fees apply

Upon completion, students will be able to:

- Demonstrate set-up and use of the lathe, milling machine, drill press, power saw, and bench grinder applying good housekeeping, proper safety, and preventative maintenance
- Use precision instruments to perform bench work including part layout, drilling, reaming, taping, press fitting, location of hole centers and surfaces
- Set up power saws for cutoff operation
- Demonstrate tooling maintenance, and hazardous material handling
- Perform preventative maintenance
- Interpret blueprints

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

---

## **MCHN 2303 - FUNDAMENTALS OF COMPUTER NUMERICAL CONTROLLED (CNC) MACHINE CONTROLS**

Programming and operation of Computer Numerical Controlled (CNC) machine shop equipment. Lab fees apply

Upon completion, students will be able to:

- Demonstrate operations of CNC machine controls
- Compare and contrast the differences between conventional and CNC machines
- Utilize CNC machine applications for machining operations

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

---

## **MCHN 2380 - COOPERATIVE EDUCATION - MACHINE TOOL TECHNOLOGY/MACHINIST**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

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## **MCHN 2434 - OPERATION OF CNC MACHINING CENTERS**

A study of CNC operations with an emphasis on vertical machining centers. Lab fees apply

Upon completion, students will be able to:

- Set up and operate CNC machining centers
- Set machine and tool offsets for machining operations
- Edit the program as required

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

---

## **MCHN 2435 - ADVANCED CNC MACHINING**

The study of advanced CNC operation with an emphasis on programming and operations of machining and turning centers. Lab fees apply

Upon completion, students will be able to:

- Set up and operate CNC machining centers and CNC turning centers
- Select proper tooling with correct speeds and feeds
- Produce a part to specific tolerances

**Grade Basis:** L  
**Credit hours:** 4.0  
**Lecture hours:** 32.0  
**Lab hours:** 64.0

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## **METL 1301 - INTRODUCTION TO METALLURGY**

A study of refining, mechanical, and physical properties of ferrous and non-ferrous materials including the theory of alloys, heat treatment, and testing.

Upon completion, students will be able to:

- Define the physical and mechanical properties of ferrous and non-ferrous metals
- Describe the steel making process
- Name and describe methods of destructive and nondestructive testing
- Explain the effects of hot working, cold working, welding, machining, and heat treating on metal properties
- Perform tests to pinpoint failures
- Define metallurgical terms and processes
- Recognize defects and their causes

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

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## **ENGL 2351 - MEXICAN AMERICAN LITERATURE**

A survey of Mexican-American/Chicano/a literature including fiction, non-fiction, poetry, and drama.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

**Prerequisites:**

- [ENGL 1301](#) - COMPOSITION I
- 

## **MRKG 1301 - CUSTOMER RELATIONSHIP MANAGEMENT**

General principles of customer relationship management including skills, knowledge, attitudes, and behaviors.

Upon completion, students will be able to:

- Examine internal and external customer relationship management (CRM) strategies

**Grade Basis:** L

**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **MRKG 1311 - PRINCIPLES OF MARKETING**

Introduction to the marketing mix functions and process. Includes identification of consumer and organizational needs and explanation of environmental issues.

Upon completion, students will be able to:

- Identify the marketing mix components in relation to market segmentation
- Explain the environmental factors which influence consumer and organizational decision-making processes
- Outline a marketing plan

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

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## **MUAP 1176 - APPLIED VOICE**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lab hours:** 8.0

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## **MUAP 1273 - APPLIED STRINGS**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUAP 1274 - APPLIED PIANO**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUAP 1277 - APPLIED BRASS**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUAP 1278 - APPLIED PERCUSSION**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUAP 1279 - APPLIED WOODWINDS**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUAP 1272 - APPLIED GUITAR**

Individual instruction in voice, instrument, composition, or conducting. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lab hours:** 16.0

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## **MUEN 1125 - JAZZ BAND**

May be repeated for credit. Consisting of 16-21 instrumentalists, the band performs both traditional and contemporary jazz literature. A number of performances occur on and off campus including some travel. Open to all students.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lab hours:** 48.0

**Restrictions:**

- Audition required.
-

## **MUEN 1131 - WIND ENSEMBLE**

May be repeated for credit. Study and performance of a wide range of wind instrument repertoire (woodwind, brass, and percussion) from the Renaissance through the Twentieth Century. Open to all students. Lab fees apply

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 48.0

**Restrictions:**

- Audition required.
- 

## **MUEN 1135 - GUITAR ENSEMBLE**

May be repeated for credit. Study and performance of a wide range of guitar repertoire from the Renaissance through the Twentieth Century. Open to all students.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Restrictions:**

- Audition required.
- 

## **MUEN 1138 - STRINGS ENSEMBLE**

May be repeated for credit. Study and performance of a wide range of string instrument repertoire including the double bass, violin, viola, cello from Renaissance through the 20th Century. Open to all students. Lab fees apply

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 48.0

**Restrictions:**

- Audition required.
- 

## **MUEN 1151 - COLLEGE ENSEMBLE**

May be repeated for credit. Entrance by audition only from College Singers. This group will perform in connection with public relations activities and recruitment for the College. Travel in the service area will be required. Lab fees apply

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 48.0

**Restrictions:**

- Must be a member of MUEN 1154 College Singers
- 

## **MUEN 1154 - COLLEGE SINGERS**

May be repeated for credit. Entrance by audition only. Study and performance of a broad range of music from Renaissance motets and madrigals to pop and show. This group will be involved in public relations activities for the college. Lab fees apply

**Grade Basis:** L

**Credit hours:** 1.0

**Lab hours:** 48.0

---

## **MUSI 1116 - SIGHT SINGING & EAR TRAINING I**

Singing tonal music in treble and bass clefs, and aural study of elements of music, such as scales, intervals and chords, and dictation of basic rhythm, melody, and diatonic harmony.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

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## **MUSI 1117 - SIGHT SINGING & EAR TRAINING II**

Singing tonal music in various clefs, continued aural study of the elements of music, and dictation of intermediate rhythm, melody, and diatonic harmony.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

**Prerequisites:**

- [MUSI 1116](#) - SIGHT SINGING & EAR TRAINING I
- 

## **MUSI 1181 - BEGINNING CLASS PIANO**

Beginning class instruction in the fundamentals of keyboard technique.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

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## **MUSI 1182 - ADVANCED CLASS PIANO**

Advanced beginning class instruction in the fundamentals of keyboard technique.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

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## **MUSI 1192 - BEGINNING CLASS GUITAR**

Class instruction in fundamental guitar playing, including technique, music-reading, fretboard theory, melodic and harmonic realizations.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

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## **MUSI 1301 - FUNDAMENTALS OF MUSIC I**

Introduction to the basic elements of music theory for non-music majors: scales, intervals, keys, triads, elementary ear training, keyboard harmony, notation, meter, and rhythm. Does not apply to a music major degree.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **MUSI 1306 - MUSIC APPRECIATION**

Understanding music through the study of cultural periods, major composers, and musical elements. Illustrated with audio recordings and live performances. Course does not apply to a music major degree. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MUSI 1310 - AMERICAN MUSIC**

General survey of various styles of music in America. Topics may include jazz, ragtime, folk, rock, and contemporary art music. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MUSI 1311 - MUSIC THEORY I**

The study of analysis and writing of tonal melody and diatonic harmony, including fundamental music concepts, scales, intervals, chords, 7th chords, and early four-part writing. Analysis of small compositional forms.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **MUSI 1312 - MUSIC THEORY II**

Continuation of MUSI 1311. The study of analysis and writing of tonal melody and diatonic harmony, including all diatonic chords and seventh chords in root position and inversions, non-chord tones, and functional harmony. Introduction to more complex topics, such as modulation, may occur. Optional correlated study at the keyboard.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MUSI 1311](#) - MUSIC THEORY I
- 

