

COURSE DESCRIPTIONS

ACCOUNTANT (ACCT)

ACCT 1104 Special Projects	1
This course 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.	
ACCT 1110 Payroll Accounting	3
This course covers the various state and federal laws pertaining to the computation of payment of salaries and wages.	
ACCT 1115 Computerized Accounting Applications I	2
Introduces the use of computers and related software used in the accounting function of the business environment. Topics include 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.	
ACCT 1120 Spreadsheet Concepts and Applications	2
The use of a computerized spreadsheet system for business applications. Topics include document creation, storage and retrieval, editing, printing, and file distribution.	
ACCT 1122 Database Concepts and Applications	2
The use of a database system for business applications. Topics include electronic files, file creation and flexible stored procedures.	
ACCT 2100 Intermediate Accounting I	4
This course is a comprehensive study of accounting theory and concepts with an analysis of the influence on financial accounting by various boards, associations, and governmental agencies. Prerequisite: BUS 2202.	
ACCT 2101 Intermediate Accounting II	2
A continuation of the comprehensive study of accounting theory and concepts. Prerequisite: ACCT 2100.	
ACCT 2105 Auditing	3
A study of 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.	
ACCT 2110 Income Tax I	4
This course is an explanation and interpretation of the Internal Revenue Code as applied to individual and business returns. Computerized software will be used to prepare actual income tax returns.	
ACCT 2115 Cost Accounting I	4
This course is a study of 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.	

ACCT 2120 Fund/Nonprofit Accounting 3

This course focuses on the application of generally accepted accounting principles for state and local governmental units. Prerequisite: BUS 2202.

ACCT 2125 Computerized Accounting Applications II 2

This course is a continuation in the use of computers and related software used in the accounting function of a business. Prerequisite: BUS 2202.

ACCT 2130 Intermediate Accounting III 2

This course is a comprehensive study of accounting theory and concepts with an analysis of the influence of financial accounting by various boards, associations, and governmental agencies. Prerequisite: ACCT 2101.

ACCT 2135 Internship 2

Provides practical experience with a business utilizing skills/knowledge learned in accounting programs.

ADMINISTRATIVE ASSISTANT (ADSA)

ADSA 1100 College Keyboarding I 3

This course covers basic skill development and the use of word processing software to produce various personal and business correspondence including letters, envelopes and labels, memos, reports, tables, and employment documents. Focus will also be placed on the development of touch control keyboarding technique, accuracy, speed, and proofreading skills.

ADSA 1105 College Keyboarding II 3

This course emphasizes the use of advanced word processing skills and formatting techniques to produce business correspondence including multi-page letters, memos, and reports, complex tables, forms, and office-related publications. Focus will continue to be placed on the improvement of keyboarding accuracy, speed, and proofreading skills. Prerequisite: ADSA 1100.

ADSA 1111 Office Management 3

This course covers general office principles and procedures with practical application. Topics covered include the roles and responsibilities of the administrative professional, professionalism, self-management and organizational strategies, ethics, teams, customer service, leadership, communication skills, common tasks and procedures performed in the office environment, and job seeking skills.

ADSA 1122 Word Processing I 2

This course is designed to introduce students to the concepts, terminology, features, and applications of word processing software. Topics covered include the preparation, management, formatting, editing, enhancing, and customization of documents.

ADSA 1123 Word Processing II 2

This course is designed to build on the concepts and applications learned in Word Processing I and to introduce more advanced word processing software features. Topics covered include proofing and navigation of documents, charts, references, specialized tables, building blocks, shared documents, macros, forms, outlines, master documents, and sub documents. Prerequisite: ADSA 1122

ADSA 1126 2
Advanced Office Applications
 Advanced Office Applications is a capstone course designed 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.

ADSA 1130 3
Office Accounting Concepts
 This course provides a basic knowledge of accounting concepts and procedures. The accounting cycle for a service business will be covered including analyzing, journalizing, posting business transactions, and preparing a ten-column worksheet and financial statements. Accounting for cash and payroll will also be covered in the course.

ADSA 1131 2
Office Accounting Concepts II
 This course provides the opportunity to apply and reinforce basic knowledge of accounting concepts and procedures through the use of simulation and computerized accounting software. Prerequisite: ADSA 1130.

ADSA 1132 1
10-Key Operations
 This course focuses on the development of touch control technique on a 10-key number pad for accuracy and speed applicable to business situations.

ADSA 1136 2
Desktop Publishing
 This class is designed to introduce student to the concepts, terminology, techniques, and applications of desktop publishing. The student will integrate text and graphics to produce professional-quality publications.

ADSA 1141 2
Customer Service for the Office Professional
 This course 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 3
Supervisory Management
 This course enhances participants to learn 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 1190 2
Presentation Graphics
 This course 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.

MEDICAL ADMINISTRATIVE ASSISTANT (ADSM)

ADSM 1115 2
Anatomy & Physiology/Disease Conditions II
 This course is a continuation of human anatomy and disease with emphasis on terminology, abbreviations, and disease process. The study of diseases follows anatomical systems. Prerequisite: ADSM 1110.

ADSM 1120 3
Medical Office Procedures
 Introduces medical office career information with an emphasis on medical ethics and professional liability, medical receptionist tasks, working with medical records, work processing, and bookkeeping/billing.

ADSM 1190 4
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.

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 process 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 1115 4
Introduction to Shrimp Production
 Provides students with an introduction to shrimp production with an emphasis on fundamental concepts of physiology, nutrition, life cycle, and management in various production methods along with history, processing, and marketing of shrimp.

AGRI 1125 2
Custom Application
 The Custom Application course is 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 spreaders. 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 analysis procedure. Topics include calculation of earnings, efficiency factors, total business and enterprise analysis, and the use of records to aid in the financial decision-making aspect of credit utilization in agricultural business and production.

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

AGRI 2201 **Principles of Animal Nutrition** **3**
 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 **Weed Science** **3**
 Surveys the principles and methods of weed control and the modes of action of herbicides.

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

AGRI 2204 **Introduction to Precision Agriculture** **3**
 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 **Introduction to Precision Management Software** **3**
 This course is 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 **Corn and Soybean Production** **3**
 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 maintenance of agricultural equipment.

AGRI 2214 **Machinery Principles and Management** **3**
 This course will cover the utilization of farm equipment from the purchasing of equipment and managing the costs to the operation and maintenance of agricultural equipment.

AGRI 2216 **Introduction to Meat Science** **3**
 Evaluates 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 **Building Construction Technology** **3**
 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 **Current Technical Competencies** **3**
 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 **Special Topics in Agriculture** **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.

AGRI 2251 **Principles of Farm and Ranch Management** **4**
 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** **2-8**
 Places students on a farm operation to gain further experience in agricultural production management under the supervision of the agriculture department staff.

AGRI 2299 **Agri-Business Internship** **2-8**
 Places 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** **3**
 Meets Goal Area: 06
 Introduces a wide range of basic drawing approaches and materials. Students will experiment with traditional and contemporary styles to complete tasks in perspective and composition.

ART 1103 **Display and Exhibition** **1**
 Meets Goal Area: 06
 Exposes the student to the organization, management and design and hanging of gallery displays. Students will be responsible for the pre-organization and arrangement of exhibitions. The course will cover both theoretical and practical experience with gallery management.

ART 1114 **Foundations of Art 2D** **3**
 Meets Goal Area: 06
 Introduces a visual vocabulary and tools essential for two-dimensional representation. Students will investigate the basic principles of composition, realism, and abstract expressionism through a variety of techniques and media.

ART 1115 **Beginning Painting** **3**
 Meets Goal Area: 06
 Introduces traditional and contemporary painting techniques and materials. Students will explore formal and abstract elements to compose their own visual style.

ART 1118 **Foundations of Art 3D** **3**
 Meets Goal Area: 06
 Introduces a visual vocabulary and tools essential for three-dimensional representation. Students will utilize a variety of media and studio production methods to develop creative thinking and investigate the basic principles of art.

ART 1120 **Art Appreciation** **3**
 Meets Goal Area: 06
 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 placement by multiple measures.

ART 1124 **Introduction to Ceramics** **3**
Meets Goal Area: 06
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** **3**
Meets Goal Area: 06
Investigates the history and methods of Raku ceramics. There is an emphasis on glazes and firing techniques.

ART 2201 **Intermediate Drawing** **3**
Meets Goal Area: 06
Deepens understanding of a wide range of drawing approaches and materials. Students will refine their application of traditional and contemporary styles to complete tasks in perspective and composition. Prerequisite: ART 1101.

ART 2215 **Intermediate Painting** **3**
Meets Goal Area: 06
Deepens understanding of traditional and contemporary painting techniques and materials. Students will utilize formal and abstract elements to refine their own visual style. Prerequisite: ART 1115

ART 2224 **Intermediate Ceramics** **3**
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** **3**
Meets Goal Area: 06
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** **3**
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** **1-3**
Meets Goal Area: 06
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** **3**
Meets Goal Areas: 06, 08
Includes the study of painting, sculpture and architecture from the Paleolithic (Stone Age) era through the Early Renaissance era.

ART 2245 **Art History II** **3**
Meets Goal Areas: 06, 08
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 1120 **Air Conditioning** **3**
Students will learn to identify and define the theory, principles, diagnosis, testing, and repairs of the air conditioning and heater systems operations.

AUTO 1126 **Steering/Suspension/Alignment** **3**
Students will 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. The course also covers the principles of operation, disassembly, checks and adjustments of power and manual steering gears, and manual and power rack and pinion systems. The procedures required for checking and adjusting wheel alignment will also be covered.

AUTO 1131 **Brakes** **3**
This course enables 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**
The theory of engine cooling and lubrication systems will be explained and demonstrated in this course. Students will inspect, repair, and/or adjust the following engine components and systems: valves, cylinder heads, blocks, crank shafts, cooling and lubrication systems. Students will also learn to identify the basic operation, nomenclature and function of engines.

AUTO 1194 **Commercial Drivers License Learner Permit Preparation** **2**
This course prepares the students to take the Commercial Drivers License Learner Permit written knowledge test in compliance with the Federal Motor Carrier Safety Administration entry level driver training requirements. There is no behind the wheel driving training in this course.

AUTO 1195 **Commercial Drivers License** **2**
This course will allow 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 2107 **Automatic Transmissions** **3**
This course teaches the theory of operation of automatic transmissions and transaxles and related components. The fundamentals of service of the components of the transmissions will be introduced and practiced in this course. Students will perform the necessary skills to diagnose and repair automatic transmissions and transaxles.

AUTO 2108 **Introduction to Hybrid Electric Vehicle** **3**
This course 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 2113 **Manual Drivetrain and Axles** **3**
This course provides the fundamentals of conventional and light truck manual transmission and clutches. Contents will include power flow, design, adjustment, overhaul procedures, diagnosis, and repairs.

AUTO 2121 **Engine Performance II** **5**
This course teaches the theory and repair of automotive engine systems including ignition systems, emission systems, electronic engine controls, and engine performance diagnosis. Students will learn to diagnose and repair all systems related to engine performance.

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 2146 **4**
Body Computer Controlled Electrical Systems
 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 2155 **4**
Intro to Diesel Electronics
 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 and use this information to diagnose and make repairs to the unit being tested. The course will cover basic Windows operations and scanner diagnostics needed to operate the computerized systems.

AUTO 2160 **6**
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 **4-6**
Summer Internship
 The automotive summer internship class 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 **3**
Survey of Biological Science Meets Goal Area: 03
 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 1100 is intended for non-majors.

BIOL 1110 **4**
Principles of Biology I Meets Goal Area: 03
 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 placement by multiple measures.

BIOL 1111 **4**
Principles of Biology II Meets Goal Area: 03
 Examines biological diversity and the basic mechanisms and concepts in organismal biology including a survey of life forms (viruses, bacteria, protists, 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 **3**
Human Biology Meets Goal Area: 03
 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 placement by multiple measures.

BIOL 2100 **3**
Ecology Meets Goal Area: 03
 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 **4**
Human Anatomy Meets Goal Area: 03
 Covers structures of the human body from the cellular to organ system level. This course includes study of the human body organization, cellular structure, tissues and the following human organ systems: integumentary, skeletal, muscular, nervous, endocrine, circulatory, lymphatic, respiratory, urinary, digestive, and reproductive. Laboratory exercises are designed to reinforce and 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 **4**
Human Physiology Meets Goal Area: 03
 Covers an applied and systematic approach the physiology of the cells, tissues, organs and organ systems of the human body. Laboratory exercises support the lecture and include hands-on exercises that coincide with the systems covered in the lecture topics. Prerequisite: BIOL 2201.

BIOL 2220 **4**
Animal Biology Meets Goal Area: 03
 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 **4**
Plant Biology Meets Goal Area: 03
 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 **1-3**
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 **3**
Genetics Meets Goal Area: 03
 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 **2**
Medical Terminology Meets Goal Area: 03
 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 placement by multiple measures.

BIOL 2270 **4**
Microbiology Meets Goal Area: 03
 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.

