## COURSE DESCRIPTIONS

### ACCOUNTANT (ACCT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ACCT 1104</td>
<td>1</td>
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<tr>
<td>Special Projects</td>
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<tr>
<td>Encourages students to identify, analyze and record transactions by the completion of a business simulation project. Topics covered include the accounting cycle, accounting for a merchandising business, accounting system design, special journals, subsidiary ledgers and work ethics. Concurrent enrollment in BUS 2201.</td>
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<tr>
<td>ACCT 1110</td>
<td>3</td>
</tr>
<tr>
<td>Payroll Accounting</td>
<td></td>
</tr>
<tr>
<td>Covers the various state and federal laws pertaining to the computation of payment of salaries and wages.</td>
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<tr>
<td>ACCT 1115</td>
<td>2</td>
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<tr>
<td>Computerized Accounting Applications I</td>
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</tr>
<tr>
<td>Introduces the use of computers and related software used in the accounting function of the business environment. Topics include general ledger accounting, payroll procedures, accounts receivable, and accounts payable. Prerequisite: BUS 2201 or high school/college bookkeeping or accounting coursework.</td>
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<tr>
<td>ACCT 1120</td>
<td>2</td>
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<tr>
<td>Spreadsheet Concepts and Applications</td>
<td></td>
</tr>
<tr>
<td>Uses a spreadsheet system for business applications. Topics include document creation, storage and retrieval, editing, printing, and file distribution.</td>
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<tr>
<td>ACCT 1122</td>
<td>2</td>
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<tr>
<td>Database Concepts and Applications</td>
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<tr>
<td>Uses a database system for business applications. Topics include electronic files, file creation and flexible stored procedures.</td>
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<tr>
<td>ACCT 2100</td>
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<tr>
<td>Intermediate Accounting I</td>
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</tr>
<tr>
<td>Explores accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Prerequisite: BUS 2202.</td>
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<tr>
<td>ACCT 2101</td>
<td>2</td>
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<tr>
<td>Intermediate Accounting II</td>
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<tr>
<td>Continues the comprehensive study of accounting theory and concepts. Prerequisite: ACCT 2100.</td>
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<tr>
<td>ACCT 2105</td>
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<tr>
<td>Auditing</td>
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<tr>
<td>Studies the methods and procedures used to verify the completeness and accuracy of accounting records. Topics include professional ethics, the audit process, nature of evidence, internal control, audit sampling techniques, the audit examination, and audit reports.</td>
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<tr>
<td>ACCT 2110</td>
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<tr>
<td>Income Tax I</td>
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<tr>
<td>Explains and interprets the Internal Revenue Code as applied to individual and business returns. Computerized software will be used to prepare actual income tax returns.</td>
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<tr>
<td>ACCT 2115</td>
<td>4</td>
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<tr>
<td>Cost Accounting I</td>
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<tr>
<td>Studies cost accounting as a management tool for planning, organizing, and controlling costs associated with the manufacturing process, whether using job costing or process accounting. Prerequisite: BUS 2202.</td>
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<tr>
<td>ACCT 2120</td>
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<tr>
<td>Fund/Nonprofit Accounting</td>
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<tr>
<td>Focuses on the application of generally accepted accounting principles for state and local governmental units. Prerequisite: BUS 2202.</td>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>ACCT 2125</td>
<td>2</td>
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<tr>
<td>Computerized Accounting Applications II</td>
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<tr>
<td>Continues the use of computers and related software used in the accounting function of a business. Prerequisite: BUS 2202.</td>
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<tr>
<td>ACCT 2130</td>
<td>2</td>
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<tr>
<td>Intermediate Accounting III</td>
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<tr>
<td>Studies accounting theory and concepts. Prerequisite: ACCT 2101.</td>
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<tr>
<td>ACCT 2135</td>
<td>2</td>
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<tr>
<td>Internship</td>
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<tr>
<td>Provides practical experience with a business utilizing skills/knowledge learned in accounting programs.</td>
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### ADMINISTRATIVE ASSISTANT (ADSA)

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<th>Course Code</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ADSA 1100</td>
<td>3</td>
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<tr>
<td>College Keyboarding I</td>
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<tr>
<td>Covers basic skill development and the use of a computer keyboard to produce various business documents including letters, envelopes, reports, memos, tables, and employment documents. In addition to formatting business documents, focus will be placed on keyboarding speed, accuracy, and proofreading skills.</td>
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<tr>
<td>ADSA 1105</td>
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<tr>
<td>College Keyboarding II</td>
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<tr>
<td>Covers production keyboarding using a computer to complete a variety of business applications. Business documents will be produced including letters, envelopes, reports, memos, tables, and forms. Also included is the continued development of keyboarding speed, accuracy, and proofreading skills. Prerequisite: ADSA 1100.</td>
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<tr>
<td>ADSA 1111</td>
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<tr>
<td>Office Management</td>
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<tr>
<td>Covers general office principles, practices, and procedures in theory with practical applications. Various topics will be covered including office equipment, computer skills, communication skills, administrative duties, ‘typical’ office duties, and personal and professional development.</td>
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<tr>
<td>ADSA 1122</td>
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<tr>
<td>Word Processing I</td>
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<tr>
<td>Covers using a computer system with word processing software to perform basic word processing applications. Topics covered include preparing and managing documents, formatting and enhancing documents, and customizing documents.</td>
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<tr>
<td>ADSA 1123</td>
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<tr>
<td>Word Processing II</td>
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<tr>
<td>Continues Word Processing I with a focus on increased proficiency in operating word processing software. Topics covered include enhancing and organizing text along with realistic word processing projects. Prerequisite: ADSA 1122.</td>
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<tr>
<td>ADSA 1126</td>
<td>2</td>
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<tr>
<td>Advanced Office Applications</td>
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<tr>
<td>Designed as a capstone course to integrate and reinforce the skills and knowledge learned in previous business courses in the Administrative Assistant program. Computer applications will be utilized in projects that simulate those used in an office environment. Projects will emphasize quality and meeting deadlines. Prerequisites: ADSA 1100, ADSA 1122 or instructor approval and successful completion of, or concurrent enrollment in, ACCT 1120 and ACCT 1122.</td>
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<tr>
<td>ADSA 1130</td>
<td>3</td>
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<tr>
<td>Office Accounting Concepts</td>
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</table>
| Provides students with a basic knowledge of accounting concepts and procedures. The accounting cycle for service and merchandising businesses will be covered by analyzing business transactions,
recording transactions in a variety of journals, preparing financial reports, and accounting for cash and payroll.

**ADSA 1131**
Office Accounting Concepts II
Provides the opportunity to apply basic knowledge of accounting concepts and procedures. Students will apply basic accounting procedures through the use of simulations, software packages, etc. Prerequisite: ADSA 1130.

**ADSA 1132**
10-Key Operations
Introduces the touch system on 10-key number pad for speed development and accuracy applicable to business situations.

**ADSA 1136**
Desktop Publishing
Introduces students to the concepts, terminology, techniques, and applications of desktop publishing. The student will integrate text and graphics to produce professional-quality publications.

**ADSA 1141**
Customer Service for the Office Professional
Covers the basic skills necessary to work effectively with customers. Basic customer service communication skills including telephone, technology and writing are covered. Also included are customer retention, motivation, leadership and problem solving strategies.

**ADSA 1145**
Supervisory Management
Introduces the skills required to effectively direct the work of others in the business world by working through people to develop and empower them. Important supervisory management concepts are stressed as well as how to apply the principles of management in the real world.

**ADSA 1176**
Business Communications
Covers oral and written communication skills needed in the professional workforce.

**ADSA 1180**
Records Management
Covers the flow of records utilized for client/customer information processing.

**ADSA 1190**
Presentation Graphics
Covers the concepts of developing electronic slide shows using a computer application program. The keys to effective presentations are covered along with various printing techniques. This course covers more advanced presentation techniques including animation and sound. The basics of scanning and manipulation graphics are also covered.

**ADSA 1200**
Special Projects
Involves shadowing various employees at business sites. Approximately three visits will be involved and reports will be done on each.

**MEDICAL ADMINISTRATIVE ASSISTANT (ADSM)**

**ADSM 1100**
Medical Terminology I
Introduces word analysis, spelling, and usage of word roots, prefixes, suffixes, and abbreviations common to the medical profession. Emphasis on understanding, pronouncing, and spelling diagnostic terms.

**ADSM 1100**
Medical Terminology I
Introduces word analysis, spelling, and usage of word roots, prefixes, suffixes, and abbreviations common to the medical profession. Emphasis on understanding, pronouncing, and spelling diagnostic terms.

**ADSM 1105**
Medical Terminology I
Introduces word analysis, spelling, and usage of word roots, prefixes, suffixes, and abbreviations common to the medical profession. Emphasis on understanding, pronouncing, and spelling diagnostic terms.

**Medical Insurance and Reimbursement**
Provides an introduction to medical claim forms preparation and processing. It will focus on coded data and health information reimbursement and payment systems appropriate to health care settings and managed care. It will cover prospective payment systems and key health plans, charge master maintenance, and evaluation of fraudulent billing practices.

**ADSM 1110**
Anatomy & Physiology/Disease Conditions I
Introduces human anatomy and systems with emphasis on terminology, abbreviations, and diagnostic tests for the human body through study of diseases by anatomical systems. The emphasis is on terminology, abbreviations, and symptomatic, diagnostic, and operative terms.

**ADSM 1115**
Anatomy & Physiology/Disease Conditions II
Continues human anatomy and disease with emphasis on terminology, abbreviations, and disease process. The study of diseases follows anatomical systems. Prerequisite: ADSM 1110.

**ADSM 1117**
Anatomy & Physiology/Disease Conditions
Covers the relevant structures, functions, and diseases of body systems. It emphasizes clinical applications and medical terminology. Emphasis will be placed on the signs, symptoms, diagnostic measures, and treatment regimens of diseases.

**ADSM 1120**
Medical Office Procedures I
Provides medical office career information, with emphasis upon medical ethics and professional liability. Additional topics covered include medical receptionist tasks, working with patient files, medical records, word processing, and billing.

**ADSM 1125**
Medical Office Procedures II
Continues Medical Office Procedures I. Medical topics covered include: medical insurance, DRGS, HMIs, CPT and HCPCS coding. This also covers the integration of medical office tasks: basics of computer operation, mail handling, medical document production, insurance forms completion, and making meeting and travel arrangements. Prerequisite: ADSM 1120.

**ADSM 1130**
Medical Machine Transcription I
Teaches transcription of dictated medical material into a variety of usable medical documents. The emphasis is on authentic forms and material; building typing speed and accuracy; and proofreading and correcting errors. Must be taken concurrently with ADSA 1130.

**ADSM 1131**
Voice Recognition Technology
Describes the basics of voice technology and the incorporation of computer-aided software that will enable the students to caption on the Web. The student will build his/her voice profile and learn how to use voice commands to create, edit, and print documents. Student will be taught time saving macros and templates will be created. Stored documents will be retrieved by the student and edited by voice. Prerequisite: ADSM 1130.

**ADSM 1137**
Medical Machine Transcription III
Provides advanced medical transcription training in various medical and surgical specialty units.

**ADSM 1165**
ICD-9-CM
Provides students with an understanding of ICD-9-CM diagnostic coding, a statistical classification system for selecting diagnoses in healthcare settings. Students will learn how to apply official guidelines to provide the most accurate codes for billing and statistical analysis.

**ADSM 1190**
Healthcare Documentation
Introduces medical formatting and transcription skills for medical documentation. Dictation is transcribed from various specialties. The
basics of voice technology will be explored. Students will build his/her
voice profile and learn how to use voice commands to create, edit, and
print documents. Emphasis will be in developing and improving editing
and proof reading skills.

ADSM 2297  1-2
Internship
Designed to provide the student with occupational experience in the
Medical Administrative Secretarial field. It is designed to provide on-
the-job experience in an approved health setting as the training site.
Prerequisite: Instructor approval.

AGRICULTURE (AGRI)

AGRI 1101  3
Introduction to Animal Science
Provides students with an introduction to animal science with an
emphasis on the fundamental concepts of physiology, nutrition, animal
breeding and management as applied to beef cattle, dairy cattle,
poultry, sheep and swine production.

AGRI 1102  3
Principles of Agronomy
Explores the principles and practices of plant and related sciences as
applied to increasing productivity and improvement of field crops.
Emphasis is on crop selection and improvement through the breeding of
crop varieties, seeds and seedlings, crop growth and development, crop
production hazards, and the harvest and storage of field crops.

AGRI 1103  3
Introduction to Soil Science
Introduces students to the origin, formation, and classification of soils.
This includes the physical, chemical, and biological properties of soils,
soils as a medium for plant growth, elements, water, air, organic matter,
and plant and animal life in the soil.

AGRI 1110  3
Introduction to Horticulture
Emphasizes the growth processes in production of fruits, vegetables,
flowers, lawns, trees, and shrubs. Studies include planning, preparation
and care of home grounds. Fundamental concepts in plant
identification, growth, culture, landscape and design are also studied.

AGRI 1121  2
Dairy Technician
Provides for introduction to the Dairy Industry as a technician. The
emphasis will be on employment skills and milking skills.

AGRI 1125  2
Custom Application
Designed for the student pursuing a career in crop production or
agronomy services area. The student will receive hands-on instruction
in the safe operation and calibration of custom sprayers and
spreader. The student will be prepared for and issued the
Minnesota State Custom Application exams for categories A,
C, & D, leading to licensure in those areas.

AGRI 1151  4
Farm Records & Business Analysis
Emphasizes the maintenance and analysis of farm records. Special
attention is given to the use of the Minnesota Farm Account Book and
the analysis procedure. Topics include calculation of earnings,
efficiency factors, total business and enterprise analysis.

AGRI 1152  3
Agricultural Marketing and Prices
Explores the economics of agricultural marketing, organization of
markets and marketing enterprises, marketing policy, and price trends
of agricultural commodities.

AGRI 2201  3
Principles of Animal Nutrition
Covers the classification and function of nutrients, digestion, and
utilization of feeds. This includes nutrient requirements for livestock
and poultry, nutrient composition, and feeding standards. Prerequisite:
AGRI 1101 or consent of instructor.

AGRI 2202  3
Weed Control
Surveys the principles and methods of weed control and the modes of
action of herbicides.

AGRI 2203  3
Soil Fertility and Fertilizers
Explores the chemical elements in the soil and plants, soil testing and
tissue testing, fertilizer and lime recommendations, and fertilizer
nutrients.

AGRI 2204  3
Intro to GPS/GIS
Intended to serve as an introduction to GPS (Global Positioning
Systems) and GIS (Geographical Information Systems) with an
emphasis on agricultural uses and precision farming.

AGRI 2205  3
Introduction to Precision Management Software
Intended to serve as an introduction to several precision management
software packages that are used to manage farming decisions and
implement site specific crop management.

AGRI 2212  3
Corn and Soybean Production
Explores practices used in corn and soybean production, variety and
hybrid selection, seed bed preparation and planting, fertilizer programs,
water management, weed control, harvesting, storage and marketing.

AGRI 2214  3
Machinery Principles and Management
Covers the utilization of farm equipment from the purchasing of
equipment and managing the costs to the operation and maintenance of
agricultural equipment.

AGRI 2216  3
Introduction to Meat Science
Emphasizes the principles of conformation, quality, and finish of animal
carcasses. A comprehensive look at the meat industry. Studies include
composition of meat animals, product identification, nutrient values,
pricing and marketing.

AGRI 2220  3
Building Construction Outreach
Introduces instructional and laboratory exercises in light frame building
construction. The course provides competence in skill areas including
site layout, foundations, plumbing, insulating, sheathing, roofing and
electrical wiring. The units are arranged in a logical sequence as to the
order in which the various phases of construction are performed.
Special emphasis is placed on safety and the use of modern tools,
materials, and prefabricated components.

AGRI 2222  3
Current Technical Competencies
Introduces instructional and laboratory experiences to learners that are
preparing for a career as an Agricultural Education teacher. The course
will include laboratory experiences in basic mechanical and technical
competence for manufacturing and workshop mechanics. Competency
will be expected in a wide variety of skills including, but not limited to
welding, small engines, fluid power, hydraulics and pneumatics.
Teaching and learning strategies will demonstrate research based best
practices that are proven effective in teaching manufacturing and
mechanical technologies to high school students.

AGRI 2235  1-3
Special Topics in Agriculture
Covers a wide range of issues of current interest. Topics will be chosen to
meet the needs of students. The class may be retaken for credit if
the topic varies.

AGRI 2251  4
Principles of Farm and Ranch Management
Emphasizes utilization of land, labor, capital and management in the
organization and operation of a farm. Includes the organization of a
farm and the decision-making processes involved in establishing a farm
business. Analyzing, budgeting, and using principles of economics are considered in the decision-making process.

AGRI 2297  
Agriculture Production Management Internship  
Placements students on a farm operation to gain further experience in agricultural production management under the supervision of the agriculture department staff.

AGRI 2298  
Agriculture Lab Tech Internship  
Placements students in area businesses or industries specializing in the appropriate technology to gain practical experience. Students may select an emphasis area in food technology, soil and water, or plant science.

AGRI 2299  
Agri-Business Internship  
Placements students in an area agri-business for one semester to gain practical experience in agricultural sales and service and agricultural business management.

ART (ART)  

ART 1101  
Beginning Drawing  
Combines work in various drawing mediums. This includes experimentation with traditional and contemporary styles, problems in perspective, composition, and imagination.

ART 1103  
Display and Exhibition  
Exposes the student to organization, management, and the design and hanging of gallery displays. Students will be responsible for the pre-organization and arrangement of displays. The course will cover both theory and practical experience with gallery management.

ART 1114  
Watercolor  
Introduces traditional and contemporary techniques of transparent watercolor with practical experiences in solving painting problems in various styles.

ART 1115  
Beginning Painting  
Introduces traditional and contemporary painting techniques. Students will explore their own visual communication style. Students will learn processes for canvas preparation.

ART 1118  
Arts and Crafts  
Teaches basic skills using art materials and supplies. Encourages a creative approach to the application of these skills through a variety of techniques. Students will learn appropriate methods of presenting art experiences to individuals with various learning levels and/or disabilities. A resource book containing step by step methods and procedures of instructing others will be produced by each student.

ART 1120  
Art Appreciation  
Art Appreciation offers an investigation into the creative process as it exists for the artist, the art historian, and the art viewer. Students will be exposed to the history of art, the technical aspects of art, and to the creative mental process which takes place in both the making and viewing of art. This course is also offered on demand. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

ART 1124  
Introduction to Ceramics  
Creating clay objects using the potter's wheel and hand building techniques. Students also learn to operate a kiln and apply glaze finishes.

ART 1224  
Investigations in Raku  
Investigates the history and methods of Raku ceramics. There is an emphasis on glazes and firing techniques.

ART 2201  
Intermediate Drawing  
Uses materials from ART 1101 with increased emphasis on individual creativity and artistic development. Prerequisite: ART 1101.

ART 2215  
Intermediate Painting  
Emphasizes technical and creative application of paint. Students will be encouraged to explore the creative process using a wide variety of painting surfaces, techniques and subject matter. Prerequisite: ART 1115.

ART 2224  
Intermediate Ceramics  
Reinforces beginning design experiences by combining methods of construction. Greater emphasis will be placed on glazing and finishing. Prerequisite: ART 1124.

ART 2230  
Computer Graphics  
Exposes students to photographic manipulation and applied illustrative techniques using Photoshop. Some topics to be covered are: raster vs. vector images, scanning and editing photographs, using a digital camera, designing and manipulating text to communicate ideas, and drawing basic objects for the purposes of illustration.

ART 2232  
Advanced Computer Graphics  
Explores the creative Photoshop techniques of image blending, shadows, image enhancement, type, and background effects. We will also focus on Web applications such as: interface design, slicing, rollovers, animations and optimization.

ART 2235  
Special Topics  
Covers a wide range of art topics and media. Topics will be chosen to meet the needs of art students. The class may be retaken for credit if the topic varies.

ART 2240  
Art History  
Art History includes the study of painting, sculpture and architecture from the Paleolithic (Stone Age) period through the Early Renaissance.

ART 2245  
Art History II  
Art History II includes the study of painting, sculpture and architecture from Renaissance through the Post Modern Era: Art since 1980.

AUTOMOTIVE TECHNOLOGY (AUTO ALSO SEE TRAN)  

AUTO 1100  
Introduction to Transportation  
Covers the correct procedures for servicing and maintaining vehicles. Shop safety, use of service manuals and bulletins, writing repair orders, and parts requisitions will be addressed.

AUTO 1111  
Electrical  
Presents the basic fundamentals of electricity and electronics, sources of electricity, circuits, magnetism, resistance, coils, capacitance, instruments, diodes, and solid-state devices. Emphasis is placed on the testing and repair of the electrical systems, starter motors, alternators and regulators. Students will identify parts, operation, testing, and overhaul procedures.

AUTO 1120  
Air Conditioning  

Identify and define the theory, principles, diagnosis, testing, and repairs of the air conditioning and heater systems operations.

AUTO 1121  Advanced Heating & Air Conditioning
2
Covers the theory, principles, diagnosis, testing, and repairs of the air conditioning and heater systems. Also covered is the automatic temperature control systems and operations.

AUTO 1126  Steering/Suspension/Alignment
3
Identify the necessary skills to diagnose and repair steering and suspension systems. This course teaches suspension systems using leaf springs, coil springs, MacPherson struts, torsion bars and wheel balance. It also covers the principles of operation, disassembly, checks and adjustments of power and manual steering gears, and manual and power rack and pinion systems. Also taught are the procedures required for checking and adjusting wheel alignment.

AUTO 1131  Brakes
3
Enable the student to properly service automotive brake systems. Included will be diagnosis of problems, system theory and repair, machine procedures, customer satisfaction and safety.

AUTO 1136  Engine Technology and Lab
4
Identify the basic operations, nomenclature and function of engines. Theory of engine cooling and lubrication systems will be explained and demonstrated. Students will inspect, repair, and/or adjust the following engine components and systems: Valves, cylinder heads, blocks, crankshafts, cooling and lubrication systems.

AUTO 1140  Special Projects
1
Encourages students to identify, develop, explain, and complete their own automotive projects. The special projects course must receive the approval of the instructor prior to implementing the project. Special projects must challenge the student's current level of technical skills.

AUTO 1145  Engine Performance I
2
Enables students to master the proper techniques necessary to diagnose and repair computer systems by using diagnostic computer systems and scanners. This course will also cover emission control components testing and repair.

AUTO 1194  Commercial Drivers License Permit
1
Prepares students with the necessary content to pass the required test for the State of Minnesota to receive a Class A permit. The tests the State requires are: General Knowledge, Air Brakes, Combination and Pre-trip Inspection.

AUTO 1195  Commercial Drivers License
2
Allows students to learn the proper driving techniques associated with interstate, highway and city driving along with parking and DOT requirements. Prerequisite: Students must have a current Minnesota Class A permit.

AUTO 2106  Automatic Transmissions
5
Prepares students with the necessary skills to diagnose and repair automatic transmissions and transaxes. This course teaches the theory of operation of automatic transmissions and transaxes and the related components. The fundamentals of service of the components of the transmissions will be introduced and practiced in this course.

AUTO 2107  Automatic Transmissions
3
Performs the necessary skills to diagnose and repair automatic transmissions and transaxes. This course teaches the theory of operation of automatic transmissions and transaxes and related components. The fundamentals of service of the components of the transmissions will be introduced and practiced in this course.

AUTO 2108  Introduction to Hybrid Electric Vehicle
3
Provides basic hybrid electric vehicle safety procedures, common hybrid electric component fundamentals, current hybrid vehicle design, an introduction to hybrid electric vehicle maintenance and troubleshooting, and an introduction to hybrid electric vehicle test equipment and procedures. Prerequisite(s): AUTO 1100 and AUTO 1111.

AUTO 2112  Manual Drive Train & Axles
5
Prepares students with the necessary skills to diagnose and repair manual driveline components. This course covers standard automotive and light truck clutches, drivelines, differential/4x4 and manual transmissions/transaxles. The clutch section includes design, adjustment, overhaul, diagnosis and repair of mechanical and hydraulic systems. The driveline section includes phasing alignment and balance. The manual transmission/transaxle section teaches the operation theory and repair.

AUTO 2113  Manual Drivetrain and Axles
3
Describe conventional automotive and light truck manual transmissions and clutch. Contents will include power flow, design, adjustment, overhaul procedures, diagnosis, and repairs.

AUTO 2121  Engine Performance II
5
Prepares students with the necessary skills to diagnose and repair all systems related to engine performance. It teaches the theory and repair of automotive engine systems. It includes ignition systems, emission controls, electronic engine controls, and engine performance diagnosis.

AUTO 2122  Engine Performance III
5
Prepares students with the necessary skills to diagnose and repair all systems related to engine performance. It teaches the theory and repair of automotive engine systems. It includes ignition systems, emission controls, electronic engine controls, and engine performance diagnosis.

AUTO 2135  Ford Computer Controls and Fuel Injection
3
Covers the theory and operation of the Ford Electronic Engine Controls(EEC) and Ford CFI, EFI, and SEFI fuel injections systems. Diagnosis and repair will include EEC I, II, III, IV, and MCU systems with main emphasis on the EEC IV system, including self-test, pin-point testing and intermittent diagnosis.

AUTO 2145  Body Computer Controlled Electrical Systems
5
Covers the advanced theory of operation, diagnosing and repair of electrical components such as power windows, power seats, ABS brakes, power steering, automatic computer control transmission, A/C climate control, theft deterrent systems, and chassis electronics control systems. Prerequisite: AUTO 1145.

AUTO 2146  Body Computer Controlled Electrical Systems
4
Describe the theory of operation, diagnosing and repair of electrical components such as power windows, power seats, ABS brakes, power steering, automatic computer control transmission, A/C climate control, theft deterrent systems, and chassis electronics control systems.

AUTO 2150  Special Problems II
2
Intended to provide training in service and maintaining of vehicles. The class will stress shop safety and the proper use of personal safety equipment. The student will work on a number of specialized projects relating to the automotive industry.

AUTO 2155  Intro to Diesel Electronics
4
Introduces the computer system used in the diagnostics of today’s electronic controlled engines, and transmissions. Students will develop reports from the programs and store them for future reference. From this information they will learn to diagnose and make repairs to the unit being tested. This course will cover basic Windows operations and scanner diagnostics needed to operate the computerized systems.

**AUTO 2160**  
**Special Projects**  
Intended to provide training in servicing and maintaining of vehicles. The class will stress shop safety and the proper use of personal safety equipment. The student will work on a number of specialized projects relating to the auto industry.

**AUTO 2190**  
**Summer Internship**  
Provides a good overview of what has been covered in the classroom by seeing the way these principles are put to work in the dealership. Hands-on experiences allow the student to disassemble, inspect, evaluate, repair and adjust, and reassemble key elements of the automobile systems.

**Biology (BIOL)**

**BIOL 1100**  
**Survey of Biological Science**  
Biology 1100 is intended for non-majors. This course introduces major concepts of biology which include cell biology, patterns of inheritance, classification, evolution, and diversity of life. Special emphasis will be placed upon understanding of the science of biology and its significance to everyday life.

**BIOL 1110**  
**Principles of Biology I**  
Investigates fundamental principles of biology with special emphasis on the composition of living things and living systems, the chemistry of living things, natural selection, cell biology, metabolism emphasizing bioenergetics and biosynthesis, the cell cycle, and genetics. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

**BIOL 1111**  
**Principles of Biology II**  
Examines biological diversity and the basic mechanisms and concepts in organismal biology including a survey of life forms (viruses, bacteria, protozoans, fungi, plants and animals.) Additional topics will include taxonomy, classification, structure and function of the major groups of plants and animals. Prerequisite: BIOL 1110.

**BIOL 1115**  
**Human Biology**  
Covers some of the fundamental topics in biology, emphasizing the human. Students will explore the structure and function of healthy human body systems and investigate numerous abnormalities and disease states. Additional topics will include human development, aging, human genetics, DNA technology, genetic engineering, biotechnology, and ecological interactions. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

**BIOL 2100**  
**Ecology**  
Introduces the student to the study of inter-relationships between organisms and their environment. Topics include fundamental principles of ecology at the levels of individual, population, community, and ecosystem, as well as flow of energy, organism-level interactions, and community ecology with an emphasis on applied ecology. Field and laboratory activities will support selected lecture topics. Prerequisite: BIOL 1110.

**BIOL 2201**  
**Human Anatomy**  
Biology 2201 covers structures of the human body from the cellular to organ system level. This course includes study of the biology of human body organization, tissues and organ systems: integumentary, skeletal, muscular, nervous, endocrine, circulatory, lymphatic, respiratory, urinary, digestive, and reproductive. Laboratory exercises support the lecture and include hands-on dissections that coincide with the organ systems covered in the lecture topics. Prerequisite: Biology 1110 or Biology 1115.

**BIOL 2202**  
**Human Physiology**  
Biology 2202 covers through an applied and systematic approach, the biology of the cells, tissues, organs, and organ systems of the human body. Laboratory exercises support the lecture and include hands-on dissections that coincide with the systems covered in the lecture topics. Prerequisite: Biology 2201.

**BIOL 2220**  
**Animal Biology**  
Investigates animal taxonomy, morphology, physiology, evolution and ecology. Laboratory exercises emphasize the structure and function of animals representing the major animal phyla. Prerequisite: BIOL 1110.

**BIOL 2230**  
**Plant Biology**  
Covers the fundamental concepts of botany, including plant diversity, taxonomy, morphology, physiology, development, and reproduction. Other topics which will be covered include: viruses, bacteria, and fungi. Laboratory exercises deal with plant, bacteria, and fungi structure and function. Prerequisite: BIOL 1110.

**BIOL 2235**  
**Special Topics in Biology**  
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.

**BIOL 2240**  
**Genetics**  
Covers the fundamentals of plant and animal genetics and includes the study of modes of inheritance, mechanisms of gene action, human genetics, and the behavior of genes in populations. Lecture and lab included. Prerequisite: BIOL 1110.

**BIOL 2245**  
**Medical Terminology**  
Biology 2245 provides students in any of the health science disciplines or pre-professional studies with working knowledge of the terminology used in the health professions and/or biology. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

**BIOL 2270**  
**Microbiology**  
Covers the fundamentals of the science of microbiology, microscopy, structure and function of cells, metabolism, microbial growth and control, genetics, and recombinant DNA technology. Also covered is a survey of the microbial world including bacteria, viruses, and pathogenic fungi, protozoa and multi-cellular organisms. The interaction between the microbe and its host is covered as well as environmental and applied or industrial microbiology. Laboratory exercises are designed to reinforce lecture material and provide an opportunity for students to (1) master microbiological techniques, (2) develop critical thinking skills, and (3) learn to analyze and present data. Prerequisite: One of these courses: BIOL 1110, CHEM 1101 or CHEM 1150 is recommended.

**Business (BUS)**

**BUS 1101**  
**Introduction to Business**  
Introduction to Business provides students with vital exposure to the major business functions in a dynamic free enterprise environment. Introduction to Business offers students relevant exposure to background information necessary to execute decision-making in a multitude of business specialties. Fundamentals of business are emphasized in an introduction to such areas as management, marketing, financing and information systems.