## **MUSI 2116 - SIGHT SINGING & EAR TRAINING III**

Singing more difficult tonal music in various clefs, aural study including dictation of more complex rhythm, melody, chromatic harmony, and extended tertian structures.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

**Prerequisites:**

- [MUSI 1116](#) - SIGHT SINGING & EAR TRAINING I
  - [MUSI 1117](#) - SIGHT SINGING & EAR TRAINING II
- 

## **MUSI 2117 - SIGHT SINGING & EAR TRAINING IV**

Singing advanced tonal music and introduction of modal and post-tonal melodies. Aural study including dictation of advanced rhythm, melody, and harmony.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 32.0

**Prerequisites:**

- [MUSI 1116](#) - SIGHT SINGING & EAR TRAINING I
  - [MUSI 1117](#) - SIGHT SINGING & EAR TRAINING II
  - [MUSI 2116](#) - SIGHT SINGING & EAR TRAINING III
- 

### **MUSI 2311 - MUSIC THEORY III**

Advanced harmony voice leading, score analysis and writing of more advanced tonal harmony including chromaticism and extended-tertian structures. Optional correlated study at the keyboard.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MUSI 1311](#) - MUSIC THEORY I
  - [MUSI 1312](#) - MUSIC THEORY II
- 

### **MUSI 2312 - MUSIC THEORY IV**

Continuation of MUSI 2311. Continuation of advanced chromaticism and survey of analytical and compositional procedures in post-tonal music. Optional correlated study at the keyboard.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Prerequisites:**

- [MUSI 1311](#) - MUSIC THEORY I
  - [MUSI 1312](#) - MUSIC THEORY II
  - [MUSI 2311](#) - MUSIC THEORY III
- 

### **NCBM 0100 or 01XX - NON-COURSE BASED OPTION FOR MATHEMATICS**

This course is a developmental education intervention and supports topics in MATH 1332 or MATH 1342. Course may include basic study skills such as note-taking, time management, learning styles, math anxiety, and test-taking strategies. Must be taken concurrently with a MATH 1332 or MATH 1342 course. NCBM 0100 indicates an intervention paired with any section of MATH1332 or 1342. An NCBM course specifically tied to a MATH 1332 or 1342 course will be indicated by the last two digits (e.g., MATH 1332 + NCBM 0132). This course does not count toward graduation at NCTC.

**Grade Basis:** P  
**Credit hours:** 1.0  
**Lab hours:** 16.0

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## **NCBM 0205 - DEVELOPMENTAL MATHEMATICS - BASE INTERVENTION**

This course is a BASE developmental education intervention and supports topics in mathematics such as fractions, integers, decimals, percentages, algebraic concepts, solving equations, and polynomials. This course is designed for students with little algebraic background and will be paired with MATH 0305. Course may include basic study skills such as note-taking, time management, learning styles, math anxiety, and test-taking strategies. This course does not count toward graduation at NCTC.

**Grade Basis:** P  
**Lecture hours:** 32.0

---

## **NCTC 1001 - FIRST YEAR EXPERIENCE**

The First Year Experience Course is a one credit, 4 week course designed to provide students with the tools needed to persist and succeed at North Central Texas College. Topics covered in the course include: learning styles, study techniques, note-taking, test-taking, personal wellness and finance, time management, career and educational planning, and interpersonal skill development. First time college students, excluding dual credit, are required to pass NCTC 1001. Students that have successfully completed 9 hours of dual credit courses on campus, are not required to enroll. The course does not satisfy requirements for any degree plan at NCTC, has no prerequisites, and is non-transferable.

**Grade Basis:** L  
**Credit hours:** 1.0

---

## **OSHT 1320 - ENERGY INDUSTRIAL SAFETY**

An overview for industrial workers of state/federal regulations and guidelines which require industrial safety training. Topics include the 29 C.F.R. 1910, 1926 and National Fire Protection Association (NFPA) 70E standards such as confined space entry, emergency action, lock out/tag out, arc flash, and other work related subjects.

Upon completion, students will be able to:

- Describe the basic components of safety, health, and environmental systems as defined by the Occupational Safety and Health Administration
- Describe Hazardous Waste Operator (HAZWOPER) standards
- Locate Material Safety Data Sheets (MSDS) and interpret the data
- Select and don Personal Protective Equipment (PPE)
- Perform lock out and tag out procedures

- Complete a confined space and hot work permit
- Select and employ fall protection equipment
- Fill out a Job Hazard Analysis (JHA)

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PTRT 2359 - PETROLEUM COMPUTER APPLICATIONS**

Computer applications used in the petroleum industry. Includes the automation of open and closed loop systems. Lab fees apply

Upon completion, students will be able to:

- Describe the different computer systems used to monitor and control petroleum processes
- Troubleshoot components and operating systems of modern process control

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PHED 1108 - BOWLING I**

This course is designed to introduce the student to basic bowling skills, etiquette, safety procedures, and scoring.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

---

## **PHED 1109 - BOWLING II**

This course is designed to introduce the student to basic bowling skills, etiquette, safety procedures, and scoring.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

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## **PHED 1110 - GOLF I**

This course is designed to introduce the student to basic golf skills, etiquette, safety procedures, and swing.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1111 - GOLF II**

This course is designed to introduce the student to basic golf skills, etiquette, safety procedures, and swing.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1114 - VARSITY SPORTS I**

This course is designed to support the institutional mission to provide competitive athletic opportunities for student/athletes to pursue academic success, physical and emotional well-being and social development.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

**Restrictions:**

- Varsity athletes only.
- 

## **PHED 1115 - VARSITY SPORTS II**

This course is designed to support the institutional mission to provide competitive athletic opportunities for student/athletes to pursue academic success, physical and emotional well-being and social development.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

**Restrictions:**

- Varsity athletes only.
- 

## **PHED 1116 - VARSITY CONDITIONING I**

This course is designed to support the institutional mission to provide competitive athletic opportunities for student/athletes to pursue academic success, physical and emotional well-being and social development.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Restrictions:**

- Varsity athletes only.
- 

## **PHED 1117 - VARSITY CONDITIONING II**

This course is designed to support the institutional mission to provide competitive athletic opportunities for student/athletes to pursue academic success, physical and emotional well-being and social development.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

**Restrictions:**

- Varsity athletes only.
- 

## **PHED 1118 - JOGGING/WALKING I**

This course is designed to improve or maintains the student's cardiovascular endurance and knowledge of cardiovascular fitness such as heart rates, body mass index and body fat percentage according to the student's age, gender, height and weight.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

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## **PHED 1119 - JOGGING/WALKING II**

This course is designed to improve or maintain the student's cardiovascular endurance and knowledge of cardiovascular fitness such as heart rates, body mass index and body fat percentage according to the student's age, gender, height and weight.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

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## **PHED 1120 - AEROBIC WORKOUT I**

This course is designed to improve the student's maximum muscular and cardiovascular endurance.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

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## **PHED 1121 - AEROBIC WORKOUT II**

This course is designed to improve the student's maximum muscular and cardiovascular endurance.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

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## **PHED 1124 - WEIGHT TRAINING I/JOGGING**

This course is designed to improve the student's muscular strength, endurance, and cardiovascular endurance and introduce the student to the basic muscular groups.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

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## **PHED 1125 - WEIGHT TRAINING II/JOGGING**

This course is designed to improve the student's muscular strength, endurance, and cardiovascular endurance and introduce the student to the basic muscular groups.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1126 - MARTIAL ARTS I**