BIOTECHNOLOGY (BIOT)

BIOT 1101 Introduction to Biotechnology Introduces the field of biotechnology and its applications in industry and agriculture. Components will consist of lectures coordinated to labs, which demonstrate the application of this science to this emerging field.	3
BIOT 2201 Organic and Biological Chemistry Covers organic functional groups - physical and chemical properties, various specific organic molecules and their role in industry and/or the environment, lipids, proteins, enzymes, nucleic acids, protein synthesis and metabolism. Prerequisites: CHEM 1100 or CHEM 1101.	3
BIOT 2205 Molecular and Cellular Biology Covers the cellular functions and molecular structures of both prokaryotic and eukaryotic organisms. Topics will include DNA, RNA and protein synthesis, DNA replication, recombination and insertion methods, isolation and purification methods of biological molecules, principles of immunology and virology, and DNA technology.	3
BIOT 2210 Biotechnology Methods I Introduces the student to the equipment commonly used to support a modern biologics lab. Topics will include instrument care and calibration, laboratory records and statistics, media and product preparation, GMP/GLP regulations, governmental regulations and methods for isolating and purifying targeted biological molecules.	4
BIOT 2220 Biotechnology Methods II Extends the concepts and theories from Biotechnology I and applies these techniques to small and large scale production. Areas covered will include cell culture, immunoassays, fermenters, inventory control and quality control. Prerequisite: BIOT 2210.	4
BIOT 2225 Analytical and Investigative Lab Techniques Introduces the student to quantitative analysis of biological components and products. Students will have to process raw samples, identify which assay is appropriate for the sample, and report assay results. Topics include cell fractionation, chromatography, electrophoretic techniques, fluorescence, spectrophotometry, and microscopy among others. Prerequisite: BIOT 1101.	4
BIOT 2297 Biotech Internship Provides the student with on the job experience in the field of biotechnology.	2-8

BUSINESS (BUS)

BUS 1101 Introduction to Business Provides students with vital exposure to the major business functions in a dynamic free enterprise environment. The course offers students relevant exposure to background information necessary to execute decision-making in a multitude of business specialties. Fundamentals are emphasized in areas as management, marketing, financing, and information systems.	4
BUS 1104 Business Mathematics This course emphasizes mathematical concepts through practical applications in business situations covering percentages in business (mark-ups and discounts), payroll and taxes, finance charges, inventory and depreciation.	3

BUS 1105 Introduction to Entrepreneurship Presents information on starting a new business, developing a business plan, buying an existing business, 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.	2
BUS 2105 Introduction to Entrepreneurship Presents information on starting a new business, developing a business plan, buying an existing business, 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.	2
BUS 2200 Introduction to Management Information Systems 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.	3
BUS 2201 Principles of Accounting I Teaches the basic concepts that are the prerequisites for all other courses in accounting. Included is an introduction to the accounting system; the processing of accounting data, the purposes and construction of different types of financial statements, and the development of financial accounting.	4
BUS 2202 Principles of Accounting II Develops accounting as a planning, analysis, and control tool facilitating the decision-making process of management. The course examines cost and managerial accounting principles and practices, including cost accounting, budgeting, performance measurement, and cost-volume-profit analysis. Prerequisite: BUS 2201.	4
BUS 2221 Principles of Management Studies the general principles of management planning, organizing, staffing, directing and controlling the establishment. Course emphasis is placed on the development of goals, policies, and systems necessary to coordinate all resources of an organization to achieve objectives. The importance of adequate managerial communication and motivation in accomplishing specific purposes, and the decision-making and the problem-solving process are emphasized.	3
BUS 2230 Principles of Marketing Analyzes the role and importance of marketing as a directing force in a business organization and its relationship to our society. Emphasis is placed on principles, methods, and problems involved in the marketing operations of the firm, including development, pricing, marketing channels, and promotion.	3
BUS 2232 Professional Selling This course 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.	3
BUS 2233 Advertising 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.	3

BUS 2241 3
Business Law
This course will provide a basic understanding of the American legal system and its processes, and an enhanced understanding of the modern global business environment. It examines the legal framework within which business is transacted, not only by business and professional people but also by consumers. Topics include origin of law, ethics, contracts, sales, bailments, negotiable instruments, secured transactions, bankruptcy, real and personal property, product liability, dispute resolution, principal and agent relationships, and business organizational structures.

BUS 2242 3
Business Communications
This course covers theory and offers practice in the fundamentals of good business communications. Emphasis is placed on the construction of effective (and positive) business letter writing. Resume writing, cover letters, interviewing techniques, memos and reports are also integral parts of the course.

BUS 2275 3
Human Resources Management
Provides an analysis of the importance of personnel management in accomplishing the established objectives of a business. Utilization of human resources is emphasized. Management of proper relationships with labor unions, government authorities, and the total community is studied.

BUS 2297 2-8
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.

CHILD DEVELOPMENT (CDEV)

CDEV 1200 3
Professional Relations
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.

CDEV 1240 3
Family and Community Relations
This course will guide 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 effectively communicating. Community organizations and networks which support families will be studied.

CDEV 1262 4
Creative Activities
Students will explore varied 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.

CDEV 1265 2
Foundations of Child Development
Teaches how to design and use developmentally appropriate language and cognitive-growth activities, including how to encourage curiosity, exploration and problem-solving; to develop sensory and story-telling skills; how to teach concepts such as time, shape and quantity, how to provide opportunities to organize and group materials; and to verbalize their experiences. Prerequisite: STSK 0090 or placement by multiple measures.

CDEV 1266 1
Foundations of Child Development I Lab
This course provides an overview of typical and atypical child development from prenatal to school age including physical, social, emotional, and cognitive development. It integrates theory with appropriate practice in a variety of early childhood settings. The Minnesota Department of Human Services will check the background of each applicant to ensure that there is no record of child maltreatment. Must be taken concurrently with HSER 1266.

CDEV 1267 2
Children's Health, Safety, and Nutrition
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 placement by multiple measures.

CDEV 1268 1
Children's Health, Nutrition and Safety Lab
This course examines how to provide a healthy and safe environment and provide 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 1
Guidance, Managing the Physical & Social Environment Lab
This course 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 guidance methods in a variety of early childhood settings. Must be taken concurrently with HSER 1269.

CDEV 1270 2
Guidance: Managing the Physical and Social Environment
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 nurturing and developing realistic expectations for children's behavior, setting limits and developing self-control. Prerequisite: STSK 0095 or placement by multiple measures.

CDEV 1340 4
Planning and Implementing
This course 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 2-4
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 4
Infant and Toddler Development and Learning Experiences
This course 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 1-4
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 3
Childhood Poverty, Exploring the Issues
This course will increase 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 3

Language & Literature Learning Experiences

This course 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 bi-lingualism.

CHEMISTRY (CHEM)

CHEM 1100 3

Introduction to Chemistry

Meets Goal Area: 03

Introduces fundamental theories and applications of chemistry including measurement, atomic theory, bonding theory, nomenclature, chemical quantities, chemical reactions, states of matter, solutions, acids and bases, and nuclear chemistry. This course is for students with no recent background in chemistry and is intended for non-science majors and students preparing for General Inorganic Chemistry I. This course includes a lab. Prerequisite: High school algebra or MATH 0099 or placement by multiple measures.

CHEM 1101 4

General Inorganic Chemistry I

Meets Goal Area: 03

Provides an in-depth introduction to fundamental theories and applications of chemistry including measurements, matter, chemical quantities, thermochemistry, atomic theory, bonding theory, and gases. This course is for students considering a major in science, pre-engineering, or pre-health (medicine, pharmacy, veterinary medicine, four-year nursing). This course is the first semester in a two-semester general chemistry sequence. This course includes a lab. Prerequisite: High school chemistry or CHEM 1100 or CHEM 1150, High school algebra, MATH 0099 or placement by multiple measures.

CHEM 1102 4

General Inorganic Chemistry II

Meets Goal Area: 03

Continues CHEM 1101 with emphasis on liquids, solids, solutions and solubility, kinetics, equilibrium, acids and bases, thermodynamics, electrochemistry, coordination compounds, and nuclear chemistry. This course is for students considering a major in science, pre-engineering, or pre-health (medicine, pharmacy, veterinary medicine, four-year nursing). This course includes a lab. Prerequisite: CHEM 1101.

CHEM 1150 4

Survey of Chemistry

Meets Goal Area: 03

Introduces key concepts of general, organic, and biological chemistry including measurement, matter, nomenclature, chemical quantities, chemical reactions, solutions, acids and bases, organic compound families and reactions, and macromolecules or biological importance such as carbohydrates, lipids, proteins, and nucleic acids. This course is for pre-health, medical science, and liberal arts students, and no recent background in chemistry is required. This course includes a lab. Prerequisite: High school algebra or MATH 0099 or placement by multiple measures.

CHEM 2201 5

Organic Chemistry I

Meets Goal Area: 03

Covers the structure, classification, and fundamental reactions of carbon compounds. Specific topics include molecular structure, nomenclature, isomerism, reaction mechanisms, and reaction classes including proton transfer, nucleophilic substitution, elimination, and alkene addition. This course is for students majoring in science, pre-engineering, or pre-health (medicine, pharmacy, veterinary medicine). This course is the first semester in a two-semester organic chemistry sequence. This course includes a lab. Prerequisite: CHEM 1101.

CHEM 2202 5

Organic Chemistry II

Meets Goal Area: 03

Continues CHEM 2201 with emphasis on multistep organic synthesis, orbital interactions, structure determination, and reaction classes including addition, nucleophilic addition-elimination, aromatic substitution, pericyclic reactions, free radical reactions, and polymerization. This course is for students majoring in science, pre-engineering, or pre-health (medicine, pharmacy, veterinary medicine). This course includes a lab. Prerequisite: CHEM 2201.

CRIMINAL JUSTICE (CJS)

CJS 1101 3

Introduction to Criminal Justice

Meets Goal Area: 05

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 2

Safety Awareness

Introduces OSHA standards relating to personal protective equipment, lock out/tag out, Hazardous materials, Hazard Communication, tool safety, confined spaces, electrical safety, emergency response, 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 2

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 2

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 2

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 3

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. Co-Requisite: CMHW 1100.

CMHW 1100 3

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. Co-requisite: CMHW 1000

CMHW 1200 3

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 1000 and CMHW 1100. Co-Requisite: CMHW 1300.

CMHW 1250 **2**
Introduction to Trauma Informed Care

Explore how trauma impacts the role of the CHW with a focus on specific populations to include American Indian, African American and Refugees. The CHW student will gain an overview of Trauma, its impact among various populations, the scientific basis of Trauma and how this connects to Chronic Disease, what is Trauma informed care, define historical trauma, secondary trauma, barriers related to healing related to trauma and the role CHW's play in healing and self-care. Prerequisites: CMHW 1000, CMHW 1100, and CMHW 1200.

CMHW 1300 **3**
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 1000 and CMHW 1100. Co-Requisite: CMHW 1200.

CMHW 1400 **2**
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.

COMMUNICATIONS (CMST)

CMST 1101 **3**
Public Speaking Meets Goal Area: 01

Develops students experience in the basic fundamentals of effective public speaking. Students will prepare and deliver a variety of speeches as well as critique them.

CMST 1103 **3**
Interpersonal Communication Meets Goal Area: 01

Develops students understanding in becoming a more competent interpersonal communicator. Students will gain valuable skills and learn communication strategies to develop and manage relationships more effectively.

CMST 1120 **3**
Intercultural Communication Meets Goal Areas: 07, 08

Develops an awareness about the importance of intercultural communication and how our own unique cultural experiences affect our communication choices. Listening, nonverbal communication, and other topics relating to intercultural communication like culture shock and communication competency will be explored.

CMST 1130 **3**
Small Group Communication Meets Goal Area: 01

Develops student's understanding of how the group communication process works. Students will also develop knowledge on specific group communication terms and skills while participating in small groups.

CMST 1140 **3**
Topics in Communication: Puerto Rico Culture

Meets Goal Areas: 07, 08

Students will learn how to be effective intercultural communicators by learning about various aspects of communicating across cultures. After completing the classroom portion of the course, students will have the opportunity to travel to Puerto Rico to experience another culture first hand and apply the intercultural communication skills that they have learned in the course. Students will experience the vibrant local heritage of Puerto Rico as they explore and celebrate traditional customs with locals.

CMST 1150 **3**
Exploring Mass Media Meets Goal Areas: 05, 09

Develop media-literate citizens through the examination of various aspects of mass communication. Emphasis will be placed on developing a critical awareness of mass media, convergence, strategic communication, media ethics, and the societal impact of media.

CMST 2210 **3**
Oral Interpretation Meets Goal Area: 06

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 in performance.

COSMETOLOGY (COSM)

COSM 1100 **4**
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, eyelash extension application 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 **4**
Preclinic Hair Care

Examine the basic 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 **4**
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 **4**
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 **4**
Preclinic Skin Care

Examine dermatology and skin care services which include skin analysis, facial massage, makeup application, eyelash extension application and hair removal using both hard and soft wax. This course will contribute 112 hours towards licensure. Prerequisite: Completion of, or concurrent enrollment in COSM 1100.

COSM 1130 **3**
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 facials 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 **3**
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 4
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 facials 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.

COSM 1145 4
Clinic II
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.

COSM 1150 4
Clinic III
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 facials 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.

COSM 1155 3
Clinic IV
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 facials 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.

COSM 1160 4
Clinic V
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.

COSM 1165 3
Clinic VI
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.

COSM 1170 3
Clinic VII
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 facials 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.

COSM 1175 3
Clinic VIII
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 facials 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.

COSM 1181 2
License Preparation for Cosmetology I
Prepares the student for both their MN State Board Written and Practical exams. Students will review MN Statutes and Rules in preparation for the required skills readiness test and salon experience. Lecture hours will also concentrate on salon management and retail operations. This course will contribute 48 hours toward licensure. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.