**BUS 1104**  
**Business Mathematics**  
Business Mathematics emphasizes mathematical concepts of business through practical applications in business situations covering Business
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 1105</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
<td>Presents information on starting a new business, developing a business plan, and understanding the realities of the entrepreneurial lifestyle. Entrepreneurial issues involved in managing and growing an entrepreneurial venture will be covered in a separate class. This course is intended for all students at Minnesota West regardless of their major.</td>
</tr>
<tr>
<td>BUS 2105</td>
<td>Introduction to Entrepreneurship</td>
<td>2</td>
<td>Presents information on starting a new business, developing a business plan, and understanding the realities of the entrepreneurial lifestyle. Entrepreneurial issues involved in managing and growing an entrepreneurial venture will be covered in a separate class. This course is intended for all students at Minnesota West regardless of their major.</td>
</tr>
<tr>
<td>BUS 2200</td>
<td>Introduction to Management Information Systems</td>
<td>3</td>
<td>Develops a broad understanding of MIS concepts by studying the basic principles and techniques of developing computer-based information systems for management decision-making and problem solving. The fundamental concepts of organization, management information and decision systems will be presented and discussed in class. Advanced spreadsheet commands and functions will be used for case studies. Prerequisite: CSCI 1102. Recommend CSCI 2220 or consent of instructor.</td>
</tr>
<tr>
<td>BUS 2201</td>
<td>Principles of Accounting I</td>
<td>4</td>
<td>Principles of Accounting I Includes an introduction to the accounting principles and system; the processing of accounting data, the purpose and construction of financial statements, and the development of accounting theory and techniques. Principles of Accounting I is a prerequisite to all courses in accounting.</td>
</tr>
<tr>
<td>BUS 2202</td>
<td>Principles of Accounting II</td>
<td>4</td>
<td>Principles of Accounting II is a continuation of Principles of Accounting I. Transactions advance from sole proprietorship to partnership and corporate account practices in Principles of Accounting II. Examines corporations’ and stockholders’ equity; includes accounting as a planning, analysis, and control tool facilitating the decision-making process of management. In Principles of Accounting II, the analysis and comparison of financial statements are emphasized. Prerequisite: BUS 2201.</td>
</tr>
<tr>
<td>BUS 2221</td>
<td>Principles of Management</td>
<td>3</td>
<td>Principles of Management studies the general principles of management planning, organizing, staffing, directing and controlling the establishment. In Principles of Management, emphasis is placed on the development and management of goals, policies, and systems necessary to coordinate all resources of an organization to achieve objectives. The importance of adequate management of communication and motivation in accomplishing specific purposes, and the decision-making and problem-solving process are emphasized.</td>
</tr>
<tr>
<td>BUS 2230</td>
<td>Principles of Marketing</td>
<td>3</td>
<td>Principles of Marketing analyzes the role and importance of marketing as a directing force in a business organization and its relationship to our society. In Principles of Marketing, emphasis is placed on principles, methods, and problems involved in the marketing operations of the firm, including development, pricing, marketing channels, and promotion.</td>
</tr>
<tr>
<td>BUS 2232</td>
<td>Professional Selling</td>
<td>3</td>
<td>Emphasizes the role and nature of professional selling and the total marketing and promotional effort in accomplishing the objectives of a business enterprise. The principles, practices, and psychology of salesmanship are stressed with a study of customer buying/behavior/motivational theories.</td>
</tr>
<tr>
<td>BUS 2233</td>
<td>Advertising</td>
<td>3</td>
<td>Studies the role of advertising and its relationship to the total promotional and marketing efforts of any organization selling goods/services/ideas. Emphasis is placed on selecting the right appeals, layout, and media in reaching the target market. The total communication process is studied in light of various consumer psychology/behavioral theories.</td>
</tr>
<tr>
<td>BUS 2241</td>
<td>Business Law</td>
<td>3</td>
<td>Business Law involves the study of the law and practical aspects of contracts, negotiable instruments, agency, and other legal matters of importance to business men and women. In Business Law, the proper procedures in connection with adequate evidence in cases of legal proceedings will be considered. Business ethics are an integral part of every aspect of law.</td>
</tr>
<tr>
<td>BUS 2242</td>
<td>Business Communications</td>
<td>3</td>
<td>Business Communications covers theory and offers practice in the fundamentals of good business communications. Emphasis is placed on the construction of effective (and positive) communications in business letter writing. Resume writing, cover letters, interviewing techniques, memos and reports are also integral parts of the Business Communications course.</td>
</tr>
<tr>
<td>BUS 2297</td>
<td>Internship</td>
<td>2-8</td>
<td>Offers students paid or unpaid work experience closely related to their academic and career pursuits. Activities are closely supervised by college instructors and on-the-job supervisors.</td>
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**CHILD DEVELOPMENT (CDEV)**

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<thead>
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<tbody>
<tr>
<td>CDEV 1200</td>
<td>Professional Relations</td>
<td>3</td>
<td>Explores career opportunities for working with children in a variety of child development programs. This course also examines job requirements, duties, regulations, and issues, skills, and personal characteristics for becoming successful professionals in early childhood settings.</td>
</tr>
<tr>
<td>CDEV 1240</td>
<td>Family and Community Relations</td>
<td>3</td>
<td>Guides students in learning how to develop positive relationships with families of varied racial, economic, and cultural backgrounds. Students will examine the importance of the family/early childhood staff relationship and study methods of effective communication. Community organizations and networks which support families will be studied.</td>
</tr>
<tr>
<td>CDEV 1262</td>
<td>Creative Activities</td>
<td>4</td>
<td>Explore means of developing children’s creativity in art, music, drama. Students learn to design age-appropriate activities with paints, paper, sculpture, wood, chalk, recyclables, song, dance, instruments, puppets, and related materials. The course includes lab and field experience.</td>
</tr>
<tr>
<td>CDEV 1266</td>
<td>Foundations of Child Development I Lab</td>
<td>1</td>
<td>Provides an overview of typical and atypical child development across cultures, from prenatal to school age including physical, social, emotional, language, cognitive, aesthetic, and identity development. It integrates developmental theory with appropriate practices in a variety of contexts.</td>
</tr>
</tbody>
</table>
of early childhood and education settings. Emphasis is on application of theory in a variety of Early Childhood settings. It must be taken concurrently with HSER 1266.

**CDEV 1268**  
Children's Health, Nutrition and Safety Lab  
Examines how to provide a healthy and safe environment while providing proper nutrition to young children. It sets high-quality expectations regarding policies, procedures, healthful environments, sanitation standards, and preventative care. The emphasis is on application of theory in a variety of early childhood settings. This course also examines the responsibilities of a mandated reporter of child abuse and neglect. Must be taken concurrently with HSER 1268.

**CDEV 1269**  
Guidance, Managing the Physical & Social Environment Lab  
Provides an exploration of the physical and social environments that promote learning and development for young children. It includes child guidance techniques for individual and group situations. Emphasis is placed on problem-prevention strategies, positive child guidance methods, and strategies to help children develop self-control. Emphasis is on the application of child guidance methods in a variety of early childhood settings. Must be taken concurrently with HSER 1269.

**CDEV 1340**  
Planning and Implementing  
Examines the role of the teacher in early childhood settings for children ages 3-7. It applies knowledge of child development as it relates to individual children, communities, curriculum, and communication activities. The course work includes lab and field experience.

**CDEV 1510**  
Internship  
Provides an opportunity to apply knowledge and skills in a child development setting. Students will observe and assess children's development and behavior, implement a variety of learning experiences that are developmentally appropriate, and maintain professional relationships.

**CDEV 2200**  
Infant and Toddler Development and Learning Experiences  
Provides an overview of infant and toddler development (ages birth to three years). Students will integrate knowledge of developmental needs, developmentally appropriate environments, effective observations/assessments, and planning and teaching strategies. The course work includes lab and field experience. Prerequisite: Department of Human Services background study will be conducted.

**CDEV 2235**  
Special Topics in Child Development  
Explores specific areas of the Child Development field to meet specialized student needs or interests. This class may be retaken for credit if the topic varies.

**CDEV 2300**  
Childhood Poverty, Exploring the Issues  
Enhances understanding of the impact poverty has on children and families, examines unique inherent issues, and promotes respect for family strengths. Emphasis is upon providing tools to work productively and in partnership with children and families.

**CDEV 2560**  
Language & Literature Learning Experiences  
Provides an overview of language and literacy learning experiences in either home or center-based settings. Students integrate knowledge of child development, learning environments, and teaching methods to promote whole language, conversation, literature, literacy, and bilingualism.

**CHEM 1100**  
Introduction to Chemistry  
Covers the metric system, atomic structure, periodic law, formulas, nomenclature, chemical bonding, chemical equations, solutions, acids, bases, and a little nuclear chemistry. This course is designed for students who are not planning to major in the science field. It can be used as a stepping stone to get ready for CHEM 1101.

**CHEM 1101**  
General Inorganic Chemistry I  
Introduces students to fundamental concepts of chemistry, equations and reactions, stoichiometry, the periodic table and properties, atomic structure, molecular orbitals, hybridization, gas laws, solutions, colloids and active metals. Prerequisite: High school Algebra or MATH 0099; STSK 0095; and high school Chemistry.

**CHEM 1102**  
General Inorganic Chemistry II  
Continues CHEM 1101 with emphasis on chemical kinetics, equilibrium, acids and bases, ionic equilibria, solubility products, electrochemistry (Redox), coordination compounds, transition elements and nuclear chemistry. Prerequisite: CHEM 1101.

**CHEM 1150**  
Survey of Chemistry  
Provides the student with an adequate background in the fundamentals of chemistry. This course covers the basic language and quantitative relationships of chemistry, including atomic structure, chemical bonding, structure-property relationships, chemical reactions, carbon compound families and important biologic macromolecules, such as proteins, lipids and carbohydrates. Can serve as an introductory course in preparation to take Chemistry 1101/1102 and/or can serve to meet MnTC in goal area 3.

**CHEM 2201**  
Organic Chemistry I  
Studies the chemistry of carbon and its compounds with emphasis on structure, properties, reactions of alkanes, alkenes, dienes, alkenes, alkyl halides, alcohols, cyclic hydrocarbons. Includes mechanisms and stereochemistry. Prerequisite: CHEM 1101.

**CHEM 2202**  
Organic Chemistry II  
Continues CHEM 2201 with emphasis on benzene, aromatic substitution reactions, aldehydes, ketones, carboxylic acids, amines, phenol, carbohydrates, amino acids and proteins. Prerequisite: CHEM 2201.

**CRIMINAL JUSTICE (CJS)**

**CJS 1101**  
Introduction to Criminal Justice  
Introduces students to the criminal justice system. The primary goal of this course is to develop a general understanding of the criminal justice system and its response to crime in society today. Students will consider crime in the U.S., explore the key elements of the criminal justice system (policing, courts, and corrections), and examine a number of special issues relevant to criminal justice today.

**COMMUNITY HEALTH WORKER (CMHW)**

**CMAE 1514**  
Safety Awareness  
Introduces OSHA standards relating to PPE, Hazard Communication, tool safety, confined spaces, electrical safety, emergency response, lockout/tagout, and others. This course is designed to align with the National Skills assessment and certification system for Maintenance Awareness. The course curriculum is based upon federally-endorsed national standards for production workers.

**CMAE 1518**  
Manufacturing Process and Production  
Emphasizes manufacturing principles, basic supply chain management, communication skills, and customer service. This course is designed to align with the National Skills assessment and certification system for Maintenance Awareness. The course curriculum is based upon federally-endorsed national standards for production workers.

**CMAE 1522**  
Quality Practices  

Introduces quality management systems and its components. This course is designed to align with the National Skills assessment and certification system for Maintenance Awareness. The course curriculum is based upon federally-endorsed national standards for production workers.

**CMAE 1526**

**Maintenance Awareness**

Introduces the concepts of Total Productive Maintenance and preventative maintenance. This course is designed to align with the National Skills assessment and certification system for Maintenance Awareness. The course curriculum is based upon federally-endorsed national standards for production workers.

**CMHW 1000**

**Advocacy and Outreach**

Focuses on the Community Health Worker's (CHW) personal safety, self-care and personal wellness. Course also includes the promotion of health and disease prevention for clients. Prerequisite: Student should have experience and trust within diverse communities.

**CMHW 1100**

**Community, Capacity Building, and Teaching**

Focuses on the Community Health Worker's (CHW) knowledge of the community and the ability to prioritize and organize work. Emphasis will be on the use of and critical analysis of resources and problem solving. This course also focuses on the CHW's role as a teacher in order to increase the capacity of the community and the client to access the health care system. Course materials will emphasize establishing healthy lifestyles as well as empowering clients to take responsibility for achieving personal health goals. Students learn about and practice methods for planning, developing and implementing plans with clients to promote wellness. Prerequisite: Student should have experience and trust within diverse communities.

**CMHW 1200**

**Communication, Competence, and Legal/Ethical Implications of the CHW**

Focuses on the legal and ethical dimensions of the Community Health Worker's (CHW) role. Included are boundaries of the CHW position, agency policies, confidentiality, liability, mandatory reporting and cultural issues that can influence legal and ethical responsibilities. This course also focuses on the importance and ability of the CHW to gather, document and report on client visits and other activities. The emphasis is on appropriate, accurate, and clear documentation with consideration of legal and agency requirements. This course will concentrate on the verbal and non-verbal communication skills required for the CHW in effectively interacting with clients, their families and a range of healthcare providers. Students learn about skills such as active listening, interviewing, networking, rapport building and team work. Students practice communication skills in the context of a community’s culture and the cultural implications that can affect client communication. Prerequisite: Students should have experience and trust within diverse communities.

**CMHW 1300**

**Health Promotion Competencies**

Explores healthy lifestyles, heart disease and stroke, maternal, child and teen health issues, diabetes, cancer, oral health and mental health issues and focuses on the knowledge and skills a CHW needs to successfully assist clients in managing and incorporating health into their daily living. Prerequisite: Student should have experience and trust within diverse communities.

**CMHW 1400**

**Community Health Worker Internship**

Supervised practical experience (72-80 hours) allowing the CHW student to explore opportunities for independent work in the Community Health Worker role. The student may choose to do all internship hours at one organization (All sites and supervisors must be approved by the instructor prior to student participation). Prerequisite: Students should have experience and trust within diverse communities.

**COSMETOLOGY (COSM)**

**COSM 1100**

**Preclinic Introduction**

Examine the field of Cosmetology which includes hair, nail and skin care. Areas of study will include professional image, Minnesota laws and rules, safety, cleaning and disinfection, anatomy, electricity, and chemistry as related to the profession. This course will contribute 96 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment of COSM 1105, 1110, 1115, 1120, for Cosmetologist; COSM 1110 for Nail techs; COSM 1120 for Estheticians.

**COSM 1105**

**Preclinic Hair Care**

Examine the basics elements of all hair care services. Topics will include trichology, shampooing, conditioning, cutting, and hair design. Students will demonstrate hairstyling skills that meet the needs of a varied clientele. This course will contribute 96 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment of COSM 1100, 1110, 1115, 1120.

**COSM 1110**

**Preclinic Nail Care**

Examine nail care theory and practical experiences involving manicures, pedicures, and artificial enhancements. This course will contribute 112 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment of COSM 1110, 1160, 1181 for Nail techs and COSM 1100, 1105, 1115, 1120 for Cosmetologist.

**COSM 1115**

**Preclinic Color and Texture**

Examine coloring and chemical texture services. Provides an understanding of temporary, semi-permanent, demi-permanent, and permanent color as well as lightening and corrective coloring techniques. Texture services, such as permanent waving, soft-curl perm, and hair relaxing will also be performed. This course will contribute 112 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment in COSM 1100, 1105, 1110, and 1120.

**COSM 1120**

**Preclinic Skin Care**

Examine dermatology and skin care services which include skin analysis, facial massage, makeup application, and waxing. This course will contribute 112 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment in COSM 1100.

**COSM 1130**

**Advanced Hair Care**

Examine opportunities to develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 80 hours toward licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: Successful completion of, or concurrent enrollment in preclinic courses.

**COSM 1135**

**Salon Preparation**

Develop practical skills necessary for entry-level salon work concentrating on safety procedures and sanitation, retail operations and the required skill readiness to perform salon services. This course will contribute 80 hours toward licensure. Prerequisites: Successful completion of, or concurrent enrollment in preclinic courses.

**COSM 1140**

**Clinic I**

Develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 112 hours toward licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: Successful completion of, or concurrent enrollment in preclinic courses.
<table>
<thead>
<tr>
<th>Course Code</th>
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<th>Credits</th>
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</tr>
</thead>
<tbody>
<tr>
<td>COSM 1145</td>
<td>Clinic II</td>
<td>4</td>
<td>Develop practical skills necessary for entry-level salon work. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 112 hours towards licensure. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1150</td>
<td>Clinic III</td>
<td>4</td>
<td>Develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 112 hours towards licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1155</td>
<td>Clinic IV</td>
<td>3</td>
<td>Apply practical skills necessary for entry-level salon work. Cosmetologists will concentrate on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. Estheticians will focus on the completion of the quotas needed to complete their MN requirements. Also review for the esthetician's state board written and practical exam. This course will contribute 80 hours toward licensure. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1160</td>
<td>Clinic V</td>
<td>4</td>
<td>Develop practical skills necessary for entry-level salon work concentrating on manicuring, pedicuring, artificial nails, safety procedures and sanitation. This course will also provide lecture hours concentrating on nail theory and salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 96 hours toward licensure. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1165</td>
<td>Clinic VI</td>
<td>3</td>
<td>Develop the practical skills necessary for entry-level salon work. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 80 hours toward licensure. Prerequisites: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1170</td>
<td>Clinic VII</td>
<td>3</td>
<td>Develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair shaping, hairstyling, hair coloring, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 96 hours toward licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisites: Successful completion of, or concurrent enrollment in preclinic courses.</td>
</tr>
<tr>
<td>COSM 1175</td>
<td>Clinic VIII</td>
<td>3</td>
<td>Develop the practical skills necessary for entry-level salon work concentrating on chemical hair control, safety procedures and sanitation, hair coloring, hair shaping, hairstyling, thermal curling, shampooing, scalp and hair conditioning, manicuring, artificial nails and skin care facial and makeup. This course will also provide lecture hours concentrating on salon management, Minnesota Cosmetology Laws and Rules, communications skills and retail operations. This course will contribute 80 hours toward licensure. The State of Minnesota mandates the hours to go toward the hour requirements. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.</td>
</tr>
<tr>
<td>COSM 1181</td>
<td>License Preparation for Cosmetology I</td>
<td>2</td>
<td></td>
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<tr>
<td>COSM 1182</td>
<td>License Preparation for Cosmetology II</td>
<td>2</td>
<td></td>
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<tr>
<td>COSM 1185</td>
<td>Salon Operations I</td>
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<td>COSM 1190</td>
<td>Salon Operations II</td>
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<td>COSM 1195</td>
<td>Salon Operations III</td>
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<td>COSM 1200</td>
<td>Salon Operations IV</td>
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<td>Salon Operations V</td>
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<td>COSM 1210</td>
<td>Salon Operations VI</td>
<td>6</td>
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<tr>
<td>COSM 1215</td>
<td>Salon Operations VII</td>
<td>7</td>
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</table>
CRPT 1118 Roof Framing
Covers the basics of roof framing. The course will teach theory behind trusses, stick framing, and roof loads. Students will be taught how to use a framing square and roof terminology. Students completing this class will be able to build a gable roof system, layout and cut hip and valley rafters, and identify types of roof trusses.

CRPT 1120 Roof Framing Part II
Continues Roof Framing I. Students will learn more complex roof systems of today's houses. Subjects covered will be layout of hip rafters, construction of both cut-in valleys and blind valleys, intersecting roofs as well as unequal pitched roofs.

CRPT 1125 Estimating Blueprint Reading
Covers how to estimate the cost of a house and gain in-depth knowledge of carpentry math. Students will learn the basic principles of interpreting blueprint reading and transferring the knowledge into a complete project.

CRPT 1130 Stairway Construction
Covers stair terminology, layout and construction by building a straight stairway and a quarter turn stairway.

CRPT 1132 Interior Finish I
Covers the identification of various interior finish materials and their appropriate application and proper installation. This includes insulation, drywall, interior doors, and all interior trim components including closet shelving. Students will also learn stairway terminology, layout, and construction and gain hands-on experience by building various types of stairs.

CRPT 1135 Exterior Finishing Wall and Roof Covering
Finishing the exterior of a building includes the door and window units and all the materials that cover the roof and exterior. They must also give weathertight protection to the roof and exterior walls.

CRPT 1140 Project Planning, Estimation, Layout
Estimate all material for house project and award bid for materials. Meet with sub-contractors, go over specifications and award bids. Students will locate boundary stakes, establish building corners and build batter boards. They will identify sewer elevations and establish all elevations necessary for excavation. Supervise excavation, build forms and pour footings for a house project.

CRPT 1142 Blueprint Reading, Estimating & Project Planning
Learn to read and interpret residential blueprints and do an accurate "take-off" or estimate of materials needed for a residential structure. Students will also learn site layout and establishing building elevations necessary prior to the excavation of a building site.

CRPT 1145 Interior Trim
Finishing interior work is the final stage in the construction of a building. It should not begin until the building is completely enclosed and all windows and exterior doors have been installed. Interior finish includes all the surface materials placed on the walls, floors and ceilings.

CRPT 1150 Site Layout and Foundations
Introduce students to the tools and skills necessary to lay out a building site and construction methods used to form and pour concrete footings for a building.

CRPT 1155 Building Science
Learn about the house as a system including advanced topics in building shell components, air sealing, insulation, air quality, and health and safety.

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<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
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<tbody>
<tr>
<td>CRPT 1160</td>
<td>Roof Framing</td>
<td>Learn theory behind trusses, stick framing, and roof loads. Students will be taught how to use a framing square and roof terminology. Students completing this class will be able to build a gable roof system, layout and cut hip and valley rafters, and identify various types of roof trusses. Students will install roof truss systems, hand frame roof sections of various styles, including ceiling vaults and trays, and install roof sheathing.</td>
</tr>
<tr>
<td>CRPT 1170</td>
<td>Applied Carpentry Calculations and Estimating</td>
<td>Covers the mathematical skills necessary for estimating materials, performing necessary calculations and conversions necessary for interior and exterior work. Application on linear, square and cubic measurements and their relationship to the construction trades process will be studied.</td>
</tr>
<tr>
<td>CRPT 2205</td>
<td>Foundations and Floors</td>
<td>Designed to give the student hands-on experience with laying out and squaring up foundation walls, and actual construction of various types of foundation structures for a residential home. Concrete mixtures, estimating, pouring consistencies, placement and finishing techniques for vertical and flatwork concrete pours are also included.</td>
</tr>
<tr>
<td>CRPT 2215</td>
<td>Concrete Technology</td>
<td>Covers designing concrete mixes for specific uses, preparing sub-base areas and building forms, handling and placement of concrete mixes and finishing techniques.</td>
</tr>
<tr>
<td>CRPT 2220</td>
<td>Advanced Concrete Technology</td>
<td>Designed to give the student hands-on experience with laying out and squaring up foundation walls and actual construction of various types of foundation structures for a residential home. Also this course covers designing concrete mixtures for specific uses, estimating, pouring consistencies, preparing sub-bases areas and building forms, handling, placement and finishing techniques for vertical flatwork concrete pours.</td>
</tr>
<tr>
<td>CRPT 2223</td>
<td>Wall and Roof Framing</td>
<td>Designed for identification and assembly of all components in Western Platform framing construction in accordance with all state and local codes. Students will perform horizontal and vertical layout of interior and exterior wall assemblies. Erect, plumb and brace walls, fasten components together, and install exterior sheathing. Students will install roof truss systems, hand frame roof sections of various styles, including ceiling vaults and trays, and install roof sheathing.</td>
</tr>
<tr>
<td>CRPT 2235</td>
<td>Exterior Finish and Shingling</td>
<td>Covers identification and application of all types of siding, shingles, soffit and facia covers and rain gutters. Also covers attic ventilation equipment installation. These skills will be developed by the construction of an on-site built residential home.</td>
</tr>
<tr>
<td>CRPT 2237</td>
<td>Framing II</td>
<td>Designed for identification and assembly of all components in Western Platform framing construction in accordance with all state and local codes. Students will perform horizontal and vertical layout of interior and exterior wall assemblies. Erect, plumb and brace walls, fasten components together, and install exterior sheathing. Students will get experience in various types of floor systems such as webbing trusses and I joists systems. Students will install roof truss systems, hand frame roof sections of various styles, including ceiling vaults and trays, and install roof sheathing. This course also covers construction of a variety of decks, porches, and patios and the materials used in their construction and the methods of handling a variety of materials.</td>
</tr>
<tr>
<td>CRPT 2240</td>
<td>Deck and Porch Construction</td>
<td>Covers construction of a variety of decks, porches and patios, the materials used in their construction and the methods of handling a variety of materials.</td>
</tr>
<tr>
<td>CRPT 2245</td>
<td>Cabinet Layout and Design</td>
<td>Provides training to analyze cabinet needs and available spaces and design cabinets for specific uses. Drawing up of basic construction plans is an integral part of this course.</td>
</tr>
<tr>
<td>CRPT 2249</td>
<td>Cabinet Installation</td>
<td>Covers the installation of all types of cabinets and countertops.</td>
</tr>
<tr>
<td>CRPT 2250</td>
<td>Cabinet Construction</td>
<td>Explore the construction of a variety of kitchen, bathroom, utility, and specialty cabinets and countertops.</td>
</tr>
<tr>
<td>CRPT 2255</td>
<td>Cabinet Making</td>
<td>Analyze cabinet needs and available spaces and design cabinets for specific uses. Drawing up of basic construction plans is an integral part of this course. This course also includes the construction of a variety of cabinets including kitchen units, linen closets, vanity cabinets, and built in work stations. Students will go through the process of cabinet installation methods, counter top construction and installation, and finishing areas such as kitchens and bathrooms.</td>
</tr>
<tr>
<td>CRPT 2260</td>
<td>Interior Finish and Staircase Construction</td>
<td>Covers identification and application of all types of interior finish materials, installation of such materials, and finishing techniques. A variety of types of staircases will be studied and at least one or two stairways constructed.</td>
</tr>
<tr>
<td>CRPT 2265</td>
<td>Interior Finish II</td>
<td>Covers a variety of insulation materials, applications and insulating methods, and ventilation requirements. The student will install interior wall and ceiling coverings and apply finishing materials. This course will also cover identification of all types of interior finish materials, installation of such materials and finishing techniques. A variety of types of staircases will be studied and at least one or two stairways constructed.</td>
</tr>
<tr>
<td>CRPT 2270</td>
<td>Construction Business Management</td>
<td>Covers the basic principles of construction business accounting, organization of business structure, employee management, business licensing requirements, and trade knowledge, for the purpose of starting your own small business.</td>
</tr>
<tr>
<td>CRPT 2271</td>
<td>Construction Drafting, Design, and Blueprint Reading</td>
<td>Introduce the basic principles of mechanical drafting, architectural drafting, and the design of floor plans. Auxiliary views, cross sections, and elevation views will also be studied and drawn. Students will have the opportunity to learn both hand drafting methods and computer aid drafting. The student will be taught the skills needed to accurately read and interpret a complete set of working drawings for residential and light commercial construction projects.</td>
</tr>
<tr>
<td>CRPT 2280</td>
<td>Insulation and Interior Wall Covering</td>
<td>Covers a variety of insulation materials and applications and insulating methods, and ventilation requirements. The student will install interior wall and ceiling coverings and apply finishing materials.</td>
</tr>
</tbody>
</table>

**Computer Science (CSCI)**

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<thead>
<tr>
<th>Course Code</th>
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</thead>
<tbody>
<tr>
<td>CSBM 1110</td>
<td>General Ledger for Small Business</td>
<td>Covers the mathematical skills necessary for estimating materials, performing necessary calculations and conversions necessary for interior and exterior work. Application on linear, square and cubic measurements and their relationship to the construction trades process will be studied.</td>
</tr>
</tbody>
</table>
This course covers the process of computerizing business records using General Ledger software. The student will be able to produce financial statements using the selected software package.

CSCI 1100 Microcomputer Keyboarding
Provides basic instruction on the use of the electronic keyboard. Basic touch typing is taught to develop the student's skill in rapidly and efficiently entering information into a microcomputer via the keyboard. Includes both alphabetic and numeric entries. The course also teaches basic document formatting for various styles of personal and business documents such as letters, memorandums and compositions.

CSCI 1102 Introduction to Microcomputers
Computer Science 1102 provides an overview of computer information processing with the primary emphasis on the microcomputer. Students learn and apply the basic elements of word processing, spreadsheets, databases and document integration. Also introduces the basic concepts of graphics, telecommunications, the Internet and computer programming. Prerequisite: GSCI 1100 or prior keyboarding experience and evidence of college level reading ability through assessment test or prior college coursework.

CSCI 1110 Concepts of Coding
Exposes the student to computer science foundation logic within a friendly, game-like, coding environment using JavaScript to generate immediate interactive results.

CSCI 1131 Word Processing I
Discusses the uses of electronic word processing. Covers basic line and text editing. Primary emphasis is on preparing and managing documents as well as formatting and enhancing. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

CSCI 1150 Presentation Development
Discusses and demonstrates the processes of designing, developing and producing a professional electronic presentation using automated presentation graphics software. The slide show production includes outlines, speaker notes, handouts, animation, audio resources, and coordination between overhead and video sources. Prerequisite: CSCI 1102.

CSCI 2100 Advanced Microcomputer Applications
Provides a comprehensive and advanced look at the use of microcomputers in today's society. Emphasis is placed upon the integrated nature of many of today's major applications. Explores the advanced uses of and integration features of word processing, documents, database files, spreadsheets and graphic presentations. Prerequisite: CSCI 1102.

CSCI 2105 Advanced Database with SQL
Introduces a comprehensive look at SQL (structured query language) which is a programming language that is used by diverse groups of programmers today. Learning of SQL commands and database design and the many uses of SQL.

CSCI 2135 Advanced Web Techniques
Introduces advanced web programming techniques using JavaScript. JavaScript is used in web pages to validate forms, to enhance the design, to communicate with the server, and to create interactive web pages. The scripting capabilities of JavaScript results in the construction of dynamic web pages as is expected in today's internet standards. Prior JavaScript programming experience is not required. Prerequisite: CSCI 2215.

CSCI 2140 Electronic Spreadsheets and Graphics
Explores topics of statistical applications, managing database systems, and various graphical capabilities using integrated business simulations. Internal and external program utilities to aid in scanning, importing graphics and combining files will be introduced. Competency in statistical and logical formulas, charting techniques, database manipulation and macro design is expected. Prerequisite: CSCI 1102.

CSCI 2150 Multimedia for the Web
Explores emerging standards and futuristic trends for web site development and maintenance of text, graphics, scanned images, audio, video, dynamic and interactive elements to enhance web pages. Objects of scrolling messages, pop-up windows, applets, reaction to the state of the browser and event/response to user interventions provide dynamic content. Additional actions of the web site hierarchy, security, management and maintenance are employed through the development of a media-enhanced web site. Prerequisite: CSCI 1102 or CSCI 2215.

CSCI 2200 Visual Basic Programming
Creates graphical user interface applications through programming in Visual Basic. Topics covered are arithmetic statements, conditional statements, looping structures, data structures, sequential files, random files, design and graphics. Uses DDE, Dynamic Data Exchange, as a way of sharing electronic data between Windows applications and emphasizes problem solving using an OOED, Object-Oriented Event-Driven, approach. Prerequisite: CSCI 1102.

CSCI 2215 Web Programming I
Discusses fundamentals of web servers, web sites and web programming in the context of using the technology to craft a conveying message to an Internet audience. An overview of the history and origins of web programming continues with the robust creation of HTML source code that supports and sustains the use of internal and external linking, multiple media elements, tables, image mapping, frames and input forms. The primary objective is to create and manage a multiple page website using HTML, DHTML, CGI and JavaScript programming code. Prerequisite: CSCI 1102.