This course is designed to instill confidence and abilities in the student for both physical and mental challenges. This course will also cover conditioning and self defense techniques.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1127 - MARTIAL ARTS II**

This course is designed to instill confidence and abilities in the student for both physical and mental challenges. This course will also cover conditioning and self defense techniques.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1134 - BASKETBALL I**

This course is designed to teach the student the rules, skills, and fundamentals necessary to play the game and is designed to improve the student's physical fitness.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1135 - BASKETBALL II**

This course is designed to teach the student the rules, skills, and fundamentals necessary to play the game and is designed to improve the student's physical fitness.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1140 - CARDIO FITNESS I**

This course is designed to improve the student's maximum muscular and cardio vascular endurance through a variety of exercises and help teach the basics of the muscles used during physical activity in cardio and weight lifting and making healthy food choices and how they all work together for overall cardio fitness.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1141 - CARDIO FITNESS II**

This course is designed to improve the student's maximum muscular and cardio vascular endurance through a variety of exercises and help teach the basics of the muscles used during physical activity in cardio and weight lifting and making healthy food choices and how they all work together for overall cardio fitness.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

---

## **PHED 1146 - YOGA I**

This course is designed to improve the student's body flexibility, muscular strength and endurance, breath capacity, posture, balance and concentration.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

---

## **PHED 1147 - YOGA II**

This course is designed to improve the student's body flexibility, muscular strength and endurance, breath capacity, posture, balance and concentration.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

---

## **PHED 1148 - PILATES I**

This course is designed to improve the student's knowledge of the basic principles of biomechanical body awareness, breath capacity, muscular endurance and stamina in accordance to the Pilates Principles.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

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## **PHED 1149 - PILATES II**

This course is designed to improve the student's knowledge of the basic principles of biomechanical body awareness, breath capacity, muscular endurance and stamina in accordance to the Pilates Principles.

**Grade Basis:** L

**Credit hours:** 1.0

**Lecture hours:** 48.0

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## **PHED 1301 - INTRODUCTION TO PHYSICAL FITNESS & SPORT**

Orientation to the field of physical fitness and sport. Includes the study and practice of activities and principles that promote physical fitness.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PHED 1308 - SPORTS OFFICIATING**

Instruction in rules, interpretation, and mechanics of officiating selected sports.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PHED 1321 - COACHING, SPORTS & ATHLETICS**

Study of the history, theories, philosophies, rules, and terminology of competitive sports. Includes coaching techniques.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PHED 1338 - CONCEPTS OF PHYSICAL FITNESS**

Concepts and use of selected physiological variable of fitness, individual testing and consultation, and the organization of sports and fitness programs.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PHED 2101 - RACQUETBALL**

This course is designed to instruct the student in rules, terminology, court dimensions and the playing of singles, doubles, cut-throat, and tournament formatting.

**Grade Basis:** L

**Lecture hours:** 48.0

---

## **PHED 2356 - CARE & PREVENTION OF ATHLETIC INJURIES**

Prevention and care of athletic injuries with emphasis on qualities of a good athletic trainer, avoiding accidents and injuries, recognizing signs and symptoms of specific sports injuries and conditions, immediate and long-term care of injuries, and administration procedures in athletic training.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PHIL 1301 - INTRODUCTION TO PHILOSOPHY**

A study of major issues in philosophy and/or the work of major philosophical figures in philosophy. Topics in philosophy may include theories of reality, theories of knowledge, theories of value, and their practical applications. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PHIL 2303 - INTRODUCTION TO FORMAL LOGIC**

The purpose of the course is to introduce the student symbolic logic, including syllogisms, propositional and predicate logic, and logical proofs in a system of rules.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PHIL 2306 - INTRODUCTION TO ETHICS**

The systematic evaluation of classical and/or contemporary ethical theories concerning the good life, human conduct in society, morals, and standards of value. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PHYS 1401 - COLLEGE PHYSICS I**

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of classical mechanics and thermodynamics, including harmonic motion, mechanical waves and sound, physical systems, Newton's Laws of Motion, and gravitation and other fundamental forces with emphasis on problem solving. Lab fees apply Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

**Prerequisites:**

- [MATH 1314](#) - COLLEGE ALGEBRA (for Science & Engineering Majors)
- [MATH 1316](#) - PLANE TRIGONOMETRY
- [MATH 2412](#) - PRE-CALCULUS MATH

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## PHYS 1402 - COLLEGE PHYSICS II

Fundamental principles of physics, using algebra and trigonometry; the principles and applications of electricity and magnetism, including circuits, electrostatics, electromagnetism, waves, sound, light, optics, and modern physics topics; with emphasis on problem solving. Lab fees apply Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

**Prerequisites:**

- [PHYS 1401](#) - COLLEGE PHYSICS I

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## PHYS 1415 - PHYSICAL SCIENCE

Physics Science course is designed for non-science majors. Surveys topics from physics, chemistry, geology, astronomy, and meteorology. Lab fees apply Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

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## PHYS 2425 - UNIVERSITY PHYSICS I

Fundamental principles of physics, using calculus, for science, computer science, and engineering majors; the principles and applications of classical mechanics, including harmonic motion, physical systems and thermodynamics; and emphasis on problem solving. Basic laboratory experiments supporting theoretical principles involving the principles and applications of classical mechanics, including harmonic motion and physical systems; experimental design, data collection and analysis, and preparation of laboratory reports. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

**Prerequisites:**

- [MATH 2413](#) - CALCULUS I

## PHYS 2426 - UNIVERSITY PHYSICS II

A continuation of PHYS2425. Principles of physics for science, computer science, and engineering majors, using calculus, involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light, and optics. Laboratory experiments supporting theoretical principles presented in the lecture involving the principles of electricity and magnetism, including circuits, electromagnetism, waves, sound, light and optics, experimental design, data collection and analysis, and preparation of laboratory reports. Lab fees apply Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 48.0

**Prerequisites:**

- [MATH 2414](#) - CALCULUS II
  - [PHYS 2425](#) - UNIVERSITY PHYSICS I
- 

## POFI 1349 - SPREADSHEETS

Skill development in concepts, procedures, and application of spreadsheets. This course is designed to be repeated multiple times to improve student proficiency. Lab fees apply

Upon completion, students will be able to:

- Identify spreadsheet terminology and concepts
- Calculate data using formulas and functions
- Create and modify workbooks
- Insert graphics
- Generate charts and reports
- Create and use special functions

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## POFI 2301 - WORD PROCESSING

Word processing software focusing on business applications. This course is designed to be repeated multiple times to improve student proficiency. Lab fees apply

Upon completion, students will be able to:

- Apply basic and advanced formatting skills and special functions to produce documents

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **POFI 2331 - DESKTOP PUBLISHING**

In-depth coverage of desktop publishing terminology, text editing, and use of design principles. Emphasis on layout techniques, graphics, multiple page displays, and business applications. The course is designed to be repeated multiple times to improve student proficiency. Lab fees apply

Upon completion, students will be able to:

- Define desktop publishing terminology
- Manipulate text and graphics to create a balanced and focused layout
- Create fliers, brochures, and multiple page documents

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **POFT 1220 - JOB SEARCH SKILLS**

Skills to seek and obtain employment in business and industry. Lab fees apply

Upon completion, students will be able to:

- Assess career aptitudes
- Describe job search procedures
- Prepare employment documents
- Create a professional portfolio

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

**Lab hours:** 16.0

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## **POFT 1309 - ADMINISTRATIVE OFFICE PROCEDURES I**

Study of current office procedures, duties, and responsibilities applicable to an office environment.

Upon completion, students will be able to:

- Develop time management techniques
- Demonstrate communication skills
- Identify the basic skills of an office professional

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **POFT 1319 - RECORDS & INFORMATION MANAGEMENT I**

Introduction to basic records information management systems including manual and electronic filing.