COSM 1182 2
License Preparation for Cosmetology II
Prepare the student for both their MN state board written and practical exams. Students will review MN Statues and Rules in preparation for the required skills readiness tests and salon experience. This course will provide students with an opportunity to develop the practical skills necessary for entry-level salon work concentrating on safety procedures and sanitation. This course will also provide lecture hours concentrating on salon management, communications skills and retail operations. This course will contribute 48 hours toward licensure. Prerequisite: Successful completion of, or concurrent enrollment in Preclinic courses.

COSM 1220 1-18
Salon Operations VIII
Provides additional hours for licensure in other states along with additional hours needed to complete the Nail Technician program and prepare for licensure. This course may also be used to fulfill the hour requirements for the Cosmetology and Esthetics programs. Students will apply and practice safety/sanitation procedures along with operational requirements. Students will have an opportunity to develop the practical skills necessary for entry level salon work pertaining to the program area of study, whether it is Cosmetology, Nail Tech or Esthetics.

COSR 1100 2
40 Hour Refresher Course
Provides students with the Minnesota 40 hour refresher course requirements needed for license renewal. Prerequisites: Previous Minnesota cosmetology license.

COSR 1105 4
155 Hour Reactivation Course Theory
Provides students with the theory portion of the Minnesota 155 hour reactivation course requirements for reactivating a license. Prerequisite: Previous Minnesota cosmetology license.

COSR 1110 3
155 Hour Reactivation Course Practical
Provides students with the practical portion of the Minnesota 155 hour reactivation course requirements for reactivation of a license. Prerequisites: Previous Minnesota cosmetology license.

COSR 1115 1
155 Hour Reactivation Course License Preparation
Prepares students for their written and practical examinations required for reactivating a license. Prerequisite: Previous Minnesota cosmetology license.. Prerequisite: Previous Minnesota cosmetology license.

CARPENTRY (CRPT)

CRPT 1101 2
Tool Safety, Construction Terms & Materials
The purpose of this course is to learn the different types of materials and terms used on all construction sites and how to maintain and use all hand and power tools.

CRPT 1105 4
Floor and Wall Framing
 Students gain hands-on experience laying out, building, straightening, bracing and leveling walls and floors. During lab activities they will layout and erect the supporting structures for residential floor and wall components.

CRPT 1110 2
Roof Framing Part I
 The basics of roof framing are covered in this course. Students will learn theory behind trusses, stick framing and roof loads. They will be taught how to use a framing square and roof terminology. Students completing this class will be able to build a simple gable roof system.

CRPT 1115 2
Insulation, Ventilation, Vapor Barriers and Dry Wall
 Insulation and improved construction methods provide an important measure of energy conservation. Students will learn insulation types and values, the importance of vapor barrier and its proper placement, drywall application, taping and texture.

CRPT 1118 2
Roof Framing
 The basics of roof framing are covered in this course. Students will learn theory behind trusses, stick framing, and roof loads. They 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.

CRPT 1120 2
Roof Framing Part II
 This course is a continuation of 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 3
Estimating and Blueprint Reading
 Students will learn how to estimate the cost of a house and gain in-depth knowledge of carpentry math. They will learn the basic principles of interpreting blueprint reading and transferring the knowledge into a complete project.

CRPT 1130 2
Stairway Construction
 Stairway construction is considered one of the more highly skilled areas of carpentry work. Students will learn stair terminology, layout and construction by building a straight stairway and a quarter turn stairway.

CRPT 1132 4
Interior Finish I
 This course 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 2
Exterior Finishing Wall and Roof Covering
 The exterior finish of a building includes the door and window units and all the materials that cover the roof and exterior. They must also give weather-tight protection to the roof and exterior walls.

CRPT 1140 4
Project Planning, Estimating, 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 4
Blueprint Reading, Estimating & Project Planning
 In this course, students will 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 2
Interior Trim
 Interior finish 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 3
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 2
Building Science
 Students in this course will learn about the house as a system and will include advanced topics in building shell components, air sealing, insulation air quality and health and safety.

CRPT 1160 4
Roof Framing
 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. Prerequisite: CRPT 1101.

CRPT 1170 3
Applied Carpentry Calculations and Estimating
 This course 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.

CRPT 2205 3
Foundations and Floors
 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.

CRPT 2215 2
Concrete Technology
 Covers designing concrete mixes for specific uses, preparing sub-base areas and building forms, handling and placement of concrete mixes and finishing techniques.

CRPT 2220 5
Advanced Concrete Technology
 This course is 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 and flatwork concrete pours are also included.

CRPT 2235 3
Wall and Roof Framing
 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 wall sheathing. Students will install roof truss systems, hand frame roof sections of various styles, including ceiling vaults and trays, install roof sheathing and apply shingles and flashings.

CRPT 2237 4
Exterior Finish and Shingling
 Covers identification and application of all types of siding, shingles, soffit and fascia 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.

CRPT 2240 Framing II	4
This course is 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 wall sheathing. Also 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, the materials used in their construction and the methods of handling a variety of materials.	
CRPT 2242 Deck and Porch Construction	2
Students in this course will learn about the construction of decks, porches, and patios, the materials used in their construction, and the methods of handling a variety of materials.	
CRPT 2245 Cabinet Layout and Design	1
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.	
CRPT 2249 Cabinet Installation	4
This course takes the students through the process of cabinet installation methods, countertop construction and installation, and finishing of areas such as kitchens and bathrooms.	
CRPT 2250 Cabinet Construction	5
Explore the construction of a variety of kitchen, bathroom, utility, and specialty cabinets and countertops.	
CRPT 2255 Cabinet Making	5
In this course the student will be trained 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. Also, this course includes the construction of a variety of cabinets including kitchen units, linen closets, vanity cabinets, and built-in work stations. Lastly, the students will go through the process of cabinet installation methods, counter top construction and installation, and finishing areas such as kitchens and bathrooms.	
CRPT 2260 Interior Finish and Staircase Construction	3
This course covers 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.	
CRPT 2265 Interior Finish II	3
This course will cover 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.	
CRPT 2270 Construction Business Management	2
This course 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.	
CRPT 2271 Construction Drafting, Design, and Blueprint Reading	3
Introduce the students to 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.

CRPT 2280 Insulation and Interior Wall Covering	3
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.	

COMPUTERIZED SMALL BUSINESS (CSBM)

CSBM 1100 Disk Operating Systems for Small Business	1
This course covers DOS and hard drive concepts. The emphasis is on concepts and commands that will enable the student to better understand and maintain their own microcomputer system.	
CSBM 1110 General Ledger for Small Business	3
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.	
CSBM 1120 Bank Reconciliation for Small Business	2
This course covers the application of computerized bank account/General Ledger reconciliation. The student will be able to prove bank account cash balances using the selected software package.	
CSBM 1130 Accounts Receivable for Small Business	3
This course covers the process of computerizing business records using Accounts Receivable software. The student will be able to produce customer invoices, statements and reports using the selected software package.	
CSBM 1140 Accounts Payable for Small Business	3
This course covers the process of computerizing business records using Accounts Payable software. The student will be able to track purchases, pay bills, manage cash flow and print reports using the selected software.	
CSBM 1150 Payroll in Small Business	3
This course covers the process of computerizing business records using Payroll software. The student will be able to calculate payroll, print payroll checks, track tax liabilities and print reports using the selected software package.	
CSBM 1160 Governmental Payroll Reporting for Small Business	2
This course covers the fundamentals of employment forms and payroll tax reports that apply to small business. The student will be able to identify and complete forms as required by agencies of Federal and State government.	
CSBM 1200 Introduction to Computers for Small Business	2
This course covers the basics of microcomputer systems. The student will gain an overview of DOS, Word-Processing, Database file management and Spreadsheets. This will provide a good foundation for further computer training.	
CSBM 1202 Windows Operating Systems in Small Business	1
This course covers Windows as an operating system. The emphasis is on concepts and commands that will enable the student to better understand and maintain their own microcomputer system.	
CSBM 1204 Word-Processing for Small Business	3
This course covers the use of word-processing software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.	
CSBM 1206 Spreadsheets for Small Business	3

This course covers the use of Spreadsheet software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1208 3
Data Base Management for Small Business

This course covers the use of data base management software for business applications. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1210 2
Desktop Publishing for Small Business

This course covers desktop publishing techniques and applications used to design professional looking documents. The student will be able to create, edit, manipulate and print documents using selected software.

CSBM 1212 1
Introduction to Recordkeeping for Small Business

This course introduces the principles and systems of accounting in a small business. Accounting records and reports are critical in management of a small business.

CSBM 1214 2
Sales Order Entry for Small Business

This course teaches the proper method of gathering and entering sales data. The student will know the difference between the sale that needs to interact with perpetual inventory, and which do not. The student will learn how sales tax affects all types of sales. Customers will be setup properly to reflect the discount, chart of account number, sales and use taxes, and pricing levels that apply, as well as customer categories for statement purposes.

CSBM 1216 3
Inventory Control for Small Business

This course teaches the correct type of inventory method that the company needs to use, FIFO, LIFO, Average Cost, or Standard Method. The student will learn to enter each inventory item, vendor product code, proper department, current cost, selling price categories, as well as the product code. The student will learn how to enter, and process purchase orders. The student will fill out, receive, post, update inventory, and convert purchase orders to accounts payable invoices. The student will learn how to utilize all aspects of manufacturing assemblies, if it applies to their company. The student will understand physical inventory, and maintain the perpetual inventory based on actual amounts, and correct prices for each item.

CSBM 1218 1
Payroll Year End Close for Small Business

This course covers the process required to close the Payroll system at the end of a calendar year. The student will be able to reconcile payroll records, print the required tax reports and prepare the system for the next year using the selected software package.

CSBM 1220 1
Accounting Year End Close for Small Business

This course covers the process required to close the Accounting system at the end of a fiscal year. The student will be able to reconcile accounting records, post year-end journal entries and prepare the system for the new year using the selected software package.

CSBM 1222 2
Network Administration for Small Business

This course introduces the student to network operating procedures. The student will be able to operate their implemented system in a multi-user environment.

CSBM 1224 1
Software Upgrade for Small Business

This course covers the process required to evaluate software upgrades. The student will develop a software efficiency model and will evaluate that model against vendor documentation to decide on the proposed upgrade.

CSBM 1226 1
Software Analysis for Small Business

This course covers the process required to evaluate software products. The student will develop a software selection model, review appropriate software products and implement a decision process.

CSBM 1228 1
Hardware Analysis for Small Business

This course covers the process required to evaluate computer hardware products. The student will develop a hardware selection model, review appropriate hardware products and implement a decision process.

CSBM 1230 1
Operations Manual for Small Business

This course covers the process of documenting the system operating procedures implemented during the installation and configuration and data entry phases. The student will assemble all documentation into an operations manual.

CSBM 1232 3
Asset Management for Small Business

This course teaches the concept of asset valuation as it relates to actual and depreciated value. The student will learn how to use standard depreciation methods to determine the current months depreciation expense, and correct offsetting accumulated depreciation for each class of fixed assets. The student will enter all company assets in the fixed asset module, when the balance sheet is setup and enter each asset properly as it is purchased during the ongoing business cycle.

CSBM 1234 3
Financial Statement Analysis for Small Business

This course teaches the generally accepted business ratios that apply to performance when compared to generally accepted industry standards. The student will learn which ratios apply, how to compute the ratios, and the importance of each ratio. The student will use company data that comes from very accurate accrual financial statement. After computing these ratios, the student will display knowledge of the importance of these trends, as they relate to the success of the business.

CSBM 1236 1
System Evaluation for Small Business

This course covers the process used to evaluate the completed system against the original project plan. The student will develop a document outlining the projects strengths, weakness, needed improvements and a future system growth path.

COMPUTER SCIENCE (CSCI)

CSCI 1100 2
Microcomputer Keyboarding

Provides basic instruction on the use of the electronic keyboard. Basic touch keying is taught to develop the student's skill in rapidly and efficiently entering information into a microcomputer via the keyboard. Includes both alpha 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 3
Introduction to Microcomputers

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, and document integration. Also introduces the basic concepts of graphics, telecommunications, the Internet and computer programming. Prerequisite: CSCI 1100 or prior keyboarding experience or placement by multiple measures.

CSCI 1110 2
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 1150 3
Presentation Development

The course will present introductory components of design and development using Microsoft PowerPoint. As well as completion of several projects, quizzes and tests per chapter, students will have an in-depth knowledge of how to create an advanced presentation for all types of uses. Prerequisite: CSCI 1102.

CSCI 2100 3
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 3
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. Prerequisites: CSCI 1102 and ACCT 1122.

CSCI 2140 3
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 3
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 employed through the development of a media-enhanced web site. Prerequisite: CSCI 1102.

CSCI 2170 3
Python Programming
 Provides an introduction to Python, a programming language that allows programs to be written more quickly and with less conceptual overhead. Topics include strings, variables, selection, iteration, functions, graphics, file processing, lists, dictionaries and recursion. Prerequisite: CSCI 1102

CSCI 2200 4
Visual Basic Programming
 This course covers user interface applications through programing 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 3
Web Programming I
 Discusses current and futuristic web page technologies and trends, including responsive web design and mobile-first design strategies, incorporates audio and video into realistic case studies and promotes professional webpage development best practices by applying HTML for structure and CSS for style and layout. Prerequisite: CSCI 1102.