CSCI 2235 Special Topics in Computer Science
Introduces students to specialized areas of computer science and computer usage. The class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

CSCI 2240 Fundamentals of Programming I
Emphasizes concepts that provide a fundamental background for continued study in the area of computer science. Involves high-level language programming and the use of abstraction in program design. Prerequisite: CSCI 1102.

CSCI 2245 Fundamentals of Programming II
Discusses topics including object-oriented programming techniques, essential data structures such as stacks, queues, trees, sorting, and searching algorithms using a high-level programming language. Prerequisite: CSCI 2240.

CSCI 2250 Java Programming
Provides an overview of the Java programming language and special features of control structures, input/output streams, data structures, and abstraction mechanisms. Concepts include creating complete Java classes, derive new classes with effective use of inheritance, and use Java to create applets. Prerequisite: CSCI 2200.

CSCI 2255 Java Programming II
Continues with an intermediate to advanced study of Java as an object oriented programming language. Concepts include abstract data type with a Class, constructors, overloaded constructors, instance variable, final, superclasses, subclasses, inheritance, String class, constructors and methods, StringBuffer class, constructors and methods, Graphic Objects, Swing Components, Event Handling, Layout Managers, Exception Handling, Multithreading, Files and Streams. Prerequisite: CSCI 2250.
System Analysis and Design
Explores both structures and object oriented systems analysis and design methodologies and provides an understanding of the role of the systems analyst. Prerequisite: CSCI 2240 or CSCI 2250.

CSCI 2290 Technology Capstone Seminar
Studies a variety of current technology dependent business implementations. Examines ethical behavior and consequences related to issues of Internet use, copyright, security, ergonomics, and safety and health. Discusses state-of-the art and futuristic trends within technology development. Prerequisite: CSCI 1102 and either one CST application course or one CST programming course.

CSCI 2297 Internship
Offers students paid or unpaid work experience closely related to their academic and career pursuits. Activities are closely supervised by college instructors and on-the-job supervisors. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**COMPUTER SUPPORT (CST)**

CST 1101 Information Technology Concepts
Gain prerequisite knowledge necessary for a career in the field of information technology. Students will be exposed to opportunities and skills needed for a career in Information Technology. Concepts covered include current business software, internet research, data security concepts, virtualization, networking and social media.

CST 1111 File Structures
Teaches students to use the command line to operate a file server and work with scripts. The class will use the Windows PowerShell to work with and manipulate the file system.

CST 1112 Command Line Interface
Covers the fundamentals of the computer file system including the command line interface. Students will use (D)isk (O)perating (S)ystem commands to perform operations such as managing hard disks, creating, editing, moving, and deleting files. The student will also create, modify, and understand the directory structure. Prerequisites: STSK 0090 and STSK 0091 or placement by assessment test score.

CST 1115 Desktop Virtualization
Offers students, as well as professionals, the background in virtualization technology needed to advance in today's technology workplace. It provides an overview of virtualization technology with the latest virtualization products; focus is on using virtualization software in the desktop environment. The student will install and configure virtual operating system software in addition to loading operating systems in a virtual environment. The information presented in this course will be used in most other courses in the Computer Technology programs at the college.

CST 1125 Operating Systems
Explores various operating systems including Unix, Mac and the various versions of Microsoft Windows. Specific concepts will include installing, configuring, troubleshooting and maintaining efficiency of the operating system to meet end-user needs in a production environment.

CST 1127 Windows Desktop Operating Systems
Uses the current Windows operating system. Specific concepts will include installing, configuring, troubleshooting and maintaining efficiency of the operating systems to meet end-user needs in a production environment.

CST 1135 Unix Operating Systems

CST 1180 Data Security Awareness
Introduces the student to the need for information security, including the ethical, legal and professional security issues. The student will develop an awareness of the types of attacks on data, who would perform such attacks, and how to defend against data loss. The student will learn how to protect their home and office computer from misuse and viruses. The student will also be presented with corporate security strategies, including policies, incident response and disaster recovery.

CST 1182 Computer Ethics
Covers the ethical issues relating to computers and technology including social networking, cell phone use, digital copyrights, and legal issues. Current events and topics related to technology and how it has changed our society will be discussed. Policies that address ethical technology issues will be developed.

CST 1190 Introduction to Networking
Covers the fundamentals of current networking technology. A general introduction to networking including local and wide area network technology will be presented to students. This course is designed to help candidates prepare to successfully pass the CompTIA Network+ examination.

CST 1195 Network Basics
Introduces the student to networking basics, media, topologies, protocols, architectures, software and the Open Systems Interconnection (OSI) Reference Model. In addition, wide area network (WAN) technologies, security issues, the Internet and Internet tools are introduced.

CST 1200 Introduction to Information Security
Introduces the student to the need for information security, including the ethical, legal and professional security issues. The student will assess, identify and control security risks, identify secure network design, plan for disaster recovery, set up security policies and secure employment practices. This is the first in a series of courses designed to understand and manage information security and will touch on most aspects of information security. Prerequisites: CST 1190 or CST 1195.

CST 1220 Information Security Management
Explores information security management issues, including authentication, virus attacks and prevention, firewalls, intrusion detection and other security devices and topologies. The student will learn to control security risks, identify secure network design, plan for disaster recovery and setup security policies. This course covers most of the objective in Comptia Security + exam.

CST 1250 Information Security Administration
Explores information security administration issues, including the hands-on setup of secure environment components. This will include securing network hardware and software, intrusion detection and other security devices and topologies. The student will learn information security setup and maintenance, disaster recovery and implementation of security policies.

CST 1300
Computer Forensics
Introduces computer forensics, which is the study of a computer that has been compromised and the recovery of evidence or information. In this course the student will concentrate on how to recover information from a computer or network after an attack. The student will look at both disaster recovery after a hacker or virus attack and also how to get information from a system that has been used for illicit activities. The student will use a systematic approach to gather information without destroying evidence. Prerequisites: CST 1125 and CST 1200.

CST 1400 Telecommunications I
Provides students with a broad overview of the telecommunications industry including knowledge and understanding of telecommunications history, terminology, tools, cable types, wiring components, basic fiber, coaxial cable, connector types, and basic telecommunications networks. This course prepares the student to be able to identify various types of telecommunications cable and connectors, to identify wire sequences by the telephone color code, to connect wire to various connecting devices and terminal blocks using proper methods and tools and to use general hand tools and special tools as needed in industry. Prerequisite: STSK 0090 and STSK 0091 or placement through assessment test levels.

CST 1410 Broadband Technology
Provides students with basic broadband technologies knowledge and skills. The student develops an understanding for Convergent Technologies and the need for transmitting more than one type of signal simultaneously by way of divided channel. Emphasis is placed on the exploration of the technology of voice and data integration, frame relay, Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM)/cell relay, Switched Multi-megabit Digital Service (SDMS), Broadband Integrated Services Digital Network (BISDN), Digital Subscriber Line (DSL), and Virtual Private Network (VPN). This course presents and explains the many and varied techniques, solutions, principles, and challenges both carriers and end users utilize, experience, and overcome in implementing broadband and voice-over IP services. Prerequisite: CST 1400.

CST 1420 Convergence Technology
Studies telecommunications convergent technologies including telephone, LAN, WAN, wireless, voice, video, and internet protocol. Introduces the student to Voice, Video and Integrated Data (VVID) over IP networks to provide seamless and secure communications solutions to business and home technology needs. This includes discussions on interoperability methods and techniques to integrate disparate systems and technologies, and includes people skills development. This course also includes the fundamental concepts of digital media distribution, Digital Video Distribution in Broadband, Television, Mobile, and Converged Networks. Prerequisite: CST 1180.

CST 1440 Advanced Telecommunications
Expands on the theory and topics from the Telecommunications I class including field experience with central office equipment and cabling. Students will work with broadband communications access systems and software and deploy services over fiber and copper-based network architectures. In addition, students will become familiar with federal and state regulations and organizations related to the telecommunications industry. Prerequisite: CST 1400.

CST 1500 Routers and Switches
Introduces the student to practical networking experiences within a laboratory environment. Students will study router and switch basics, configure routers, investigate routing protocols, configure switches, develop access lists and troubleshoot routing technologies. Prerequisite: CST 1190.

CST 2108 Structured Communication Systems
Covers structured communication systems (SCS). Students will gain practical experience in implementing many concepts in SCS by installing and terminating various cabling types, configuring voice/data and fire/alarm systems, and other equipment. The student will be able to install various SCS; select and operate the appropriate test equipment to perform test procedures perform routine maintenance; perform minor troubleshooting procedures and repairs; identify and describe industry standards, protocols and safety procedures related to structured communication systems.

CST 2110 PC Maintenance and Repair Hardware
Introduces computer hardware components and explains how they work together to make computers functional. Also includes procedures for disassembling and reassembling different classes of computers, troubleshooting, and repair.

CST 2120 Computer Integrated Manufacturing
Provides students with an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits. A supervised time for students to hardware and program various programmable logic controllers. Provides the student with an understanding of and the ability to use pics in all phases of industrial automation.

CST 2150 Advanced Routing Technology
Covers concepts and skills in advanced IP addressing techniques, intermediate routing protocols, Ethernet switching, Virtual LANs, Spanning Tree Protocol and VLAN trunking Protocol. Students will demonstrate the ability to apply competencies from prior networking courses including Intro to Networking and Routers and Switches. The course consists of web-based interactive lessons and hands-on labs. This course is the third of four courses leading to the Cisco Certified Network Associate (CCNA) designation. Prerequisite: CST 1500.

CST 2160 Wide Area Network Technology
Develops knowledge and skills in the areas of advanced IP addressing techniques, WAN technology and terminology. Frame Relay, network management, and introduction to optical networking. Students will apply knowledge from previous networking courses and be able to explain how and why a particular strategy is employed. In addition, the student will prepare for taking the CCNA Exam. Wide Area Network Technology is the last of four courses leading to the Cisco Certified Network Associate (CCNA) designation. The course consists of web-based, interactive lessons and hands-on labs. This course will be the final course in the Cisco network certificate. Prerequisite: CST 2150.

CST 2199 Internship
Allows the student to secure "on-the-job" training and earn 2-8 semester elective credits. The student must find their own internship site and complete all paper work.

CST 2215 PC Maintenance and Repair Software
Provides curriculum to prepare students to become A+ certified. Also covers Windows/DOS components of A+ exam. Students will participate in business-like atmosphere, are by troubleshooting and repairing assigned computer problems. Students will maintain a portfolio of completed repair projects.

CST 2224 Windows Client/Server Administration
Covers how to set up and support the Windows Server & clients. Course will teach students to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows Server & clients. Hands-on, practical experience, and exercises will be incorporated into this course. This course helps students to prepare for Microsoft certification. Prerequisites: CST 1111 or CST 1190.

CST 2230 Novell NetWare Administration I
Introduces the student to Novell networking theories and practices. Concepts such as planning the network, users, groups, the NDS tree, file and print services, and objects will be covered.

CST 2240 Home Networking
CST 2284 3
Microsoft Exchange Server
Develop skills that are needed to update and support a reliable, secure messaging infrastructure. This infrastructure is used for creating, storing and sharing information by using Microsoft Exchange Server in a medium-sized to large-sized (250 to 5,000 users) messaging environment. This course offers a significant number of hands-on practices, discussions and assessments that assist students in becoming proficient in the skills that are needed to update and support Exchange Server. Prerequisite: CST 2223.

CST 2291 3
Windows Network Infrastructure I
Covers how to plan a network infrastructure around features supported by Windows. Issues such as network protocol and services are introduced. This includes using the Internet work Packet Exchange/Sequences Packet Exchange (IPX/SPX) - compatible protocol to integrate with Novell Netware. Students will learn how to utilize, manage, and configure the TCP/IP protocol features such as NetBIOS, WINS, DHCP and DNS. Students will learn to configure, manage and troubleshoot networks routing and remote access, including setting up virtual private networks (VPNs). Hands-on, practical experience exercises will incorporate into this course. This course helps students to prepare for Microsoft certification. Prerequisite: CST 1190.

CST 2293 3
Windows Network Infrastructure II
Prepares students for the corresponding MCSE certification exam and for the challenges they will face as a Microsoft networking professional. Lectures, projects and exercises reinforce skills as they learn. Specific topic coverage includes: Overview of Planning a Windows Server 2003 Network, TCP/IP Architecture, Planning and Managing a TCP/IP Network, Planning and Configuring Routing and Switching, Planning, Configuring and Troubleshooting DHCP, Planning, Configuring and Troubleshooting WINS, Planning a DNS Strategy, Managing and Troubleshooting DNS, Planning and Managing Certificate Services, Planning and Managing IPSecurity (IPSec), Planning Network Access, Planning and Implementing Server Availability, Planning Server and Network Security, Problem Recovery. Prerequisite: CST 2291.

CST 2294 3
Windows Active Directory
Covers how to plan, configure and administer an Active Directory infrastructure. The student will learn to configure Domain Name System (DNS) to manage name resolution, schema and replication. The student will also learn how to use Active Directory to centrally manage users, groups, shared folders and network resources and to administer the user environment and software with group policy. This course will show the student how to implement and troubleshoot security directory services infrastructure and monitor and optimize Active Directory performance. Students will deploy Windows remotely using Remote Installation Services (RIS). Hands-on practical experience with exercises will be incorporated into this course. This course helps students to prepare for Microsoft certification. Prerequisite: CST 1190.

CST 2298 3
Microsoft Windows Security
Prepares students to analyze the business requirements for security and design a security solution that meets business requirements. Securities that this course will cover include: controlling access to resources, auditing access to resources, authentication and encryption. Completion of this course will help students prepare for Microsoft certification. Prerequisite: CST 1190.

CST 2310 2
Information Technology Customer Service
Covers the basic skills needed to work effectively with customers one-on-one or at a help desk. Basic communication, listening, telephone, writing, and problem solving skills are developed.  

CST 2326 2
Web Page Concepts
Covers topics necessary to maintain and support an existing website. Students will be proficient in adding Lists, Hyperlinks, Pictures and task lists to web pages. Publishing a website will also be covered. Prerequisites: CSCI 1102 and CST 1190, or instructor's approval.

CST 2326 3
Web Page Concepts
Covers topics necessary to maintain and support an existing website. Students will be proficient in adding Lists, Hyperlinks, Pictures and task lists to web pages. Publishing a website will also be covered. Prerequisites: CSCI 1102 and CST 1190, or instructor's approval.

CST 2340 3
Web Server Concepts
Introduces the student to the Internet, including setup, operation and maintenance of an Internet web server. Concepts such as installation, configuration and maintaining the server. Creating and troubleshooting web pages, understanding the Internet protocols and security. We will be working with the Microsoft Internet Information server features and functions.  

CST 2350 2
Virtual Computing
Introduces information technologies used in an enterprise network environment. Students are introduced to virtualization and storage management concepts using VMware server virtualization products. Prerequisite: CST 1190.

CST 2500 3
Incident Response and Disaster Recovery
Introduces the student to the complexities involved in responding to intrusions and threats to their information systems structure. The student will prepare portions of a disaster recovery plan for information systems and test the plan in a lab environment. The student will learn the importance of planning for a disaster, what to do during a disaster, when to escalate an incident to a disaster and who needs to be involved in the planning, implementation and recovery. Prerequisite: CST 1250.  

CST 2520 2
Ethical Hacking
Designed for the student to explore the tools that hackers use to gain access to systems in order to better protect their network environment. It will look at software, hardware and social engineering schemes that hackers use. The course will also cover suggestions for protecting your system from unauthorized access. Legal and ethical hacking issues will be discussed. Prerequisites: CST 1290 and CST 1125.

CST 2600 3
Fundamentals of Wireless Networking
Designed to educate the student in the areas of wireless networking technologies and the implementation of those technologies. Emphasis is placed in the areas of design, planning, implementation, operation and troubleshooting. Prerequisite: CST 1190.

CST 2900 2
Computer Technology Capstone
Serves as the Capstone for the Computer Technology Program. Designed to integrate all prior learning and includes studying for and taking the appropriate assessments as determined by the computer division and advisory committees. Students will complete a technology project that can include on the job training, a technology project or technology research. Prerequisite: CST 1500.

CST 2999 1-3
Special Topics
Introduces students to specialized areas of computer science and computer usage. The class may be retaken for credit if the topic varies.

DENTAL ASSISTING (DEN)

DEN 1100 3
Oral Radiology I
Introduces the student to fundamental principles of dental radiography. With emphasis on radiation safety, exposure techniques, as well as processing and evaluating radiographs.
DEN 1105 Oral Radiology II
Provides the student the opportunity to clinically develop and improve their skills in exposing, processing and evaluating diagnostic radiographs with minimum exposure and discomfort to the patient. The course will also cover the laws set forth by the Minnesota Department of Health in relationship to exposing radiographs on patients. Prerequisite: DEN 110; Student must be certified in CPR before taking this course.

DEN 1110 Dental Science
Describes the anatomy and physiology of the muscular, skeletal, circulatory and nervous systems of the head and neck regions. Specific bones, muscles, arteries, veins and nerves will be identified. In addition the structures, functions and development of the oral cavity will be discussed. The various methods of tooth identification will also be covered.

DEN 1115 Dental Health
Assists the student in making practical applications of the concepts and principles associated with diet and nutrition from the standpoint of general health as well as dental health. The course will also emphasize the nature and causes of disease in the oral cavity and the importance of prevention of this disease with practical application in instructing patients.

DEN 1120 Chairside Assisting I
Assists the student in attaining skills required to be a qualified chairside assistant. It includes instrument identification and transfer, treatment room equipment, charting of the oral structures and introduction to oral evacuation. Prerequisites: DEN 1110 may be taken concurrently or with permission from the instructor.

DEN 1125 Chairside Assisting II
Provides working knowledge of general dentistry. This course will also assist the students in understanding the specialties available in dentistry. The student will be taught to identify the materials, instruments and procedures needed in general dentistry and the specialties. The student will also gain skills in assisting the dentist in performing these procedures with minimal discomfort to the patient. The course will assist students through hands on experience in the lab clinic. Prerequisite: DEN 1120.

DEN 1130 Preclinical Dental Assisting
Allows the student to recognize microorganisms, how they live, cause disease, spread disease, and how humans protect themselves from microorganisms. Special emphasis will be placed on microorganisms that are most dangerous to health care workers. The course will also include infection control and hazardous materials principles and regulations. Additionally, the course will assist the student in understanding pharmacology as it relates to dental procedures. The students will also be prepared to recognize and assist with medical emergencies that may occur in the dental office.

DEN 1135 Dental Practice Management
Assists the student in identifying psychological variables that are significant in interacting and communicating with dental patients and coworkers. It will also cover the laws set forth by the Minnesota Department of Health in relationship to maintaining patient records, bookkeeping, appointment scheduling, filing, and written and oral communication. Both manual and computerized systems will be examined.

DEN 1140 Dental Materials
Covers materials used in dentistry. It will include information on properties as well as practical lab applications of the materials.

DEN 1145 Expanded Functions A
Offers the student experience in mechanical polish, rubber dam application, topical applications, sealant application, gingival retraction and endodontic expanded functions. (The Minnesota Dental Practice Act has made it legal for licensed dental assistants and students enrolled in accredited dental assisting programs to perform these functions.) The student will gain Preclinical competence in these duties through the use of typodonts and clinical competence through classmates and outside patients. Prerequisite: Evidence of passing the National Certification exam or satisfactory progress in the dental assisting program, or special permission from the instructor. Student must be certified in CPR before taking this course.

DEN 1150 Expanded Functions B
Offers the student experience in taking alginate impressions and related bite registrations for opposing and study models, orthodontic skills, cement removal, temporization, placing and removing periodontal dressings, suture removal, and placement and removal of matrix bands. (The Minnesota Dental Practice Act has made it legal for registered dental assistants and students enrolled in accredited dental assisting programs to perform these functions.) The student will gain Preclinical competence in these duties through the use of typodonts and clinical competence through classmates and outside patients. Prerequisites: Evidence of passing the National Certification exam or satisfactory progress in the dental assisting program, or special permission from the instructor. Student must be certified in CPR before taking this course.

DEN 1155 Extramural Clinical Experience I
Designed to assist the student in developing the skills initiated in the classroom, laboratory and clinic. This is accomplished by working under the supervision of the dentist and his/her staff as well as the dental assisting faculty.

DEN 1160 Extramural Clinical Experience II
Designed to provide further assistance to the student in developing the skills started in the classroom or laboratory by working in a dental office under the supervision of the dentist and his/her staff and the dental assisting faculty.

DEN 1165 Extramural Clinical Experience III
Provides further assistance to the student in developing the skills started in the classroom or laboratory by working in a dental office under the supervision of the dentist and his/her staff and the dental assisting faculty.

DEN 1170 Extramural Clinical Experience I
DEN 1175 Extramural Clinical Experience II
DEN 1180 Jurisprudence
Covers the ethical and legal aspects of working in a dental office. With emphasis on the Minnesota Board of Dentistry rules, as well as the various professional organizations that dental assistants find beneficial.

DEN 1185 Nitrous Oxide Inhalation Administration
Provides the student the skills and knowledge needed for safe and effective administration of nitrous oxide inhalation analgesia and the management of associated complications. The course will provide a minimum of 16 hours of didactic and supervised clinical experiences as required by the Minnesota Board of Dentistry. During the clinical portion of the class students will administer and undergo nitrous oxide/oxygen inhalation sedation as a patient. Prerequisite: Student must be certified in CPR before taking this course.
<table>
<thead>
<tr>
<th>COURSE CODE</th>
<th>COURSE TITLE</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>DSL 1100</td>
<td>Diesel Engine Theory</td>
<td>3</td>
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<tr>
<td>DSL 1104</td>
<td>Introduction to Diesel Technology</td>
<td>4</td>
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<tr>
<td>DSL 1105</td>
<td>Diesel Engine Lab</td>
<td>4</td>
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<tr>
<td>DSL 1110</td>
<td>Electrical Theory</td>
<td>2</td>
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<td>DSL 1115</td>
<td>Electrical Lab</td>
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<tr>
<td>DSL 1120</td>
<td>Powertrain Principles</td>
<td>2</td>
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<tr>
<td>DSL 1125</td>
<td>Powertrain Lab</td>
<td>3</td>
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<tr>
<td>DSL 1130</td>
<td>Hydraulics Theory and Application</td>
<td>3</td>
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<tr>
<td>DSL 1135</td>
<td>Fuel Injection Principles</td>
<td>3</td>
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<tr>
<td>DSL 1140</td>
<td>Air Conditioning</td>
<td>2</td>
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<tr>
<td>DSL 1141</td>
<td>Air Conditioning Lab</td>
<td>1</td>
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<tr>
<td>DSL 1142</td>
<td>Heating and Air Conditioning Systems</td>
<td>3</td>
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</tbody>
</table>

**Diesel Technology (DSL)**

DSL 1100 **Diesel Engine Theory**
Explains the function of the diesel combustion, chamber designs, valve train operation, rings, cylinders, pistons, crankshafts, connecting rods, and components that compliment each other.

DSL 1104 **Introduction to Diesel Technology**
Provides an overview of the Diesel Technology Industry. Its hands-on shop experiences allow the student to disassemble, inspect, evaluate, repair and adjust, and reassemble key elements of diesel technology including fuel injection, electrical basics, engines, hydraulics, and other system components.

DSL 1105 **Diesel Engine Lab**
Provides the student hands-on shop experiences. The student will disassemble, inspect, evaluate, repair and adjust, and reassemble valve, valve train components, cylinder blocks, crank shafts, bearings, sleeves, pistons, rings, and other components that compliment the above.

DSL 1110 **Electrical Theory**
Covers circuits, magnetism, wiring diagrams, principles of operation of alternators, regulators, cranking motors, and batteries.

DSL 1115 **Electrical Lab**
Requires the students to disassemble, inspect, evaluate, repair and test electrical systems and components. Concurrent enrollment with DSL 1110.

DSL 1120 **Powertrain Principles**
Covers theory of clutch, pressure plate assembly, standard transmissions, differentials, power take-off, brakes, axles, and components that compliment powertrain operations.

DSL 1125 **Powertrain Lab**
Covers the disassembly, inspection, evaluation, repair and adjustments and reassembly of all components of the powertrain.

DSL 1130 **Hydraulics Theory and Application**
Covers principles and fundamentals of hydraulics. The student will work on various components and systems as related to diesel hydraulics within a laboratory environment.

DSL 1135 **Fuel Injection Principles**
Entails a study of diesel engine operation with fuel systems, the basic repair and rebuilding of injectors and timing of the fuel system to the engine.

DSL 1140 **Air Conditioning**
Covers operation, inspection, repair and diagnostics of air conditioning systems.

DSL 1141 **Air Conditioning Lab**
Covers air conditioning, heating and ventilation systems in the cab, and repair of the climate control systems.

DSL 1142 **Heating and Air Conditioning Systems**
Covers cab heating and ventilation systems used in all types of units used in the industry today. The air conditioning servicing and repair of the system for comfort of in cab climate. The environmental concerns that need to addressed when making repairs to the air conditioning system.

DSL 1145 **Introduction to Shop Operations**
Allows students to work in a sponsoring automotive, diesel farm equipment or diesel truck service facility. The work will be full time, approximately 40 hours per week for six weeks. The tasks will be consistent with previous required course work.

DSL 1150 **Internship**
Allows students to work in a sponsoring automotive, diesel farm equipment or diesel truck service facility. The work will be full time, approximately 40 hours per week for six weeks. The tasks will be consistent with previous required course work.

DSL 1160 **Basic Mechanics**
Shop safety and tool usage. Basic electrical - theory of basic electrical circuits. Basic engine operation and tune up. General service - proper maintenance of powertrain.

DSL 2106 **Advanced Powertrain Theory**
Covers the theory of operation of various power shift transmissions, power flow, and terminologies as related to various manufacturers. The theories of operation of electro hydraulic systems are covered in depth. This program will cover a wide variety of power train systems from Ag equipment, industrial, and trucks when available. Must be taken concurrently with DSL 2111.

DSL 2111 **Advanced Powertrain Lab**
Requires the student to disassemble, inspect, evaluate, repair, reassemble, and test various power shift transmissions and related components. The student will work in the lab environment to disassemble, inspect, evaluate, repair, reassemble, and diagnose these various electro hydraulic systems.

DSL 2131 **Service Department Operations and Procedures**
Covers the operation of a service department including customer relations and business operations such as reporting forms, work orders, and warranty claims. The student will work 40 hours per week for six weeks. The tasks will be consistent with previous required course work.

DSL 2136 **Fuel Systems Theory**
Reviews the theory and operation of specialty areas of diesel engine rebuilding. This course will take the students through all facets of repair. This course explains the procedures of various engine-machining processes. This course will also explain the function of the
Introduction to Economics introduces the fundamentals of economics and the nature of economics as a discipline. Includes a description of economics and the operation of resource markets and the American Economy. No credit if ECON 2201 or 2202 has been previously completed.

ECON 2201 3
Principles of Macroeconomics
Principles of Macroeconomics studies the overall performance of the United States economy and comparative economic systems from a macroeconomic viewpoint. Principles of Macroeconomics considers the topics of full employment, price stability, and economic growth.

ECON 2202 3
Principles of Microeconomics
Principles of Microeconomics analyzes the economic decision-making process of the individual firm. The microeconomic concepts of pricing and the allocation of resources within different market structures are explored through the use of case studies of industries.

EDUC (EDUC) 3
EDUC 1100 3
Introduction to Education
Introduces students to early childhood, elementary and secondary education. Students will have the opportunity to examine their potential for the teaching profession. This course examines career opportunities, requirements, regulations, and professional ethics. The study of historical and social foundations of education, as well as schools in a diverse society will be included in the course. Twenty (20) hours of field experience is included. Prerequisite: Department of Human Services background study will be conducted.

ELCO (ELCO) 3
ELCO 1100 3
Electrical Circuits Fundamentals
Covers the basic concepts of electricity. Included in the course will be a brief overview of electricity and electronics, a study of resistors, Ohm's Law, series and parallel circuits, voltage and current dividers, dc meters, Kirchhoff's laws and network theorems, conductors and insulators, batteries, magnetism and magnetic units, electromagnetic induction, alternating voltage and current, capacitance, capacitive reactance, capacitive circuits, inductance, inductive reactance, inductive circuits, RC and L/R time constants, ac circuits, complex numbers, resonance, and filters. Prerequisite: MATH 0092 or placement by exam.

ELCO 1101 3
DC Circuits
Covers the basic concepts of electricity, including a basic study of safety, metric notation, atomic structure, Ohm's Law, series, parallel, and complex circuits. Prerequisite: MATH 0092 or placement by exam.

ELCO 1105 3
Electrical Circuits Fundamentals Lab
Provides students with theoretical and practical experiences in electric circuits for both DC and AC using scientific method, analysis and deduction. Topics covered will be safety, resistor color code, meter use, Ohm's law, series and parallel circuits, complex circuits, oscilloscope operation, alternating current and voltage, capacitance, capacitive reactance, capacitive circuits, inductance, inductive reactance, inductive circuits, RC and L/R time constants, ac circuits, resonance and filters, and transformers. Prerequisite: MATH 0092 or placement by exam.

ELCO 1106 3
AC Circuits
Covers the basic concepts of AC circuits. Included is a basic study of electromagnetic principles, sine wave principles and relationships, resistive circuits, inductive circuits, capacitive circuits, circuit analysis, and resonance. Prerequisite: MATH 0092 or placement by exam.
Provides students with theoretical and practical experiences in electric circuits for both AC and DC using scientific method, analysis, and deduction. Topics covered will be safety, resistor color code, meter use, Ohm’s law, series and parallel circuits, complex circuits, electromagnetic principles, sine wave principles and relationships. Prerequisite: MATH 0092 or placement by exam

**ELCO 1120**
AC/DC II
Covers the basic concepts of AC and DC circuits. Included is a basic study of resistive circuits, inductive circuits, capacitive circuits, circuit analysis, resonance, oscilloscope operation, capacitance, capacitive reactance, inductance, inductive reactance, RC and L/R time constants, and three phase circuits.

**ELECTRICIAN (ELEC)**

**ELEC 1200**
Residential Wiring I
Covers electrical safety, general safety, and the use and care of hand tools, specialty tools, and equipment used for residential wiring. The course introduces basic wiring circuitry and the related N.E.C. articles for residential wiring. Also covered is an introduction to Service Entrance Equipment and N.M. and U.F. cables and their uses.

**ELEC 1205**
National Electric Code I
Provides insight into an understanding of many of the technical rules of the NEC. Topics included are Minnesota licensing laws, definitions, requirements and calculations for electrical installations, grounded conductors, branch circuits, feeders and services. Other topics also included are overcurrent protection, grounding and bonding, wiring methods, temporary wiring, and conductors for wiring.

**ELEC 1210**
Residential and Farm Wiring II
Covers electrical and general safety. This course introduces blueprint reading for residential wiring. Students will learn to identify parts and their uses. The course will also relate N.E.C. articles on branch circuits, feeders, grounding, services, and overcurrent protection to residential and farm wiring. Also covered will be specialty circuits such as ranges, dryers, air conditioners, etc. using a variety of wiring methods found in residential wiring. Prerequisite: ELEC 1200.

**ELEC 1215**
National Electric Code II
Covers National Electric Code requirements for cabling, conduit, raceways and wireways, boxes, gutters, switches, and panelboards. Also included are the requirements for equipment such as cords and cables, fixtures and fixture wire, appliances, fixed space heating, motors and motor control equipment, and transformers. Prerequisite: ELEC 1205.