Upon completion, students will be able to:

- Identify the stages in the life cycle of a record
- File and retrieve records using filing systems
- Differentiate between manual and electronic filing

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **POFT 1325 - BUSINESS MATH USING TECHNOLOGY**

Skill development in business math problem-solving using electronic technology.

Upon completion, students will be able to:

- Solve business math application problems using technology

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **POFT 1328 - BUSINESS PRESENTATIONS**

Skill development in planning and conducting business presentations on an individual and/or group basis including communication and media skills. This course is designed to be repeated multiple times to improve student proficiency. Lab fees apply

Upon completion, students will be able to:

- Deliver business presentations
- Develop visual aids using presentation software
- Analyze audiences

- Use active listening and feedback skills

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **POFT 1329 - BEGINNING KEYBOARDING**

Skill development in keyboarding techniques. Emphasis on development of acceptable speed and accuracy levels and formatting basic documents.

Upon completion, students will be able to:

- Demonstrate keyboarding techniques
- Apply proofreading and editing skills
- Create basic business documents

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **POFT 1331 - NUMERIC KEYPAD APPLICATIONS**

Skill development in the operation of numeric keypad. Emphasis on the development of skills in using electronic calculators and other office machines. Lab fees apply

Upon completion, students will be able to:

- Demonstrate competency in the operation of a numeric keypad
- Develop speed and accuracy

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **POFT 2312 - BUSINESS CORRESPONDENCE & COMMUNICATION**

Development of writing and presentation skills to produce effective business communications.

Upon completion, students will be able to:

- Create effective business documents
- Evaluate business documents
- Apply ethical communication practices

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **POFT 2331 - ADMINISTRATIVE PROJECT SOLUTIONS**

Advanced concepts of project management and office procedures integrating software applications, critical thinking, and problem-solving skills. Lab fees apply

Upon completion, students will be able to:

- Manage business projects using technology, critical thinking, and problem-solving skills

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

---

## **POFT 2380 - COOPERATIVE EDUCATION - ADMINISTRATIVE ASSISTANT & SECRETARIAL SCIENCE, GENERAL**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- As outlined in the learning plan, apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 16.0

---

## **PSYC 1300 - LEARNING FRAMEWORK**

A study of the research and theory in the psychology of learning, cognition, and motivation, factors that impact learning, and application of learning strategies. Theoretical models of strategic learning, cognition, and motivation serve as the

conceptual basis for the introduction of the college-level student academic strategies. Students use assessment instruments (e.g. learning inventories) to help them identify their own strengths and weaknesses as strategic learners. Students are ultimately expected to integrate and apply the learning skills discussed across their own academic programs and become effective and efficient learners. Students developing these skills should be able to continually draw from the theoretical models they have learned. This course is cross-listed as EDUC 1300. The student may register for either EDUC 1300 or PSYC 1300 but may receive credit for only one of the two.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PSYC 2301 - GENERAL PSYCHOLOGY**

General Psychology is a survey of the major psychological topics, theories, and approaches to the scientific study of behavior and mental processes. Meets NCTC Core Curriculum Requirement

Upon completion, students will be able to:

- Identify various research methods and their characteristics used in the scientific study of psychology
- Describe the historical influences and early schools of thought that shaped the field of psychology
- Describe some of the prominent perspectives and approaches used in the study of psychology
- Use terminology unique to the study of psychology
- Describe accepted approaches and standards in psychological assessment and evaluation
- Identify factors in physiological and psychological processes involved in human behavior

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PSYC 2306 - HUMAN SEXUALITY**

This course will provide an overview of the broad field of human sexuality. Topics will be covered from various perspectives - biological, sociological, anthropological, etc., but will focus primarily on the psychological perspective. The goal is for each student to learn factual, scientifically-based information that will provoke thought and contribute to his/her own decision-making on sexual issues outside of the classroom.

Upon completion, students will be able to:

- Identify various research methods and their characteristics used in the scientific study of psychology
- Describe the historical influences and early schools of thought that shaped the field of psychology
- Describe some of the prominent perspectives and approaches used in the study of psychology
- Use terminology unique to the study of psychology
- Describe accepted approaches and standards in psychological assessment and evaluation
- Identify factors in physiological and psychological processes involved in human behavior

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PSYC 2314 - LIFESPAN GROWTH & DEVELOPMENT**

Lifespan Growth and Development is a study of social, emotional, cognitive and physical factors and influences of a developing human from conception to death. Meets NCTC Core Curriculum Requirement

Upon completion, students will be able to:

- Describe the stages of the developing person at different periods of the life span from birth to death
- Discuss the social, political, economic, and cultural forces that affect the development process of the individual
- Identify factors of responsible personal behavior with regard to issues such as sexual activity, substance abuse, marriage and parenting
- Explain the biosocial, cognitive, and psychological inclusions throughout the lifespan as an ongoing set of processes involving both continuity and change
- Describe the different development perspectives of the major theories of development (i.e. cognitive, learning, humanistic and psychodynamic)
- Identify examples of some of the cultural and ethnic differences that influence development throughout the lifespan
- Discuss the various causes or reasons for disturbances in the developmental process

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **PSYC 2315 - PSYCHOLOGY OF ADJUSTMENT**

Study of the processes involved in adjustment of individuals to their personal and social environments.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

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## **PSYC 2319 - SOCIAL PSYCHOLOGY**

Study of individual behavior within the social environment. May include topics such as the socio-psychological process, attitude formation and change, interpersonal relations, and group processes.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **PTRT 1301 - INTRODUCTION TO PETROLEUM INDUSTRY**

An introduction to the various aspects of petroleum industry including equipment, systems, instrumentation, operations, and the various scientific principles. Addresses a variety of petroleum technologies: exploration, drilling, production, transportation, marketing, and chemical processing industries.

Upon completion, students will be able to:

- Identify the concepts of exploration, production, refining, marketing, and transportation
- Describe the terms and phrases associated with the petroleum industry

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **PTRT 1303 - DRILLING**

A study of practices and procedures that are involved in drilling operations. Topics on rig equipment, casing design, fishing, and proper procedures to successfully drill a well are discussed.

Upon completion, students will be able to:

- Describe fundamentals operations in the drilling industry
- Identify the five major systems and equipment of a drilling rig
- Describe specific down-hole problems; and explain solutions

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **PTRT 1307 - RECOVERY & PRODUCTION METHODS**

Petroleum recovery and production methods.

Upon completion, students will be able to:

- Describe natural reservoir drive mechanisms, and artificial lift methods
- Identify the components of surface systems, identify factors used to select and describe basic life and recovery methods

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **PTRT 1313 - INDUSTRIAL SAFETY**

An overview for petroleum and manufacturing workers of state/federal regulations and guidelines which require industrial safety training. Topics include the 29 C.F.R. 1910, 1926 standards.