CSCI 2235 1-3
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 placement by multiple measures.

CSCI 2240 4
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 4
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 4
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 4
Java Programming II
 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.

CSCI 2290 1
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 CSCI application course or one CSCI programming course.

COMPUTER SUPPORT (CST)

CST 1101 2
IT Exploration
 Students will 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 2
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 1
CLI/PowerShell
 This course covers the fundamentals of the computer file systems including the command line interface (CLI). Students will use CLI and PowerShell commands to perform operations to manage a directory structure. Emphasis is placed on the use of PowerShell Cmdlets for task automation and PowerShell scripting for system configuration management.

CST 1115 1
Desktop Virtualization
 Virtual desktop computing 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 3
Operating Systems
 This course 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 1135 3
Unix Operating Systems
 This course is designed to familiarize students with Unix-based operating systems. The student will use the Linux operating system for this course. Basic UNIX system concepts, architecture and administration are covered. Students have the opportunity to use fundamental UNIX commands,

explore the UNIX file system, use text editors, process and manipulate files, and use the UNIX shell as a programming language.

CST 1180 1

Data Security Awareness

This course will introduce 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 1

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 4

Introduction to Networking

Introduction to Networks (ITN) covers the architecture, structure, functions and components of the Internet and other computer networks. Students achieve a basic understanding of how networks operate and how to build simple local area networks (LAN), perform basic configurations for routers and switches, and implement Internet Protocol (IP). This course is the 1st course of 3 courses to prepare for CISCO Certified Network Associate (CCNA) certification.

CST 1195 2

Network Basics

This course 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 3

Introduction to Information Security

This course will introduce 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 3

Information Security Management

In this course the student will continue to explore 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 Comptias Security + exam.

CST 1250 3

Information Security Administration

In this course the student will continue to explore 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 3

Computer Forensics

This is an introductory course in 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 3

Telecommunications I

This course 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 equipment and technology in the inside and outside telecommunications plant including wireless and cellular networks. Some of the latest technologies, including devices associated with the internet of things are introduced in this course. Students will look at the various careers in telecommunications and future industry trends. Prerequisite: STSK 0090 or placement by multiple measures.

CST 1410 3

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 (SMDS), 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 3

Convergence Technology

A study of 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 includes the fundamental concepts of digital media distribution, Digital Video Distribution in Broadband, Television, Mobile, and Converged Networks. Prerequisite: CST 1180.

CST 1440 3

Advanced Telecommunications

This course will expand 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 3

Routers and Switches

This course 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 3

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 relating to structured communication systems.

CST 2110 3

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 4
Computer Integrated Manufacturing
 Students have the opportunity to develop skills in designing, wiring, troubleshooting, and operation of electrical control circuits. A supervised time for students to hardwire 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 4
Advanced Routing Technology
 This course 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 3
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 2215 3
PC Maintenance and Repair Software
 Provides curriculum to prepare students to become A+ certified. Also covers Windows/DOS components of A+ exam. Students will partake in business-like atmosphere by troubleshooting and repairing assigned computer problems. Students will maintain a portfolio of completed repair projects.

CST 2224 4
Windows Client/Server Administration
 This course will cover 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 3
Novell NetWare Administration I
 This course will introduce 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 2
Home Networking
 Prepares students for the CompTIA HTI+ certification exam. This is a practical approach to networking technologies, audio visual systems automation methods, and telecommunication techniques that converge in integrated home technology. Prerequisite: CST 1190.

CST 2284 3
Microsoft Exchange Server
 The student will 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
 This course will cover 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 and 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 (VPN's). 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
 This course is designed to prepare 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
 This course will cover 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
 This course will prepare 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
 This course 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
 This course 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 consent of instructor.

CST 2340 3
Web Server Concepts
 This course will introduce 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
 This course will introduce 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

This course is 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 1200 and CST 1125.

CST 2600 **3**
Fundamentals of Wireless Networking

This course is 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. An emphasis is placed on x-ray production, radiation safety, exposure techniques, and evaluation of radiographs. Application of principles and techniques will be performed on lab manikins.

DEN 1105 **3**
Oral Radiology II

This course will give the student the opportunity to develop and apply their skills in exposing and evaluating diagnostic radiographs with minimum exposure to the patient. This course will also cover the laws set forth by the Minnesota Department of Health in relation to exposing radiographs on patients. Prerequisite: DEN 1100.

DEN 1110 **3**
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. The structures, functions and development of the oral cavity will be discussed. The various methods of tooth identification will also be covered. Prerequisites: ENGL 0090 or placement by multiple measures.

DEN 1115 **2**
Dental Health

This course will assist 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 **3**
Chairside Dental Assisting I

This course will assist 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, utilization of dental practice management software, patient communication, and oral evacuation and isolation. Prerequisites: ENGL 0090 or placement by multiple measures. DEN 1110 may be taken concurrently or with consent of instructor.

DEN 1125 **4**
Chairside Assisting II

This course is an extension of Chairside Assisting I and will provide 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 1110 and DEN 1120.

DEN 1130 **4**
Preclinical Dental Assisting

This course will allow 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. Prerequisite: ENGL 0090 or placement by multiple measures.

DEN 1135 **2**
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 include information relating to the function of the business office with emphasis on maintaining patient records, bookkeeping, appointment scheduling, filing, and written and oral communication. Both manual and computerized systems will be examined. Prerequisite: ENGL 0090 or placement by multiple measures.

DEN 1140 **3**
Dental Materials

This course will cover materials used in dentistry. It will include information on properties as well as practical lab applications of the materials. Prerequisite: ENGL 0090 or placement by multiple measures.

DEN 1145 **3**
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: 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 **3**
Expanded Functions B

This course will offer the student experience in taking impressions and related bite registrations, 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 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. Prerequisites: 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 **3**
Extramural Clinical Experience I

This course is 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. Prerequisite: Satisfactory progression in the Dental Assistant Program or permission from instructor.

DEN 1160 **3**
Extramural Clinical Experience II

This course is 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. Prerequisite: Satisfactory progression in the Dental Assistant Program or permission from instructor.

DEN 1180 1
Ethics and 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 1
Nitrous Oxide Inhalation Administration

This course will provide the student with skills and knowledge needed for safe and effective administration of nitrous oxide inhalation analgesia and the management of associated complications. The course will provide didactic and supervised clinical experiences as required by the Minnesota Board of Dentistry. During the clinical portion of the course, students will administer and undergo nitrous oxide/oxygen inhalation sedation as a patient. Prerequisite: Student must be certified in CPR before taking this course.

DIESEL TECHNOLOGY (DSL)

DSL 1100 3
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 4
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 4
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 2
Electrical Theory

Covers circuits, magnetism, wiring diagrams, principles of operation of alternators, regulators, cranking motors, and batteries.

DSL 1115 2
Electrical Lab

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

DSL 1120 2
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 3
Powertrain Lab

Covers the disassembly, inspection, evaluation, repair and adjustments and reassembly of all components of the powertrain.

DSL 1130 3
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 3
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 2

Air Conditioning

Covers operation, inspection, repair and diagnostics of air conditioning systems.

DSL 1141 1

Air Conditioning Lab

This course covers air conditioning, heating and ventilation systems in the cab, and repair of the climate control systems.

DSL 1142 3

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 be addressed when making repairs to the air conditioning system.

DSL 1145 4

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 4

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 2

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 1170 3

Diesel Welding

The student will learn proper use of oxy/acetylene cutting and using the torch to heat items. Proper welding of oxy/acetylene to join different alloys together. Use of a shielded arc welder. Use of a MIG welder.

DSL 2106 3

Advanced Powertrain Theory

This course covers the theory of operation of various power shift transmissions, power flow, and terminologies as related to various manufacturers. This course covers the theory of operation of electro hydraulic systems. This program will cover a wide variety of power train systems from Ag equipment, industrial, and truck when and where available. Must be taken concurrently with DSL 2111.

DSL 2111 4

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 3

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. Student will each have the opportunity several times during the semester to be in charge of the shop operation and complete the day-to-day responsibilities of a shop foreman or service manager. This program allows students to place advanced theory into practical application in the laboratory setting. Students are assigned projects which will require them to disassemble, inspect, evaluate, repair, reassemble and test diesel farm equipment components.

DSL 2136 5

Fuel System Theory

This course covers a study of all distributor pumps used in industry today with inlet metering, sleeve metering, and electronic controlled systems. This course will also examine helix and sleeve metering pumps as well as all types of governor systems used in the industry today by all of the major

manufacturers. We will also begin the study of unit type injectors and will move into more of the electronic systems.

DSL 2137 5

Fuel Injection Lab

Allows students an opportunity to apply theory in the laboratory environment. Students will disassemble, inspect, evaluate, reassemble and calibrate advanced principles in fuel injection and at least 3 sets of injectors to give them the realization of what a properly operating engine needs to perform. Prerequisites: AUTO 1136 and DSL 1135 or consent of instructor.

DSL 2145 4

Advanced Diesel

This course 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 diesel combustion, chamber designs, valve train operation, rings, cylinders, pistons, crankshafts, connecting rods, and components that compliment each other so that the student can properly troubleshoot and diagnose customer complaints.

DSL 2150 5

Advanced Engine Lab

Covers all facets of engine repair. In the laboratory, the student will practice reconditioning of the larger and more advanced engines, with overhead cams and multiple valve cylinders, and other components like jakebrakes, unit type injectors, and adjusting of these engines. This course allows the student hands-on shop experiences. The student will disassemble, inspect, evaluate, repair and adjust, and reassemble valve, valve train components, cylinder blocks, crankshafts, bearings, sleeves, pistons, rings, and other components that compliment the above.

DSL 2155 3

Diesel Engine Control Systems

Explains the operation of all the different governors and electronically controlled engines. In the laboratory, the student operates different types of engines with their computer programs. The student will use the laptop computer to check fault codes and follow proper diagnostics for repair of the system in accordance with manufacturers' specifications.

DSL 2160 3

Truck Braking System

This course covers the design, construction and operation of medium and heavy-duty truck hydraulic and air brake systems and components: air compressors, air lines, valves, controls, brake chambers, linkages, and foundation brakes. In the lab component there will be an overhaul of medium and heavy-duty air brake and ABS systems. Students will test, disassemble, inspect, repair the individual components as need be on customer trucks or on school training units.

DSL 2165 3

Vehicle Steering and Suspension

This course covers all steering systems used on medium and heavy-duty trucks. Steering axle alignment and repair is covered as well as tire wear troubleshooting; suspension systems found on commercial vehicles; drive axle alignment, frames, spring and air ride suspension repair and adjustment.

DSL 2170 2

Electronics Diagnoses of Power Train

This course will cover the electronic troubleshooting and diagnoses of the power train. Many transmissions today are mechanical systems that are shifted electrically through the use of an ECM that will communicate with the engine controller. The data bus needs to be understood for proper diagnoses and repair. The students will make the proper connections and determine what, if any, problems are present.

DSL 2175 2

Truck Inspection and Preventative Maintenance

This course will cover preventative maintenance on medium and heavy-duty trucks, inspections for DOT requirements, and continued best performance and safe operation of the vehicle.

DSL 2180 2

Computerized Diagnostic Systems

Covers the basic Windows operations needed to operate computerized diagnostic systems. Students will need to be able to operate the computer system used in the diagnostics of today's electronic controlled engines and drive trains. They 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. They will also send information to the factory or service advisors.

DSL 2190 2

GPS Systems Operation

Provide an understanding of the operation, installation, adjustment, and repair of the GPS in accordance to the system principals. Prerequisites: DSL 1110 and DSL 1115.

ECONOMICS (ECON)

ECON 1101 3

Introduction to Economics

Meets Goal Area: 05

Explores the fundamentals of Macroeconomics and Microeconomics and the process of economic analysis. No credit if ECON 2201 or ECON 2202 has been previously completed.

ECON 2201 3

Principles of Macroeconomics

Meets Goal Area: 05

Studies the overall performance of the United States economy and comparative economic systems from the dimensions of full employment, price stability, and economic growth.

ECON 2202 3

Principles of Microeconomics

Meets Goal Area: 05

Analyzes the economic decision-making process of the individual firm. Explores the micro-economic concepts of pricing and resource allocation within different market structures.

EDUCATION (EDUC)

EDUC 1100 3

Introduction to Education

Introduces students to early childhood, elementary and secondary education. 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 covered. Includes fifteen (15) hours of field experience. Prerequisite: ENGL 0090 or placement by multiple measures and a Department of Human Services background study will be conducted.

EDUC 1102 2

Technology: Classroom Applications and Portfolio Development

Introduces the educational uses of technology by exploring computer applications as tools for their own learning as well as the ethics of electronic communications. A Teacher Education portfolio (online) will be developed. Prerequisite: ENGL 0090 or placement by multiple measures.

EDUC 1131 3

Autism Spectrum Disorders

Focuses on the theory, research, and intervention in Autism Spectrum Disorders (ASD). The history of diagnosis and intervention of ASDs and how it is viewed today is a strong focus of this course. In addition, neurological, psychological, and education theories of ASD; current approaches to intervention; and educational classification are introduced.

EDUC 1132 2

Behavior Management

Introduces students to the basic principles of behavior management as it relates to behavioral excesses and deficits, maladaptive behavior, and special needs in children. The focus will be on understanding and intervening with behavioral excesses and deficits in the educational environment.