**ELEC 1220**
Conduit Installation
Introduces the raceway types used in all types of wiring. Students will learn to thread, bend, and calculate raceway size and the number of wires permitted in a conduit. This course is also an introduction to hand benders and hydraulic benders. Students will also learn to identify fittings and other material used in installing a raceway system. Prerequisite: ELEC 1200.

**ELEC 1225**
Electric Motors
Covers alternating current (AC) and direct current (DC) motors and generators/alternators. Theory of operation, connections, installation and maintenance will be covered in the lecture portion of the course. The lab will give students an opportunity to determine the load characteristics and connections of AC and DC motors and generators/alternators. Prerequisite: ELCO 1100 or ELCO 1110.

**ELEC 1230**
Safety Principles and OSHA
Covers various safety and laboratory practices that are common to the electrical trades and presents information on how to avoid unsafe practices.

**ELEC 1235**
Applied Electrical Calculations
Covers the necessary calculations for the solution of electrical circuit problems in the industry.

**ELEC 1240**
Commercial Wiring
Introduces the material and design aspects of commercial wiring. Students will learn to read commercial blueprints. This course also covers voltage-drop calculations, motor calculations and service installations. Students will be introduced to the take off and estimating of commercial jobs. Students will also study the N.E.C. as it relates to commercial wiring.

**ELEC 2200**
Low Voltage
Investigates low voltage circuits and controls along with data, phone, CATV, fire alarm and home security methods and materials. This course will also cover the rules and regulations of installation and termination of communication wire and components. Prerequisite: ELCO 1100 or ELCO 1110.

**ELEC 2205**
Electric Motor Controls I
Covers electrical tools, instruments, safety, electrical symbols, line diagrams, AC manual contractors and motor starters, AC magnetic contractors and motor starters, time delay logic and control devices. Lab classes give students the opportunity to hard wire, test and troubleshoot common control circuits. Prerequisite: ELCO 1100 or ELCO 1110.

**ELEC 2210**
National Electric Code III
Stresses the importance of safe, efficient and well designed systems for industrial, commercial, and residential locations. This course discusses material, methods, and components used in designing electrical systems. Prerequisite: ELEC 1205.

**ELEC 2220**
Industrial Wiring
Covers the installation methods and materials used in industrial wiring. Topics included are transformer and motor selection, busways, grounding, power factor correction, distribution, hazardous locations, and troubleshooting. Prerequisite: ELEC 1205.

**ELEC 2225**
Electric Motor Controls II
Covers reversing motor circuits, electromechanical and solid-state relays, photoelectric controls, proximity controls, reduced voltage starting, accelerating and decelerating methods and preventive maintenance. The lab class will give the student the opportunity to hard wire and operate the control circuits. Students design control circuits and program smart motor controllers and variable frequency drives. Prerequisite: ELEC 2205.

**ELEC 2230**
Programmable Logic Controllers
Covers the principles of how PLCs work and provides practical information about installing, programming, and maintaining a PLC system. Students will be given a wide range of generic programming assignments and exercises for practice with the PLC. Prerequisite: ELEC 2205.

**ELEC 2235**
National Electric Code IV
Covers electrical grounding and calculations. The course will give students a better understanding of grounding and simplify some of the code requirements for acceptable field installations of grounding. This will result in a safer electrical installation for people and equipment. Prerequisite: ELEC 1205.

**ELEC 2250**
Heating and Air Conditioning Controls
Introduces basic heating and cooling system installation and control. Topics included are installing heating and air conditioning systems, replacing controls, measuring instruments, and reading schematics.
### ELEC 2265
**Introduction to Alternative Energy**
3
Provides an introduction to traditional and alternative energy sources. This class will explore the basic principles of traditional energy with an emphasis on alternative energy. Students will develop a basic understanding of solar, bio, wind, geothermal, and hydro energy sources.

### POWERLINE TECHNOLOGY (ELPL)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ELPL 1100</td>
<td>Pole Climbing and Equipment Operation</td>
<td>3</td>
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<tr>
<td>ELPL 1102</td>
<td>Pole Climbing and Equipment Operations II</td>
<td>4</td>
</tr>
<tr>
<td>ELPL 1106</td>
<td>Electrical Distribution of Powerlines I</td>
<td>4</td>
</tr>
<tr>
<td>ELPL 1110</td>
<td>Reports, Records, and Accident Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ELPL 1116</td>
<td>Electrical Distribution of Powerlines 2</td>
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<tr>
<td>ELPL 1121</td>
<td>Electrical Distribution of Powerlines 3</td>
<td>4</td>
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<tr>
<td>ELPL 1125</td>
<td>Three-Phase AC Circuits and Transformer Banking</td>
<td>3</td>
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### SOLAR PHOTOVOLTAIC (ELPV ALSO SEE SOLR)

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<tr>
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<tbody>
<tr>
<td>ELPV 1100</td>
<td>Introduction to Photovoltaic Systems</td>
<td>2</td>
</tr>
<tr>
<td>ELPV 1110</td>
<td>Solar PV Systems Components and Module Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ELPV 1120</td>
<td>Solar PV Systems Sizing and Design</td>
<td>3</td>
</tr>
<tr>
<td>ELPV 1130</td>
<td>Solar PV Systems Installation</td>
<td>3</td>
</tr>
<tr>
<td>ELPV 1140</td>
<td>Photovoltaic Systems Performance Analysis, Maintenance, and Troubleshooting</td>
<td>3</td>
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</tbody>
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ELPL 1130 **'Hot' Sticking**
3
Covers the application, care, and use of 'Hot' sticks, and insulated cover up use. It will be done off the pole with belt and hooks. This course will include pole top insulator change outs, crossarm changeouts, replacements, and conductor transfers. The course will be taught simulating the line being 'Hot'.

ELPL 1140 **Construction of Underground Powerlines**
2
Covers basic theory and design for the installation and construction of a high voltage underground system. Installing and constructing an actual underground system will be part of a lab project. System protection, sectionalizing, grounding procedures, and basic fault procedures on underground low and high voltage lines.

ELPL 2235 **Special Topics: Overhead Safety, Construction & Maintenance**
2
Covers all the elements of overhead installation and maintenance with a strong emphasis on safety.

ELPL 2236 **Special Topics: Underground Safety, Construction, and Maintenance**
2
Covers all the elements of underground installation and maintenance with a strong emphasis on safety.
reliability of the PV system. Also covered will be typical maintenance requirements of PV systems and troubleshooting principles.

**TELECOMMUNICATIONS (ELTL)**

**ELUT 2199**
Telecom Internship
Allows the student to practice competencies and skills learned in the classroom. Internship activities may include voice/data cabling, telephone system installation and any other telecommunication subjects taught at Minnesota West Community & Technical College - Jackson Campus. This course is a work/school cooperative OJT experience designed to enhance the students' educational background and aid their transition to full-time employment after graduation.

**ELECTRIC UTILITY SUBSTATION (ELUT)**

**ELUT 1101**
Electrical and Rigging Safety
Includes State and Federal OSHA Rules and National Electric Safety Work Rules, regarding safety in the Electrical Field. Emphasis is on personal protective equipment, personal, and company rules of safety. Instruction in elementary knots and the use of different types of slings.
Outdoor lab includes pole top rescue, the safe practices of grounding, and the rigging and lowering of a crossarm.

**ELUT 1105**
Blueprint, Schematics and Transit
Covers the use and interpretations of blueprints, schematic diagrams, plan and profile maps, and the symbols and abbreviations used in them. This course also covers the fundamentals for set-up, operation and use of a transit mounted on a tripod or other base.

**ELUT 1110**
Transformer Banking I
Covers the construction, purpose, uses, and calculations for distribution transformers. Emphasis will be on installation of single or three-phase banking practices that are used in the private and public sector of the electric utility industry.

**ELUT 1115**
Generation Transmission and Distribution
Designed to simulate the Power Industry. Through the use of laboratory projects, the student will receive background in understanding the concepts of generation, transmission and distribution of electric power.

**ELUT 1120**
Specifications, Testing and Maintenance
Covers the procedures, specifications of testing methods, and maintenance used throughout the electrical industry for new and refurbished equipment.

**ELUT 2100**
Electrical Metering
Covers single-phase and three-phase metering principles, meter construction, component parts and the installation and testing of single-phase and three-phase electric watt-hour meters. This course also includes the use of a meter test bench, test standards and an electric counter.

**ELUT 2110**
Transformer Banking II
Continues Transformer Banking I. This course will look into single-phase power banks and auto transformers used in the transmission and distribution of small and large blocks of power.

**ELUT 2116**
Reclosures and Protective Equipment
Covers reclosures, circuit breakers and protective devices such as fuses, lightning arresters, cut-outs, sectionalizers and the related equipment.

**ELUT 2121**
Protective Relays
Designed to give a broad understanding of simple and complex relays that are used in the protection of high voltage lines and substations. Emphasis is on understanding design, construction, and application, performing testing, calibrating, cleaning and adjusting relays. The following relays will be studied if time allows: overcurrent induction disc, thermal overcurrent, induction disc voltage, over/under voltage, voltage restraint, percentage differential, and transformer differential relays.

**ELUT 2126**
Regulators and Capacitors
Covers the methods used in producing a reliable power source by controlling voltage loss and power factor through the use of capacitors and/or regulators.

**ELUT 2135**
Enrichment 1
Provides a self study course. The student may select any three of the remaining four topics from Enrichment I and write an article about each selected topic. In each article the student will create and address eight goals.

**ELUT 2140**
Enrichment 2
Provides a self study course. The student may select any three of the remaining four topics or create a topic that is acceptable with instructor from Enrichment 1 and write an article about each selected topic. In each article the student will create and address eight goals.

**WIND ENERGY TECHNOLOGY (ELWT)**

**ELWT 1100**
Wind Energy Fundamentals
Surveys the historical application of wind energy. This course will discuss how wind works, its reliability, economics and environmental implications. Also studied will be wind energy applications and basic operating principles. The status of the industry’s future will also be discussed.

**ELWT 1104**
Basic Digital Circuits
Introduces students to digital and computerized equipment. This course will provide students with an understanding and application of basic digital inverters, gates and multivibrator devices. Digital codes, computer numbering systems and Boolean Algebra will also be discussed.

**ELWT 1110**
Mechanical Systems
Studied at the component level. Students will be introduced to gearboxes and other mechanical systems that make up the subsystems of today’s wind turbine. Fasteners, lubrications and preventative maintenance activities will receive the major emphasis.

**ELWT 1120**
Air Foils, Blades and Rotors
Provides an understanding of wind turbine aerodynamics and the various considerations that are involved when selecting foils for use in blade design. Blade construction, assembly and repair techniques as well as performance, operation and maintenance characteristics will be covered.

**ELWT 1130**
Drive Trains, Yaw Systems and Towers
Covers turbine drive train, yaw systems and tower systems. Sub-system component attachments, alignment, operating characteristics, dynamics, and maintenance considerations will be presented. Nacelle layout and the interaction between sub-systems will be discussed.

**ELWT 1140**
Energy Systems
Covers the various applications of wind generated power. Stand alone, water pumping and grid connected systems as well as hybrid power systems will be discussed.
### EMS 1102 - EMT Completion/Bridge Course
Prepares students with the foundation of emergency care and transportation of patients who activate the emergency medical system. This course provides an introduction into necessary didactic and cognitive skills to provide basic life support care as an EMT. The EMT completion/bridge meets the requirements outlined by the educational standards of the Minnesota EMS Regulatory Board and the National Registry of Emergency Medical Technicians for direct employment as an Emergency Medical Technician with a basic transport service, emergency room and emergency services within law enforcement or fire departments. Prerequisite: Students must have a current AHA BLS Healthcare provider CPR card meeting the current AHA standards and have one of the following prerequisites for the EMT completion course. *Successful completion with a C or better EMS 1101 - Introduction to Emergency Medical Technician no longer than two years prior to enrolling in the completion; *Currently certified as an Emergency Medical Responder; *Healthcare professionals successfully completing with a C or better and showing competency in courses/skills in Medical/Legal and Ethical Issues, Medical Terminology, Anatomy and Physiology, Airway Management/Oxygen Therapy, Patient Assessment and Vital Signs.

### EMS 1104 - EMS Wilderness Emergency Care
Designed to upgrade EMS personnel to function in a wilderness environment where transport is delayed if not impossible due to location and or circumstance. The long term patient care management and definitive care skills taught in the class room will be accomplished in the field environments. Specialty skills and familiarity with SAR techniques, survival concepts, and situational assessment, as well as long view problem solving are the keys to extended patient care in often hostile environments placed on the body systems in both healthy individuals and those challenged by trauma or illness can be vital when you, the rescuer, are the only care available.

### EMS 1105 - EMS Wilderness Outdoor
Completes the upgrade for EMS personnel to function in a wilderness environment where transport is delayed if not impossible due to location and or circumstance. The long term patient care management and definitive care skills taught in the class room will be accomplished in the field environment. The ability to recognize and manage stress extreme environments placed on the body systems in both healthy individuals and those challenged by trauma or illness can be vital when you, the rescuer, are the only care available.

### EMS 1106 - American Heart CPR Instructor
Designed for the health care provider to take their BLS CPR certification to a new level. It will give the individual the skills and information necessary to be a certified instructor in CPR. In addition it will cover the new AHA2000 Guidelines and the science behind those changes. You will receive all the necessary information on the Customized Training Centers available for membership and the criteria to maintain this certification.

### EMS 1107 - Emergency Response to Terrorism
Designed to benefit industry and emergency management personnel; addressing the first 4 hours of response to a terrorist event. The goal of the program is to emphasize the planning aspect of response. Terrorist incidents that involve biological, nuclear, incendiary, chemical, or explosive materials are a daily occurrence in metropolitan areas, and with the current condition in our world today, could soon hit the rural areas. This timely course has been developed by the U.S. Department of Justice and The Federal Emergency Management Agency. In addition it will include instructional material on The Incident Command Center: its purpose, structure, personnel, and duties at a Critical Incident.

### EMS 1108 - Basic Trauma Life Support
Designed for the health care provider who must evaluate and stabilize the trauma patient in or out of the hospital. The goal of the program is the planning and development of an organized approach to and treatment of trauma patients using a TEAM concept to manage this often emotional and difficult situation. Since time is critical in the
management of the trauma patient, this course is intended to present
the skills necessary for rapid assessment, resuscitation, and when
necessary, the packaging and preparation for transport to another
facility. In addition this course covers information on Advanced Spinal
Care issues and care for the adult and pediatric trauma patient.

EMS 1109
Advanced Cardiac Life Support
Offered for the professional health care provider at any level. The class
will focus on the management of acute cardiovascular emergencies that
require rapid and decisive actions by the health care team. Emphasis
will be placed on the TEAM approach so the effective continuum of
cardiac care can be provided from the pre-hospital environment and
emergency department through the more definitive care that is provided
in the cardiac care unit. The material is presented in a logical order that
leads itself to continuous reinforcement of previously learned
information. The class will cover cardiac rhythm interpretation, drug
dosages, electrical therapy, and intubation for airway control. The class
is conducted in a non-threatening environment and at a pace that will
provide enough time for the caregiver to gather key information to build
a suitable knowledge base for comprehension of algorithms used in
treating acute cardiac emergencies.

EMS 1110
Emergency Medical Responder
Provides students with a foundation in emergency medical care for
those who are apt to be the first persons responding to an emergency.
In defining course scope and emphasis, it was decided that students
should possess the same knowledge of patient care as an EMT, but not
the same equipment and level of skills. While emergency care is not
likely to be the EMT's primary responsibility in the community, this
individual can play an active role in the community's emergency
medical services system. As the first person at the emergency scene,
the EMT must be completely knowledgeable about basic principles of
emergency medical care; and must know what should, as well as what
should not be done. The Emergency Medical Responder course follows
the American Heart Association's BLS CPR for Healthcare Provider
standards and meets the curriculum requirements set by the EMS
Regulatory Board, National Registry and DCT standards.

EMS 1111
IV Therapy & Shock Management
Prepares the health care provider to establish IV therapy for patients
who need fluid volume replacement, blood draws, or venous access for
the administration of medications. Upon completion of this 16 hour
program the student will be able to select the IV fluid for initial volume
replacement, compute IV flow rate calculations given the overall time
period and the administration set to be used. Complications of IV therapy
and how to reduce the possibility of occurrence will be presented. A major goal of the program will be recognizing the different
stages of shock, the prevention of and treatment for the low perfusion
state. The definition of an treatment for respiratory acidosis will be
explained, and a review of the cardiovascular system, blood
components, and their main function will be discussed.

EMS 1112
AHA CPR Healthcare Provider, AED First Aid Certification
Covers the skills necessary for the newest AHA Guidelines for the CPR
Healthcare Provider Certification as well as Certification in Automated
External Defibrillation and First Aid. The provider will be able to
properly and safely assess a patient, as well as how to recognize signs
and symptoms and administering the appropriate treatments.

EMS 2101
EMT Refresher
Designed to refresh students at the Emergency Medical Technician-
Ambulance (EMT-B). It is recognized that training at all levels of the
health care team is necessary for effective patient care. It is also
recognized that the majority of prehospital emergency care will be
provided by the Emergency Medical Technician Basic. This includes all
skills necessary for the individual to provide emergency care at the
basic life support level with an ambulance service or other specialized
rescue service. This course is a refresher for those EMT's that have
successfully completed a basic EMT course and carry a current
certification as an EMT-B. Prerequisite: Certified EMT and a current
CPR certification.

EMS 2103
First Responder Refresher
Developed to provide refresher training in emergency medical care for
those who are apt to be the first persons responding to an accident. In
defining course scope and emphasis, it was decided that students
should possess the same knowledge of patient care as an EMT, but not
the same, equipment skills. While emergency care is not likely to be
first responders primary responsibility in the community, this individual
can play an active role in the community's emergency medical services
system. As the first person at the emergency scene, the first responder
must be completely knowledgeable about basic principles of emergency
medical care, and must know what should, as well as what should not,
be done.

ENGLISH (ENGL)

ENGL 0090
Essentials of Writing I: Effective Sentences and Paragraphs
Introduces parts of speech, phrases, clauses, types of sentences, common sentence errors, punctuation, capitalization, and spelling. Students write sentences and paragraphs to demonstrate understanding of these basic skills.

ENGL 0095
Essentials of Writing II: Effective Essays
Introduces outlining, thesis statements, introductions and conclusions, transitions, direct and indirect discourse, awareness of audience, and levels of formality. Students write brief essays to demonstrate an understanding of these basic skills.

ENGL 1101
Composition I
English 1101 reviews and reinforces basic essay writing principles. English 1101's emphasis is on rhetorical modes of development and writing as process. Assignments include a short research paper. Prerequisite: English 0095 or placement through assessment test or prior college coursework.

ENGL 1102
Composition II
Composition II builds on Composition I with emphasis on information literacy, critical thinking, and style development. Composition assignments include a research paper. Prerequisite: English 1101.

ENGL 1103
Research Papers
Reviews and reinforces principles of writing research papers. Emphasis is on process, analysis, and formatting. Assignments include an academic research paper. Prerequisite: Instructor consent.

ENGL 1105
Introduction to Literature
Introduction to Literature studies the elements, form, and content of literature in fiction, drama and poetry.

ENGL 1141
Writing and Reading Poetry
Introduces students to basic elements of poetry and provides instruction in using these in the students' own writing. The class is conducted in an informal workshop environment where students will participate in offering and receiving constructive criticism about each other's writing. Prerequisite: ENGL 0095 or placement through assessment test or consent of instructor.

ENGL 1143
Writing and Reading Fiction
Provides instruction and experience in composing and editing fiction. Covers elements of fiction writing through reading of published and unpublished fiction. Prerequisite: ENGL 1101.

ENGL 2201
American Literature I
American Literature I introduces prominent American writers and
influential works of American literature that have shaped American
culture from the colonial period through the Civil War. This American
ENGR 1101
Introduction to Engineering

Introduces the study of engineering. This course highlights the keys to success in engineering study, a description of the engineering profession, academic success strategies, and orientation to the engineering education process.

ENGR 1110
Auto CAD Level I

Introduces the student to computer-aided drafting and design utilizing the current version of AutoCAD. The AutoCAD topics covered in this Level 1 course include: an introduction to AutoCAD features, starting and setting up drawings, ergonomics, point coordinate entry methods, creation of basic 2D drawing objects, layer management, linetypes and colors, selection sets, object snap modes, AutoSnap, polar tracking, object snap tracking, construction techniques, creating and managing text objects, editing geometry, display control and drawing inquiry methods. Students completing this course successfully will have the basic AutoCAD knowledge needed to begin a career in Computer-Aided Drafting and Design. This basic knowledge is needed prior to specializing in a certain area of drafting such as mechanical, civil, electrical, architectural or structural.

ENGR 2240
Circuit Analysis I

Introduces electrical circuit theory, circuit variables, circuit elements, simple resistive circuits, Ohm's and Kirchoff's Laws, mesh and node circuit analysis, the use of circuit theorems, and the operational amplifier. Also emphasized are the topics of inductance, capacitance, mutual inductance, response of first-order RC and RL circuits and natural step responses to RLC circuits. The computer program PSPICE will be used for circuit simulation. Prerequisites: PHYS 2122 and MATH 1122.

ENGR 2241
Circuit Analysis I - Lab

Provides the laboratory to accompany Circuits Analysis I. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis I: ENGR 2240.

ENGR 2250
Circuit Analysis II

Continues Circuit Analysis I to include special topics in circuit analysis to include sinusoidal analysis, phasors, sinusoidal steady-state response, average power, root-mean square values, polyphase power, complex frequency, frequency response, and two-port networks. Prerequisites: ENGR 2240, ENGR 2241 and MATH 2205.

ENGR 2251
Circuit Analysis II - Lab

Provides the laboratory to accompany Circuits Analysis II. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis II: ENGR 2250.

ENGL 2202
American Literature II

American Literature II introduces prominent American writers and influential works of American Literature that have shaped American culture from Mark Twain to the present. This American Literature course takes a broad view of the traditional canon of American Literature to include writers and works from many areas of America's literary past. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2203
Midwest Literature

Introduces students to the rich and diverse body of Midwestern literature through the exploration of poetry, fiction, nonfiction, and drama. The course will also address various cultural, historical, and geographical matters relating to the Midwest.

ENGL 2211
British Literature I

Studies the principal British writers, their literary forms, and significant currents of thought. Provides both an introduction to British literature and a background that will be useful in the study of other literature and cultural history from Beowulf through the 18th Century. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2222
British Literature II

Studies the principal British writers, their literary forms, and significant currents of thought. Provides both an introduction to British literature and a background that will be useful in the study of literature and cultural history from Romanticism through the 20th Century. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2231
Classical Mythology

Introduces students to Greek mythology through classical texts and contemporary criticism. In addition to studying the myths themselves, lectures will focus on the functions of myths and the continuing importance of Greek mythology in modern society.

ENGL 2235
Special Topics in Literature

Introduces students to specialized areas of literature. Topics may include literature associated with specific regions, historical periods, subcultures, economic groups, business, or social movements. The class may be retaken for credit if the topic varies.

ENGL 2243
Composition: Creative Writing

Provides instruction and experience in composing and editing poetry, short fiction, a literary research paper, and a writer's journal. The class is conducted in an informal workshop atmosphere. This course is an alternative for ENGL 1102 in the Minnesota Transfer Curriculum. Prerequisite: ENGL 1101.

ENGL 2276
Composition: Technical Writing

Composition: Technical Writing provides instruction and experience in composition and editing various types of professional and technical writing. Assignments include a research paper. This course is an alternative for ENGL 1102 in the Minnesota Transfer Curriculum. Prerequisite: English 1101.

EMGEERING (ENGR)

Introduces students to specialized topics in the engineering field. Topics cover a wide range of issues of current interest and will be chosen to meet the needs of students. The course may be retaken for credit if the topic varies.

ENGR 2215
Engineering Mechanics-Dynamics

Includes vectorial kinematics and kinetics, absolute and relative motion, force-mass acceleration relations, potential and kinetic energy, work, power, impulse, momentum, conservation of energy and momentum. Application to particles, particle systems, and rigid bodies will be studied. Prerequisite: ENGR 2214.

ENGR 2235
Special Topics in Engineering

Introduces students to specialized topics in the engineering field. Topics cover a wide range of issues of current interest and will be chosen to meet the needs of students. The course may be retaken for credit if the topic changes.

ENGR 2240
Circuit Analysis I

Introduces electrical circuit theory, circuit variables, circuit elements, simple resistive circuits, Ohm's and Kirchoff's Laws, mesh and node circuit analysis, the use of circuit theorems, and the operational amplifier. Also emphasized are the topics of inductance, capacitance, mutual inductance, response of first-order RC and RL circuits and natural step responses to RLC circuits. The computer program PSPICE will be used for circuit simulation. Prerequisites: PHYS 2122 and MATH 1122.

ENGR 2241
Circuit Analysis I - Lab

Provides the laboratory to accompany Circuits Analysis I. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis I: ENGR 2240.

ENGR 2250
Circuit Analysis II

Continues Circuit Analysis I to include special topics in circuit analysis to include sinusoidal analysis, phasors, sinusoidal steady-state response, average power, root-mean square values, polyphase power, complex frequency, frequency response, and two-port networks. Prerequisites: ENGR 2240, ENGR 2241 and MATH 2205.

ENGR 2251
Circuit Analysis II - Lab

Provides the laboratory to accompany Circuits Analysis II. Circuit analysis concepts are reinforced by laboratory experiments in which the theories are verified. Taught concurrently with Circuit Analysis II: ENGR 2250.
**FLPW 1100**  
**Fluid Power Hydraulic Theory**  
Introduces basic hydraulic concepts, formulas, and applications of hydraulic components used for directional, flow and pressure control of circuits. Also provides students with the knowledge and understanding of the operation, function, and application of hydraulic pumps, continuous rotation motors, limited rotation motors, and cylinders.

**FLPW 1103**  
**Basic Hydraulics**  
Introduces the students to basic concepts, formulas and applications of hydraulic system components. Studies the use of directional, flow and pressure control devices in circuits. Also provides students with the knowledge and understanding of the operation, function, and application of hydraulic pumps and motors.

**FLPW 1104**  
**Basic Hydraulics Lab**  
Introduces basic hydraulic concepts, formulas, and applications of hydraulic components used for directional, flow and pressure control of circuits as applies to the wind turbine. Also provides students with the knowledge and understanding of the operation, function, and application of hydraulic pumps, continuous rotation motors and limited rotation motors.

**FLPW 1105**  
**Fluid Power Hydraulic Lab**  
Examines basic equipment and fundamentals of hydraulic valves of fluid power. Focus will also cover various flow controls, pumps and motors. Students will tear down, plumb and operate the various components.

**FLPW 1110**  
**Fluid Power Hydraulic Calculations**  
Uses the application of math concepts to calculate basic system parameters such as lifting force, pressures, horsepower, time, velocities, tubing sizes, unloading systems, and various parameters for hydraulic pumps and motors.

**FLPW 1115**  
**Auto Cad**  
Introduces the skills needed to design, draw, edit, and publish various industrial schematics using AutoCAD software. Students will demonstrate the ability to edit and design mechanical, electrical, and structural schematics. Course time will include instruction on drawing setup and commands along with hands-on lab time working with and creating drawings.

**FLPW 1120**  
**Pneumatics Theory**  
Covers hydraulic accessories and introduces the student to pneumatic components and circuits.

**FLPW 1125**  
**Industrial Electro-Mechanical Control Theory**  
Introduces basic electrical theory, relay control circuits, and electrical motor starters for controlling fluid power systems.

**FLPW 1131**  
**Pneumatic Lab**  
Provides students with skills in plumbing, troubleshooting, and operation of basic pneumatic circuits. Concurrent enrollment with FLPW 1120.

**FLPW 2100**  
**Advanced Systems Calculations**  
Provides students with knowledge and skills of sizing systems in both mobile and industrial applications.

**FLPW 2105**  
**Advanced Fluid Power Systems Lab I**  
Allows the student to design, plumb, and operate various advanced hydraulic, pneumatic, and electrical control circuits.

**FLPW 2110**  
**Circuit Design and Control Theory**  
Receive instruction in hydrostatic, mobile valving, pump controls, and power steering.

**FLPW 2126**  
**Systems Analysis**  
Provides students with knowledge of how components interact with each other in systems and what may cause them to malfunction.

**FLPW 2130**  
**Advanced Fluid Power Systems II**  
Provides students advanced theory and lab jobs in the following job related areas: sales, air logic, engineering, lab technician, servo/proportional valves, fabrication, and service.

**FLPW 2136**  
**Programmable Logic Controls**  
Demonstrates use of plc and circuits to control and power all phases of industrial automation. Prerequisite: INDT 1125.

**FLPW 2141**  
**Proportional & Servo Control Theory**  
Provides students with knowledge and working skills dealing with electronic control of electro-hydraulic proportional and servo controls.

**FLPW 2170**  
**Second Year Technical Project**  
Build a project that combines previous training in the different Fluid Power Technology classes. This class can be used for the technical elective category in second year.

**FLPW 2175**  
**Pneumatic Certification Review**  
Review all parts of Fluid Power to help prepare for the PNEUMATIC SPECIALIST certification test. Prerequisites: Enrolled in Fluid Power or a past graduate of Fluid Power or working in the field of Fluid Power.

**FLPW 2180**  
**Hydraulic Certification Review**  
Review all parts of hydraulics and help prepare for the HYDRAULICS SPECIALIST certification test. Prerequisites: Enrolled in Fluid Power or a past graduate of Fluid Power or working in the field of Fluid Power.

**GEOG 1100**  
**Introduction to Geography**  
Introduction to Geography introduces various aspects of Geography. Emphasis will be given to cartography, meteorology, climatic elements, political, and population geography. Place-location is also covered. Prerequisite: STSK 0000 or evidence of college level reading ability through assessment test or prior college coursework.
GEOG 1101  
Introduction to Physical Geography
Introduction to Physical Geography studies the physical elements of the environment, emphasizing earth-time relationships and their relationship to people, measurement of time and distance, elements of weather, climate and landform development. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

GEOG 2140  
Introduction to Meteorology
Develops a basic understanding of atmospheric processes, weather systems, weather maps and forecasting. GEOG 1101 recommended. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

GEOG 2250  
Minnesota Geography
Studies Minnesota's geology, landforms, climate, mineral and rock resources, agriculture, industry and people. Special emphasis will be given to landscape development. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

GENERAL STUDIES (GSCL, GSCM, GSSS)

GSCL 1105  
Job Seeking Skills
Create a personal inventory and a resume, write job application letters, complete a job application form, and prepare for employment interviews. A highly individualized approach to developing the critical actions and attitudes involved in job seeking and keeping.

GSCM 1120  
Technical Writing
Covers both internal and external reports used in business and industry such as proposals, abstracts, interoffice communications, and technical reports. Students are exposed to formats, visuals, and documentation methods used in technical report writing. Students study writing as a process while researching and writing technical reports.

GSSS 1100  
Human Relations
Designed to assist students in developing and maintaining healthy relationships within the family, social, and work structures. Self-esteem, assertive behavior, and stress management will be covered.

HEALTH CORE (HC)

HC 1100  
Nutrition
Basic concepts of normal nutrition are presented. These concepts are applied to human needs throughout the lifespan cycle. The emphasis is on the application of these concepts in practical nursing.

HC 1115  
Medical Terminology
Teaches students to recognize and build medical terms after learning the meaning of word parts. The student will also learn to pronounce word parts, enabling them to pronounce medical terms.