Upon completion, students will be able to:

- Describe the basic components of safety, health, and environmental systems as applied to oil and gas operations

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 1317 - NATURAL GAS PROCESSING I**

An overview of natural gas processing operations. Topics include fundamentals of gas processing, the scientific principles and how they apply to the process, processing equipment, and procedures. Lab fees apply

Upon completion, students will be able to:

- Describe the basic components of processing equipment
- Explain various gas plant operational procedures

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 1321 - OIL FIELD HYDRAULICS**

Presents hydraulics applicable to drilling, completion, and production. Includes calculating and evaluating the characteristics of the flowing and static fluids in various tubular and annular systems. Lab fees apply

Upon completion, students will be able to:

- Calculate and determine the pressure loss inside a tubular system
- Discuss the advantages and disadvantages of the different hydraulic systems used in oil field applications

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 1324 - PETROLEUM INSTRUMENTATION**

Study of instruments, instrument systems, terminology, process variables, and control loops as used in a petroleum environment. Lab fees apply

Upon completion, students will be able to:

- Describe the oil field instrumentation
- Identify the basic instruments used with temperature, pressure, level, flow, and analytical field applications
- Describe the basic components of a control loop

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 1391 - SPECIAL TOPICS IN PETROLEUM-SCADA**

Topics address recently identified current events, skills, knowledge, and/or attitudes and behaviors pertinent to the technology or occupation and relevant to the professional development of the student. This course was designed to be repeated multiple times to improve student proficiency. Learning outcomes/objectives are determined by local occupational need and business and industry trends.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **PTRT 2323 - NATURAL GAS PRODUCTION**

An overview of the aspects of natural gas and oil production including various aspects of hydrocarbon production, processing equipment, and gas compression/transportation systems. Lab fees apply

Upon completion, students will be able to:

- Describe gas well and casing head testing and metering systems
- Calculate gas volumes
- Describe the basic principles of hydrocarbon production
- Identify the basic components of field processing equipment

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 2331 - WELL COMPLETIONS**

Drilling and wellbore analysis data to develop a well completion plan. Lab fees apply

Upon completion, students will be able to:

- Analyze production and completion data
- Develop a plan of action for completing a well

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **PTRT 2380 - COOPERATIVE EDUCATION - PETROLEUM TECHNOLOGY/TECHNICIAN**

Career-related activities encountered in the student's area of specialization 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. Includes a lecture component.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry

- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

---

## **RADR 1160 - CLINICAL I**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 1.0

---

## **RADR 1201 - INTRODUCTION TO RADIOGRAPHY**

An overview of the historical development of radiography, basic radiation protection, an introduction to medical terminology, ethical and legal issues for health care professionals, and an orientation to the program and the health care system.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **RADR 1166 - PRACTICUM I**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

**Grade Basis:** L

**Credit hours:** 1.0

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## **RADR 1267 - PRACTICUM II**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

**Grade Basis:** L

**Credit hours:** 2.0

---

## **RADR 1303 - PATIENT CARE**

An introduction in patient assessment, infection control procedures, emergency and safety procedures, communication and patient interaction skills, and basic pharmacology. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **RADR 1313 - PRINCIPLES OF RADIOGRAPHIC IMAGING I**

Radiographic image quality and the effects of exposure variables.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **RADR 1411 - BASIC RADIOGRAPHIC PROCEDURES**

An introduction to radiographic positioning terminology, the proper manipulation of equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of basic anatomy. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 64.0

---

## **RADR 2205 - PRINCIPLES OF IMAGING II**

A continuation of the study of radiographic imaging technique formulation, image quality assurance, and the synthesis of all variables in image production.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 48.0

---

## **RADR 2209 - RADIOGRAPHIC IMAGING EQUIPMENT**

A study of the equipment and physics of x-ray production, basic x-ray circuits, and the relationship of equipment components to the imaging process.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 48.0

---

## **RADR 2217 - RADIOGRAPHIC PATHOLOGY**

A presentation of the disease process and common diseases and their appearance on medical images.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

---

## **RADR 2401 - INTERMEDIATE RADIOGRAPHY PROCEDURES**

A continuation of study of the proper manipulation of radiographic equipment, positioning and alignment of the anatomical structure and equipment, and evaluation of images for proper demonstration of anatomy. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

---

## **RADR 2313 - RADIATION BIOLOGY & PROTECTION**

A study of the effects of radiation exposure on biological systems, typical medical exposure levels, methods for measuring and monitoring radiation, and methods for protecting personnel and patients from excessive exposure.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **RADR 2333 - ADVANCED MEDICAL IMAGING**

An exploration of specialized imaging modalities.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **RADR 2335 - RADIOLOGIC TECH SEMINAR**

A capstone course focusing on the synthesis of professional knowledge, skills, and attitudes in preparation for professional employment and lifelong learning.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **RADR 2466 - PRACTICUM III**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

**Grade Basis:** L

**Credit hours:** 4.0

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## **RADR 2267 - PRACTICUM IV**

Practical, general workplace training supported by an individualized learning plan developed by the employer, college, and student.

**Grade Basis:** L

**Credit hours:** 2.0

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## **RBPT 1300 - FUNDAMENTALS OF RESIDENTIAL BUILDING SCIENCE**

A study of the house as a complex interrelated system of people, building technologies, and the environment. Emphasizes residential building techniques and how they affect the needs for energy, water, and materials while providing a safe, healthy, and comfortable home. Lab fees apply

Upon completion, students will be able to:

- Discuss the whole house approach to home construction using basic strategies to build energy-efficient, safe, and healthy homes with a variety of materials
- Explain the movement in different climates of heat, moisture, and air through the building enclosure
- Identify methods homeowners and building professionals use to contribute to the construction of resource-efficient, safe, healthy, and comfortable homes while minimizing the impact on the environment

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

---

## **READ 0300 - READING TECHNIQUES I**

A course designed to enable college students to become more aware of themselves as readers and to develop strategies and skills to meet the demands of college reading. Emphasis is placed on comprehension. Specific strategies covered include vocabulary development, active reading strategies, outlining skills including identifying the main idea, supporting details and patterns of organizations. This course does not count toward graduation of NCTC.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **READ 0305 - READING TECHNIQUES II**

A course intended to continue the improvement of reading skills with particular emphasis on critical and analytical reading strategies. The course begins with a review of active reading strategies for informational texts and ends with an emphasis on critical reading of persuasive texts. Critical reading skills covered include identifying an author's purpose, tone, bias, and logic. This course does not count toward graduation at NCTC.

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

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## **RNSG 1162 - TRANSITION CLINICAL I**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L  
**Credit hours:** 1.0  
**Lecture hours:** 48.0

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## **RNSG 1163 - CLINICAL - PSYCHIATRIC NURSING**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional. Emphasis is on nursing skills essential for the care of patients along the mental health and mental illness continuum.

**Grade Basis:** L  
**Credit hours:** 1.0

---

## **RNSG 1219 - INTEGRATED NURSING SKILLS I**

Study of the concepts and principles necessary to perform basic nursing skills for care of diverse patients across the life span; demonstrate competence in the performance of nursing procedures. Content includes knowledge, judgment, skills, and professional values within a legal and ethical framework. Lab fees apply

**Grade Basis:** L  
**Credit hours:** 2.0  
**Lecture hours:** 16.0

**Lab hours:** 48.0

---

## **RNSG 1229 - INTEGRATED NURSING SKILLS II**

Study of the concepts and principles necessary to perform intermediate or advanced nursing skills for care of patients across the lifespan. Content includes knowledge, judgment, skills, and professional values within a legal/ethical framework. This course lends itself to an integrated approach.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 16.0

**Lab hours:** 32.0

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## **RNSG 1261 - CLINICAL NURSING I**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 2.0

---

## **RNSG 1300 - HEALTH ASSESSMENT ACROSS THE LIFESPAN**

Development of skills and techniques required for a comprehensive nursing health assessment of patients across the lifespan: pediatric, adult, and geriatric. Includes assessment of patients' health promotion and maintenance, illness and injury prevention and restoration, and application of the nursing process within a legal/ethical framework. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

**Lab hours:** 48.0

---

## **RNSG 1423 - INTRODUCTION TO PROFESSIONAL NURSING FOR INTEGRATED PROGRAMS**

Introduction to the profession of nursing including the roles of the professional nurse as provider of patient-centered care, patient safety advocate, member of health care team, and member of the profession with emphasis on health promotion and primary disease prevention across the life span, essential components of the nursing health assessment, identification of deviations from expected health patterns, the application of a systematic, problem-solving process to provide basic nursing care to diverse patients

across the lifespan, and applicable competencies in knowledge, judgment, skills, and professional values within a legal and ethical framework.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 16.0