EDUC 2510 3

Child Growth and Development

Introduction to child growth and development from conception through adolescence with a concentration on the physical, cognitive, and social-emotional domains of development. Emphasis areas of the course include: historical foundations and theories associated with the study of child development, the research process, the implications of teaching and learning, student diversity and pertinent topics associated with the possible effect of environment and behavior on prenatal development through adolescence. Pre-requisites: EDUC 1100 and EDUC 1102.

EDUC 2900 **3**
Introduction to Special Education Meets Goal Areas: 05, 07
 Recognize, understand and guide children with special needs. Specific disabilities introduced in this course include Developmental Delay, Developmental Cognitive Delay, Autism, Physical and Sensory Disabilities, Learning and Behavior Disabilities. Introduction to Special Education services including: Federal Mandates (Individuals with Disabilities Education Act) and State Due Process mandates, early intervention, parent involvement, DSM-V diagnostic criteria, assessment methods and instructional methods such as Response to Intervention (RTI). One credit field Experience (15 hours) is included in the course. Pre-requisites: STSK 0090, STSK 0095 or STSK 1100 or placement by multiple measures.

ELECTRICAL CORE (ELCO)

ELCO 1100 **3**
Electrical Circuits Fundamentals
 Describe the basic concepts of electricity from DC to AC. Calculate Ohm's law formulas. Describe series circuits, parallel circuits, capacitance circuits, and inductive circuits. Calculate series circuits, parallel circuits, capacitance circuits, and inductive circuits. Prerequisite: MATH 0092 or placement by multiple measures.

ELCO 1105 **3**
Electrical Circuits Fundamentals Lab
 Perform practical problems on both DC and AC circuits in the lab. Calculate series circuits, parallel circuits, capacitance circuits, and inductive circuits. Perform basic meter testing on circuits. Prerequisite: MATH 0092 or placement by multiple measures.

ELCO 1110 **3**
AC/DC I
 Introduce students to electrical theory and practical experiences starting with DC electric circuits, electrical safety practices, and familiarization with training equipment using Ohm's law and power. Prerequisite: MATH 0092 or placement by multiple measures.

ELCO 1120 **3**
AC/DC II
 Introduces students to the basic concepts of AC circuits, safety practices, basic studies of resistive, inductive, and capacitive circuits, circuit analyzing, oscilloscope operations, capacitance, capacitive reactance, inductance, inductive reactance, RC and RL time constants, transformers, and three-phase circuits. Prerequisite: ELCO 1110.

ELECTRICIAN (ELEC)

ELEC 1200 **5**
Residential Wiring I
 Describe electrical safety, general safety, the use and care of hand tools, the specialty tools, and equipment used for residential wiring. Apply National Electrical Codes related to residential wiring. Discuss wiring methods for residential wiring.

ELEC 1205 **2**
National Electric Code I
 This course will provide insight into an understanding of many of the technical rules of the National Electrical Code (NEC). Topics included are Minnesota licensing laws, definitions, requirements and calculations for electrical installations, grounding conductors, branch circuits, feeders and services. Other topics also included are overcurrent protection, grounding and bonding, wiring methods, temporary wiring, and conductors for general wiring.

ELEC 1210 **5**
Residential and Farm Wiring II
 Introduces blueprint reading for residential wiring. Describe electrical safety and general safety. Discusses National Electrical Code articles on branch circuits, feeders, grounding, services, and overcurrent protection for residential and farm wiring. Prerequisite: ELEC 1200.

ELEC 1215 **2**
National Electric Code II
 This course covers National Electric Code (NEC) requirements for cabling, conduit, raceways and wireways, boxes, gutters, switches, and panelboards. Also included are the requirements for equipment such as cords, cables, fixtures and fixture wire, appliances, fixed space heating, motors and motor circuits, refrigeration equipment and transformers. Prerequisite: ELEC 1205.

ELEC 1220 **4**
Conduit Installation
 Describe the raceway types used to conceal wiring. Bend, install, support and calculate raceway size and the number of wires permitted in a conduit. Introduce hand and hydraulic benders. Identify fittings and other material used in installing a raceway system. Prerequisite: ELEC 1200.

ELEC 1225 **3**
Electric Motors
 Describe the difference in alternating current (AC) and direct current (DC) motors, generators, and alternators. Compute motor calculations. Determine the load characteristics and connections of AC and DC motors, generators, and alternators. Prerequisite: ELCO 1100 or ELCO 1110.

ELEC 1230 **1**
Safety Principles and OSHA
 Describe the various safety and laboratory practices that are common to the electrical trade and present information on how to avoid unsafe practices.

ELEC 1235 **2**
Applied Electrical Calculations
 Perform basic math necessary for solving electrical circuits. Read word problems and decide what they are asking for. Calculate math problems. Calculate Ohm's law formulas.

ELEC 1240 **5**
Commercial Wiring
 Describe the material and design aspects of commercial wiring. Read commercial blueprints. Perform voltage-drop calculations, motor calculations and service installations. Apply requirements of the N.E.C. as it relates to commercial wiring. Prerequisite: ELEC 1200.

ELEC 2200 **2**
Low Voltage
 Investigate 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 **4**
Electric Motor Controls I
 Instruct students in the use of electrical tools, instruments, safety equipment, electrical symbols, line diagrams. AC manual contactors and motor starters, AC magnetic contactors and motor starters, time delay logic and control devices. Prerequisite: ELCO 1100 or ELCO 1110.

ELEC 2210 **2**
National Electric Code III
 Explain the importance of safe, efficient and well-designed systems for industrial, commercial, and residential locations. The course discusses material, methods, and components used in designing electrical systems. Prerequisite: ELEC 1205.

ELEC 2220 **3**
Industrial Wiring
 This course covers components for industrial electrical installations and operations. Students will learn to design and calculate electrical loads for an industrial application. Prerequisite: ELEC 1220.

ELEC 2225 4
Electric Motor Controls II
Describe electromechanical and solid state relays, photoelectric controls, proximity controls, reduced voltage starting, accelerating and decelerating methods and preventive maintenance. Prerequisite: ELEC 2205.

ELEC 2230 4
Programmable Logic Controllers
Describe how PLC's work and provide 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 2
National Electric Code IV
Examine the National Electrical Code Requirements for Commercial and Industrial installations. Determine grounding and bonding requirements. Examine definitions and installation concerns in hazardous locations. Prerequisite: ELEC 1205.

ELEC 2240 3
Transformers
Describe basic transformer theory, construction, installation and troubleshooting of single phase and three phase transformers. Examine types of transformers including isolation, autotransformer and instrumentation transformers.

ELEC 2250 3
Heating and Air Conditioning Controls
Introduces basic heating and cooling system installation, control and troubleshooting.

ELEC 2265 3
Alternative Energies
This course introduces 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, biofuels, wind, geothermal and hydro energy sources.

POWERLINE TECHNOLOGY (ELPL)

ELPL 1100 3
Pole Climbing and Equipment Operation
Covers climbing techniques, free-hand and with a safety strap. Students will also learn installation and removal of pole hardware, setup and safe operation of digger derricks, bucket trucks, hydraulic systems, and truck driving operations. Also included in the course is the operation of elbow and squirt booms, safety checkout and use of the lifting jib.

ELPL 1102 4
Pole Climbing and Equipment Operations II
Covers two of the techniques used by powerline workers to elevate themselves to a safe working position for the installation, maintenance or removal of electrical equipment on powerlines. The techniques are pole climbing and safe operations of digger and basket trucks. This course is a continuation of Pole Climbing and Equipment Operations. Prerequisite: ELPL 1100.

ELPL 1106 4
Electrical Distribution of Powerlines I
Covers the care and maintenance of personal tools, nomenclature and use of company tools, nomenclature and installation of pole line hardware, setting and aligning poles, stringing single phase and three phase wires, installation of armor rods, hand ties, and preform ties. The course also covers the change-out of single phase and three phase transformers, overhead secondaries and offers instruction in elementary knots and the use of different types of slings.

ELPL 1110 3
Reports, Records, and Accident Analysis
Covers types of accidents in the industry and the causes and prevention of accidents. A study of the N.E.S.C. with emphasis on Part Four, 'Safety of the Electrical Employee and Safe Working Rules of Electric Utilities' will be conducted. The student will learn the means of getting information that tells us what must be corrected so that future accidents may be avoided. The student will be required to be on a safety committee, from which they will be appointed to an accident investigation team. Also covered is

preparation and reading of construction staking sheets, retirement staking sheets, equipment installation orders, and system map reading.

ELPL 1116 4
Electrical Distribution of Powerlines 2
Covers the application, care, and use of rubber goods, insulated coverup use, and the use of bucket trucks. This course also covers pole top insulator change outs, pole replacements, and conductor transfers all simulating the line being 'Hot'.

ELPL 1121 4
Electrical Distribution of Powerlines 3
Covers the function, operation, and types of fuses, circuit breakers, oil circuit reclosures and sectionalizers. Working with and around electrical equipment, and apparatus in substations will also be covered. Students will learn about the characteristics of transient voltages, types of distribution arrestors and safety. The course will also cover building overhead lines, stringing and sagging conductors, and ties and tying. Students will build OCR banks, capacitor banks, and three-phase transformer banks, work with underground distribution lines, connect sectional cabinets and pad-mounted transformers, and loop-feed URD lines. Chain saw safety, tree trimming, and pole-top and bucket rescue will also be discussed.

ELPL 1125 3
Three-Phase AC Circuits and Transformer Banking
Covers wye and delta circuit fundamentals, neutral on grounded wye lines, corner grounds on delta lines, and ungrounded delta lines. Also offered is three-phase transformer connections using single phase transformers, angular displacement, phase sequencing, paralleling of power bank secondaries, and trouble shooting transformer banks. The student will also learn how to find problems, how to fix them, and also how to get the different voltages out of a transformer bank that industry needs today. This course will also cover load balancing and the sizing of transformers from single residential use to a large industrial load.

ELPL 1130 3
'Hot' Sticking
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 2
Construction of Underground Powerlines
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 2
Special Topics: Overhead Safety, Construction & Maintenance
Covers all the elements of overhead installation and maintenance with a strong emphasis on safety.

ELPL 2236 2
Special Topics: Underground Safety, Construction, and Maintenance
Covers all the elements of underground installation and maintenance with a strong emphasis on safety.

ELECTRIC UTILITY SUBSTATION (ELUT)

ELUT 1101 3
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	3
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	3
This course 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	3
This course is 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 Specification, Testing and Maintenance	2
This course covers the procedures, specifications of testing methods, and maintenance used throughout the electrical industry for new and refurbished equipment.	
ELUT 2100 Electrical Metering	3
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	2
This course is a continuation of 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	2
This course covers reclosures, circuit breakers and protective devices such as fuses, lightning arrests, cut-outs, sectionalizers and the related equipment.	
ELUT 2121 Protective Relays	2
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	2
This course 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	2
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	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	3
Introduce the student to turbine designs, types of development, current status of, and the evolution of current models and sizes offered by existing companies, the operational experience, track record, number of turbines in operation that will be evaluated, and discuss the economic, environmental, and political issues according to American Wind Energy Association (AWEA).	
ELWT 1104 Basic Digital Circuits	2
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	3
Provide an understanding of wind turbine drive systems (gearboxes) and associated components, introduced two different types of gearboxes and associated mechanical systems and subsystems of today's wind turbines, focus on lubrication, oil analysis, construction and preventative maintenance techniques for modern wind turbine drive systems.	
ELWT 1120 Air Foils, Blades and Rotors	1
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	3
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	3
This course will cover the various applications of wind generated power. Stand alone, water pumping and grid connected systems as well as hybrid power systems will be discussed.	
ELWT 1150 Wind Turbines	2
Presented will be turbine types, their development, and their current status. The evolution of current models and sizes offered by existing companies will be traced to earlier models/sizes. The operating experiences, track record and number of turbines in operation will be evaluated for the major players in the industry. Students will be expected to carry out research and present reports on selected turbines companies.	
ELWT 1160 Wind Energy OSHA Standards	1
Provides students with an overview of the Occupational Safety and Health Administration (OSHA). The primary focus will be on the OSHA regulations and standards that pertain to the construction and maintenance of wind turbines and the energy industry.	
ELWT 1170 Environmental, Health, & Safety Wind Energy & Climb Lab	2
Instruct students regarding basic safety principles in the wind energy industry with a brief overview of the Occupational Safety and Health Administration (OSHA), focus on OSHA regulations and standards that pertain to the climbing of wind turbines, instruct students on how to properly inspect equipment before climbing and properly store climbing equipment after each use.	
ELWT 1180 Wind Transmission/Generation/Distribution	3
Provides knowledge of the principles, practices and procedures of electrical power systems. Discussed will be the interconnection issues (system interaction and protection), technical challenges, safety issues and metering associated with renewable resource generation. This	

course will also cover operation and control of wind systems, their management and planning, operation and control, systems management and correction.

ELWT 1235 1
Electrical Calculations

Covers the applications of the many mathematical problems, principles, and concepts encountered by technicians in the field. This course makes reference to many industrial standards along with the National Electric Code (NEC).

ELWT 1250 2
Fundamentals of Electric Motors

This course covers alternating (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.

ELWT 2110 3
Turbine Siting and Construction

Introduces students to the various aspects of wind turbine and wind farm siting, construction and commissioning. Students will be engaged in observation and discussions on the use of heavy equipment such as cranes, rigging and tower assembly. Students will analyze and discuss all the events leading to a Wind Tower Production facility being brought online.