HC 1120  
Introduction to Healthcare Careers
Provide students the opportunity to explore a wide variety of career options, provide basic knowledge and skills, and develop an awareness of workplace expectations. Students will participate in in-depth study and exposure to medical/health science careers, career planning, employability skills, basic terminology, ethics, wellness, disease and safety.

HC 1151  
Body Structure & Function
Introduces the study of human anatomy and physiology. A study of body organization, chemistry, cells and tissues leads into exploring the normal structure and function of each body system. Emphasis is also placed on terminology and abbreviations.

HC 1160  
Fundamentals of Nursing I
Introduces concepts of basic human needs, health/illness and basic nursing skills in caring for the elderly client. Skills are demonstrated in a supervised laboratory and clinical environment.

HC 1165  
Medical Terminology
Teaches the student to recognize and build medical terms after learning the meaning of word parts. The student will also learn to pronounce word parts, enabling them to pronounce medical terms.

HC 1175  
Nursing Assistant
Introduces concepts of basic human needs, health/illness and basic nursing skills. Skills are demonstrated in a supervised laboratory setting and in a clinical environment. This course also covers introduction to home care. Topics include care of the child, reporting procedures, caring for special populations, homemaking skills, and hospice care.

HC 1180  
Medical Terminology in Healthcare
Provides students working knowledge of medical terminology and application of the terminology within the health professions.

HC 1200  
HealthCore Curriculum
Designed to prepare students and incumbent workers to the ever changing healthcare workplace with an emphasis on patient and direct care. These topics are included: legal and ethical issues, communication, self awareness, safety and standard precautions, successful behaviors in the workplace.

HC 1290  
Health Care & Society
Provides a basis for intellectual, practical and ethical decision making. The fundamentals of bioethics, ethical codes and legislation affecting a health professional practice, patient protection issues, professional boundaries, and legal basics are explored. Cultural and spiritual perspectives are discussed.

HC 2120  
Disease Conditions
Introduces basic principles of disease and includes the study of disease by body system. The signs and symptoms, etiology, diagnosis, and treatment of each disease is explored; and prevention of disease is emphasized. Medical terminology and anatomy/physiology knowledge acquired in previous courses is applied. Prerequisite: HC 1151 or consent of instructor.

HEALTH INFORMATION TECHNOLOGY (HIMC)

HIMC 1100  
CPT-4
Understand Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) with emphasis on correctly assigning procedure and evaluation management (E/M) codes according to current guidelines. Interpret clinical information maintained in the health record to assign codes. Understand and apply ethical coding principles in applying codes. Prerequisite(s): HC 1151, HC 1180, and HIMC 1160

HIMC 1110  
ICD-10-CM
Understand International Classification of Disease-Clinical Modification (ICD-CM) system with an emphasis on the correct process of utilizing rules, conventions, instructions of ICD-10-CM as well as the chapter specific coding guidelines. Interpret clinical information maintained in the health record to assign diagnosis codes. Understand and apply ethical coding principles in applying diagnosis codes. Prerequisite(s): HC 1151, HC 1180, and HIMC 1160
HIMC 1120 2
ICD-10-PCS
Compares and contrasts the ICD-9: Volume 3 and ICD-10 coding systems with the latest updates of ICD-10-PCS application. This course will expose students to the ICD-10-PCS classifications, with an emphasis on the correct process for determining the correct procedural coding classification areas. Students will understand classifications, taxonomies, nomenclature, terminologies and clinical vocabularies. Students will be introduced to the EMR² Electronic Medical Record software in order to complete assignments with the proper procedural codes. This course will focus on rules and conventions as well as chapter specific guidelines utilizing assignments with additional diagnoses in all applicable patient settings. Prerequisite(s): HC 1151, HC 1180, and HIMC 1160.

HIMC 1130 3
Advanced Coding
Uses ICD-10-CM, ICD-10-PCS and CPT-4 coding skills while learning to correctly code diagnoses and procedures from a multitude of source documents which include; Inpatient Records, Ambulatory Surgery Records, Emergency Room Reports, Physician Office Cases and Ancillary Service Reports. Students will also become familiar with Diagnosis Related Groups and Ambulatory Payment Classifications. Students will continue to use the EMR² Electronic Medical Record software in order to evaluate records and assign proper codes. Prerequisite(s): HIMC 1100, HIMC 1110, HIMC 1120.

HIMC 1140 3
Introduction to Health Information and Delivery Systems
Introduces the vital role of information processing in different health care organizations. Covers the basic concepts of health information systems and applies these concepts to electronic data collection, storage, retrieval, and other applications. Current medical record software will be utilized.

HIMC 1150 2
Reimbursement & Insurance in Healthcare
Explore health insurance plans, reimbursement methodologies, and compliance approaches. Complete CMS-1500 and UB-04 numerous insurance plans.

HIMC 1160 2
Intro to Medical Billing and Coding
Introduces students to the basic concepts of medical coding. Topics to be covered include ICD-10-CM, ICD-10-PCS, CPT, HCPCS and the basics of medical billing.

HIMC 2100 3
Computer Health Information
Introduces students to the basic concepts of health information delivery. Topics to be covered include but are not limited to electronic data collection, data storage and retrieval and other applications of various health information systems. Students will understand the role that the processing of information plays in the delivery of health care. Prerequisite: ADSM 1141.

HIMC 2110 3
Management and Supervision of Health Information
Introduces students to the basic principles of management, communication and relationships that are crucial to creating a positive and respectful work environment with an emphasis in healthcare facilities. Students will learn to manage and deal with coworkers, patients and health care facility personnel. Prerequisite: ADSM 1141.

HIMC 2120 2
Quality and Performance Improvement in Healthcare
Teaches students how to use practical tools to problem solve, make decisions, find creative solutions, manage time and ensure quality concepts. Students will also study ways of collecting, analyzing, interpreting numerical data and presenting this data to personnel in health care services and facilities. Prerequisite: MATH 1105.

HIMC 2125 1
Medical Coding Board Review
Offers a review of all major examination topics for the certified coding associate and certified processional coder national examinations by AHIMA and AAPC. This course offers a study plan, review of all major examination topics, mock pretest and post-test, guidance to good computer test-taking skills, and a discussion board for question and answers sessions. Prerequisite: Instructor permission required.

HIMC 2130 2
HIT Capstone
Provides students with practical real-life applications of theories learned in their health information technology courses. Students will work under the supervision of a certified health information technician professional to gain professional practices experiences. Students will be required to undergo evaluations and meet the goals and objectives of the course. Prerequisites: HIMC 2100 & HIMC 2110.

HIMC 2135 1
HIT Seminar
Prepare students on how to study for the RHIT examination; review content material for AHIMA RHIT examination; and complete an RHIT mock examination.

HIMC 2140 2
Calculating and Reporting Statistics in Healthcare
Evaluate and manage medical data for statistical purposes including collecting, analyzing, interpreting numerical data and presenting data to personnel in healthcare services and facilities.

HISTORY (HIST) 4

HIST 1101 4
American History I
Presents a survey of United States history from about 1500 to 1865 and encompasses political, economic, social, intellectual and cultural developments. Human diversity in the historical and cultural context of American history is also addressed. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1102 4
American History II
Presents a survey of United States history from about 1865 to the present and encompasses political, economic, social, intellectual and cultural developments. Human diversity in the historical and cultural context of American history is also addressed. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1105 3
Minnesota History
Presents a historical survey of Minnesota beginning with a consideration of the significance of glaciers and geography and then studying the various people who chose Minnesota starting with the Ojibway and Dakota. Major emphasis is on the nineteenth and twentieth centuries. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1111 3
Western Civilization I
History 1111 surveys European history from ancient times to the 1500s and encompasses political, economic, social, intellectual and cultural developments. Examines the history of ancient peoples, the history of the Greeks and Romans, the history of the Renaissance, and the history of the voyage of Columbus. This history course may be taken for either Global Perspective or Humanities credit. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1112 3
Western Civilization II
History 1112 surveys European history from the 1500s to the present and encompasses political, economic, social, intellectual and cultural developments. Examines the history of the French Revolution, history of the British Empire, history of the World Wars, and the history of the Cold War. The course may be taken for either Global Perspective or Humanities credit. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.
HIST 1121 3
World History I
Includes a global and cross-cultural study of the early period of world history, including ancient civilizations. Empires and regions examined include ancient India, China, Greece, Egypt, Rome, the Americas, Africa, Southeast Asia, Japan, Medieval Europe and include the interactions of these civilizations. The study will include the emergence of the major world religions and their influence in the world cultures and civilizations. (Buddhism, Christianity, Judaism, Islam, and Hinduism). Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 1122 3
World History II
Includes a global and cross-cultural study of the modern period of world history from 1500 to the present. Topics include the influence of European expansionism and colonialism, interaction of nations and peoples, reform and change in religious pattern, and the development and spread of the Industrial revolution, Marxism, Communism, Constitutional monarchies, Representative democracies, global rearrangements or the twentieth century, decline of European colonialism, and contemporary conditions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 2202 3
Modern American Wars
History 2202 begins with the history and ethics of the Spanish American War, when the United States turned away from isolationism and toward global interaction. The course then examines the history and ethics of World Wars I and II, the history, causes and peace settlements of each, and the significance of each conflict. The course moves on to the history and ethics of the Cold War era and its associated conflicts, and concludes with an analysis of the history and ethics of American involvement in the Middle East and the War on Terror. Additionally, the course addresses certain social, political, economic, and intellectual questions from an ethics perspective, including genocide and disease. Emphasis is placed on the viewpoints of each nation involved in conflict and why it chose war instead of peace. This history course may be taken for either Global Perspective or Ethics credit. Prerequisite: STSK 0095 or evidence of college level reading ability. Students may repeat the course for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 2235 1-3
Special Topics
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be repeated for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HIST 2235 1-3
Special Topics
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be repeated for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

Health (HLTH)

HLTH 1101 3
Personal Wellness
Focuses on individual wellness from a holistic perspective. Surveys personal health concerns within each of the five human health dimensions - physical, social, intellectual, emotional, and spiritual. Emphasizes the knowledge, attitudes, and behaviors of a positive lifestyle. Designed for anyone interested in enhancing their well-being. Often a required component of programs in health, human service, and education careers. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

HLTH 1110 3
Dimensions of Community/Public Health
Introduces the field of community/public health. Acquaints students with the variety of health agencies in the public and private sectors and surveys current social health issues. Examines public health policy, health care systems in the US and abroad, epidemiology and disease prevention in communities, and health promotion in various settings/populations. A foundation course for careers in allied health, community health, and other service professions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

Human Services (HSER)

HSER 1101 2
Introduction to Human Services
Introduces students to the field of human services, from its historical background to current trends and issues. Emphasis is given to various models of helping, the roles and career options of human services workers, familiarization with local human service agencies, and professional ethics and responsibilities. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1121 3
American Sign Language I
Teaches basic ASL communication strategies used by the Deaf. Course includes: expressive and receptive sign activities, sign vocabulary, fingerspelling and numbers, and aspects of Deaf culture. ASL Levels One - Four are designed for students interested in becoming certified Sign Language interpreters. This course is offered online only.
HSER 1122  
American Sign Language II  
Continues to teach basic ASL, grammatical structure, fingerspelling and numbers, conversational strategies, and Deaf history and culture. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered online only.

HSER 1131  
Autism Spectrum Disorders  
Focuses on an introduction to Autism Spectrum Disorders (ASD). Students will be given a history of ASD; an overview of the disorder as it is recognized today; diagnostic criteria for and behavioral characteristics of the specified disorders on the spectrum of autism including: Rett's Disorder, Childhood Disintegrative Disorder, Classic and High Functioning Autism, and Asperger's Syndrome. Current research, current trends in treatment, instructional strategies, current State and Federal mandates, parent support and cultural variables will also be presented.

HSER 1132  
Behavior Management  
Introduces basic principles of behavior management as it relates to the school setting. Behavioral excesses and deficits, and maladaptive and aggressive behavior will be the primary focus. Topics include the characteristics of behavior management; proactive intervention procedures; shaping; prompting; and fading; reinforcement procedures and schedules of reinforcement will also be presented. Functional Behavioral Assessment (FBA) will be a primary focus throughout the course. In addition, current State and Federal mandates will be addressed. Students who have taken PSYC 2230 - Behavior Modification should not take this course. This course cannot be substituted for PSYC 2230 - Behavior Modification.

HSER 1262  
Creative Activities for Young Children  
Explores means of developing children's creativity in art, music, drama. Students learn to design age-appropriate activities with paints, chalk, paper, dough, song, dance, instrument, puppets and related material. Required course for Human Services - Child Development Track majors. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1266  
Foundations of Child Development  
Teaches child growth and development from conception through late adulthood. Areas include physical and cognitive growth and development and socioemotional growth and development. Emphasis is placed on periods of development, psychoanalytic, cognitive, behavioral, social, ethological, and ecological theories of development. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1267  
Special Needs in Children  
Introduces the various diagnostic categories as used within the school system. Diagnostic categories include: Autism Spectrum Disorders; Developmental Cognitive Disability; Early Childhood Special Education; Emotional/Behavioral Disorders; Physical and Other Health Disabilities; Sensory Disorders (Hearing/Vision); Specific Learning Disability; Speech/Language Disorders; and Traumatic Brain Injury. Support services including occupational therapy, physical therapy, counseling, and behavioral treatment will also be discussed. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1268  
Children's Health, Nutrition, and Safety  
Teaches how to promote good health, physical fitness and nutrition and to provide a safe environment for children. Topics include motor development, methods of teaching health and safety to children, recognizing symptoms of abuse, neglect, and common children's illnesses. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 1269  
Guidance: Managing the Physical and Social Environments  
Teaches how to provide a secure, supportive environment for communicating both thoughts and feelings, and for fostering developmentally appropriate behavior. Emphasis is given to providing nurture, developing realistic expectations for children's behavior, setting limits and developing self-control. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 2221  
American Sign Language III  
Teaches to communicate abstract concepts related to ASL. Emphasis in this course is placed on grammatical structure, sign selection and vocabulary, use of fingerspelling in conversation, and Deaf culture. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered online only.

HSER 2222  
American Sign Language IV  
Continues to develop skills and strategies necessary for communicating ASL concepts. The course will focus on building students' sign vocabulary, sign fluency and receptive skills. ASL Levels One - Four are designed for students interested in becoming certified sign language interpreters. This course is offered online only.

HSER 2235  
Special Topics  
Covers a wide range of issues and skill development. Topics will be chosen to meet the needs of Human Services students. The class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

HSER 2297  
Human Services Generalist Internship  
Provides supervised work experience for students in the generalist track in one or more human services agencies. Students and supervisors design the experiences to meet students' educational and career goals. Prerequisites: Internships are available only to students who have an overall GPA of 2.00 ("C"), a 2.50 in career courses, have completed the outlined courses in their first three terms, have completed a four-hour seminar in the fall semester of the second year; have completed a formal application process and have been approved following an interview with the Human Services Coordinator.

HSER 2298  
Human Services Child Development Internship  
Provides supervised work experience with children in settings such as day care, preschool, and elementary schools. Students and supervisors design the experiences to meet students' educational and career goals. Prerequisites: Internships are available only to students who have an overall GPA of 2.00 ("C"), a 2.50 in career courses, have completed the outlined courses in their first three terms, have completed a four-hour seminar in the fall semester of the second year; have completed a formal application process and have been approved following an interview with the Human Services Coordinator.

HUMANITIES (HUM)

HUM 2121  
The Turbulent Sixties  
Presents an interdisciplinary (history, literature, film) and topical survey of the 1960's. Topics will include the civil rights movement, war on poverty, Vietnam, feminism, the environmental movement and the counterculture. The course also counts as a Human Diversity course. Prerequisite: ENGL 1101.

HUM 2201  
The Many Faces of Mexico  
Explores the cultural, historical and social realities which together form contemporary Mexico. By studying about the economic and political situation, one can understand why many Mexicans are seeking work and moving their families north. Special attention is given to the impact
on Minnesota communities and the challenge to welcome and to meet the needs of the growing Latino population.

**HUM 2235**  
**Special Topics in Humanities**  
Covers a wide range of humanities topics. Topics will be chosen to meet the needs of students. The class may be retaken on demand for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

### INDUSTRIAL - MECHATRONICS (INDT)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDT 1100</td>
<td>Welding Fundamentals</td>
<td>1-3</td>
</tr>
<tr>
<td>INDT 1102</td>
<td>Mechanical Power Transmission</td>
<td>2</td>
</tr>
<tr>
<td>INDT 1105</td>
<td>Industrial Drafting &amp; Design</td>
<td>3</td>
</tr>
<tr>
<td>INDT 1115</td>
<td>Machining Fundamentals</td>
<td>1-3</td>
</tr>
<tr>
<td>INDT 1125</td>
<td>Electrical Controls</td>
<td>5</td>
</tr>
<tr>
<td>INDT 1131</td>
<td>Hydraulic-Pneumatic Lab</td>
<td>3</td>
</tr>
<tr>
<td>INDT 2110</td>
<td>30 Hour OSHA</td>
<td>2</td>
</tr>
<tr>
<td>INDT 2115</td>
<td>Organizational Effectiveness</td>
<td>2</td>
</tr>
<tr>
<td>INDT 2120</td>
<td>Automated Systems</td>
<td>5</td>
</tr>
<tr>
<td>INDT 2125</td>
<td>Motion Control</td>
<td>3</td>
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</tbody>
</table>

Generates learning and skills that introduce participants to the principles of Organizational Effectiveness as well as results-oriented practical skills that will enhance their individual and collective efforts in their present and future workplace roles.

Students have an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits.

Acquire the knowledge and skills to be able to participate in Lean Manufacturing implementations and also problem solving using the Six Sigma DMAIC methodology.

**Law Enforcement (LAWE)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>LAWE 1100</td>
<td>Law Enforcement Practicum</td>
<td>1-3</td>
</tr>
<tr>
<td>LAWE 1110</td>
<td>Physical Fitness for Law Enforcement I</td>
<td>2</td>
</tr>
<tr>
<td>LAWE 1125</td>
<td>Physical Fitness for Law Enforcement II</td>
<td>1</td>
</tr>
<tr>
<td>LAWE 1140</td>
<td>Cyber Crimes</td>
<td>2</td>
</tr>
<tr>
<td>LAWE 1150</td>
<td>Homeland Security and Terrorism</td>
<td>2</td>
</tr>
<tr>
<td>LAWE 1170</td>
<td>Minnesota Traffic Code</td>
<td>2</td>
</tr>
</tbody>
</table>

Covers a wide range of humanities topics. Topics will be chosen to meet the needs of students. The class may be retaken on demand for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

Covers the use of drawings, hand tools, precision measuring tools, drilling machines, grinders, lathes, milling machines, and other machine tools to shape and finish metal and nonmetal parts.

Provides the student with an understanding of the welding and cutting processes used in production and repair. The course covers welding shop safety, theory, fundamentals of operation, equipment used, and techniques recommended for welding and cutting processes.

Introduces fundamental industrial mechanical concepts, principles, and equipment.

Demonstrate the ability to edit and design mechanical, electrical, and structural schematics using AutoCAD. Course time will include instruction on drawing setup and commands along with hands-on lab time working with and creating drawings.

Covers the use of drawings, hand tools, precision measuring tools, drilling machines, grinders, lathes, milling machines, and other machine tools to shape and finish metal and nonmetal parts.

Introduces basic electrical theory, relay control circuits, control devices, and electrical motor circuits for controlling industrial systems. Students have an opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits.

Develops skills in plumbing, troubleshooting, and operation of basic pneumatic and hydraulic circuits, as well as basic fluid power fabrication. Concurrent enrollment with FLPW 1120 and FLPW 1103.

Provides instruction on a variety of general industry safety and health standards. The course includes an introduction to OSHAs general industry standards and an overview of the requirements of the more frequently referenced standards.

Introduces students to strategies for physical conditioning, good nutrition and healthy eating habits for peace officers. Students will be required to perform stretching, aerobics and conditioning exercises at the direction of an instructor as part of an overall fitness program to enhance strength, agility, flexibility, speed, and cardiovascular endurance. Students will be introduced to and evaluated on their ability to meet the Minnesota Peace Officer Standards and Training Board approved law enforcement-related physical fitness test.

Introduces students' development in performing stretching, aerobics and conditioning exercises at the end of the course.

Introduces the field of cyber crimes. Students will learn what different types of cyber crimes are committed including but not limited to identity theft, financial fraud, and the exploitation of children. The students will learn how to go about taking computers as evidence, how to utilize search warrants to aid in an investigation, and what is needed to bring a cyber crime through the criminal justice system.

Studies terrorism, counterterrorism, terrorist personalities, and terrorist groups, including types, tactics, and trends on a worldwide scale as well as domestically. This course also examines the issues of prevention, civil liberties and the role and responsibilities of entry level police officers.

Covers all of the 169 Minnesota Traffic Statutes. The class includes the application, interpretation, and enforcement of motor vehicle operation, registration, insurance and safety responsibility acts, driver's license laws, rules and regulations.
**LAWE 1200 Juvenile Justice**
Examines the history of the juvenile justice system in the United States and Minnesota. Students will be able to distinguish the major differences between the adult and the juvenile justice system in the United States and Minnesota by examining Supreme Court rulings, laws and Minnesota statutes regarding juveniles. Additionally, students will develop an understanding of the responsibilities of federal, state and local law enforcement agencies in dealing with juveniles.

**LAWE 1210 Communication Relations**
Synthesizes the concepts of interpersonal communications to allow students to better understand human behavior and verbal communications. The students will develop an understanding of barriers that can occur to effective communication due to the types of situations law enforcement officers work in. Students will examine and relate ways to effectively interpret, comprehend, and deliver verbal communication in order to effectively carry out law enforcement duties.

**LAWE 1220 Law Enforcement and Community**
Provides the student with contemporary concepts related to law enforcement interactions with the community including models of community policing, problem-oriented policing, crime prevention and developing community relations. Instruction in professional police conduct related to officer ethics, leadership and interpersonal communication in interactions with culturally diverse populations will be examined. Students will also be introduced to privacy data practices and the expectations during internal affairs investigations.

**LAWE 1230 Law Enforcement and Human Behaviors**
Provides the student with contemporary concepts of impact of human behavior on the interactions between law enforcement and individuals and how that interaction affects these relationships. Students will be introduced to techniques for dealing with individuals in crisis and victimization of individuals including: domestic abuse, sexual assault, individuals with disabilities, and crimes motivated by bias or hatred. Concepts of addressing issues of gangs, drugs, terrorism and homeland security will also be discussed.

**LAWE 1240 Police Leadership-Ethics**
Develops the principles of leadership, consensus building, showing respect for the opinions of others, and encourage cooperation, adaptability, and conflict resolution as it relates to carrying out law enforcement duties. Students will examine the day to day ethical choices officers have to make and the consequences of making poor decisions both morally and legally. The students will demonstrate these leadership and ethical qualities by working with area criminal justice agencies on projects to address current issues in the community and working on solutions to these issues.

**LAWE 2224 Police Report Writing**
Develops the students understanding of legal, procedural, and need for factual reports in the criminal justice process. Students will be exposed to a variety of reports and forms used in law enforcement as well as a variety of report writing mediums including computer applications. Students will practice writing police reports in a detailed chronological order using proper formatting. Emphasis will be placed on proper spelling, grammar, punctuation, and the ability to create a clear and concise meaning throughout the report. Prerequisites: Formally accepted into Law Enforcement Program.

**LAWE 2233 Firearms-Tactical Management**
Examines the physiological, psychological and emotional effects of stress on law enforcement officers in their careers and during critical incidents to allow students to recognize these effects and develop skills to deal with stress. This course will focus on familiarizing students with the safe handling, nomenclature, and proper shooting of handgun’s, shotgun and patrol rifles requiring students to demonstrate proficiency after receiving instruction in the handling and use of handguns, shotgun, and patrol rifles. Students will then examine and complete exercises in critical incident management and different tactical responses to situations which may occur in the course of their duties.

Prerequisite: Must be formally accepted into the Law Enforcement Program.

**LAWE 2235 Special Topics**
Covers a wide range of issues and topics in law enforcement. The classes may be retaken for credit if the topic varies.

**LAWE 2250 Accident Investigation-Radar-Radio-DUI Enforcement**
Explains and develops students understanding of how to investigate motor vehicle crashes and driving while impaired offenses. Through instruction students will establish how to fully investigate and document both motor vehicle crashes and driving while impaired offences and will demonstrate through reality based training exercises how to properly complete these investigations including the use of State computer applications. This course will train students how to operate both RADAR/LIDAR units and will require the students to complete the State ARMER radio course. Prerequisites: Must be formally accepted into the Law Enforcement Program.

**LAWE 2295 POST Seminar**
Provides a program overview, with opportunities to discuss changes in the field and POST requirements.

**LAWE 2297 Law Enforcement Internship**
Allows students in the law enforcement program to be involved in the day-to-day operations of a law enforcement or other criminal justice agency. Expose the students to the work that is required to be performed in that agency. These internship/field experiences will provide the students an opportunity for practical application of learned academic content in real world settings to help develop long-term academic and career plans.

**LAWE 2300 Patrol Operations**
Introduces students to the basic principles of patrol operations. Students will develop an understanding of patrol work including responding to calls, investigations, and enforcement of various laws and the functions needed to carry out these duties by applying knowledge learned in other law enforcement courses. Students will be required to practically apply the knowledge and skills learned throughout the law enforcement program by successfully completing reality based training exercises in a patrol setting. Prerequisites: Must be formally accepted into the Law Enforcement Program.

**LAWE 2310 Use of Force**
Identifies and examines current Supreme court cases, case law, and Minnesota State law on the application of force by peace officers while providing a variety of situations where force may or may not be authorized by providing an understanding of the concepts of reasonable use of force and report documentation. This course will focus on familiarizing students through hands on instruction with a variety of verbal commands, escorting principles, pain compliance, countermeasures, restraint, ground fighting, and baton techniques. Specific instruction on electronic control weapon (ECW) and chemical agents will be given during the course. Students will be required to demonstrate proficiency after receiving instruction in these techniques through a variety of static and dynamic testing, including reality based training exercises.

**LAWE 2350 Skills Certificate**
Provides students that have completed POST Boards approved Professional Peace Officers Education (PPOE) Academic Program with the skills requirements of the Professional Peace Officers Education Category Three: Performance of Peace Officer Duties and Tasks and Category Four: Tools, Techniques and Tactics for licensing as a police officer. This course meets the transfer pathways requirements.

**LAWE 2400 Minnesota Statutes**
Introduces students to Minnesota Traffic Statutes, Criminal Statutes, and Selected Statutes. Students will receive instruction on the interpretation of the State statutes by identifying and analyzing the
elements of each statute. Hypothetical situations will be presented to assist students with the understanding and application of State statutes. This course is part of the Minnesota State transfer pathways.

**LAW 2410**
**Criminal Investigations**
Develops the basic procedural aspects of the criminal investigative process. Through instruction, evaluation of key elements of crimes, and case evaluations students will identify the process of completing a criminal investigation from first arrival on the scene of a crime through the court process. Specific areas that will be identified during the course will be legal and procedural aspects, responsibilities, interviewing and interrogating, document preparation, and court testimony.

**LAW 2420**
**Criminal Procedures**
Provides the learner with the history of the United States Constitution and Bill of Rights and the constitutional limitations on government authority over private citizens. Key concepts will be analyzed and discussed as interpreted by Federal and State Supreme Court decisions to allow students to become familiar with the procedural handling of individuals in criminal cases, rules of evidence, forfeitures, criminal defense, and civil liability.

**LAW 2500**
**Traffic Stops**
Introduces the student to basic patrol vehicle operation and examines approaches to conducting low, medium, and high risk vehicle stops. Through instruction and coaching students will develop an understanding of the different vehicle dynamics used during vehicle stops and how to properly write and issue traffic citations. Students will be required to demonstrate proper vehicle stops through reality based training exercises.

**LAW 2510**
**Crime Scene Processing**
Develops the fundamentals of crime scene investigations. Through instruction and coaching students will develop an understanding of the different phases of crime scene examination, documentation, and evidence identification and collection. Students will be required to demonstrate proper investigation and processing skills through reality based training exercises.

**FOR ADDITIONAL COURSE DESCRIPTIONS ON LAMB MANAGEMENT COURSES (LWMP) GO TO: HTTP://WWW.MNWEST.EDU/PROGRAMS/LIST/LAMB-AND-WOOL-MANAGEMENT-DIPLOMA**

**LWMP 1001**
**Introduction To Sheep Management**
Introduces basic sheep management principles. Students will study the year around management and production cycle for a sheep enterprise and understand how each production stage influences enterprise profitability. This course also studies the philosophy of sheep management and its relationship to business goals.

**LWMP 1202**
**Equipment and Facilities**
This course will cover planning for sheep facilities; barn design; lot layout and sheep feeding equipment. Students will become aware of housing and feeding requirements and how to effectively plan for them.

**LWMP 1300**
**Introduction to Sheep Health**
Familiarizes students with management practices beneficial to healthy animal production. Sheep health is fundamental to a successful sheep enterprise. Sheep health will be studied in the following categories - Animal Behavior, Handling, Housing and Nutrition; Quality Assurance and Bio-Security; Young Lamb Health Concerns; Metabolic Disorders; Abortion Management; Lameness Issues; Fertility Concerns in Rams; Sheep Eye Health Concerns; and Other General Health Issues.

**LWMP 1502**
**Ewe Ration Formulation**
Provides awareness of the methods used to balance rations to meet the sheep nutrient needs for each specific stage of production. The course will also cover least cost ration balancing.

**LWMP 1701**
**Wool Characteristics and Properties**
This course will provide an in-depth look at the biological development of wool fiber and the properties that make it a unique clothing fiber. In addition this course will study the factors that determine the value of wool, how these can be improved and methods to measure these qualities.

**PRECISION MACHINING (MACH)**

**MACH 1400**
**Metal Composition & Classification**
Introduces students to metallurgy and material classification as it relates to machining. Students will learn the differences in metals, stainless steel and aluminums. They will also learn the effects of work hardening while machining and how to overcome this issue. We will also discuss what makes a material able to be hardened and the correct steps involved in heat treating.

**MACH 1410**
**Print Reading & Precision Measurement I**
Establishes the use and reading of precision measuring devices including micrometers, calipers, depth micrometers, and dial indicators. The math portion of the class is designed to provide the basic math principles as it relates to machine tool. Topics will include arithmetic, geometry, and trigonometry. The introductory level print reading topics include: interpret title block information, understand basic dimensioning symbols, learn the standard views, learn different line types, and interpret basic GD&T’s which they will apply in the shop.

**MACH 1420**
**CNC Milling Machine Programming & Operation I**
Introduces basic CNC programming and operation of CNC milling machines. Students will be writing G code and conversational programming for CNC milling machines. The students will also setup and operate CNC milling machines.

**MACH 1425**
**CNC Milling Machine Programming & Operation II**
Performs more advanced CNC programming and operation of CNC milling machines. Write G-code and conversational programs as well as conduct complex set ups and hold tighter tolerances on parts.

**MACH 1430**
**CNC Lathe Programming & Operation I**
Provides students an opportunity to further develop their skills with more advanced theory and hands on training in the safe use of vertical milling machines.

**MACH 1435**
**CNC Lathe Programming & Operation II**
Performs more advanced CNC programming and operation of CNC lathes. Write G-code programming and conduct complex set ups as well as hold tighter tolerances on parts.

**MACH 1440**
**Vertical Milling I**
Provides theory and hands on training in the safe use of vertical milling machines to produce an end product to an exact tolerance.