---

## **RNSG 1462 - CLINICAL NURSING II**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 4.0

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## **RNSG 2161 - TRANSITION CLINICAL III**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 1.0

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## **RNSG 2162 - TRANSITION CLINICAL II**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L

**Credit hours:** 1.0

---

## **RNSG 2404 - INTEGRATED CARE OF THE PATIENT WITH COMMON HEALTH CARE NEEDS**

Application of a systematic problem-solving process, critical thinking skills and concepts to provide nursing care to diverse patients and families across the life span with common health care needs including, but not limited to, common childhood/adolescent diseases, uncomplicated perinatal care, mental health concepts, perioperative care, frequently occurring adult health problems and health issues related to aging. Emphasis on secondary disease prevention and collaboration with members of the interdisciplinary health care team. Content includes roles of the professional nurse and

applicable competencies in knowledge, judgment, skills, and professional values within a legal/ethical framework. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **RNSG 2414 - INTEGRATED CARE OF THE PATIENT WITH COMPLEX HEALTH CARE NEEDS**

Application of a systematic problem solving process, critical thinking skills and concepts to provide comprehensive nursing care to diverse patients and families across the life span with complex health care needs including, but not limited to, complex childhood/adolescent diseases, complicated perinatal care, acute mental illness, complex perioperative care, serious adult health problems and health issues related to aging. Emphasis on tertiary disease prevention, health maintenance/restoration and collaboration with members of the multidisciplinary health care team. Content includes the roles of the professional nurse and applicable competencies in knowledge, judgment, skills, and professional values within a legal/ethical framework. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **RNSG 2435 - INTEGRATED PATIENT CARE MANAGEMENT**

Application of independent nursing interventions to care for diverse patients and families throughout the life span whose health care needs may be difficult to predict. Emphasis on collaborative clinical reasoning, nursing leadership skills, and patient management. Content includes the significance of professional development, trends in nursing and health care, and applicable knowledge, judgment, skills, and professional values within a legal/ethical framework.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

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## **RNSG 2461 - CLINICAL NURSING III**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L  
**Credit hours:** 4.0

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## **RNSG 2462 - CLINICAL NURSING IV**

A health-related work-based learning experience that enables the student to apply specialized occupational theory, skills, and concepts. Direct supervision is provided by the clinical professional.

**Grade Basis:** L  
**Credit hours:** 4.0

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## **CHEF 1305 - SANITATION AND SAFETY**

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 work place safety standards.

Upon completion, students will be able to:

- Identify causes of and prevention procedures for food-borne illness, intoxication, and infection
- Discuss personal hygiene and safe food handling procedures
- Describe food storage and refrigeration techniques
- Explain sanitation of dishes, equipment, and kitchens including cleaning material, garbage, and refuse disposal
- Discuss Occupational Safety and Health Administration (OSHA) requirements and workplace safety programs

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 48.0

---

## **ITSY 2359 - SECURITY ASSESSMENT & AUDITING**

Comprehensive experience for the security curriculum. Synthesizes technical material covered in prior courses to monitor, audit, analyze, and revise computer and network security systems that ensure appropriate levels of protection are in place to assure regulatory compliance. Lab fees apply

Upon completion, students will be able to:

- Appraise security plan to ensure appropriate level of protection
- Assess network security design
- Audit network system based on security design
- Use relevant tools to assure security requirements
- Review security policies and procedures on a regular basis

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

**Prerequisites:**

- [ITSY 1342](#) - INFORMATION TECHNOLOGY SECURITY
- 

## **SOCI 1301 - INTRODUCTION TO SOCIOLOGY**

The scientific study of human society, including ways in which groups, social institutions, and individuals affect each other. Causes of social stability and social change are explored through the application of various theoretical perspectives, key concepts, and related research methods of sociology. Analysis of social issues in their institutional context may include topics such as social stratification, gender, race/ethnicity, and deviance. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SOCI 1306 - SOCIAL PROBLEMS**

Application of sociological principles and theoretical perspectives to major social problems in contemporary society such as inequality, crime and violence, substance abuse, environmental issues, deviance, or family problems. Meets NCTC Core Curriculum Requirement

Upon completion, students will be able to:

- Describe how the sociological imagination can be used to explain the emergence and implications of contemporary social problems
- Explain the nature of social problems from at least one sociological perspective, e.g., critical, functional, interpretive, etc.
- Identify multidimensional aspects of social problems including the global, political, economic, and cultural dimensions of social problems
- Discuss how “solutions” to social problems are often contentious due to diverse values in society
- Describe how the proposed “solutions” to a social problem, including social policies, may bring rise to other social problems

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SOCI 2301 - MARRIAGE & THE FAMILY**

Sociological and theoretical analysis of the structures and functions of the family, the varied cultural patterns of the American family, and the relationships that exist among the individuals within the family, as well as the relationships that exist between the family and other institutions in society.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **SOCI 2319 - MINORITY STUDIES**

This course studies minority-majority group relations, addressing their historical, cultural, social, economic, and institutional development in the United States. Both sociological and social psychological levels of analysis will be employed to discuss issues including experiences of minority groups within the context of their cultural heritage and tradition, as well as that of the dominant culture. Core concepts to be examined include (but are not limited to) social inequality, dominance/subordination, prejudice, and discrimination. Particular minority groups discussed may include those based on poverty, race/ethnicity, gender, sexual orientation, age, disability, or religion.

Upon completion, students will be able to:

- Explain how the concept of social inequality pertains to minority group status defined in terms of identities that may include social class, race/ethnicity, gender, sexual orientation, age, disability, or religion
- Differentiate between important concepts and theories of prejudice and discrimination including the effects of prejudice and discrimination on the everyday lives of minority group members in the context of social institutions
- Analyze the history of culture, experiences of inequality, and current life opportunities of various minority groups in the United States with contrasting reference to other countries
- Analyze minority group interactions in the United States focusing on immigration and migration patterns, assimilation processes, and adjustments to American life

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SOCI 2326 - SOCIAL PSYCHOLOGY**

Study of individual behavior within the social environment. May include topics such as the socio-psychological process, attitude formation and change, interpersonal relations, and group processes. Cross-listed as PSYC 2319

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **SPAN 1411 - BEGINNING SPANISH I**

Basic Spanish 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. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

---

## **SPAN 1412 - BEGINNING SPANISH II**

Continued development of basic Spanish 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. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

---

## **SPAN 2311 - INTERMEDIATE SPANISH I**

The consolidation of skills acquired at the introductory level. Further development of proficiency in listening, speaking, reading and writing. Emphasis on comprehension, appreciation, and interpretation of the cultures of the Spanish-speaking world. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **SPAN 2312 - INTERMEDIATE SPANISH II**

The consolidation of skills acquired at the introductory level. Further development of proficiency in listening, speaking, reading and writing. Emphasis on comprehension, appreciation, and interpretation of the cultures of the Spanish-speaking world.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SPCH 1315 - PUBLIC SPEAKING**

Application of communication theory and practice to the public speaking context, with emphasis on audience analysis, speaker delivery, ethics of communication, cultural diversity, and speech organizational techniques to develop students' speaking abilities, as well as ability to effectively evaluate oral presentations. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SPCH 1318 - INTERPERSONAL COMMUNICATION**

Application of communication theory to interpersonal relationship development, maintenance, and termination in relationship contexts including friendships, romantic partners, families, and relationships with co-workers and supervisors. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

---

## **SPCH 1321 - BUSINESS & PROFESSIONAL COMMUNICATION**

Study and application of communication within the business and professional context. Special emphasis will be given to communication competencies in presentations, dyads, teams and technologically mediated formats. Meets NCTC Core Curriculum Requirement

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **SRGT 1261 - CLINICAL - SURGICAL/OPERATING ROOM TECHNICIAN - INTRODUCTORY**

A basic 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, faculty or preceptor, generally in a clinical setting. Clinical education is an unpaid learning experience.