ELWT 2130 2
Data Acquisition and Communication

Focuses on the practical aspects of designing, installing, testing, and troubleshooting cabling. The course allows students to exercise all combinations of commands from SCADA (Supervisory Control and Data Acquisition).

EMERGENCY MEDICAL SERVICES (EMS)

EMS 1101 2.5
Introduction to Emergency Medical Technician

Develops the initial foundation of emergency care and scene safety. Preparing individuals to evaluate and identify emergencies, employ their knowledge, psychomotor skills and application of those skills to provide basic life support as an Emergency Medical Technician. Including initial patient assessment, comprehensive prehospital care as outlined by most current educational standards identified by the Minnesota EMS Regulatory Board and the National Registry of EMTs.

EMS 1102 4.5
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 1112 1
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 2
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 EMTs 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 1
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 2
Essentials of Writing I: Effective Sentences and Paragraphs

Introduces students to the essentials of the English language: parts of speech, phrases, clauses, types of sentences, common sentence errors, punctuation, capitalization, and spelling. Students write sentences and paragraphs to demonstrate an understanding of contextual grammar and paragraph writing. Prerequisite: Placement by multiple measures.

ENGL 0095 2
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. Prerequisite: ENGL 0090 or placement by multiple measures.

ENGL 1101 3
Composition I Meets Goal Area: 01

Reviews and reinforces basic essay writing principles. Emphasis is on rhetorical modes of development and writing as process. Assignments include a short research paper. Prerequisite: English 0095 or placement by multiple measures.

ENGL 1102 3
Composition II Meets Goal Areas: 01, 02, 06

Emphasizes research, information literacy and synthesis, critical thinking, and style development. The topics covered include research, information analysis and synthesis, advanced mechanics and editing, and argumentative writing. Writing assignments include several essays, syntheses, annotated bibliographies, and a research paper. Prerequisite: ENGL 1101

ENGL 1103 1
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 3
Introduction to Literature Meets Goal Areas: 02, 06, 07

Studies the elements, forms, and content of fiction, drama, and poetry. This course aims to introduce students to various genres of literature, with an emphasis on reading strategies and reading analysis. Assignments include readings, literary reflections, and a research-based literary presentation. Prerequisite: STSK 0095 or placement by multiple measures.

ENGL 1120 **3**
Introduction to Women's Literature
Meets Goal Areas: 02, 06, 07
Introduces students to women's literature and their contributions to the literary canon. The course will examine women's roles and identities within the context of history and society as reflected by women in their literature as well as the consumption of and reactions to their works. Readings will be selected from a variety of genres- including poetry, fiction and nonfiction - and from a variety of women with diverse backgrounds - including race, class, and sexual orientation - throughout different historical periods, with an emphasis on American and British writers. This course will approach texts through gender, cultural, and historical strategies. Assignments include several brief literary analyses as well as a final research project. Prerequisite: ENGL 0095 or placement by multiple measures.

ENGL 1141 **2**
Writing and Reading Poetry Meets Goal Area: 06
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 by multiple measures.

ENGL 1143 **2**
Writing and Reading Fiction Meets Goal Area: 06
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 2120 **3**
Children's Literature Meets Goal Areas: 06, 07
Analyzes and surveys the history of Children's Literature while teaching methods of evaluation and organization criteria for Children's Literature (early literacy, primary, and intermediate children's books). Prerequisite: ENGL 0095, ENGL 1101 or placement by multiple measures.

ENGL 2201 **3**
Early American Literature Meets Goal Areas: 06, 07
Introduces prominent American writers and influential literary works that have shaped American cultural identity from the colonial period to 1865. The course takes a broad view of the traditional canon to include writers and works from many areas of America's past. Instructors recommend that students complete ENGL 1105 or placement by multiple measures.

ENGL 2202 **3**
Modern American Literature Meets Goal Areas: 06, 07
Introduces prominent American writers and influential literary works that have shaped American cultural identity from 1865 through the present. The course takes a broad view of the traditional canon to include writers and works from many areas of America's past. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2203 **3**
Midwest Literature Meets Goal Area: 06
This course will introduce students to the rich and diverse body of Midwest literature through the exploration of poetry, fiction, nonfiction, and drama. The course will also address various cultural, historical, and geographical matters relating to Midwest literature, and the significance of Midwest literature, both in particular and general terms. Prerequisite: STSK 0095 or placement by multiple measures.

ENGL 2221 **3**
Early British Literature Meets Goal Areas: 06, 07
Studies the principal British writers, their literary forms, and significant currents of thought. Provides both an introduction to early British Literature and a background that will be useful in the study of other literature and cultural history. Includes works from Beowulf through 1800. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2222 **3**
Modern British Literature Meets Goal Areas: 06, 07
Studies the principal British writers, their literary forms, and significant currents of thought. Provides both the experience of British literary works and background information that will be useful in the study of other literature and cultural history. Includes works from the Romantics (1800) through the present. Instructors recommend that students complete ENGL 1105 or an advanced high school literature class before registering for this course.

ENGL 2231 **2**
Classical Mythology Meets Goal Area: 06
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.

ENGL 2235 **1-3**
Special Topics in Literature Meets Goal Area: 06
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 **3**
Composition: Creative Writing Meets Goal Areas: 01, 02, 06
Gives students the tools to write poems and stories. Students will analyze and evaluate published works as well as the works of their peers. The textbook and lectures will provide strategies for writing and editing poems and stories. The class is conducted in an informal, workshop atmosphere. Students will write a final narrative to be published in Minnesota West's creative journal. This course may be taken as an alternative to ENGL 1102. Prerequisite: ENGL 1101.

ENGL 2276 **3**
Composition: Technical Writing Meets Goal Area: 01
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

ENGINEERING (ENGR)

ENGR 1101 **1**
Introduction to Engineering
Introduces the study of engineering. It covers the keys to success in engineering study, a description of the engineering profession, academic success strategies, and an orientation to the engineering education process.

ENGR 1110 **3**
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 2214 **3**
Engineering Mechanics - Statics
Includes vector resultants of force systems in two and three dimensions, equilibrium of forces, analysis of forces acting on structural and machine elements, friction, moments of inertia, and virtual work. Prerequisites: PHYS 2121 and MATH 1122 (or concurrent).

ENGR 2215 **3**
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 **1-4**
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 **3**
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 **1**
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 **3**
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 **1**
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.

ENGLISH AS A SECOND LANGUAGE (ESL)

ESL 0090 **3**
Listening and Speaking

Provides the ESL student the opportunity to improve listening and speaking skills. The focus is on notetaking, weekly speaking and listening exercises, increasing vocabulary, and comprehension.

ESL 0091 **3**
Reading and Writing

Provides the ESL student the opportunity to improve reading and writing skills. Emphasis is on word recognition, vocabulary, pronunciation, and comprehension. Emphasis in writing is on grammar, spelling and structure.

For course descriptions on Farm Business Management courses (FBMA & FBMT) go to:
<http://www.mnwest.edu/programs/list/farm-business-management-diploma>

GEOGRAPHY (GEOG)

GEOG 1100 **3**
Introduction to Geography Meets Goal Areas: 05, 08

Introduces the fundamental themes and concepts in Geography. Emphasis will be given to Cartography, Meteorology, Geomorphology, Cultural Geography, and the interrelationships between humans and their environment. Prerequisite: STSK 0090 or placement by multiple measures.

GEOG 1101 **4**
Introduction to Physical Geography Meets Goal Area: 10

Studies the geographical distribution of the natural environment, with an emphasis on spatial data analysis, weather, climate, geological formations and the hydrosphere, to examine the relationship of people to their physical surroundings. Prerequisite: STSK 0095 or placement by multiple measures.

GEOG 2140 **3**
Introduction to Meteorology Meets Goal Area: 10

Studies insolation, atmospheric processes, weather systems, weather maps, forecasting, and severe weather. Storm Spotter training also will be addressed. Prerequisite: STSK 0095 or placement by multiple measures. GEOG 1100 or GEOG 1101 recommended.

GEOG 2250 **3**
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 placement by multiple measures.

GENERAL STUDIES (GSCL, GSCM, GSSS)

GSCL 1105 **1**
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 **2**
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 **2**
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 **1**
Nutrition

Explore the basic concepts of normal nutrition are presented with an emphasis on wellness and maintenance of a balanced state of health. These concepts are applied to human needs throughout the lifespan cycle. The emphasis is on the comprehension and application of these concepts in health care settings.

HC 1120 **3**
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 1125 **3**
Trained Medication Aide

Describe the administration of medication. This course includes the study of legal requirements of medications and medication administration, general information on medications, terminology, abbreviations, applicable terminology, and an overview of body systems and drug classifications related to medication administration while utilizing designated reference sources. Medications will be administered in the classroom lab via the oral, ocular, rectal, and topical routes. The students will study the ten major body systems and how they are involved in the pharmacology of drug use. Upon completion of the course, and meeting federal and state guidelines, the student will receive a Trained Medication Aide Certificate. Pre-requisite: HC 1175.

HC 1151 **3**
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 1175 **3**
Nursing Assistant

Introduces concepts of basic human needs and teaches basic nursing skills that will be demonstrated and practiced in the laboratory setting. This course focuses on personal care, nutrition/feeding, elimination, clean and safe environment, communication, vital signs, body mechanics, death and dying, and principles related to long term care. Upon successful completion of the classroom/lab studies, the student will participate in a

clinical experience caring for the geriatric client. Background study checks will be conducted. Successful students will be eligible to take the Nurse Aide Competency Examination for certification and placement on the Minnesota Nursing Assistant Registry. This course meets application requirements for MN West nursing program.

HC 1180 **2**
Medical Terminology in Healthcare

Provides students working knowledge of medical terminology and application of the terminology within the health professions.

HC 1200 **4**
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 **1**
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 **3**
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 **3**
CPT-4

This course provides a study of the Current Procedural Terminology (CPT) and Healthcare Common Procedure Coding System (HCPCS) coding systems. There will be an emphasis on correctly assigning procedure and evaluation management (E/M) codes according to current CPT Guidelines. Students will continue using the principles of coding to ensure proficiency in coding with CPT-4 using records and concepts of coding. Students will adhere to current regulations and established guidelines in code assignment. Interpret clinical information maintained in the health record to assign codes. Understand and demonstrate ethical coding principles in applying codes. Prerequisite(s): HC 1151, HIMC 1160 and HC 1180.

HIMC 1110 **3**
ICD-10-CM

This course will introduce the student to the ICD-10-CM (International Classification of Disease-Tenth Revision-Clinical Modification) system with an emphasis on the correct process of utilizing the tabular list and the alphabetic index for code assignment. Students will learn the correct process of utilizing rules, conventions, and 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

This course focuses on the ICD-10-PCS classification system (International Classification of Disease-Tenth Revision-Procedure Coding System) with an emphasis on the correct assignment of (ICD-10-PCS) procedure codes according to current guidelines. Interpret clinical information maintained in the health record to assign procedure codes. Understand and apply ethical coding principles in applying (ICD-10-PCS) procedure codes. The course will introduce the student to the professional standards for coding and reporting of inpatient procedure services. Coding characteristics, conventions and guidelines will be applied in identifying and accurately assigning codes to procedures. Prerequisite(S): HC 1151, HC 1180 and HIMC 1160.

HIMC 1130 **3**
Advanced Coding

Students will continue using the principles of CPT/HCPCS, ICD-10-CM and ICD-10-PCS coding skills to accurately code diagnoses and procedures using patient records and advanced concepts of coding. Students will adhere to current regulations and guidelines in code assignment. Students will use electronic applications and work processes to support clinical classification and coding. Prerequisite(s): HIMC 1100, HIMC 1110 and HIMC 1120.

HIMC 1140 **3**
Introduction to Health Information and Delivery Systems

This course will introduce students to the health information and delivery systems concepts common to allied health professionals. Students will understand different types of patient records, including documentation issues associated with each. The course will introduce legal aspects of health information.

HIMC 1150 **2**
Reimbursement & Insurance in Healthcare

This course provides a study of health insurance plans, billing and reimbursement methodologies, and compliance approaches. Included: payor categories, APCs and other prospective payment systems, the revenue cycle, chargemaster, RBRVS, regulatory guidelines, billing processes, etc.

HIMC 1160 **2**
Intro to Medical Billing and Coding

This course will introduce students to the basic concepts of medical coding and billing. Topics to be covered include coding conventions and guidelines for diagnosis and procedure coding. How codes are used for reimbursement and billing.

HIMC 2100 **3**
Computer Health Information

This course will introduce 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: HIMC 1140.

HIMC 2110 **3**
Management and Supervision of Health Information

This course will introduce 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: HIMC 1141.

HIMC 2120 **2**
Quality and Performance Improvement in Healthcare

Explore the theory, practice and management of quality performance and improvement through examination of peer review processes, applying quality tools, data analysis and reporting systems.

HIMC 2125 **1**
Medical Coding Board Review

This course is the online board review for the certified coding specialist (CCS) and the certified professional coder (CPC) national examinations by AHIMA and AAPC. This course offers you a study plan, review of all major examination topics, mock pretest and post-test, guidance to good computer test-taking skills. Prerequisite(s): HIMC 1100, HIMC 1110, HIMC 1120 and instructor permission.