**MACH 1445**
**Vertical Milling II**
Provides theory and hands on training in the safe use of manual lathes to produce an end product to an exact tolerance.
MATH 1455 2
Lathe Turning II
Provides students the opportunity to further develop their skills with more advanced theory and hands on training in the safe use of manual lathes.

MATH 1460 2
Print Reading & Precision Measurement II
Advanced training in the use of precision measuring devices including micrometers, calipers, depth micrometers, and dial indicators. The introductory level print reading topics include: interpret title block information, understand basic dimensioning symbols, learn the standard views, learn different line types, and interpret basic GD&T’s which they will apply in the shop. The student will become proficient in the reading and interpretation of blueprints and GD&T as they relate to machining. Prerequisite: MATH 1410.

MATH 1465 2
Swiss CNC Programming & Operation
Provides students an introduction to CAM software for programming both CNC mills and CNC lathes. Use geometry to draw, calculate feeds and speeds, create tool paths, simulate tool paths, and generate G-code program for the correct CNC machine.

MACH 1470 2
Surface Grinding I
Examine and conduct proper use and set up of pedestal and surface grinders.

MACH 1480 3
Internship
Complete work at a sponsoring machining company where the student will apply theory along with hands on skills gained from the precision machining program. The internship will be 135 hours spread over the semester.

MATH (MATH)

MATH 0092 2
Essentials of Mathematics-Pre Algebra
Assists students in developing a thorough understanding of basic mathematics. Intuition and sound mathematical techniques are used to analyze and solve problems in fractions, decimals, ratios, proportions, percentages, introductory statistics and basic metric geometry. Some introductory Algebra may also be included. This course is not considered a transfer course. Prerequisite: STSK 0092 or placement by exam.

MATH 0098 2
Higher Algebra I - Beginning Algebra
Teaches basic algebraic concepts and skills including real number properties, algebraic expressions, solving equations and inequalities, graphs of linear equations, exponents and scientific notation. This course is not considered a transfer course. Prerequisite: MATH 0092 or placement by exam.

MATH 0099 2
Higher Algebra II
Teaches polynomials, operations with polynomials, factoring polynomials, polynomials with several variables, rational expressions, graphs, functions and their applications. This course is not considered a transfer course. Prerequisite: High school algebra (one year), MATH 0098, or placement by exam.

MATH 0100 2
Higher Algebra III
Teaches systems of equations in two and three variables, compound inequalities, absolute value equations and inequalities, radical expressions and equations, quadratic equations, exponential and logarithmic functions.

MATH 1100 3
Integrated Math
Focuses on using math concepts to solve applied problems in technology. These concepts include topics in algebra, geometry, and trigonometry. Prerequisite: MATH 0092 or at least an 80% score on the Arithmetic Accuplacer test.

MATH 1105 4
Introduction to Probability and Statistics
Math 1105 introduces the math concepts of measures of central tendency, measures of dispersion, frequency distributions, probability, sampling distributions and the central limit theorem, testing of hypotheses, analysis of variance, linear regression and correlation analysis. Prerequisite: Two years of high school algebra, MATH 0098, or placement by exam.

MATH 1107 3
Concepts in Math
Covers topics from various areas of mathematics showing the scope and power of mathematics and emphasizing the mathematical method. This course is for students who are not mathematics majors and who wish to acquire a basic understanding of mathematics and apply it to a specific area of study. Prerequisite: Two years of high school algebra, MATH 0098, or placement by exam.

MATH 1111 3
College Algebra
Math 1111 reviews the fundamentals of math such as: operations of higher algebra integrated with a functions approach. Studies polynomial, exponential, and logarithmic functions, graphs and transformations, systems of equalities and inequalities, matrices and determinants, problem solving math applications and data modeling techniques. Prerequisite: Two years of high school algebra, MATH 0099, or placement by exam.

MATH 1113 4
Pre-Calculus
Math 1113 reviews the math concepts functions of college algebra and then extends those ideas to the math of trigonometry and analytic geometry. Exponential, logarithmic, and polynomial functions are emphasized in the review. The course explores the math of rectangular coordinates and angles, solutions of right triangles, unit circles, radian measure, trigonometric functions and their inverse, trigonometric graphs, trigonometric equations and identities, complex numbers, conic sections, and other analytic geometry topics such as polar coordinates, parametric equations, sums and geometric series, and vectors. Prerequisite: MATH 1111 or placement by exam.

MATH 1118 4
Applied Calculus
Provides a tour of differential and integral calculus in one variable. Emphasizes formulas and their interpretation and use in applications. Students in programs that call for short calculus, brief calculus or applied calculus should take this course. Engineering students should take the Calculus sequence: MATH 1121-1122. Students concerned about which courses to take should contact the instructor. Prerequisite: MATH 1113 or MATH 1111 or equivalent placement.

MATH 1121 4
Calculus I
Math 1121 introduces the basic ideas of differential and integral calculus. Math topics include: limits and continuity, differentiation of functions, applications of derivatives, definite and indefinite integrals, the fundamental theorems of integral calculus, numerical integration, and applications of definite integrals. Prerequisite: Four years of high school math, MATH 1113, or placement by exam.

MATH 1122 4
Calculus II
Continues Calculus I. Begins with further applications of the definite integral. Other topics include the calculus of transcendental functions, techniques of integration, infinite series, plane curves, polar coordinates, parametric equations, and a few topics of analytic geometry of Euclidean 3-space. Prerequisite: MATH 1121.

MATH 2201 4
Calculus III
Continues Calculus II. Topics include vectors, vector-valued functions with applications, functions of two or more variables, partial derivatives, multiple integrals, and vector analysis topics including line and surface integrals, Green’s Theorem, and Stokes’ Theorem. Prerequisite: MATH 1122.
MATH 2206
Ordinary Differential Equations
4
Presents the theory, computations and applications of first and second order ordinary differential equations and two-dimensional systems. Prerequisite: MATH 1122.

MATH 2235
Special Topics Mathematics
1-4
Explores specific areas of mathematics to meet specialized student needs or interests. The class may be retaken if the topic varies.

**MEDICAL LABORATORY TECHNICIAN (MDLT)**

MDLT 1100
Introduction to Laboratory Science
3
Designed to familiarize the student with a career in the medical laboratory field, MLT education programs, medical terminology, certification process, professional organizations, and ethical/legal issues. The student will also obtain blood samples (phlebotomy).

MDLT 1105
Microbiology I
3
Introduces the student to the microbial world. The course covers the study of the materials and methods used for identification of pathogenic organisms and the study of these organisms in relation to their disease processes in humans. The course will present microbiology within an epidemiologic, diagnostic, and clinical framework.

MDLT 1110
Medical Lab Calculations
2
Prepares MLT students for calculations used in the medical laboratory. Class content includes dilutions, titers, Levey-Jenny charts and quality control, metric system, and calculations used in the disciplinary departments in the medical laboratory. Instrumentation will be discussed.

MDLT 1115
Biological Fluids
3
Introduces the student to the practical aspects of renal physiology and the theory of urine chemical, physical and microscopic tests. In addition, analysis of other body fluids (fecal specimens, cerebral spinal fluid, seminal fluid, amniotic fluid, synovial fluid) is reviewed in the lecture portion of the class. In the laboratory, the student will perform physical, chemical and microscopic analysis on urine specimens.

MDLT 1120
Immunology
3
This course introduces the student to a wide array of clinical laboratory techniques that are based on the concepts studied in immunology. The topics range from the very simple to the very complex procedures that are used in all areas of the clinical laboratory. Prerequisite: MDLT 1100.

MDLT 1125
Clinical Chemistry I
3
Introduces methods used in the quantitative analysis of chemical constituents of blood and other body fluids. Quality control is emphasized as integral to all aspects of laboratory medicine. Specific testing procedures for various organ systems are discussed and practiced.

MDLT 1130
Hematology I
3
Introduces the student to study of cells in the blood. It covers routine procedures performed on patients’ blood in a medical laboratory. Emphasis is on the theory and practice of these skills utilizing both manual and automated techniques. Prerequisite: MDLT 1100.

MDLT 2101
Microbiology II
3
Continues Medical Microbiology I. Groups of medically important miscellaneous bacteria, yeast, molds, parasites and viruses are studied and correlated to laboratory practice in identification. Prerequisite: MDLT 1105 or discretion of instructor.

MDLT 2106
Immunohematology
3
Teaches the theory of red cell antigen-antibody interaction as it relates to blood grouping and typing, antibody detection and compatibility testing. Blood donor screening and component preparation are also discussed. In the laboratory the student will perform basic blood banking procedures. Accuracy in procedure and interpretation is emphasized. Prerequisites: MDLT 1100 and MDLT 1120.

MDLT 2110
Clinical Chemistry II
3
Continues Clinical Chemistry I. Students continue to develop skills in the performance of the chemical analysis of blood. Lectures continue to correlate laboratory results with clinical findings. Content of the course includes renal, acid/base balance, electrolytes, endocrinology, and thyroid, gastric and pancreatic function, toxicology, and hormones.

MDLT 2120
Hematology II
3
Continues Biological Fluids. Students will carry out wide ranging research into the disease processes that occur in the formed elements of the blood with emphasis on leukemias and myelomas. This course also covers the theory and testing of the coagulation aspects of the blood. The student will prepare a research paper and a journal article report. Prerequisite: MDLT 1105.

MDLT 2125
Externship I
12
Provides the first part of the student's externship in an affiliated hospital laboratory. The student is assigned to an affiliated hospital for the purpose of allowing them to gain practical experience in a laboratory while under direct supervision. The student will rotate through various departments of the laboratory. The student will review and be tested on biological fluids, microbiology, hematology, and coagulation. The student will be responsible for worksheets and exams.

MDLT 2131
Externship II
7
Provides the final part of the student's externship and courses in the medical laboratory technician program. The student will continue their externship at their assigned affiliated hospital laboratory. The student will rotate through the various departments. The student may experience weekend and night call to better prepare them for a realistic laboratory job. The student will receive worksheets and exams on chemistry, immunology and immunohematology. Prerequisite: MDLT 2125.

MDLT 2200
Externship
4
Consists of 120 contact hours of supervised practice of phlebotomy at an affiliated hospital, private laboratory or clinic. Learning activities are specifically planned and implemented at the clinical affiliated site. Student clinical experience is standardized using a checklist. The student will make arrangements with the Medical Laboratory Technician Program Director regarding their externship time and site. Prerequisite: MDLT 1100.

MDLT 2235
Special Topics
1-3
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.

MDLT 2310
Urinalysis and Biological Fluids
2
Allows the students to refine laboratory techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking, and independent work skills. The student will practice and gain experience in basic medical laboratory techniques and procedures required for entry level Medical Laboratory Technicians in an affiliated hospital or clinic laboratory under the direct supervision of a qualified laboratory professional. Prerequisites: MDLT 2106 and MDLT 2120.
MDLT 2320  Hematology and Hemostasis  4

Allows the students to refine laboratory techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking, and independent work skills. The student will practice and gain experience in basic medical laboratory techniques and procedures for entry level Medical Laboratory Technicians in an affiliated hospital or clinic laboratory under the direct supervision of a qualified laboratory professional. Prerequisites: MDLT 2106 and MDLT 2120.

MDLT 2330  Medical Microbiology  4

Allows the students to refine laboratory techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking, and independent work skills. The student will practice and gain experience in basic medical laboratory techniques and procedures for entry level Medical Laboratory Technicians in an affiliated hospital or clinic laboratory under the direct supervision of a qualified laboratory professional. Prerequisites: MDLT 2106 and MDLT 2120.

MDLT 2340  Clinical Chemistry and Immunology  3

Allows the students to refine laboratory techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking, and independent work skills. The student will practice and gain experience in basic medical laboratory techniques and procedures for entry level Medical Laboratory Technicians in an affiliated hospital or clinic laboratory under the direct supervision of a qualified laboratory professional. Prerequisites: MDLT 2106 and MDLT 2120.

MDLT 2350  Immunohematology  4

Allows the students to refine laboratory techniques and apply knowledge learned in the didactic phase in an employment-like setting that offers realistic experiences unavailable in student laboratory sessions. Additionally, students acquire non-technical attributes including, but not limited to, communication, critical thinking, multitasking, and independent work skills. The student will practice and gain experience in basic medical laboratory techniques and procedures for entry level Medical Laboratory Technicians in an affiliated hospital or clinic laboratory under the direct supervision of a qualified laboratory professional. Prerequisites: MDLT 2106 and MDLT 2120.

MDLT 2360  Capstone  1

Focuses on further development of critical thinking and problem solving skills in all of the laboratory disciplines, as well as integration of laboratory analyses, interpretation and application. Activities include discussions, case study, interactive activities and assignments, focused reviews, and examinations. Mastery of content will be assessed through a comprehensive examination. Under the direction of faculty, students prepare a written case study and present their findings to laboratory professionals and classmates. Student will also develop a resume and cover letter and discuss job interviewing. Prerequisites: MDLT 2106 and MDLT 2120.

MEDICAL ASSISTANT (MEDA)  

MEDA 1105  Clinical Procedures I  3

Teaches the fundamentals of the clinical aspect of medical assisting, and includes learning to perform specific skills. Areas taught include communication and professionalism, basic principles of psychology, medical asepsis, the medical assistant's role in assisting with the medical exam, surgical asepsis and sterile procedures, and documentation.

MEDA 1135  Laboratory Skills  3

Focuses on the role of the medical assistant in the laboratory setting. CLIA-waived testing is studied and performed in the laboratory areas of urinalysis, immunology, hematology, chemistry, and microbiology. Specimen collection, quality control and documentation of test results are included. Additional topics explored include electrocardiogram, respiratory testing and emergency preparedness. Also reinforces the fundamental laboratory skills of infection control, safety and phlebotomy taught in MDLT 1100. Prerequisite: MDLT 1100.

MEDA 2110  Clinical Procedures II  4

Reinforces the fundamentals of clinical medical assisting taught in Clinical Procedures I and expands into the specialty areas of OB/GYN, pediatrics, colon procedures and male reproductive health. The basic principles of respiratory diagnostic testing, radiology, and emergency preparedness are also taught, as are dosage calculations and medication administration techniques. Included is the performance of specific skills related to each area of study. Prerequisite: MEDA 1105.

MEDA 2135  Pharmacology  3

Introduces pharmacological concepts and drug classifications as they apply to the diseases and disorders they are used to prevent and/or treat. Explores the effects of drugs on the different body systems. Prerequisite: HC 1151 or BIOL 2201 and BIOL 2202.

MEDA 2139  Professional Integration  1

Reinforces key curriculum components for the medical assistant student entering practicum. Provides orientation to the practicum experience and preparation for the medical assistant certification exam.

MEDA 2140  Medical Assistant Practicum  6

Provides on-the-job experience for the medical assistant student. The student will be assigned to work in a medical office under the supervision of clinic personnel. There they will observe and perform the skills learned in the medical assistant program.

MEDA 2235  Special Topics in Medical Assisting  1-3

Introduces students to specialized topics in the Medical Assisting field. Topics cover a wide range of issues of current interest and will be chosen to meet the needs of students. The course may be retaken for credit if the topic changes.

Music (MUSC)  

MUSC 1101  Fundamentals of Music  3

Covers basic music symbols, vocabulary, rhythm, scale structures, intervals, chords and basic piano skills. This is a required course for all elementary education majors. It is also open to any student who desires a basic introduction to music.

MUSC 1102  Introduction to Music Technology  3

Introduction to Music Technology explores various music technology applications through hands-on study and creative projects relevant to music and music technology. This course is an introduction to the origins, terminology, and fundamental concepts of music technology. Prerequisite: Basic computer skills.

MUSC 1104  American Popular Music  3

Studies the history of American music including: Native American, African/American, vaudeville, Tin Pan Alley, ragtime, Dixieland, big band, musicals, country-western, folk music, popular song, jazz, rock, and the American Musical Theater.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUSC 1105</td>
<td>Enjoying Music</td>
<td>3</td>
<td>Enjoying music stresses the art of listening and enjoying music from major musical periods such as the Baroque and Classical as well as jazz. Open to all students who wish to increase their knowledge and enjoyment of music.</td>
</tr>
<tr>
<td>MUSC 1108</td>
<td>Concert Band</td>
<td>1</td>
<td>Prepares students for performance of concert band and wind ensemble literature. Open to all students who play band instruments. Performances are given both on and off campus. One major performance each semester. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 1110</td>
<td>Introduction to Rock Music</td>
<td>3</td>
<td>Introduction to Rock Music explores the history of rock and roll music, its relevant performers, producers, recordings, and cultural identity. This course is an appreciation of the origins, characteristics, and stylistic development of rock and roll music from the early 1950s to the present. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.</td>
</tr>
<tr>
<td>MUSC 1111</td>
<td>Chorale</td>
<td>1</td>
<td>Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 1112</td>
<td>Chorale</td>
<td>1</td>
<td>Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 1131</td>
<td>Pop Singers</td>
<td>1</td>
<td>Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 1132</td>
<td>Pop Singers</td>
<td>1</td>
<td>Consists of a mixed vocal ensemble with accompaniment performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 1140</td>
<td>Piano Lessons</td>
<td>1</td>
<td>Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.</td>
</tr>
<tr>
<td>MUSC 1141</td>
<td>Piano Lessons</td>
<td>1</td>
<td>Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.</td>
</tr>
<tr>
<td>MUSC 1145</td>
<td>Vocal Lessons</td>
<td>1</td>
<td>Develops singing technique through a regularly scheduled program of individualized instruction.</td>
</tr>
<tr>
<td>MUSC 1146</td>
<td>Vocal Lessons</td>
<td>1</td>
<td>Develops singing technique through a regularly scheduled program of individualized instruction.</td>
</tr>
<tr>
<td>MUSC 2108</td>
<td>Concert Band</td>
<td>1</td>
<td>Prepares students for performance of concert band and wind ensemble literature. Open to all students who play band instruments. Performances are given both on and off campus. One major performance each semester. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 2111</td>
<td>Chorale</td>
<td>1</td>
<td>Consists of a mixed chorus practicing and performing a wide range of choral literature from Renaissance motets, small works for chorus and orchestra, to avant garde compositions and pop music. Emphasis is on good vocal production. There is one major performance each semester and some touring. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
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<tr>
<td>MUSC 2112</td>
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</tr>
<tr>
<td>MUSC 2131</td>
<td>Pop Singers</td>
<td>1</td>
<td>Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 2132</td>
<td>Pop Singers</td>
<td>1</td>
<td>Consists of a mixed vocal ensemble, with accompaniment, performing a wide variety of popular music. At least one major performance and some touring takes place each semester. In case of low enrollment, this class may be divided into small ensembles such as octets, sextets, or quartets. Prerequisite: Audition.</td>
</tr>
<tr>
<td>MUSC 2140</td>
<td>Piano Lessons</td>
<td>1</td>
<td>Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.</td>
</tr>
<tr>
<td>MUSC 2141</td>
<td>Piano Lessons</td>
<td>1</td>
<td>Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.</td>
</tr>
<tr>
<td>MUSC 2145</td>
<td>Vocal Lessons</td>
<td>1</td>
<td>Develops singing technique through a regularly scheduled program of individualized instruction.</td>
</tr>
<tr>
<td>MUSC 2235</td>
<td>Special Topics in Music</td>
<td>1-3</td>
<td>Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.</td>
</tr>
</tbody>
</table>
**NAIL 1100**
Nail Clinic/License Preparation

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**NURSING (NURS)**

**NURS 1100**
Principles and Practices of Nursing
Introduces principles and practices utilized by the beginning nursing student to assist and empower individuals and families across the lifespan with basic needs. Concepts include critical thinking, cultural concepts, confidentiality, professional boundaries, ethical and legal principles, nutrition, communication, nursing process and documentation, fluid and electrolytes, rest and sleep, psychological balance, pain and comfort, elimination, and care on the geriatric client.

**NURS 1120**
Nursing of the Adult I
Introduces the students to alterations in functioning, including basic disease processes throughout the adult lifespan including disruptions in the following: cardiovascular, respiratory, skin and sensory systems. Topics of infectious processes, diabetes mellitus, and drug therapy will be addressed. Gerontological and cultural consideration will be included. Critical thinking through the use of the nursing process, health promotion, and standards of care are used to guide the students.

**NURS 1130**
Pharmacology I
Introduces pharmacological concepts, drug classifications, and affects of drugs on the client. It prepares the student for dosage calculations and the administration of medications.

**NURS 1140**
Nursing Skills Lab
Focuses on achieving safe and competent practice in nursing skills such as catheterization, dressing changes, NG tube insertions, and medication administration skills.

**NURS 1180**
Clinical Applications I
Focuses on student demonstration of knowledge and skills learned in the classroom and lab by providing nursing care for selected clients in a long-term care facility. The student demonstrates beginning critical thinking skills in planning and caring for clients and working within an interdisciplinary team implementing standards of care.

**NURS 1220**
Nursing of the Adult II
Introduces the students to alterations in functioning, including basic disease processes throughout the adult lifespan including disruptions in the following: renal, reproductive, gastrointestinal, endocrine, neurological and musculoskeletal systems. Topics of cancer and surgical client care and mental health will be addressed. Nursing and collaborative interventions and critical thinking skills are reinforced. Pharmacological concepts, gerontological and cultural considerations will be included. Critical thinking through the use of the nursing process, health promotion, and standards of care are used to guide the students.

**NURS 1230**
Pharmacology II
Builds on prior knowledge of dosage calculations with emphasis in pediatric medication dosage calculations and intravenous solutions. It builds on the pharmacological concepts, drug classifications, and the effects of drugs on clients experiencing disruptions of endocrine, gastrointestinal, urinary, reproductive, musculoskeletal, and neurological body systems. Medications used to treat cancer, the surgical client, and mental health disorders will also be discussed. Prerequisite: NURS 1130.

**NURS 1250**
Family Nursing
Introduces the learner to the childbearing/childrearing family. Concepts included are normal physical, psychosocial, and abnormal conditions occurring during the antepartum, intrapartum, and postpartum periods of pregnancy, normal growth and development of the newborn through the adolescent and discussion of common physical and psychological problems encountered in the pediatric client. The importance of a family-centered care approach in the care of childbearing/childrearing clients is examined. Prerequisite: PSYC 1150.

**NURS 1280**
Clinical Application II
Focuses on student demonstration of knowledge and skills learned in the classroom and lab by providing nursing care to individuals and families across the lifespan. The student demonstrates critical thinking skills in planning and caring for selected clients in a variety of settings and working within an interdisciplinary team.

**NURS 1295**
PN Integration
Introduces the first year student to Nurse Practice act, legal and ethical issues and leadership skills in preparation for state licensure. Clinical facilitates the transition role from student to practitioner.

**NURS 2000**
Transition to Professional Nursing Education
Facilitates the learner's transition to college and the AS Nursing Program. Emphasis includes the RN scope of practice, introduction to the AS nursing framework at Minnesota West, and strategies for student success in a learner-centered environment. Topics and nursing concepts essential for success in the AS nursing program will be reviewed.

**NURS 2100**
Professional Nurse Transition
Assists the student successfully transition into an AD Nursing Program with an emphasis on the RN scope of practice. Topics may include, but are not limited to communication, critical thinking, nursing process, math, culture, and boundaries. May include clinical days as needed.

**NURS 2120**
Nursing Across the Lifespan
Concentrates on health and illness of individuals and families across the lifespan. Critical thinking through the use of the nursing process and standards of care are used to guide the student. Concepts of health promotion, pharmacology, and nutrition are integrated into specific subject areas. Subject areas include individuals with mental health needs, oxygenation needs, fluid and electrolyte balance, the childbearing and childrearing family.

**NURS 2125**
Patient Centered Care I
Focuses on nursing process and clinical judgment in the care of patients and their families. Emphasis is placed on professional knowledge, skills, and attitudes integral to the nursing competencies of patient-centered care, safety, and evidence-based practice. Concepts of therapeutic communication, health promotion, pharmacology, and nutrition are integrated throughout content. Nursing content areas include: mental health, pain, surgery, fluids and electrolytes, acid base balance, cancer, as well as vascular, hematologic, cardiac, respiratory, and musculoskeletal disorders.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
<th>Course Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NURS 2130</td>
<td>Pharmacology: A Pathophysiologic Approach</td>
<td>2</td>
<td>Provides an opportunity to synthesize pharmacologic, basic pathophysiologic, and nursing concepts to minimize risk of harm for patients. Promotes use of current information to prevent error and support decision making.</td>
</tr>
<tr>
<td>NURS 2140</td>
<td>Professional Nursing Skills</td>
<td>2</td>
<td>Focuses on mastery of independent and delegated nursing skills necessary for the beginning nurse generalist. An emphasis is placed on refinement of physical and psychosocial assessment skills through the lifespan. Other threads include communication skills, caring interventions, teaching/learning, documentation, nursing process, nursing math, and the nurse's role in intravenous therapy.</td>
</tr>
<tr>
<td>NURS 2145</td>
<td>Professional Nursing I</td>
<td>2</td>
<td>Facilitates transition of the Licensed Practical Nurse into the professional nursing role. Concepts of patient-centered care including holistic assessments, diversity of care, individualized teaching plans, therapeutic communication, safety in care delivery and professional boundaries are emphasized. Evidence-based practice as a foundation for sound clinical reasoning is incorporated.</td>
</tr>
<tr>
<td>NURS 2150</td>
<td>Skills Lab</td>
<td>2</td>
<td>Assists the student in developing safe, evidence based nursing skills. Delegated medical functions as well as physical and psychosocial assessment of adults and children. Safety in medication dosage and medication administration is practiced. Simulation will be used to integrate skills in preparation for the acute care clinical environment.</td>
</tr>
<tr>
<td>NURS 2180</td>
<td>Clinical Applications</td>
<td>2</td>
<td>Demonstrate critical thinking skills in planning and delivering care for individuals and families across the lifespan with a variety of health care needs. Provides the student the opportunity to demonstrate newly acquired cognitive and technical skills and to integrate previously learned skills and knowledge.</td>
</tr>
<tr>
<td>NURS 2190</td>
<td>Acute Care Clinical I</td>
<td>2</td>
<td>Provides an opportunity to demonstrate safe and effective application of the nursing process with emphasis on patient centered care, and the demonstration of therapeutic and professional communication. Affords an opportunity to demonstrate clinical reasoning and to synthesize newly acquired cognitive and technical skills with prior knowledge, skills, and attitudes. Prerequisite: NURS 2145.</td>
</tr>
<tr>
<td>NURS 2220</td>
<td>Nursing Across the Lifespan II</td>
<td>4</td>
<td>Focuses on health and illness for individuals and families across the lifespan. The student is expected to use a higher level of critical thinking skills during this course. Subject areas include caring for the client experiencing vascular, hematologic, endocrine, neurological, gastrointestinal, genitourinary, integumentary, or immune disorders; cancer, pain, critically ill episodes, and emergency situations/preparedness.</td>
</tr>
<tr>
<td>NURS 2225</td>
<td>Patient Centered Care II</td>
<td>3</td>
<td>Focuses on nursing process and clinical judgment in the care of patients and their families with increasing levels of synthesis and application. Emphasis is placed on professional knowledge, skills, and attitudes integral to the nursing competencies of patient-centered care, safety, and evidence-based practice. Concepts of therapeutic communication, health promotion, pharmacology, and nutrition are integrated throughout content. Nursing content areas include: caring for patient with endocrine, neurological, immune, integument, gastrointestinal, and elimination disorders. Care for those with infections, critical illness, and the dying patient is explored. Prerequisites: NURS 2125, NURS 2130, NURS 2145, NURS 2150, and NURS 2190.</td>
</tr>
<tr>
<td>NURS 2230</td>
<td>Trends and Issues</td>
<td>1</td>
<td>Introduces the student to contemporary nursing topics such as current trends, advocacy, impact of legislative decisions on health care, reimbursement, boundaries, models of care, complementary/alternative therapies, nursing informatics and access to care.</td>
</tr>
<tr>
<td>NURS 2235</td>
<td>Special Topics in Nursing</td>
<td>1-3</td>
<td>Topics will be chosen to meet the needs of students. The class may be retaken for credits if the topic varies.</td>
</tr>
<tr>
<td>NURS 2240</td>
<td>Manager of Care</td>
<td>2</td>
<td>Emphasizes beginning management theory and transition into the graduate nurse role. The learner integrates knowledge and skills necessary for caring for groups of clients, nursing team management, interdisciplinary collaboration, delegation, and supervising and teaching nursing personnel.</td>
</tr>
<tr>
<td>NURS 2245</td>
<td>Professional Nursing II</td>
<td>2</td>
<td>Emphasizes beginning management theory and transition into the graduate nurse role. The learner integrates knowledge, skills and attributes needed to care for groups of clients, nursing team management, effective team communication, effectively resolve conflict, interprofessional collaboration, prioritization of nursing activities, delegation, supervision, and teaching nursing personnel. Preparation for end-of-program requirements and NCLEX-RN exam. Prerequisites: NURS 2125, NURS 2130, NURS 2145, NURS 2150, and NURS 2190.</td>
</tr>
<tr>
<td>NURS 2260</td>
<td>Patient and Family Centered Care for Special Populations</td>
<td>3</td>
<td>Integrates understanding of key dimensions of patient and family centered care for children experiencing illness, obstetrical and newborn complications, older adults, care of emergent situations (including community emergency preparedness), and individuals receiving care in a community setting. Prioritization and delivery of safe, quality care incorporating patient and family preferences, values, and beliefs. Current &quot;best practice&quot; will be examined to validate incorporation of evidence-based empirical research in care for individuals and families. Prerequisites: NURS 2225 and NURS 2245.</td>
</tr>
<tr>
<td>NURS 2275</td>
<td>Nursing Preceptorship</td>
<td>1-2</td>
<td>Provides an opportunity for skill refinement and increased confidence in managing patient care for Associate in Science Nursing program students prior to graduation, NCLEX-RN licensing exam, and entry into practice. Student applies the nursing process in a realistic work setting through a preceptor experience. Concepts of clinical-decision making, prioritization, delegation, supervision, accountability, leadership, and professionalism are integrated into the preceptorship experience. Prerequisites: NURS 2190, NURS 2290, and NURS 2390.</td>
</tr>
<tr>
<td>NURS 2280</td>
<td>Clinical Applications</td>
<td>3</td>
<td>Demonstrates critical thinking skills and synthesis in planning and delivering care for increasingly complex individuals and families across the lifespan. Newly acquired nursing skills and classroom knowledge will be utilized in a variety of venues that includes acute care and community settings.</td>
</tr>
<tr>
<td>NURS 2290</td>
<td>Acute Care Clinical II</td>
<td>2</td>
<td>Builds on the knowledge, skills, and attitudes from NURS 2190. Refinement of assessment, communication, and technical skills is practiced in an acute care setting. The student creates and evaluates patient centered plans of care while utilizing Evidence Based Practice. Prerequisites: NURS 2125, NURS 2130, NURS 2145, NURS 2150, and NURS 2190.</td>
</tr>
<tr>
<td>NURS 2390</td>
<td>Clinical in Alternate Settings</td>
<td>2</td>
<td>Application of knowledge, skills, and attitudes from prior nursing courses to patients, families in alternate care settings such as nursing homes, assisted care facilities, and the community. Structured simulation scenarios to promote clinical reasoning and decision making.</td>
</tr>
</tbody>
</table>
PHED 1101  Foundations of Health, Physical Education & Recreation
Provides an introduction to the history, philosophy, objectives, and principles of health, physical education and recreation. Topics included will be career opportunities and preparation; professionalism including attitudes; ethics, and organizations. This is a course designed for persons who plan to major or minor in health, physical education or recreation.