**Grade Basis:** L

**Credit hours:** 2.0

---

## **SRGT 1441 - SURGICAL PROCEDURES I**

Introduction to surgical pathology and its relationship to surgical procedures. Emphasis on surgical procedures related to the general, OB/GYN, genitourinary, and orthopedic surgical specialities incorporating instruments, equipment, and supplies required for safe patient care. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **SRGT 1442 - SURGICAL PROCEDURES II**

Introduction to surgical pathology and its relationship to surgical procedures. Emphasis on surgical procedures related to the thoracic, peripheral vascular, plastic/reconstructive, EENT, cardiac, and neurological surgical specialities incorporating instruments, equipment, and supplies required for safe patient care. Lab fees apply

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

---

## **SRGT 1505 - INTRODUCTION TO SURGICAL TECHNOLOGY**

Orientation to surgical technology theory, surgical pharmacology and anesthesia technological sciences, and patient care concepts. Lab fees apply

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **SRGT 1509 - FUNDAMENTALS OF PERIOPERATIVE CONCEPTS & TECHNIQUES**

In-depth coverage of perioperative concepts such as aseptic principles and practices, infectious processes, wound healing, and creation and maintenance of the sterile field. Lab fees apply

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 64.0

**Lab hours:** 32.0

---

## **SRGT 1661 - CLINICAL - SURGICAL/OPERATING ROOM TECHNICIAN - INTERMEDIATE**

An intermediate 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 (faculty or preceptor), generally in a clinical setting. Clinical education is an unpaid learning experience.

**Grade Basis:** L

**Credit hours:** 6.0

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## **SRGT 1662 - CLINICAL - SURGICAL/OPERATING ROOM TECHNICIAN - ADVANCED**

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 (faculty or preceptor), generally in a clinical setting. Clinical education is an unpaid learning experience.

**Grade Basis:** L

**Credit hours:** 6.0

---

## **TECA 1303 - FAMILY, SCHOOL & COMMUNITY**

A study of the child, family, community, and schools, including parent education and involvement, family and community lifestyles, child abuse, and current family life issues. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education of Young Children position statement related to developmentally appropriate practices for children from birth through age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations. The course includes a minimum of 16 hours of field experiences.

**Grade Basis:** L

**Credit hours:** 3.0

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## **TECA 1311 - EDUCATING YOUNG CHILDREN**

An introduction to the education of the young child, including developmentally appropriate practices and programs, theoretical and historical perspectives, ethical and professional responsibilities, and current issues. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education

of Young Children position statement related to developmentally appropriate practices for children from birth through age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations and the course includes a minimum of 16 hours of field experiences.

**Grade Basis:** L

**Credit hours:** 3.0

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## **TECA 1318 - WELLNESS OF THE YOUNG CHILD**

A study of the factors that impact the well-being of the young child including healthy behavior, food, nutrition, fitness, and safety practices. Focuses on local and national standards and legal implications of relevant policies and regulations. Course content must be aligned as applicable with State Board for Educator Certification Pedagogy and Professional Responsibilities standards and coincide with the National Association for the Education of Young Children position statement related to developmentally appropriate practices for children from birth to age eight. Requires students to participate in field experiences with children from infancy through age 12 in a variety of settings with varied and diverse populations. Course includes a minimum of 16 hours of field experiences.

**Grade Basis:** L

**Credit hours:** 3.0

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## **TECA 1354 - CHILD GROWTH & DEVELOPMENT**

A study of the physical, emotional, social, and cognitive factors impacting growth and development of children through adolescence.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **TECM 1301 - INDUSTRIAL MATHEMATICS**

Math skills applicable to industrial occupations. Includes fraction and decimal manipulation, measurement, percentage, and problem solving techniques for equations and ratio/proportion applications.

Upon completion, students will be able to:

- Convert between decimals and fractions
- Use measuring tools
- Calculate ratios and proportions in a technical application
- Transpose linear equations to solve for unknowns

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **RNSG 1327 - TRANSITION TO PROFESSIONAL NURSING**

Content includes health promotion, expanded assessment, analysis of data, critical thinking skills and systematic problem solving process, pharmacology, interdisciplinary teamwork, communication, and applicable competencies in knowledge, judgment, skills, and professional values within a legal/ethical framework throughout the lifespan.

**Grade Basis:** L

**Credit hours:** 3.0

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## **VNSG 1219 - PROFESSIONAL DEVELOPMENT**

Study of the importance of professional growth. Topics include the role of the LVN in the multidisciplinary healthcare team, professional organizations, continuing education, delegating authority, resume writing, and job interviewing.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **VNSG 1227 - ESSENTIALS OF MEDICATION ADMINISTRATION**

General principles of medication administration including determination of dosage, preparation, safe administration, and documentation of multiple forms of drugs. Instruction includes various systems of measurement.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **VNSG 1230 - MATERNAL - NEONATAL NURSING**

Utilization of the nursing process in the assessment and management of the childbearing family. Emphasis on the bio-psycho-socio-cultural needs of the family during the phases of pregnancy, childbirth, and the neonatal period including abnormal conditions.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **VNSG 1234 - PEDIATRICS**

Study of childhood diseases and childcare from infancy through adolescence. Focus on the care of the well and the ill child utilizing the nursing process.

**Grade Basis:** L

**Credit hours:** 2.0

**Lecture hours:** 32.0

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## **VNSG 1323 - BASIC NURSING SKILLS**

Mastery of entry level nursing skills and competencies for a variety of health care settings. Utilization of the nursing process as the foundation for all nursing interventions. Related aspects of nutrition, pharmacology, and medical terminology included. Lab fees apply

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 80.0

**Lab hours:** 32.0

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## **VNSG 1331 - PHARMACOLOGY**

Fundamentals of medications and their diagnostic, therapeutic, and curative effects. Includes nursing interventions associated with the various pharmacotherapeutic agents.

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

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## **VNSG 1360 - CLINICAL I**

This course provides clinical experience in fundamental nursing skills. The nursing process is applied to provide individualized care designed to meet a client's particular needs. The geriatric client is the focus of care.

**Grade Basis:** L

**Credit hours:** 3.0

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## **VNSG 1363 - CLINICAL II - SPRING ADMISSION**

This course is offered in the summer semester for the January admission class. It provides a continuation of Clinical I with the emphasis on utilizing the nursing process in providing individualized care of the client in all stages of development. The principles of safety in medication administration and other care are closely monitored.

**Grade Basis:** L

**Credit hours:** 3.0

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## **VNSG 1400 - NURSING IN HEALTH & ILLNESS I**

Introduction to general principles of growth and development, primary health care needs of the client across the life span, and therapeutic nursing interventions.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 80.0

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## **VNSG 1420 - ANATOMY & PHYSIOLOGY FOR ALLIED HEALTH**

Introduction to the normal structure and function of the body, including an understanding of body systems in maintaining homeostasis. Principles of microbiology also included.

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

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## **VNSG 1463 - CLINICAL II - FALL ADMISSION**

This course is offered in the spring semester for the August admission class. It provides a continuation of Clinical I with the emphasis on utilizing the nursing process in providing individualized care of the client in all stages of development. The principles of safety in medication administration and other care are closely monitored.