HIMC 2130 **2**
HIT Capstone

This course will provide 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: Must have instructor approval to register for this course.

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.
 Prerequisite: Instructor approval required.

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)

HIST 1101 4
United States History I Meets Goal Areas: 05, 07
 Surveys United States history from early human habitation of the North American continent through the Civil War (1865), including political, economic, social and cultural developments.

HIST 1102 4
United States History II Meets Goal Areas: 05, 07
 Survey of United States history from the Civil War (1865) to the present, including political, economic, social and cultural developments.
 Prerequisite: STSK 0095 or placement by multiple measures.

HIST 1105 3
Minnesota History Meets Goal Areas: 05, 07
 Surveys of Minnesota history beginning with the earliest human habitation to the present, including political, economic, social, and cultural developments. Major emphasis is on the nineteenth and twentieth centuries.

HIST 1111 3
Western Civilization I Meets Goal Areas: 06, 08
 Surveys Western history from ancient times to the 1500s, encompassing political, economic, socio-cultural, intellectual and artistic developments. Examines the history of ancient civilizations including Egypt & Mesopotamia, Greek & Roman, Byzantine Empire, Islamic Civilization, and Medieval Europe. The course includes a consideration of the emergence of the major Western religions of Judaism, Christianity and Islam. Prerequisite: STSK 0095 or placement by multiple measures.

HIST 1112 3
Western Civilization II Meets Goal Areas: 06, 08
 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 placement by multiple measures.

HIST 1121 3
World History I Meets Goal Areas: 05, 08
 Includes a global and cross-cultural study of the early period of world history. Empires and regions examined include ancient India, China, Greece, Egypt, Rome, the Americas, Africa, Japan and Europe. The course includes the emergence of major world religions and considers their influence in world cultures and civilizations. Prerequisite: STSK 0095 or placement by multiple measures.

HIST 1122 3
World History II Meets Goal Areas: 07, 08
 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 placement by multiple measures.

HIST 2202 3
Modern American Wars Meets Goal Areas: 08, 09
 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 placement by multiple measures.

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 retaken for credit if the topic varies. Prerequisite: STSK 0095 or placement by multiple measures.

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 placement by multiple measures.

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 placement by multiple measures.

HLTH 1130 3
Stress Management and Relaxation
 Provides a foundation for understanding the role of stress in the modern human condition. Mind/Body/Spirit interrelationships and the emerging sciences of psychoneuroimmunology and subtle anatomy will be introduced. Experiential exploration of numerous coping skills and relaxation techniques is emphasized. Prerequisite: STSK 0095 or placement by multiple measures.

HLTH 2210 3
Human Sexuality
 Explores the diverse physical, social and psychological aspects of human sexuality at all life stages within the framework of solid scientific research and critical thinking. Topics include sexual anatomy and physiology, attraction and intimate relationships, gender issues, forms of healthy sexual expression and behaviors, fertility management, STIs, sexual dysfunction, atypical sexual behaviors, sexual coercion, and commercial sex. Opportunities to clarify personal values and decisions regarding one's sexual health are woven throughout. Prerequisite: STSK 0095 or placement by multiple measures.

HLTH 2220 3
Drugs, Society, and the Individual
 Explores relationships between drugs, sociocultural influences, and individual attitudes and behaviors. With an emphasis on psychoactive chemicals, this course surveys the physiological effects and psychosocial impact of a wide array of drugs. Investigates patterns of drug use; drug laws, consequences of drug abuse; addiction, intervention, treatment, recovery, and prevention strategies from both individual and social perspectives. Prerequisite: College level reading or placement by multiple measures.

HLTH 2235 1-3
Special Topics
 Explores a single health topic or current health issue; offerings based on student interest and demand. Course may be repeated as topic changes.

HLTH 2240 3
Basic Nutrition

Introduces the study of food and human dietary patterns. Examines sources of nutrients, how they are processed in the body, body composition, current dietary guidelines and nutritional issues, the impact of socio-cultural factors on diet, and the impact of dietary choices on health. Prerequisite: STSK 0095 or placement by multiple measures.

HUMAN SERVICES (HSER)

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 3
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 1262 2
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, wood, 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 1269 2
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 3
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 3
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 1-4
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 6
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 8
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 4
The Turbulent Sixties Meets Goal Areas: 06, 07

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 2
The Many Faces of Mexico Meets Goal Areas: 06, 07

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 1-3
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.

LAW ENFORCEMENT (LAWE)

LAWE 1111 3
Criminal-Constitutional Law

Criminal Constitutional Law provides learners an appreciation and understanding of the United States Constitution and the role it plays in democracy. The historic basis and development of constitutional concepts are explored. Constitutional limitations on governmental authority over private citizens are discussed and analyzed as interpreted by Federal and State Supreme Court decisions. The 1st, 4th, 5th, 6th, and 14th Amendments are stressed.

LAWE 1120 2
Physical Fitness for Law Enforcement I

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.

LAWE 1125 1
Physical Fitness for Law Enforcement II

Continues students' development in performing 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 need to meet the minimum standard for the Minnesota Peace Officer Standards and Training Board approved law enforcement-related physical fitness test by the end of the course.

LAWE 1140 2
Cyber Crimes

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.

LAWE 1150 2
Homeland Security and Terrorism

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.

LAWE 1170 2
Minnesota Traffic Code

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 3
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 4
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 3
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. Student will also be introduced to privacy data practices and the expectations during internal affairs investigations.

LAWE 1230 3
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 3
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 2
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 4
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 0.25-1.5
Special Topics

Covers a wide range of issues and topics in law enforcement. The class may be retaken for credit if the topic varies.

LAWE 2250 4
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 1
POST Seminar

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

LAWE 2297 1-3
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 experience(s) 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 4
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 4
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 12
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 4
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.

LAWE 2410 3
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.

LAWE 2420 3
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.

LAWE 2500 2
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.

LAWE 2510 2
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](http://www.mnwest.edu/programs/list/lamb-and-wool-management-diploma)**

LWMP 1202 2
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 2
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 1
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 2
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 1
Metallurgy & Machining Calculations
 Introduces students to metallurgy and material classification as it relates to machining. Students will become familiar with heat treatment terms and procedures. (1/2 semester) Math as it applies to the metal working industry will also be covered. (1/2 semester)

MACH 1405 4
Machining Fundamentals & Processes I
 Provides students with skills to become familiar with manually operated tools and equipment found in machining industry. Areas addressed will be safety, precision measurement, engine lathe, vertical mill, saw and drill press.

MACH 1410 2
Interpreting Engineering Prints I
 Introduces students to engineering drawings & interpretation of information included in current industrial blueprints.

MACH 1415 4
Machining Fundamentals & Processes II
 Provides students with continued skills to manually operate tools and equipment found in the machining industry. Areas addressed will be safety, precision measurement, engine lathe, vertical mill, saw, surface grinder, tool-room lathe and drill press.

MACH 1420 3
CNC Milling Programming & Operating 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 4
CNC Milling Programming & Operation II
 Perform 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. Prerequisite: MACH 1420 or consent of instructor for prior industry experience.

MACH 1430 3
CNC Lathe Programming & Operation I
 Introduces programming of 2 axis CNC lathes. It also includes selection of tooling and sequence of operations. Manual G-code programming will be done.

MACH 1435 4
CNC Lathe Programming & Operation II
 Perform 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 1460 2
Interpreting Engineering Prints 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: MACH 1410 or consent of instructor for prior industry experience.

MACH 1465 2
Swiss Lathe Programming & Operation
Provide students an introduction to swiss type turning centers. Areas addressed will be (G & M) codes, program editing and lathe setup. Prerequisites: MACH 1420, MACH 1430 or consent of instructor for prior industry experience.

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 multiple measures.

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 multiple measures.

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 multiple measures.

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. Prerequisite: MATH 0099 or placement by multiple measures.

MATH 0111 2
Co-requisite with College Algebra
Supports students who qualify with additional review, just-in-time learning, deeper conceptual development, repetition over time, and learning skills and habits required to be successful with the corresponding college level MATH 1111 College Algebra Math course taken concurrently. Prerequisite: ACT Math score of 19 or placement by multiple measures.

MATH 0115 2
Co-requisite with Intro to Probability and Statistics
Supports students who qualify with additional review, just-in-time learning, deeper conceptual development, repetition over time, and learning skills and habits required to be successful with the corresponding college level MATH 1105 Intro to Probability and Statistics course taken concurrently. Prerequisite: ACT Math score of 15 or placement by multiple measures.

MATH 0117 2
Co-requisite with Concepts in Math
Supports students who qualify with additional review, just-in-time learning, deeper conceptual development, repetition over time, and learning skills and habits required to be successful with the corresponding college level MATH 1107 Concepts in Math course taken concurrently. Prerequisite: ACT Math score of 11 or placement by multiple measures.

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 placement by multiple measures.

MATH 1105 4
Introduction to Probability and Statistics Meets Goal Area: 04
Introduces the 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: MATH 1107 or NURS 1130 or Co-Req MATH 0115 or placement by multiple measures.

MATH 1107 3
Concepts in Math Meets Goal Area: 04
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 1109 3
Math Skills for Elementary Education
Develop mathematical skills required for Elementary Education majors by pairing various skills with a beginning discussion of pedagogy and best-practices in Elementary Math Education. This course fulfills some of the Minnesota Professional Educators Licensing and Standards Board competencies required for Elementary teachers. Prerequisites: Two years of high school Algebra, Math 0092, or placement by multiple measures.

MATH 1111 3
College Algebra Meets Goal Area: 04
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 0100, or placement by multiple measures.

MATH 1113 4
Pre-Calculus Meets Goal Area: 04
Reviews the concepts of college algebra and then extends those ideas to trigonometry and analytic geometry. Exponential, logarithmic, and polynomial functions are emphasized in the review. The course explores rectangular coordinates and angles, solutions of right triangles, unit circles, radian measure, trigonometric functions and their inverses, 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 multiple measures.

MATH 1118 4
Applied Calculus Meets Goal Area: 04
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 placement by multiple measures.

MATH 1121 4
Calculus I Meets Goal Area: 04
Introduces the basic ideas of differential and integral calculus: Topics include limits and continuity, differentiation of functions, applications of derivatives, definite and indefinite integrals, numerical integration, and applications of definite integrals. Prerequisite: MATH 1113 or placement by multiple measures.

MATH 1122 4
Calculus II
Calculating areas and using definite integrals, this course continues to expand Calculus I concepts. Other topics include the calculus of transcendental functions, techniques of integration, applications of integration, differential equations and modeling, and infinite sequences

and series, Taylor polynomials, and the Calculus of polar and parametric equations. Prerequisite: MATH 1121.

MATH 2201 **4**
Calculus III
Extending applications of derivatives and integrals to three-dimensions, this course 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, the Divergence Theorem, and Stoke's Theorem. Prerequisite: MATH 1122.

MATH 2206 **4**
Ordinary Differential Equations
Presents the theory, computations and applications of first and second order ordinary differential equations and two-dimensional systems. Prerequisite: MATH 1122.

MATH 2235 **1-4**
Special Topics Mathematics
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 **3**
Introduction to Laboratory Science
This is an orientation course designed to familiarize the student with a career in the medical laboratory field, medical terminology, certification process, professional organizations, and ethical/legal issues. The course has heavy emphasis on phlebotomy skills. The course also introduces the students to laboratory information system (computers) as they are used in the laboratory.

MDLT 1105 **3**
Microbiology I
This course 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 in relation to their disease processes in humans. The course will present microbiology within an epidemiologic, diagnostic, and clinical framework. In the laboratory, the student will learn such techniques as gram staining, microscopy, culturing, identification of microorganisms and anti-microbial susceptibility testing.

MDLT 1110 **2**
Medical Lab Calculations
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 **3**
Biological Fluids
The course 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) are reviewed in the lecture portion of the class. In the laboratory, the student will perform physical, chemical and microscopic analysis on urine specimens. Prerequisite: None. Microscopic usage is helpful.

MDLT 1120 **3**
Immunology
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 **3**
Clinical Chemistry I
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 **3**
Hematology I
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 **3**
Microbiology II
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 consent of instructor.

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

MDLT 2110 **2**
Clinical Chemistry II
This course is a continuation of MDLT 1125 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 & thyroid, gastric & pancreatic function, toxicology, and hormones. Prerequisites: MDLT 1100, MDLT 1125 and CHEM 1150.

MDLT 2120 **3**
Hematology II
This course is a continuation of MDLT 1130 (Hematology I). Student will study the disease processes that occur in the red blood cells of the blood with emphasis on anemias. This course also covers the theory and testing of the coagulation aspects of the blood. Prerequisite: MDLT 1100 and MDLT 1130.

MDLT 2200 **4**
Externship
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 **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.

MDLT 2310 **2**
Urinalysis and Biological Fluids
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 **4**
Hematology and Hemostasis
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 2330 4

Medical Microbiology

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 2160 and MDLT 2120.

MDLT 2340 3

Clinical Chemistry and Immunology

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 2350 4

Immunohematology

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 2360 1

Capstone

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.

MECHATRONICS (MECH)

MECH 1102 2

Mechanical Power Transmission

Introduces students to fundamental industrial mechanical concepts, principles, and equipment.

MECH 1103 3

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 actuators.

MECH 1105 3

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.

MECH 1110 2

Fluid Power Calculations

Applies math concepts used to calculate basic system parameters such as lifting force, pressures, horsepower, time, velocities, and conductor sizes. Students will calculate efficiencies, flow, pressure, horsepower, speed, torque and displacement for basic fluid power systems.