PHED 1106  Psychology of Winning
Studies the basic principles of psychology related to success and motivation. Emphasizing positive-winning attitudes, success traits, goal-setting and basic psychology principles. This course is designed to help students recognize the strong relationship that exists between attitudes and success in school, work, sports and life.

PHED 1110  Prevention and Care of Athletic Injuries I
Covers the modern principles of athletic training for people involved in the health care of athletes. This course is designed to help individuals involved in coaching, physical education, or recreation, as well as persons interested in athletic training or sports medicine.

PHED 1114  Physical Agility & Self Defense
Provides experiential learning in techniques for self-defense as well as general fitness learning. Techniques in handcuffing, searching, joint manipulation pressure points and counters. Only students formally accepted into the AS Law Enforcement Program may register.

PHED 1120  Beginning Archery
Offers fundamental instruction in target archery. Safety, choice and care of equipment will also be taught.

PHED 1125  Aerobics
Teaches a moderately strenuous blend of flexibility, stretch and dance using the large muscle groups. Its aims are improving cardiovascular fitness, promoting a multitude of positive and natural changes in the body, enhancing general health and well being, toning up muscles and having fun.

PHED 1130  Physical Fitness for Life
Focuses on helping beginning golfers understand the fundamentals of golf as a recreational activity.

PHED 1155  Cross-Country Skiing
Introduces the student to the fundamentals of the sport. Flat-track techniques, downhill and hill climbing techniques are covered. Equipment provided.

PHED 1160  Beginning Golf
Focuses on helping beginning golfers understand the fundamentals of golf as a recreational activity.

PHED 1165  Fitness for Acceleration
Provides a high intensity aerobic program focusing on sport specific movements. It aims to teach proper mechanics to prevent injury in physical activities as well as developing or enhancing ones quickness, plyometrics and coordination. The program also benefits cardiovascular, muscle toning and fitness goals.

PHED 1170  Intercollegiate Football
Consists of intercollegiate competition in football at the community college level. Football skills, sportsmanship, competitiveness, and sound athletic principles are taught.

PHED 1171  Intercollegiate Volleyball
Provides credit to first year students who report for the volleyball squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 1172  Intercollegiate Men’s Basketball
The course consists of a twenty-game schedule against other community colleges in Minnesota.

PHED 1173  Intercollegiate Women’s Basketball
Provides credit to first year students who report for the basketball team and who compete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 1174  Intercollegiate Wrestling
Provides credit to first year students who report for the wrestling team and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 1175  Intercollegiate Women’s Softball
Includes participation in intercollegiate competition in women's softball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 1176  Intercollegiate Baseball
Includes participation in intercollegiate competition in men's baseball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 1177  Intercollegiate Women’s Golf
Provides credit to first year students who report for the golf team and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.
PHED 1178  
Intercollegiate Men's Golf  
Provides credit to first year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.

PHED 1180  
Principles of Coaching  
Introduces students to the basic principles, philosophies, and theories associated with effective coaching. This course emphasizes sport pedagogy, enhanced communication and motivational skills, and coaching philosophies to become more effective teachers/coaches. Principles of Coaching will provide knowledge that should improve team relationships, risks, and self-management skills.

PHED 2020  
Introduction to Event and Facilities Management  
Introduces students to the study of the principles, guidelines, and recommendations for planning, constructing, using, and maintaining indoor and outdoor sport industry facilities. The introduction to grant writing for the purpose of learning funding mechanisms, when designing, maintaining, and growing of sports facilities and programs.

PHED 2090  
Sport in Society  
Introduces students to an in-depth study of the major issues in the world of sports and how it relates to society. All primary issues impacting contemporary sports are covered, including performance-enhancing drugs; human growth hormones; gender inequity; race and ethnicity; youth, adolescent, and adult programs; media involvement; economics; management structures; and globalization.

PHED 2101  
History of Physical Education and Sports  
Reviews the reciprocal relationship between sport and America's dominant social and cultural themes from the colonial period to the present. Explores the foundations on which modern American sports were laid and the social forces which led to the organization and institutionalization of amateur, intercollegiate, and professional sports. Includes an examination of the ways in which ethnic heritage, race, socio-economic class, and gender intersect with the social institution of American sport.

PHED 2110  
Prevention and Care of Athletic Injuries II  
Continues PHED 1110. Emphasizes the anatomy, kinesiology, and care of knee, thigh, and lower leg injuries. Shoulder, elbow, arm, and hand injuries are also studied. Prerequisite: PHED 1110.

PHED 2111  
Sports Management  
Examines the history, philosophies and theories of management in recreation and sports. Students will learn the management policies and procedures used in recreational, fitness and sports settings. Prerequisite: ENGL 1101.

PHED 2135  
Intermediate Tennis  
Continues PHED 1135. Stresses the fundamentals of tennis as a leisure time activity as well as the competitive aspects of the sport. Emphasis is on acquiring technique, knowledge, fitness, and the strategy of the game.

PHED 2140  
Theory and Technique of Body Conditioning  
Teaches methods and techniques of physical conditioning. Includes the use of theory in designing different fitness programs. Prerequisite: PHED 1140 or PHED 1130 or consent of instructor.

PHED 2170  
Intercollegiate Football  
Consists of intercollegiate competition in football at the community college level. Football skills, sportsmanship, competitiveness, and sound athletic principles are taught.

PHED 2171  
Intercollegiate Volleyball  
Provides credit to second year students who report for the volleyball squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 2172  
Intercollegiate Men's Basketball  
Provides credit for second year participants. The course consists of a twenty-game schedule against other community colleges in Minnesota.

PHED 2173  
Intercollegiate Women's Basketball  
Includes participation in intercollegiate competition in women's basketball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2174  
Intercollegiate Wrestling  
Provides credit to second year students who report for the wrestling squad and who complete the requirements of the course. This includes participation in Minnesota Community College Athletic Conference competition.

PHED 2175  
Intercollegiate Women's Softball  
Includes participation in intercollegiate competition in women's softball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2176  
Intercollegiate Baseball  
Includes participation in intercollegiate competition in men's baseball at the community college level representing Minnesota West Community and Technical College, Worthington Campus in the Minnesota Community College Athletic Conference.

PHED 2177  
Intercollegiate Women's Golf  
Provides credit to second year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.

PHED 2178  
Intercollegiate Men's Golf  
Provides credit to second year students who report for the golf squad and who complete the requirements of the course. Completion includes participation in the Minnesota Community College Athletic Conference.

PHED 2181  
Wrestling Coaching and Officiating  
Covers the guidelines of the State and National High School League rules including rules interpretation, match technique, and casebook studies. Course will also cover the coaching aspects of wrestling, match tactics, scouting, recruiting, team goals, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.

PHED 2183  
Basketball Coaching and Officiating  
Reviews in detail high school basketball rules and the basic mechanics of officiating basketball. A comparison between high school rules and college basketball rules is made to better enable students to work at and understand both levels.

PHED 2184  
Officiating Volleyball  
Reviews high school volleyball rules and the basic mechanics of officiating volleyball. A comparison between high school rules and college volleyball rules is made to better enable students to work at and understand both levels.
PHIL 1101 Introduction to Philosophy 3
Introduction to Philosophy introduces students to five areas of philosophical inquiry and the questions basic to each: ethics (What is the nature of the good?), epistemology (What is the nature of knowledge and truth?), metaphysics (What is the nature of reality?), the philosophy of religion (What are the proofs for God’s existence?), and social/political philosophy (What is the nature of a good state?). Using primary texts and class discussion, students will explore the answers philosophers such as Plato, Mill, Kant, Hume, Locke, and Nietzsche have offered. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 1102 Philosophy of Religion 2
Covers topics relative to religion and God, including arguments for the existence of God, religious experience, faith and reason, the problem of evil, and immortality. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 1200 Logic 3
Logic introduces students to formal and informal logic. Students will learn to identify and outline arguments in classic and contemporary texts, to determine whether an argument is deductive or inductive, and to determine an argument’s validity and soundness. Students will learn to diagram categorical syllogisms and to translate propositional statements. Students will also learn to identify and classify logical fallacies. Prerequisite: ENGL 1101. This course counts as a Mathematical/Logical Reasoning course, Area 4.

PHIL 2011 Ethics Theory and Practice 3
Introduces classical and contemporary ethical theories and how to apply them in analyzing contemporary ethical issues. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 2021 Introduction to Ethical Theory 1
Introduces students to classical and contemporary ethical theories. The main purpose is to critically examine the various approaches to moral conduct through the reading of primary sources and class discussion. This course is required prior to taking any other ethics course (2202, 2222, 2233). Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 2022 General Applied Ethics 1
Examine ethical issues in contemporary society critically. The focus will be on the application of ethical theories and principles to specific contemporary issues. Prerequisite: PHIL 2201.

PHIL 2025 Business Ethics 2
Introduces students to ethical problems in businesses and companies or corporations through presentations by local business, community and corporate leaders on moral behavior and ethical dilemmas in areas such as: medicine, international trade, profit and non-profit organizations, and education.

PHIL 2222 Medical Ethics 1
Introduces students to how the principles of ethics apply in health care practice. Students will examine two main ethical theories, utilitarian and deontological, as they apply to questions of health care practice. Students will study the ethical principles of autonomy, beneficence, and justice. The focus will be on the application of these theories and principles to specific cases. The course is designed for students intending to major in a health care field. Prerequisite: PHIL 2201.

PHIL 2223 Ethics for Human Services Workers 1
Introduces students to how the principles of ethics apply in the human services field. Students will examine two main ethical theories, utilitarian and deontological, as they apply to questions of ethical practice in human services. Students will study the ethical principles of autonomy, beneficence, nonmaleficence and justice. The focus will be on the application of these theories and principles to specific issues and cases. The course is designed for students intending to major in human services. Prerequisite: PHIL 2201.

PHIL 2230 World Religions 3
Explore various world religions through reading about the religions and reading texts from various faith traditions. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

PHIL 2235 Special Topics in Philosophy 1-3
Explores specific issues and topics in philosophy. The class may be retaken if the topics vary. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.
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<thead>
<tr>
<th>PHARMACY TECHNOLOGY (PHRM)</th>
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<tbody>
<tr>
<td>PHRM 1100</td>
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<tr>
<td>Pharmacy Principles and Practices I</td>
<td>Explore the principles of ethical thought as applied to the areas of pharmacy ethics which will include state and federal laws. Students will learn the organization and functions of retail and hospital pharmacy settings. This course will also introduce students to common uses of computers and their practical applications in a pharmacy setting. The roles and responsibilities of a pharmacy technician will be explored as well as Occupational Safety and Health Act (OSHA) and Health Insurance Portability and Accountability Act (HIPAA) requirements will be covered.</td>
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<tr>
<td>PHRM 1105</td>
<td>5</td>
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<tr>
<td>Pharmacy Principles and Practices II</td>
<td>Demonstrate the preparation of retail and institutional pharmacy practices. Perform advanced procedures including Intravenous (IV) drug admixture, total parenteral nutrition (TPN) and critical care IV admixture. Students will learn and demonstrate understanding of various billing systems as well as the universal medical coding system which uses numerical codes to classify medical conditions and treatments. Applying personal safety and hygiene related to pharmacy practices will be covered. Students will demonstrate knowledge and skill in filling prescriptions in a lab setting and develop communication skills associated with pharmacy technicians. Prerequisite: PHRM 1100.</td>
</tr>
<tr>
<td>PHRM 1110</td>
<td>3</td>
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<tr>
<td>Pharmacy Calculations</td>
<td>Demonstrate proficiency in specific calculation methods and principles related to pharmacy tasks. Students will utilize basic arithmetic principles in completing tasks associated with a pharmacy technician. Throughout this course basic math skills will be reviewed that are necessary for the required calculations that become more advanced as students’ progress through the course. Students will also demonstrate understanding of various measurement systems and various dosage calculations. Prerequisite: PHRM 1100.</td>
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<tr>
<td>PHRM 1115</td>
<td>4</td>
</tr>
<tr>
<td>Pharmacology for Technicians I</td>
<td>This course introduces pharmacy technician students to the general principles of pharmacology. Drugs are discussed in the context of drug classes, mechanics of action, disease types, and body systems. The goal is to provide pharmacy technicians with sufficient background information so that they will be able to play a key role in avoiding dispensing errors. Although emphasis will be given to the approximately 200 most commonly prescribed drugs, many more drugs will be discussed during the semester.</td>
</tr>
<tr>
<td>PHRM 1120</td>
<td>3</td>
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<tr>
<td>Pharmacology for Technicians II</td>
<td>This course introduces pharmacy technician students to the general principles of pharmacology. Drugs are discussed in the context of drug classes, mechanics of action, disease types, and body systems. The goal is to provide pharmacy technicians with sufficient background information so that they will be able to play a key role in avoiding dispensing errors. Although emphasis will be given to the approximately 200 most commonly prescribed drugs, many more drugs will be discussed during the semester.</td>
</tr>
<tr>
<td>PHRM 1130</td>
<td>3</td>
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<tr>
<td>Hospital Externship</td>
<td>Perform skills in a hospital pharmacy setting under the direction of the pharmacist and pharmacy technicians. This course prepares the student for entering the Pharmacy Technician career field and provides information on career opportunities. Students will apply skills, knowledge, and abilities acquired in the classroom and laboratory settings in a practical work-based pharmacy training environment. Prerequisites: PHRM 1100, PHRM 1105, PHRM 1115, PHRM 1120.</td>
</tr>
<tr>
<td>PHRM 1135</td>
<td>3</td>
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<tr>
<td>Retail Externship</td>
<td>Perform skills in a retail pharmacy setting under the direction of the pharmacist and pharmacy technicians. This course prepares the student for entering the Pharmacy Technician career field and provides information on career opportunities. Students will apply skills, knowledge, and abilities acquired in the classroom and laboratory settings in a practical work-based pharmacy training environment. Prerequisites: PHRM 1100, PHRM 1105, PHRM 1115, PHRM 1120.</td>
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<tr>
<th>PHYSICS (PHYS)</th>
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<tbody>
<tr>
<td>PHYS 1100</td>
<td>3</td>
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<tr>
<td>Survey of Physics</td>
<td>Includes a general survey of conceptual physics. Topics include a basic introduction to Newton's Laws of motion, gravity, physical mechanics, properties of matter, heat, sound, electricity, magnetism, light and nuclear physics. This is mainly a lab activity course for students who have not had high school physics. Prerequisite: High school algebra I or MATH 0098 or higher.</td>
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<tr>
<td>PHYS 1150</td>
<td>3</td>
</tr>
<tr>
<td>Survey of Astronomy</td>
<td>Covers a general overview of the science of astronomy. Topics include the history of astronomy, the nature of science, celestial motion, phases of the moon, gravity, Keplers Laws, light and spectroscopy, the Solar System, stars, galaxies, and cosmology. There will be lab activities to accompany many of the topics. Prerequisite: MATH 0098 or placement by exam.</td>
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<tr>
<td>PHYS 1201</td>
<td>4</td>
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<tr>
<td>Fundamentals of Physics I</td>
<td>Develops a foundation for future studies in fields not requiring the calculus. Laboratory and lecture based instruction using both calculator and computer based instruction. Develops a foundation in physics for liberal arts, pre-medical, or pre-pharmacy students. Topics studied include one and two-dimensional motion, forces and acceleration, applications of Newton's Laws, momentum, gravitation, collisions, work and energy, rotational motion, and angular momentum, harmonic motion and sound. Prerequisite: MATH 0099 or higher.</td>
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<tr>
<td>PHYS 1202</td>
<td>4</td>
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<tr>
<td>Fundamentals of Physics II</td>
<td>Covers topics including temperature and heat transfer, laws of thermodynamics and heat engines, electric fields, electricity of direct current circuits, electronics magnetism and radioactivity. Prerequisite: PHYS 1201 or consent of instructor.</td>
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<tr>
<td>PHYS 2121</td>
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<tr>
<td>General Physics I</td>
<td>Teaches the fundamentals of physics using calculus and vectors. Uses laboratory centered instruction with both calculator and computer based investigations. Topics include kinematics, Newton's Laws of motion, forces, collisions, momentum, work, and energy, energy conservation, rotational motion, angular momentum, torque, harmonic motion, oscillations, and chaos.</td>
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<tr>
<td>PHYS 2122</td>
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<tr>
<td>General Physics II</td>
<td>Uses laboratory centered instruction with both computer and calculator based investigations. This course in the fundamentals of physics is for students intending to study engineering or the sciences. Calculus and vectors are used throughout. Topics include heat, thermodynamics, heat engines, electric fields, Gauss' Law, electric and gravitational potential, electrical circuits, capacitance, magnetism, electromagnetism, electronics, and radioactivity. Prerequisite: PHYS 2121 and MATH 1121 with MATH 1122 being taken concurrently or before.</td>
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<tr>
<td>PHYS 2235</td>
<td>1-3</td>
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<tr>
<td>Special Topics</td>
<td>Explores specific areas of physics to meet specialized student needs or interests. The class may be retaken if the topics vary.</td>
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<tr>
<th>PRACTICAL NURSING (PRNU ALSO SEE NURSING)</th>
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<tbody>
<tr>
<td>PRNU 2235</td>
<td>1-3</td>
</tr>
<tr>
<td>Special Topics</td>
<td>Topics will be chosen to meet the needs of students. The class may be retaken for credits if the topic varies.</td>
</tr>
</tbody>
</table>
PRNU 2295 1
IV Skills for Practical Nurses
Designed to enhance the knowledge of established IV nursing standards of practice and to qualify the licensed practical nurse to initiate and administer IV therapy to adults and adolescents. Information and hands-on practice for the safe insertion, care and maintenance of a peripheral IV catheter will be provided. Administration of IV therapy via a peripheral site will also be discussed.

Power Sports (PRSP) 4

PRSP 1100
Outdoor Power Equipment Technology
This course will introduce students to the operating principles of OPE engines and drive systems. The focus of this course will be systems operation and maintenance of equipment components to maintain optimum performance. Instruction will include fuel and electrical system normal function, basic system analysis, and maintenance procedures to restore equipment from normal operation and wear.

PRSP 1110 2
Snowmobile Technology
This course will teach the operating characteristics of two cycle engines and explore the service techniques to maintain quality performance. From the engine, students will explore drive system operation, followed by suspension systems. Discussions will include fuel systems, electrical systems, cooling and accessory systems.

PRSP 1115 4
Snowmobile Service Operations
This course will teach the service procedures of two cycle engines and students will perform service techniques to maintain quality performance. Beginning with engine service and rebuilding, students will also service drive systems and suspension systems. Service procedures will include fuel systems, electrical systems, cooling and accessory systems.

PRSP 1130 3
ATV/Motorcycle Technology
This course will cover fundamental operating principles and service techniques for ATVs and motorcycle engines and transmissions. Clutches, drive systems and suspensions on each vehicle style will be explained and analyzed to understand performance expectations for the varied design Technologies applied in vehicle applications.

PRSP 1135 6
ATV/Motorcycle Service Operations
Students in this course will perform service operations to restore optimum performance and provide quality maintenance services for ATVs and motorcycle engines, transmissions, clutches, drive systems and suspensions on each vehicle style. Students will analyze performance and handling issues to determine needed corrective actions and complete required repairs.

PRSP 1140 2
Principles of Shop Operations
This course will prepare students for the day to day operation of a service center. Manufacturers service procedures, record management, work order processing, warranty service, new vehicle preparations, and customer relations will all be focal points of this course.

PRSP 1145 3
Performance Technologies
This capstone course will provide students the opportunity to hone their skills developed through the program and incorporate those skills and business principles to manage the service center concept from customer check-in to finished product. New vehicle prep will be included here as well as service advisor skill development to determine customer needs and the processes to meet those expectations.

Political Science (PSCI) 3

PSCI 1101 3
Introduction to Political Science
Acquaints students with the fundamental concepts, institutions, principles and procedures of the discipline of political science. The course will provide a brief background in classical political theory through some exposure to the ideas of past political philosophers (such as Aristotle, Machiavelli, Hobbes, Locke, Marx and others). The course also introduces the study of comparative systems through consideration of the governments of Great Britain, France, and Canada. PSCI 1101 is viewed as a general introductory course. The course also counts as a Global Perspective course. Prerequisite: STSK 0095 or evidence of college-level reading ability through assessment test or prior college coursework.

PSCI 1102 3
American Government and Politics
Presents a general survey of the history, philosophy, functions and performance of American national political institutions and processes. This course also emphasizes ethical and civic responsibility. Prerequisite: STSK 0090 or evidence of college-level reading ability through assessment test or prior college coursework.

PSCI 2200 3
State and Local Government
Presents a general survey of the history, philosophy, functions and performance of American state and local political institutions and processes. Minnesota, Nobles County and the City of Worthington will be examined. This course also emphasizes ethical and civic responsibility. Prerequisite: STSK 0095 or evidence of college-level reading ability through assessment test or prior college coursework.

PSCI 2210 3
Environmental Politics
Examines the political nature of environmental problems and surveys American political institutions and public policies that deal with these problems. The course will also assess and critique current environmental policies. While the major emphasis will be national environmental concerns, certain local and global environmental problems will also be addressed. Prerequisite: STSK 0095 or evidence of college-level reading ability through assessment test or prior college coursework.

PSCI 2235 1-3
Special Topics
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies. Prerequisite: STSK 0095 or evidence of college-level reading ability through assessment test or prior college coursework.

PSCI 2280 2-4
Field Experience - Political Science
Offers students paid or unpaid work experiences closely related to their academic and career pursuits. Assists students in gaining skills and realism about job demands and future educational choices. Activities are closely supervised by college instructors and on-the-job supervisors.

Psychology (PSYC) 4

PSYC 1101 4
Introduction to Psychology
Introduction to Psychology provides an overview of contemporary psychology. Topics include the biological bases of behavior, sensation and perception, motivation, learning, memory, development, personality theory and disorders. This psychology course emphasizes biological,
ability, age, gender, personality, and ethnic diversity. This course is a prerequisite for all other psychology courses and is a required course for many degree programs. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**PSYC 1111** Psychology of Adjustment

Uses a largely cognitive-behavioral approach to achieving personal growth and effectively managing common problems of daily living. Issues studied include managing stress, love and relationships, sexuality, loneliness and solitude, death and loss, esteem, and life goals. Prerequisite: PSYC 1101 or consent of instructor.

**PSYC 1140** Child and Adolescent Psychology

Studies the physical, cognitive and psychosocial development of individuals from conception through adolescence, and effective means of fostering positive development in these areas. Prerequisite: PSYC 1101 or consent of instructor.

**PSYC 1141** Psychology of Adulthood and Aging

Presents the basic views, principles, research findings, and ideas about adulthood from an interdisciplinary, process-oriented perspective. Adopting this perspective allows an understanding of the developing individual through an analysis of the biological, social, and cultural contexts in which aging occurs. An overview of the research methods used to investigate psychological development over the adult lifespan will be explored. Career paths and opportunities within the field of adult development will be presented. Prerequisite: PSYC 1101 or consent of instructor. May be taken in sequence with PSYC 1140, for greater breadth and depth than PSYC 1150.

**PSYC 1150** Developmental Psychology

Developmental Psychology describes the ongoing processes in the biosocial, cognitive, and psychosocial domains of human development throughout the lifespan. Analysis of major developmental events from psychoanalytic, learning, cognitive, and humanistic perspectives will be included. Students in this psychology course will consider how psychological research contributes to the understanding of development and the application of research findings. Developmental Psychology should not be taken for credit if one has taken Child and Adolescent Psychology 1140. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**PSYC 2210** Basic Counseling Skills

Provides students with an overview of various counseling theories including Adler and Individual Psychology; Jung and Jungian Analytical Psychology; Rogers and Person-Centered Counseling; Beck and Cognitive Theory; Behavior Therapy and Cognitive-Behavior Therapy; and Existential and Gestalt Therapy. This course also focuses on learning the basic micro-skills of counseling including attending and active listening; questioning; observation; influencing skills; and specific skills critical to multi-cultural counseling. Students videotape counseling sessions in a lab setting. Prerequisite: PSYC 1101 or consent of instructor.

**PSYC 2221** Abnormal Psychology

Provides students with historical and current views of the major patterns of behavior disorders. Examines the etiology of disorders, their symptom patterns, assessment and classification, their prevention and treatment, and current issues in the mental health field. Attention is given to how social variables such as race/ethnicity, gender, and socioeconomic status affect determination of abnormality. Prerequisite: PSYC 1101 or consent of instructor.

**PSYC 2225** Addictive Behaviors

Provides a comprehensive overview of psychological models to understanding addiction. Presents the process of addiction as a sequence which includes: initiation, maintenance, dependence, and change. Also addressed is prevention of addiction. Describes the biological, social, emotional, and psychological consequences of addictions for the individual and society. Although concentrating on substance-based behaviors (alcohol and drugs) other addictions such as gambling, eating disorders, and compulsive sexual behavior will be considered. Prerequisite: PSYC 1101 or consent of instructor.

**PSYC 2230** Behavior Modification

Introduces the principles of behavior modification and the application of these principles to the modification of maladaptive behavior. Students learn specific skills to modify behavior including observing, recording and graphing behavior and measuring change; reinforcement; extinction; punishment; stimulus control; shaping; chaining; prompting; fading; and functional assessment. Prerequisite: PSYC 1101 or consent of instructor. This course can substitute for HSER 1132. HSER 1132 cannot substitute for this course.

**PSYC 2235** Special Topics

Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.

**PSYC 2280** Field Experiences - Psychology

Offers students paid or unpaid work experiences closely related to their academic and career pursuits. Assists students in gaining skills and realism about job demands and future educational choices. Activities are closely supervised by college instructors and on-the-job supervisors.

### Radiologic Technology (RADT)

**RADT 1100** Introduction to Radiography & Patient Care

Provide the basic concepts of patient care in radiography as well as to introduce radiology, radiology as a career, radiologic technologist roles, and radiologic technology education. The role of the radiographer will be identified as well as basic information regarding making radiographic exposures.

**RADT 1110** Radiological Procedures I

Provide the student with the knowledge necessary to perform radiographic procedures relative to the upper extremities, lower extremities, shoulder and pelvic girdle. Emphasis will be on radiographic terms, anatomy, positioning, manipulation of radiographic equipment and accessories, and patient care considerations related to radiography of the urinary system, bony thorax, vertebral column, skull and arthrography. Basic techniques in venipuncture, contrast media types, intravenous medication and emergency response will also be included. Prerequisites: RADT 1100, RADT 1110 and BIOL 2202.

**RADT 1120** Radiological Procedures II

Provides the student with the knowledge necessary to perform radiographic procedures related to the urinary system, the bony thorax, skull, vertebral column and arthrology. Emphasis will be on radiographic terms, anatomy, positioning, manipulation of radiographic equipment and accessories, and patient care considerations related to radiography of the urinary system, bony thorax, vertebral column, skull and arthrography. Basic techniques in venipuncture, contrast media types, intravenous medication and emergency response will also be included. Prerequisites: RADT 1100, RADT 1110 and BIOL 2202.

**RADT 1130** Radiological Exposures I

Provides the student with the knowledge of factors that govern and influence image quality. The course emphasis is on image quality through the discussion of factors that affect density, contrast, recorded detail and distortion. Complex mathematical problems reflect the effect of change in exposure factors and radiographic devices on image quality. Topics include basic physics concepts, radiographic equipment, properties of x-rays, exposure factors, radiographic devices and the principles of automatic processing. The application of radiographic calculations is addressed during discussion of the course material. Prerequisites: RADT 1100 and MATH 1111.

**RADT 1140** Radiological Exposures II

Implementation of radiological exposure compensations as well as the effects of each compensation on image quality and the knowledge and
ability to process and evaluate radiographic images will be emphasized. Requirements will focus on x-ray film, intensifying screens, radiographic processing, processing systems, digital imaging, digital imaging system components and the ability to identify and recognize diagnostic quality. The principle and operation of automatic exposure control is also presented. Advancement in examination difficulty and complexity of mathematical applications will be reflected. Prerequisite: RADT 1130.

**RADT 1150** Clinical Radiography I
Apply and analyze previously learned concepts and theories in radiologic procedures. Focus will be on performance of competency based radiologic procedures, patient care, and demonstration of professionalism during day to day activities within the radiology department. Clinical practice will be designed to allow student to evaluate and perform diagnostic exams on live patients with follow up critique of images. An emphasis on manipulation of radiologic equipment and accessories will also be evaluated. Prerequisite(s): RADT 1100 and RADT 1110.

**RADT 1160** Clinical Radiography II
Apply and analyze previously learned concepts and theories in radiologic procedures. Focus will be on performance of competency based radiologic procedures, patient care, and demonstration of professionalism during day to day activities within the radiology department. Clinical practice will be designed to allow student to evaluate and perform diagnostic exams on live patients with follow up critique of images. An emphasis on manipulation of radiologic equipment and accessories will also be evaluated. Prerequisite: RADT 1150.

**RADT 2210** Radiological Procedures III
Examine previously learned radiographic procedures to provide the student with the knowledge necessary to adapt radiographic procedures relative to traumatic injury, surgical and portable radiography. In addition the student will be introduced to the specialized modalities of radiography as well as cross-sectional imaging. Prerequisite: RADT 1120.

**RADT 2220** Radiological Equipment
Provides the student with a basic understanding of radiation physics including the structure of matter, electromagnetic energy, electricity, magnetism, electromagnetism, x-ray emission and x-ray production. This course is designed to establish a strong understanding of radiographic equipment including the x-ray tube, x-ray circuit, fluoroscopy and Computed Tomography. The content will also provide a basic knowledge of quality control. Prerequisite: RADT 1140.

**RADT 2230** Radiological Pathology
Designed to introduce theories of disease causation and the pathophysiologic disorders that compromise health systems. Etiology, pathophysiologic responses, clinical manifestations, radiographic appearance and management of alterations in body systems will be presented. Prerequisites: RADT 1140 & BIOL 2202.

**RADT 2235** Special Topics in Radiologic Technology
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.

**RADT 2240** Principles of Radiobiology
Designed to establish a basic knowledge of atomic structure and terminology and provide an overview of the principles of radiation protection and interaction with living systems. Also presented are the nature and characteristics of radiation (i.e. its effects on molecules, cells, tissues, and the body as a whole), x-ray production, and the fundamentals of photon interactions with matter. Radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies, healthcare organizations, and the responsibilities of the radiographer for patients, personnel and the public are also incorporated. Factors affecting biological response are presented including acute and chronic effects of radiation. Prerequisites: RADT 1140 & BIOL 2202.

**RADT 2250** Clinical Radiography III
Apply and analyze previously learned concepts and theories in radiologic procedures. Focus will be on performance of competency based radiologic procedures, patient care, and demonstration of professionalism during day to day activities within the radiology department. Clinical practice will be designed to allow student to evaluate and perform diagnostic exams on live patients with follow up critique of images. An emphasis on manipulation of radiologic equipment and accessories will also be evaluated. Student independence on previously learned exams will be stressed. Prerequisite: RADT 1160.

**RADT 2260** Clinical Radiography IV
Apply and analyze previously learned concepts and theories in radiologic procedures. Focus will be on performance of competency based radiologic procedures, patient care, and demonstration of professionalism during day to day activities within the radiology department. Clinical practice will be designed to allow student to evaluate and perform diagnostic exams on live patients with follow up critique of images. An emphasis on manipulation of radiologic equipment and accessories will also be evaluated. Student independence on previously learned exams will be stressed. Prerequisite: RADT 2250.