**Grade Basis:** L

**Credit hours:** 4.0

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## **VNSG 1509 - NURSING IN HEALTH & ILLNESS II**

Introduction to common health problems requiring medical and surgical interventions.

**Grade Basis:** L

**Credit hours:** 5.0

**Lecture hours:** 80.0

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## **VNSG 2360 - CLINICAL III - FALL ADMISSION**

This course is offered in the summer semester for the August admission class. It assists the student in the continued development of their knowledge and skill in the role and functions of the vocational nurse. It provides learning experiences in the clinical setting focusing on further refinement of the nursing process in caring for clients exhibiting health-illness continuum through the life span.

**Grade Basis:** L  
**Credit hours:** 3.0

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### **VNSG 2460 - CLINICAL III - SPRING ADMISSION**

This course is offered in the fall semester for the January admission class. It assists the student in the continued development of their knowledge and skill in the role and functions of the vocational nurse. It provides learning experiences in the clinical setting focusing on further refinement of the nursing process in caring for clients exhibiting health-illness continuum through the life span.

**Grade Basis:** L  
**Credit hours:** 4.0

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### **VNSG 2510 - NURSING IN HEALTH & ILLNESS III**

Continuation of Nursing in Health and Illness II. Further study of common medical-surgical health problems of the client.

**Grade Basis:** L  
**Credit hours:** 5.0  
**Lecture hours:** 80.0

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### **WLDG 1323 - WELDING SAFETY, TOOLS & EQUIPMENT**

An introduction to welding equipment and safety practices, including OSHA standards for industry. Note: WLDG 1323 applies to the Petroleum Technology program or may be taken as a stand alone course. It is not a part of the Welding Certificate or AAS Degree. Lab fees apply

Upon completion, students will be able to:

- Apply welding safety practices, OSHA and the Hazardous Communications Act, and DS
- List hazards associated with welding equipment and processes
- Use and maintain tools and equipment
- Identify hazards associated with gases, fluxes, electrodes and equipment
- Explain different welding processes and their operation

**Grade Basis:** L  
**Credit hours:** 3.0  
**Lecture hours:** 32.0  
**Lab hours:** 32.0

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## **WLDG 1407 - INTRODUCTION TO WELDING USING MULTIPLE PROCESSES**

Basic welding techniques using some of the following processes: Oxy-fuel welding (OFW) and cutting, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), and gas tungsten arc welding (GTAW). Lab fees apply

Upon completion, students will be able to:

- Demonstrate machine set-up and complete welds and cutting operations
- Demonstrate basic shop safety
- Identify types of electrodes used in welding processes
- Identify various welding and cutting standards
- Demonstrate proper joint preparation techniques

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **WLDG 1413 - INTRODUCTION TO BLUEPRINT READING FOR WELDERS**

A study of industrial blueprints. Emphasis placed on terminology, symbols, graphic description, and welding processes. Includes systems of measurement and industry standards. Also includes interpretation of plans and drawings used by industry to facilitate field application and production.

Upon completion, students will be able to:

- Define terms and abbreviations; and identify and explain object views, lines, and dimensions
- Identify, explain, and interpret weld symbols
- Identify structural shapes
- Demonstrate the proper use of measuring devices
- Read and interpret blueprints
- Read welding detail drawings
- Calculate dimensions and material

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

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## **WLDG 1427 - WELDING CODES**

An in-depth study of welding codes and their development in accordance with structural standards, welding processes, destructive and nondestructive test methods.

Upon completion, students will be able to:

- Categorize major codes
- Identify welding procedures
- Identify welding and NDT symbols
- List responsibilities of inspectors
- Evaluate post-weld heat treatments and destructive testing
- List alloys and phases of metals
- State the effects of heating and cooling
- Apply pre-weld, in-process, and shop inspection standards
- Develop welding procedures
- Calculate preheat and post-weld heat treatments
- Identify NDT test methods and welding discontinuities

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 64.0

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## **WLDG 1428 - INTRODUCTION TO SHIELDED METAL ARC WELDING (SMAW)**

An introduction to the shielded metal arc welding process. Emphasis placed on power sources, electrode selection, oxy-fuel cutting, and various joint designs. Instruction provided in SMAW fillet welds in various positions. Lab fees apply

Upon completion, students will be able to:

- Select electrodes and amperage settings for various thicknesses of materials and welding positions
- Define principles of arc welding
- Explain electrode classifications
- Perform SMAW operations in various positions using selected electrodes and different joint designs

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **WLDG 1435 - INTRODUCTION TO PIPE WELDING**

An introduction to welding of pipe using the shielded metal arc welding process (SMAW), including electrode selection, equipment setup, and safe shop practices. Emphasis on weld positions 1G and 2G using various electrodes. Lab fees apply

Upon completion, students will be able to:

- Describe equipment and required pipe preparation and perform 1G and 2G welds using various electrodes

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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## **WLDG 1457 - INTERMEDIATE SHIELDED METAL ARC WELDING (SMAW)**

A study of the production of various fillets and groove welds. Preparation of specimens for testing in various positions. Lab fees apply

Upon completion, students will be able to:

- Identify principles of arc welding
- Describe arc welding operations of fillet and groove joints
- Explain heat treatments of low alloy steels
- Explain weld size and profiles
- Prepare test plates
- Perform fillet welds in the overhead position
- Perform air carbon arc weld removal
- Perform bevel groove welds with backing plates in various positions
- Demonstrate use of tools and equipment

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 32.0

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## **WLDG 2352 - ADVANCED FLUX CORED ARC WELDING**

Advanced concepts of flux cored arc welding of structural and fabricated steel products. Skill development in multi-pass fillet and v-groove welding. Lab fees apply

Upon completion, students will be able to:

- Perform safety inspections of equipment and accessories
- Perform multi-pass fillet and v-groove welds in various positions

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 48.0

**Lab hours:** 32.0

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## **WLDG 2380 - COOPERATIVE EDUCATION - WELDING TECHNOLOGY**

Career-related activities encountered in the student's area of specialization 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.

Upon completion, students will be able to:

- Apply the theory, concepts, and skills involving specialized materials, tools, equipment, procedures, regulations, laws, and interactions within and among political, economic, environmental, social, and legal systems associated with the occupation and the business/industry
- Demonstrate legal and ethical behavior, safety practices, interpersonal and teamwork skills, and appropriate written and verbal communication skills using the terminology of the occupation and the business/industry

**Grade Basis:** L

**Credit hours:** 3.0

**Lecture hours:** 16.0

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## **WLDG 2413 - INTERMEDIATE WELDING USE MULTIPLE PROCESSES**

Instruction using layout tools and blueprint reading with demonstration and guided practices with some of the following welding processes: oxy-fuel gas cutting and welding, shield metal arc welding (SMAW), gas metal arc welding (GMAW), flux-cored arc welding (FCAW), gas tungsten arc welding (GTAW), or any other approved welding process. Lab fees apply

Upon completion, students will be able to:

- Identify proper safety equipment and tools and identify and select the proper welding process for a given application
- Demonstrate skills training using more than one approved welding process
- Demonstrate ability to analyze situations and make decisions using skills as taught concerning safety and electrode selections
- Select the most economic and practical welding process for the given task

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 96.0

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## **WLDG 2447 - ADVANCED GAS METAL ARC WELDING (GMAW)**

Advanced topics in Gas Metal Arc Welding (GMAW). Includes welding in various positions. Lab fees apply

Upon completion, students will be able to:

- Demonstrate proficiency in various welding positions
- Describe safety rules and equipment use
- Describe the effects of welding parameters in GMAW
- Weld various joint designs and diagnose welding problems and perform visual inspection

**Grade Basis:** L

**Credit hours:** 4.0

**Lecture hours:** 32.0

**Lab hours:** 64.0

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