**RADT 2280** Board Review
Designed to prepare the student to write the national board exam administered by the American Registry of Radiologic Technologists (ARRT). A review of all course work presented in the program with an emphasis on the ARRT exam specifications will be presented. Prerequisite: RADT 2260.

**RADT 2290** Computed Tomography Basics
Designed to provide a comprehensive review of Computed Tomography and a step by step method of preparation for successful completion of the American Registry of Radiologic Technologists (ARRT) CT Registry Exam.

**RADT 2293** Mammography Basics
Designed to provide a comprehensive review of mammography and a step by step method of preparation for successful completion of the American Registry of Radiologic Technologists (ARRT) Mammography Registry Exam.

**BioFuel Technology (RNEW)**

**RNEW 1100** Process Dynamics
Introduces concepts which deal with physical forces and their relationship to energy through temperature and pressure and are frequently encountered in an operating plant environment. An explanation and understanding of a plant system is crucial to this course. The scientific principles of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics and heat transfer are covered in detail. The curriculum of this course encompasses basic physics and science.

**RNEW 1101** Ethanol Process Fundamentals
Covers the history, rationale, and overall fundamental process of ethanol production. A Process Flow Diagram (PFD) of a typical ethanol plant will be used to examine the sequence of operation including residence time, pressures, and temperatures seen in various stages of production. This course will explain the rationale for feedstock and additives used in ethanol processing as well as product and co-product production and use.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>RNEW 1102</td>
<td>Biodiesel Process Fundamentals</td>
<td>2</td>
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<tr>
<td>RNEW 1103</td>
<td>Biodiesel Fundamentals Lab</td>
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<tr>
<td>RNEW 1105</td>
<td>Introduction to OSHA</td>
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<tr>
<td>RNEW 1106</td>
<td>Mechanical Fundamentals for Process Controls</td>
<td>3</td>
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<tr>
<td>RNEW 1107</td>
<td>Industrial Safety</td>
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<tr>
<td>RNEW 1110</td>
<td>Low &amp; High Pressure Boiler Systems</td>
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<td>RNEW 1115</td>
<td>Mechanical Fundamentals Lab</td>
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<td>RNEW 1130</td>
<td>Pollution Control Fundamentals</td>
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<td>RNEW 1140</td>
<td>Process Plant Chemistry</td>
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<td>RNEW 1145</td>
<td>Renewable Energy Seminar</td>
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<tr>
<td>RNEW 1155</td>
<td>Process Optimization/Troubleshooting</td>
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<td>RNEW 1160</td>
<td>Instrumentation &amp; Control</td>
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<td>RNEW 1165</td>
<td>Company Internship</td>
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<td>RNEW 1170</td>
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<td>RNEW 1175</td>
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<td>RNEW 1180</td>
<td>Pneumatics</td>
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<tr>
<td>RNEW 1185</td>
<td>Ethanol Process Fundamentals Lab</td>
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</table>

RNEW 1102: Provides detailed information regarding the overall fundamental process of biodiesel production. The course will include a review of biodiesel chemistry, process engineering, post reaction processing, fuel specification and properties, feedstock preparation, treatment and recovery of side streams, fuel transportation storage and general plant operations.

RNEW 1103: Designed to offer students hands-on opportunities to investigate the bench-level synthesis of biodiesel. Students will investigate production at the bench level by varying process parameters and feedstocks. Students will also conduct some initial analysis on the fuels produced in the laboratory. Concurrent enrollment with RNEW 1102.

RNEW 1105: Examines questions such as: What is OSHA? Why is it important in an operating plant environment? What safety practices should you implement in a plant operating environment and how to avoid unsafe situations?

RNEW 1110: Covers fuel combustion principles, steam boiler types and their components. Students will gain an understanding of the equipment its operation and maintenance to ensure safe and efficient procedures that are in line with regulations and codes.

RNEW 1115: Covers a basic understanding and identification of pumps, valves, heat exchangers, cooling towers, compressors, refrigeration principles and boiler systems. Startup, shutdown, operation and troubleshooting of each of these mechanical systems will be explained.

RNEW 1120: Provides hands-on exposure to pumps, valves, compressors, and heat exchangers. It will explain the proper procedure on how to start, operate and shut down pumps. Troubleshooting common operating problems of centrifugal pumps will be discussed. Functions & characteristics of reboilers, cooling towers, and condensers will be covered in detail. This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program.

RNEW 1125: Covers the symbols and diagrams commonly used on Piping and Instrumentation Diagrams (P & ID) and Process Flow Diagrams (PFD). Focus will be on identifying the types of diagrams, identifying instrument symbols and line symbols used on P & ID’s, understanding the types of information typically found on a legend, using a P & ID to locate the components of a system, and reading a PFD to trace the flow paths of a system.

RNEW 1130: Examines questions such as: What are the sources of pollution from a processing plant? How to mitigate pollution emissions, and why is it important to reduce emissions. What regulatory agencies oversee permitting and enforcement issues state and countrywide.

RNEW 1140: Designed to overview the relationship of science, technology and management areas in regard to agricultural processing plant operations. The course has a strong emphasis on the product, operational, and business aspects of agricultural processing plants. Prerequisite: CHEM 1150.

RNEW 1145: Renewable Energy Seminar: Consists of a seminar series with invited speakers from the agricultural processing industry. Topics will include such things as the future of agricultural processing, new products on the horizon, the role of genetic engineering in agricultural processing, the economics of a processing plant, and supervisory skills important to those in the Ag Processing industry.

RNEW 1155: Process Optimization/Troubleshooting: Designed to pull together all the concepts explored in the previous three semesters and apply them in real-life case studies. Participation in class will be critical. The concept that decisions made by the process operator have immediate impacts on the bottom-line of a company will be an important theme running through this course. Emphasis will be placed on report generating and interpreting using real-life examples. Prerequisite: RNEW 1135.

RNEW 1160: Instrumentation & Control: Builds on Mechanical Fundamentals and Process Dynamics. This course will cover the essential elements of a process control system. It will cover common types of electrical and pneumatic signals used for data collection while exploring devices used to measure flow rate, pressure, temperature, level and analytical control. This course will compare fundamental control concepts such as on/off and PID. It will explain how control concepts are used in various control loops of feedback, cascade, ratio and feedforward.

RNEW 1165: Company Internship: Designed to give practical experience with a local or regional firm. The company selects intern candidates. Rate of pay will be determined by company. Prerequisite: Successful (2.8 grade point average or better) completion of 12 semester credits of the Renewable Energy Program and consent of internship coordinator.

RNEW 1170: Microbial Ecology: Introduces students to structure, classification, and ecology of microorganisms, especially as it relates to an industrial processing plant. Prerequisite: BIOL 1110.

RNEW 1171: Microbial Ecology Lab: Designed to run concurrently with RNEW 1170. This course will offer practical experience in microbiological laboratory practices and techniques as well as study the enzymes supporting microbial ecology in ethanol processing facilities. Prerequisite: BIOL 1110.

RNEW 1175: Industrial Water Treatment: Covers the basic understanding of primary water treatment systems and chlorination. Students will be able to describe problems that can be caused by impurities in the water and explain how they can be removed physically and chemically. This course will also familiarize students with the basic concepts of treating industrial wastewater so it can be reused or discharged into the environment.

RNEW 1180: Pneumatics: Provides learners with the foundational knowledge in pneumatics theory. The active learner will gain an understanding of the gas laws as they apply to pneumatic systems. The course material will identify and describe the various components used in pneumatics circuits and systems as well as describe the operations of these varying components within these systems.

RNEW 1185: Ethanol Process Fundamentals Lab: Provides hands-on exposure to the rational and overall fundamental process of ethanol production. A Process Flow Diagram (PFD) of a
typical dry mill ethanol plant will be used to examine the sequence of operation, including residence time, pressures, and temperatures seen in various stages of production. This course will explain the rationale for feedstock and additives used in ethanol processing as well as product and co-product production and use. This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program.

RNEW 1195  
Biodiesel Technologies and Regulatory Issues  
Investigates the underlying research and reaction processes that are used to produce biodiesel. Studying feedstock options coupled with past and present technologies provides foundational knowledge about the industry. The course includes an in-depth review of the ASTM Standard for biodiesel and the regulatory issues that can arise from non-compliance.

RNEW 1300  
Introduction to Traditional and Renewable Energy  
Designed to introduce students to various forms of energy stemming from both renewable and non-renewable sources. Students will study many sources of energy including solar thermal power, solar photovoltaics, bioenergy, hydroelectricity, tidal power, wind energy, wave energy, geothermal energy and fossil fuels. The First Law of Thermodynamics is studied along with conversion and efficiency of various forms of energy. The economics, potential and environmental impact will be covered for each topic.

RNEW 2105  
Process Dynamics Lab  
Provides hands-on exposure to concepts which deal with physical forces and their relationship to energy through temperature and pressure and are frequently encountered in an operating plant environment. An explanation and understanding of a plant system is crucial to this course. The scientific principles of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics and heat transfer, are covered in detail. The curriculum of this course encompasses basic physics and science. This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program.

RNEW 2120  
Ethanol Separation Technology  
Covers the basic principles of ethanol distillation, evaporation and dehydration. Included will be an understanding of the operating components in a distillation system; demonstrable familiarity with startup, cleaning, operating, and shutdown procedures; and the ability to interpret both normal and abnormal operating conditions. The evaporative process and its role in processing plants will also be covered as well as the theory of molecular sieve dehydration and how it is used in the ethanol process. Prerequisite: RNEW 1101.

RNEW 2121  
Distillation and Evaporation Lab  
Designed to investigate bench-level distillation terminology and practices in the laboratory. Students will become familiar with typical distillation assemblies and equipment in both the batch and continuous processing systems. Mathematical skills will be used to calculate the mass balance of system inputs and product recovery.

RNEW 2165  
Instrumentation and Control Lab  
Provides hands-on exposure to the essential elements of a process control system. It will cover common types of electrical and pneumatic signals used for data collection while exploring devices used to measure flow rate, pressure, temperature, level and analytical control. This course will compare fundamental control concepts such as on/off and PID. It will explain how control concepts are used in the various control loops of feedback, cascade, ratio, and feedforward. This lab course, geared toward on-campus students, will fulfill one of the technical elective credits for the Renewable Energy Technology Program.

RNEW 2235  
Special Topics in Renewable Energy Technology  
Covers a wide range of current subjects in the field of renewable energy. Topics will be chosen to meet the needs of students. The class may be retaken.
will analyze their time management habits and development
improvement plans to become a time master.

**SBMT 1345**  
**Finances for the Non-Financial Manager**  
Provides learners with an opportunity to explore the essential concepts of financial analysis and improve their decision-making skills. This course is for students who have little experience in the field of finance. The students will explore the financial activities practiced by nonfinancial managers who are responsible for resources and interested in improving the financial performance and destiny of their organization.

**SBMT 1400**  
**Employment**  
Introduces an overview of the employment process with emphasis on hiring practices and procedures, job descriptions, advertising the position, screening applicants, interview process, reference checks, hiring process, and orientation.

**SBMT 1405**  
**Customer Service**  
Introduces practical tools for the development and management of effective customer relations. The learner will identify the broad range of external and internal customer relations and identify quality assurance requirements and expectations.

**SBMT 1410**  
**Personnel Supervision**  
Introduces the student to the various components of personnel supervision, which are unique to the healthcare industry.

**SBMT 1415**  
**Leadership**  
Introduces the student to the various components of leadership, which are unique to the healthcare industry.

**SBMT 1420**  
**Corporate Compliance**  
Emphasizes corporate compliance in the healthcare industry. Managers must be well informed of legal and financial requirements in order to make good management decisions. The reimbursement processes and practices are unique to this industry. This course will focus on the development and management processes required to ensure compliance with federal and state laws and regulations such as the Emergency Medical Treatment & Active Labor Act (EMTALA), the Health Insurance Portability & Accountability Act (HIPAA), the Omnibus Budget Reconciliation Act (OBRA) and Medicare and Medicaid Reimbursements. Additional topics include violence in the workplace as related to healthcare, and vulnerable adults and minors’ legislation.

**SBMT 1425**  
**Finance for Healthcare**  
Assists the student to become better acquainted with terms and definitions used in finance for Healthcare Facilities.

**SBMT 1430**  
**Healthcare Industry Trends**  
Assists the student to become better acquainted with changing technology and new programs and services in healthcare.

**SBMT 1435**  
**Marketing in Healthcare**  
Assists the student to become better acquainted with the changing technology and new programs and services in healthcare.

**Sociology (SOC)**

**SOC 1102**  
**Social Problems**  
Offers students the opportunity to examine societal impact and process of identification; use critical thinking skills for analysis of causation and exploration of potential solutions to present day problems in contemporary societies such as crime and delinquency, discrimination and racism, education, familial issues, government, physical and mental health, poverty, roots of group inequality, war and environmental issues. Explores significance and current policies and action.

**SOC 2100**  
**Human Relations**  
Covers concepts and ideas enabling students to recognize and identify oppression, discrimination, and racism, along with learning techniques for building community in a pluralistic society with its great variety of cultures, value systems, and life styles. Includes study of the cultural content, worldview, and concepts that comprise Minnesota-based American Indian tribal government, history, language, and culture.

**SOC 2210**  
**Marriage and the Family**  
Reviews historical and cultural perspectives of American family systems. Assesses the current ideals, functions, stresses and trends of the family. Topics include courtship, factors associated with marital success, roles and role expectations, statuses, alternatives to traditional systems, communication, marital dissolution and cross-cultural patterns. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**SOC 2220**  
**Family Life Dynamics**  
Examines the family, analyzes the dynamics occurring within it, and applies sociological theory to the study of the family. The family will be analyzed using systems, conflict, developmental, structural functional, symbolic interaction and the social exchange theories. Students learn how family life affects individuals by studying family characteristics, roles played, the impact of violence, abuse and addictive behaviors, and the development of healthy family systems. Evaluation is based in part on an individual analysis of either the student’s family of origin or family of procreation. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**SOC 2224**  
**Racial and Ethnic Minorities**  
Sociology 2224 examines the relationship of racial and ethnic minorities to dominant American society. Emphasis will be placed on the sociology of African American, American Indian, Hispanic, and Asian cultures. Topics include: the sociology of prejudice, discrimination, institutionalized racism, ethnocentrism, and segregation. Issues concerning persons with disabilities will also be addressed. Prerequisite: SOC 1101 or consent of instructor.

**SOC 2235**  
**Special Topics**  
Covers a wide range of issues of current interest. Topics will be chosen to meet the needs of students. The class may be retaken for credit if the topic varies.

**Solar Photovoltaic (SOLR also see ELPV)**

**SOLR 1020**  
**Introduction to Solar Assessment Lab**  
This course introduces students to basics of solar energy and solar site assessment for solar photovoltaic and thermal systems. Students will measure the solar window with a Solar Pathfinder (TM) and estimate the effects of climate, system design, and vegetation growth (and removal) on energy production. Using industry-standard hardware, mounting options and equipment, students will propose system designs, model economic and environmental costs and benefits, and report their findings.

**SOLR 1030**  
**Solar Energy Construction Projects**  
This course introduces students to basic construction skills and melting methods used in solar air, water, and electric systems. Topics include how to safely and carefully work with roofing, how to plan and assemble racking, how solar modules and panels are mounted, and how the remaining solar components are incorporated.

**SOLR 2020**  
**Advanced Photovoltaic Systems**  
This course will provide an introduction to photovoltaic (PV) systems design, installation, operation, and maintenance for residential and
commercial applications. Students will collect and interpret data. They will apply this data to the design and configuration of grid-tied and standalone system designs.

**SOLR 2025**
**Photovoltaic Systems Lab**
This hands-on course will cover the National Electrical Code (NEC) specifics concerning photovoltaic installation Article 690. Code-compliant wiring of modules, inverters, charge controllers, and batteries will be explored. Students will plan and execute photovoltaic system installations.

**SPANISH (SPAN)**

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<tr>
<td>SPAN 1101</td>
<td>Spanish I</td>
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<td></td>
<td>Special Topics</td>
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**SPAN 1101**
Spanish I
Assists students in developing proficiency in listening, speaking, reading and writing Spanish, mastering fundamental grammatical concepts, and integrating the culture of the Spanish-speaking world. The course is designed for students with little or no prior language study. Prerequisite: STSK 0090 or evidence of college level reading ability through assessment test or prior college coursework.

**SPAN 1102**
Spanish II
Continues to increase proficiency in listening, speaking, reading and writing in Spanish, mastering of more complex grammatical concepts including subjunctive mood, and integrating the culture of the Spanish-speaking world. Prerequisite: SPAN 1101, one-two years of high school Spanish, or consent of instructor.

**SPAN 1150**
Conversational Spanish
Provides students with the opportunity to use Spanish for specific communicative goals. The situational approach will focus on words and phrases needed to cope with everyday, survival situations and will vary according to class need. This course is designed for students with little or no prior language experience. This course could be taken more than once as the topics change. Survival Spanish for Probation Officers; Survival Spanish for Paramedics and EMT’s; Survival Spanish for Law Enforcement Officers; Emergency Spanish for Firefighters; Survival Spanish for Correctional Staff; Spanish for Dental Staff; Spanish for School Administrators, Teachers, & Support Staff; Office Spanish for Office Personnel; Doing Business in Latin America; Spanish for the Physician’s Office; Spanish for Nursing; and other professions are available.

**SPAN 2201**
Spanish III
Provides for a review of grammar and vocabulary study and allows for practice of the more difficult grammatical concepts in Spanish. Interactive activities using authentic text materials, various literary genre, videos in the target culture, thematic cultural units, and written exercises help students to increase proficiency in the four language modalities: listening, speaking, reading and writing. Prerequisite: SPAN 1102, one year of college Spanish, three years of high school Spanish, or consent of instructor.

**SPAN 2202**
Spanish IV
Integrates the mastery of structural concepts with the study of authentic text materials on a variety of cultural topics, various literary genre, and provides for developing proficiency in the four language modalities. Prerequisite: SPAN 2201, three or four years of high school Spanish, or consent of instructor.

**SPAN 2225**
Special Topics
Introduces students to topics of special interest incorporating the various modalities of language learning: listening, speaking, reading and writing, and interweaves the culture of the Spanish-speaking community. The course may be retaken for credit as the topics change.

**SPEECH (SPCH)**

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<tr>
<td>SPCH 1103</td>
<td>Interpersonal Communications</td>
<td>3</td>
</tr>
<tr>
<td>SPCH 2210</td>
<td>Oral Interpretation</td>
<td>3</td>
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</table>

**SPCH 1101**
Introduction to Speech
Introduction to Speech focuses on elementary speech training aimed at public speaking, extemporaneous speaking, and impromptu speaking. This speech course emphasizes delivery techniques, audience analysis, research, organization, clearness of statement, and logical thinking.

**SPCH 1103**
Interpersonal Communications
Assists students in improving their one-on-one communication skills in their personal, social, and professional lives. Learners analyze the common variables of interpersonal communications and learn techniques to overcome barriers to effective communication. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**SPCH 2210**
Oral Interpretation
Focuses on interpretation of short fiction, poetry, drama and children’s literature for oral presentation. The student will examine selected texts and incorporate body and voice control techniques for performance. This is an oral reading course.

**STUDY SKILLS (STSK)**

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<td>STSK 0091</td>
<td>Basic Math Skills</td>
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<td>Basic Skills Development</td>
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<td>STSK 0095</td>
<td>Reading Improvement II</td>
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<td>STSK 0096</td>
<td>Increasing College Vocabulary</td>
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<td>STSK 1104</td>
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<tr>
<td>STSK 1110</td>
<td>Freshman Seminar</td>
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**STSK 0090**
Reading Improvement I
Provides improvement of reading skills for students underprepared for college level reading. The focus is on basic comprehension with additional instruction in vocabulary and word recognition.

**STSK 0091**
Basic Math Skills
Provides individualized assistance to students who need to improve their basic math skills. The course covers fractions, decimals, metric percents, ratio and proportions, and solving for “x”.

**STSK 0092**
Basic Skills Development
Assists students in developing college-level study skills: time management, note taking, scheduling, and homework. Helps students understand how to manage college workload, analyze assignments, and clarify instructor expectations. Offers a review of college-level reading, writing and math abilities and skills. Helps students understand resources available and what is required of a responsible, self-motivated learner.

**STSK 0095**
Reading Improvement II
Provides improvement of reading skills for students underprepared for college level reading. The focus is on basic comprehension with additional instruction in vocabulary and word recognition. Prerequisite: STSK 0090 or placement by assessment test score.

**STSK 0096**
Increasing College Vocabulary
Designed for students who need to increase vocabulary and spelling skills for job success, continuation in college, are culturally diverse students, and others who want to make better use of Standard English.

**STSK 1104**
Efficient Reading
Offers students the opportunity to improve academic performance by developing higher levels of comprehension. Emphasis is on gaining knowledge from college textbooks. Prerequisite: STSK 0095 or evidence of college level reading ability through assessment test or prior college coursework.

**STSK 1110**
Freshman Seminar
Enhances the student’s adjustment and success with the college experience. The Freshman Seminar course provides first-year students
with a general orientation and introduction to resources and skills helpful in the transition to college life and to assist in long term academic and personal success. It is designed to facilitate a successful college experience. Students will develop college-level study skills and will learn about college resources to assist them in their personal and academic adjustment to college life. Strategies for a successful college experience, including: time management, studying smart, taking notes from lecture and textbooks, writing, test taking techniques, stress management, learning teaching styles, preparing speeches, introduction to online learning, navigating D2L and ITVdistance learning will be covered.

STSK 1135  
Introduction to Digital Literacy  
Introduces students to the basic elements of Digital Literacy as they develop the technology proficiency, information literacy, and media literacy necessary for safe use of digital technologies vital for success in post-secondary settings as well as the 21st Century workforce. Prerequisite: Students will need to have access to a reliable Internet connection and access to a device which will enable them to use various technologies.

SURGICAL TECHNOLOGY (SURG)

SURG 1110  
Surgical Microbiology  
Enables students to recognize how they can prevent the spread of disease and promote wound healing. Students will study the structure and function of microorganisms, pathogenic microorganisms and their diseases along with the methods of transmission. The concept of standard precautions will be explored. Various methods of sterilization and disinfection will be discussed. Students will study the wound healing process and classifications in conjunction with the body's defenses against disease.

SURG 1120  
Surgical Pharmacology  
Enables students to assist in the preparation of drugs used in the operating room. Students will study the uses, routes of administration, equipment needed and possible side effects of these drugs. The metric and apothecary systems of measure will be studied. Students will convert standard time to military time, do temperature conversions, and study how to prepare a solution. Emphasis will be placed on the legal and safety aspects of drug administration.

SURG 1130  
Operating Room Theory  
Enables students to function as an essential part of the medical team providing surgical care to patients in an operating room setting. Students will study the total operating room environment, which includes preoperative, intraoperative and postoperative care. Emphasis will be placed on the principles of aseptic technique. Concurrent enrollment with SURG 1110.

SURG 1140  
Operating Room Practices  
Facilitates students in the development of fundamental operating room skills, to identify instruments and to prepare necessary supplies for surgical case management. Included will be a basic knowledge of electricity, physics and robotics. Emphasis will be placed on demonstrating the principles of aseptic techniques as they apply skills inherent in the role of surgical technologist. The students will observe, practice and demonstrate these skills in a lab setting. This course must be taken immediately proceeding O.R. Clinical Lab I. Prerequisites: SURG 1110, SURG 1120, SURG 1130.

SURG 1150  
Operating Room Procedures I  
Enables students to understand various types of surgical procedures. Students will accomplish this by studying surgical anatomy, abnormalities and the preoperative, intraoperative and postoperative processes as they relate to each type of surgery. Students will relate the knowledge learned in previous theory courses to specific surgical procedures. The types of cases to be studied will include laparotomies, laparoscopy and surgeries performed on the reproductive, urinary, digestive, endocrine, sensory and respiratory systems. Prerequisites: SURG 1110 & SURG 1130.
WELD 1150
Gas Tungsten Arc Welding II
Described to provide the student with an understanding of gas tungsten
arc welding on thin gauge stainless steel and titanium. The student will
learn to develop the skill necessary to produce quality welds on .040" to
.062" stainless steel and titanium in the flat and horizontal positions. In
addition, information will be presented on the weld characteristics of
titanium and stainless steel to familiarize the student with the
manipulative technique and the characteristics of these metals.
Corequisite: WELD 1140.

WELD 1170
Flux Cored Arc Welding I
Designed to provide training to develop welding skills on carbon steels
using small and large diameter flux-cored electrode (with and without
shielding gas) in all positions on fillet and groove welds on plain carbon
steel products typically 1/4 inch thickness or greater. Flux in the core is
relied upon to generate the necessary protection from the atmosphere.
This process is widely used in construction because of its high welding
speed and portability.

WELD 1180
Weldability of Metals, Ferrous and Nonferrous
Provides the non-metallurgist with basic knowledge of various metals
and their weldability. Anyone involved with welding will benefit from the
better understanding of welding the different metals. Students will learn
metal properties, heat input, preheating, post heating, selecting filler
metals plus many more topics.

WELD 1190
Welding Principles
Provides students with details of welding and cutting processes,
termology and joint design, related areas of shop math, measurement,
and reading technical drawings.

WELD 1200
Blueprint Reading for Welders
Presents a thorough foundation for understanding the symbols,
practices, and concepts used in prints created for welding and
manufacturing. It will present information on blueprint reading using a
step by step process to enable students to visualize and interpret
blueprints used in industrial settings.

WELD 1205
Weld Shop Safety
Provides the student with a thorough understanding of hazards that
exist in the welding shop and practices and procedures that can keep
them safe.

WELD 1210
Oxy-fuel/Plasma Arc Cutting
Provides the student with basic knowledge and skills in oxyacetylene
cutting and welding and plasma arc cutting.

WELD 1220
Shielded Metal Arc Welding I
Provides the student with a thorough technical understanding of arc
welding, welding safety, arc welding power sources, electrode
classifications and selection. It also provides training to develop the
skills necessary to make quality shielded metal arc welds on mild steel.

WELD 1230
Gas Metal Arc Welding I
Provides the student with a thorough technical understanding of Gas
Metal Arc welding (GMAW), welding safety, equipment and setup, and
wire and shielding gas classifications and selection. It also provides
training to develop the skills necessary to make quality gas metal arc
welds on mild steel.

WELD 1240
Gas Tungsten Arc Welding I
Provides the student with a thorough technical understanding of Gas
Tungsten Arc welding (GTAW), welding safety, equipment and setup,
and rod and shielding gas classifications and selection. It also provides
training to develop the skills necessary to make quality gas tungsten arc
welds.
WELD 1250 Welder Certification
Provides the student with information about the welder certification process and the opportunity to take the American Welding Society (AWS) D1.1 Qualification test. Passing this test yields an industry-recognized credential and verifies the skill level of the participant.

WELD 1260 Metallurgy and Materials
Evaluates the basic elements of metallurgy and weld-ability as it pertains to common welded materials. Students will be provided instruction on the weld ability of metals, the effects of welding on metals, mechanical properties of metals, alloys and their properties, applications of various types of metals, metal classification systems, and procedures for welding hard to weld metals.

WELD 1270 Testing, Codes & Inspection
Describe the different types of destructive and non-destructive weldment testing. Emphasis will be placed on major national welding codes that govern the welding industry specifically the American Welding Society Structural Code D1.1 along with AWS codes.

WELD 1280 Intermediate Shielded Metal Arc
Perform horizontal, vertical and overhead welding in accordance with AWS and ASME procedures. Common joint types in various thicknesses are welded using various electrodes. Some metal sheet will be welded.

WELD 1290 Advanced Shielded Metal Arc
Evaluate Shielded Metal Arc welds made in the horizontal, vertical and overhead positions on various thicknesses of metals using various electrodes to AWS and ASME standards.

WELD 1300 Intermediate Gas Metal Arc Welding
Perform Gas Metal Arc Welding (GMAW) in the horizontal, vertical and overhead positions. Operate power supplies that use shielding gases, short-arc and spray discharge. Identify wire types and sizes.

WELD 1310 Advanced Gas Metal Arc Welding
Evaluate advanced procedures, techniques, and skills necessary for proficiency in Gas Metal Arc Welding (GMAW) and Flux Cored Welding (FCAW) in the horizontal, vertical, and overhead positions on various thicknesses of metal to AWS and ASME standards.

WELD 1320 Intermediate Gas Tungsten Arc
Perform gas tungsten arc welding (GTAW) in the horizontal, vertical, and overhead positions. Weld a variety of joint designs using different types of metal and different thicknesses used in industry.

WELD 1330 Advanced Gas Tungsten Arc
Evaluate advanced procedures, techniques, and skills necessary for proficient Gas Tungsten Arc Welding (GTAW) in a variety of positions and joint designs using different types of metals and thicknesses of metals used by industry to AWS and ASME standards.

WELD 1340 Welding Qualification Lab
Determine the requirements of welding codes and specifications for welding qualification. Emphasis will be placed on the AWS and AMSE tests and procedures for ferrous and nonferrous metals. Performance will be evaluated using visual and destructive testing.

WELD 1400 Welding Fundamentals
Provides the students with an understanding of the welding and cutting processes used in production and repair. The course covers welding shop safety, theory, fundamentals of operation, equipment used, and techniques recommended for welding and cutting processes.

WELD 2110 Advanced Blueprint Reading
Advanced Blueprint Reading is designed for students who have a basic understanding of blueprint reading. Selected blueprints cover methods of representation and unusual applications of drafting principles including sketches, auxiliary section, distorted views and representation of some common production methods. This course covers and builds the hands-on skills that are essential to fabricate weldments from blueprints. Students will learn how to visualize blueprints by actually building welding projects from them. Students will begin fabricating projects from blueprints starting with simple blueprints and progressing to more challenging projects.

WELD 2120 Fixture and Layout
Develops the concepts necessary for basic layout skills including fixture construction. Fixtures allow precut components to be quickly assembled into position for welding. This course covers calculation of the area of geometric figures for use in layout and cutting operations and includes the volumes of geometric figures used in the layout and shearing operations.

WELD 2130 Fabrication and Repair I
Covers basic fabrication techniques as they relate to product manufacturing, maintenance and repair. Topics include bending, forming, shearing, simple punching operations, flat pattern layouts, basic jig and fixture application and assembly methods.

WELD 2140 Fabrication and Repair II
Provides skill to properly fit up and weld carbon steel pipe, square steel tube and angle iron in a structural application. Carbon steel plate is welded according to the nationally recognized AWS certification code. Fabrication projects will be made using a variety of manufacturing processes including CNC press brake forming, CNC plasma arc cutting, CNC laser cutting, shearing, punching and welding. Fixtures also will be designed and used. Prerequisite: WELD 2130.

WELD 2150 Gas Metal Arc Welding III
Builds proficiency in GTAW process with mild steel in all positions and progresses to aluminum and stainless steel in all positions. Students will be expected to work to industry standards for apprentice welders. Prerequisites: WELD 1140 & WELD 1150.

WELD 2160 Gas Metal Arc Welding II
Builds proficiency in GMAW processes using the spray and pulse spray transfers with mild steel and progresses to aluminum and stainless steel. The introduction of the aluminum and stainless numbering system will be included. Students will be expected to work to industry standards for apprentice welders. Prerequisite: WELD 1160.

WELD 2170 SMAW Pipe Welding
Provides instruction for the development of pipe welding skills. Students will prepare and weld various pipe diameters with the Shielded Metal Arc Weld process. This course helps to develop the welding skills necessary to produce quality welds on schedule 80 mild steel pipes in the 1F, 2F, 5F, 1G, 2G and 5G positions using E6010 and E7018 electrodes.