MECH 1115 2

Computer Aided Design

Introduces the skills needed to design, draw, edit, and publish various industrial schematics using CAD 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.

MECH 1120 3

Pneumatic Theory

Introduces the students to gas laws and principles, and pneumatic component identification, functions and applications.

MECH 1125 2

Electrical Controls I

Introduces basic electrical concepts. Students will be introduced to electrical theory, electrical safety hazards and requirements, and electrical circuit wiring and measurement. Students will learn to identify electrical control components used in an industrial environment and apply the concepts necessary for designing, wiring, troubleshooting, and operation of electrical control circuits.

MECH 1131 1

Pneumatic Lab

Provides students with skills in plumbing, troubleshooting, and operation of basic pneumatic circuits. Concurrent with MECH 1120.

MECH 1135 3

Electrical Controls II

Analyze electrical control circuits used in industrial environments. This course includes the control of electromechanical devices, AC and DC motors, and solid state control devices. Electrical schematics used to interpret logic and circuit function. Students will design, wire, and troubleshoot electromechanical and motor starter circuits using common industrial devices and components.

MECH 2100 3

Advanced Systems Calculations

Provides students with knowledge and skills of sizing systems in both mobile and industrial applications. Prerequisites: Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

MECH 2105 4

Advanced Fluid Power System I

Provides students the opportunity to design, plumb, and operate various advanced hydraulic, pneumatic, and electrical control circuits. Prerequisites: Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

MECH 2110 3

Circuit Design and Control Theory

Provides student instruction in design and function of hydrostatic drives, mobile valves, pump controls, and power steering. Prerequisite: MECH 1110.

MECH 2120 5

Automated Systems

Provides students with an understanding of and the ability to use programmable logic controllers, human machine interfaces, drives, controllers, and other hardware to control and power all phases of industrial automation. Prerequisite: MECH 2136.

MECH 2125 3

Motion Control

Examines components in a motor and motion control systems, including servo systems, motors, feedback devices, controllers, and the software used to control precise motion in industrial automation. Prerequisite: MECH 2136

MECH 2126 4
System Analysis
 Provides students with the knowledge of how components interact with each other in systems and what may cause them to malfunction. Prerequisite: Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

MECH 2130 4
Advanced Fluid Power System 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. Prerequisite: Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

MECH 2136 3
Programmable Logic Controllers
 Demonstrates use of plc and circuits to control and power all phases of industrial automation. Prerequisite: MECH 1135.

MECH 2141 2
Proportional & Servo Control Theory
 Provides students with knowledge and working skills dealing with electronic control of electro-hydraulic proportional and servo controls. Prerequisite: Successful completion of year one in the Mechatronics diploma or A.A.S. degree program or equivalent work experience.

MEDICAL ASSISTANT (MEDA)

MEDA 1105 3
Clinical Procedures I
 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, eye and ear procedures, physical agents that promote tissue healing, care of instruments and documentation. Prerequisite: It is recommended that BIOL 2245 or HC 1180 and HC 1151 be taken before or concurrently with this course.

MEDA 1135 3
Laboratory Skills
 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 electrocardiology, 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 4
Clinical Procedures II
 Reinforces the fundamental aspects of clinical medical assisting taught in Clinical Procedures I and expands into surgical asepsis, minor office surgery and wound care. The specialty areas of OB/GYN, pediatrics, colon procedures and male reproductive health are explored. Dosage calculations and medication administration techniques are also taught. Included is the performance of specific skills related to each area of study. Prerequisite: MEDA 1105.

MEDA 2135 3
Pharmacology
 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 1
Professional Integration
 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 6
Medical Assistant Practicum
 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 1-3
Special Topics: Medical Assisting
 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.

MESSAGE THERAPY (MSTH)

MSTH 1100 3
Introduction to Massage
 Teaches the importance of self-awareness and self-care. Body mechanics are emphasized. Yoga, Tai Chi, somatic stretches and relaxation techniques are taught. Discussions of stress causing events are discussed. Self-knowledge and self-awareness both physically and mentally are taught. The aim is to facilitate the development of student maturity and self-understanding. Professional behavior and standards, ethical and legal practice as it applies are discussed. Introduction to massage therapy, licensure, national certification, professional organizations, malpractice insurance, and the hospice concept are also taught. Client positioning, with the use of the bolsters, pillows, and special tilt, cut-out and firm massage tables, use of hot packs and cold packs or ice (cryotherapy) is covered. The ability to make professional judgments about the application of the appropriate modality for each client situation is taught and practiced.

MSTH 1105 2
Kinesiology
 Covers the basic structure and function of the joint, muscles, nerves, and other connective tissues that cause movement and control posture in the human body as they apply to massage therapy. General physics principles including levers, planes, and axis are covered. The interaction of the muscle/bone connections and the forces needed to produce movement are taught.

MSTH 1110 6
Basic Massage I
 Covers massage techniques which are applied sequentially to the back, neck, and head, posterior legs, anterior torso, face, and anterior legs. Pathology of each area is discussed including function, positioning, appropriate strokes, ethical situations, and the appropriate draping. Concurrently the students are led to the application of professionalism, legal issues, and documentation. The relationship of the mind's control of muscles and the resulting posture are taught. Instruction in somatic releases for each body section is practiced. The importance of client education is stressed with the responsibility of the client to participate in their well-being. Postural analysis is taught. Students learn definitions, identification and therapeutic interventions of the three major muscular reflexes at stress in humans. Distinguishing chronic muscular pain and postural distortions as caused by structural imbalance vs. functional imbalances is explored.

MSTH 1115 6
Massage Therapy
 Covers the theory, techniques and applications of deep tissue therapy including deep work on the muscles and fascia, methods of tension release, and the injury repair process. Causes of stress are discussed and their relationship to chronic tension as related to neuromuscular therapy (NMT), and stress-tension-pain cycle is taught. Expanded and more detailed interview and assessment techniques are reviewed. The dysfunction theory and formation of trigger points with review of muscle cell activity, joint mobilization and stretching are taught. Students learn in-depth interview skills, working with pressure scales and the importance of client/therapist communication. Development of treatment plans is taught, and how and when to make a referral. This course also covers Swedish Massage, Chair Massage, Mother Massage, Infant Massage, Geriatric (Senior) Massage, and Lymphatic Drainage Massage. The evaluation of special populations is taught. Special massage skills involving positioning, strokes, pathology, documentation, and contraindications and cautions are included.

MSTH 1120 3
Client Massage
 Covers the application of Swedish Massage, Chair Massage, Mother Massage, Infant Massage, Geriatric (Senior) Massage, and Lymphatic Drainage Massage. Special massage skills involving positioning, strokes, pathology, documentation, and contraindications and cautions are included.

MSTH 1125 3
Massage Therapy Business Practices
Covers the principles of a massage therapy business. The small business successes and record keeping are taught. The differences between contract work, being an employee, and ownership are compared.

MSTH 1130 1
Spa Techniques
Enables students to effectively incorporate spa services into their business by using a step by step hands-on approach to learning and studying ways to improve their business through marketing. This course is designed for college students as well as persons who are already practicing in the field of massage.

Music (MUSC)

MUSC 1101 3
Fundamentals of Music Meets Goal Area: 06
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 3
Introduction to Music Technology Meets Goal Areas: 06, 08
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 3
American Popular Music Meets Goal Area: 06
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.

MUSC 1105 3
Enjoying Music Meets Goal Area: 06
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.

MUSC 1108 1
Concert Band
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.

MUSC 1110 3
Introduction to Rock Music Meets Goal Area: 06
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 placement by multiple measures.

MUSC 1111 1
Chorale Meets Goal Area: 06
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.

MUSC 1112 1
Chorale Meets Goal Area: 06
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.

MUSC 1131 1
Pop Singers Meets Goal Area: 06
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.

MUSC 1132 1
Pop Singers Meets Goal Area: 06
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.

MUSC 1140 1
Piano Lessons Meets Goal Area: 06
Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.

MUSC 1141 1
Piano Lessons Meets Goal Area: 06
Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.

MUSC 1145 1
Vocal Lessons Meets Goal Area: 06
Develops singing technique through a regularly scheduled program of individualized instruction.

MUSC 1146 1
Vocal Lessons Meets Goal Area: 06
Develops singing technique through a regularly scheduled program of individualized instruction.

MUSC 2108 1
Concert Band
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.

MUSC 2111 1
Chorale Meets Goal Area: 06
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.

MUSC 2112 1
Chorale Meets Goal Area: 06
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.

MUSC 2131 1
Pop Singers Meets Goal Area: 06
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.

MUSC 2132 1
Pop Singers Meets Goal Area: 06
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.

MUSC 2140	1
Piano Lessons	Meets Goal Area: 06
Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.	
MUSC 2141	1
Piano Lessons	Meets Goal Area: 06
Provides regularly scheduled individualized instruction. Open to interested students at all levels of ability.	
MUSC 2145	1
Vocal Lessons	Meets Goal Area: 06
Develops singing technique through a regularly scheduled program of individualized instruction.	
MUSC 2146	1
Vocal Lessons	Meets Goal Area: 06
Develops singing technique through a regularly scheduled program of individualized instruction.	
MUSC 2235	1-3
Special Topics in Music	
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.	

NATURAL SCIENCE (CRPT)

NSCI 1100	3
Issues in the Environment	Meets Goal Areas: 08, 10
Takes a broad look at environmental issues and explores in depth certain global, national, and local environmental problems. In addition to lecture, guest speakers, field trips, and videos may be used. Prerequisite: STSK 0090 or placement by multiple measures.	
NSCI 2235	1-3
Special Topics	
Explores various topics relating to the natural and man made world. It is designed to meet student needs or interests relating to their chosen field of study. The course may be retaken when the topic is different.	

NURSING (NURS)

NURS 1100	3
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	3
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	3
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	2
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	2
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	3
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, neurovascular 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	2
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	3
Family Nursing	
Introduces the learner to the childbearing/childrearing family. Concepts included are psychosocial, normal physical, and abnormal conditions of pregnancy, the health and illness of the newborn through the adolescent, and the influence of the community on the family. Application of growth and development theory to direct patient care is emphasized. Prerequisite: NURS 1100 and completion of or concurrent enrollment in PSYC 1150.	
NURS 1280	6
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	2
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	1
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 2125	4
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.	
NURS 2130	2
Pharmacology: A Pathophysiologic Approach	
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.	

NURS 2145 2
Principles of Professional Nursing I
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.

NURS 2150 2
Skills Lab
Assists the student in developing safe, evidence based nursing skills. Delegated medical functions as well as physical and psychosocial assessment of adults and children are practiced. Safety in medication dosage and medication administration is practiced. Simulation will be used to integrate skills in preparation for the acute care clinical environment.

NURS 2190 2
Acute Care Clinical I
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.

NURS 2225 3
Patient Centered Care II
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.

NURS 2235 1-3
Special Topics in Nursing
Topics will be chosen to meet the needs of students. The class may be retaken for credits if the topic varies.

NURS 2245 2
Health Promotion and Role of the Professional Nurse
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.

NURS 2260 3
Family-Centered Care
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 "best practice" will be examined to validate incorporation of evidence-based empirical research in care for individuals and families. Prerequisites: NURS 2225 and NURS 2245.

NURS 2275 1-2
Nursing Preceptorship
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.

NURS 2290 2
Acute Care Clinical II
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.

NURS 2390 2
Clinical in Alternate Settings
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. Prerequisites: NURS 2125, NURS 2130, NURS 2145, NURS 2150, and NURS 2190.

PHYSICAL EDUCATION (PHED)

PHED 1101 3
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 2
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 3
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 2
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 1
Beginning Archery
Offers fundamental instruction in target archery. Safety, choice and care of equipment will also be taught.

PHED 1125 1
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 1126 1
Beginning Yoga
Teaches methods and techniques of hatha yoga with an emphasis on the vinyasa style. Promotes the fitness and health benefits of mind-body awareness.

PHED 1130 1
Physical Fitness for Life
Emphasizes aspects of physical fitness for the student wishing to learn methods and tests of physical fitness. Cardiovascular and respiratory fitness, as well as muscular strength and endurance will be emphasized. The course is self-paced.

PHED 1135 1
Beginning Tennis
 Introduces the fundamentals of tennis as a leisure time activity. Emphasis is on acquiring technique, knowledge and fitness.

PHED 1136 1
Racquet Sports
 Introduces the fundamentals of different racquet sports and leisure time activities. This course is designed to develop skills, technique, sportsmanship, and knowledge of rules in racquetball, badminton, and other indoor racquet sports.

PHED 1140 2
Body Conditioning
 Emphasizes body conditioning through weight training and physical training.

PHED 1145 1
Bowling
 Provides students with knowledge and practice in the sport of bowling. Students learn bowling rules, skills, techniques, and appreciation.

PHED 1155 1
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 1
Beginning Golf
 Focuses on helping beginning golfers understand the fundamentals of golf as a recreational activity.

PHED 1165 1
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 1
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 1
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 1
Intercollegiate Men's Basketball
 Provides credit for first year participants. The course consists of a twenty-game schedule against other community colleges in Minnesota.

PHED 1173 1
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 1174 1
Intercollegiate Wrestling
 Provides credit to first 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 1175 1
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 1
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 1
Intercollegiate Women'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 1178 1
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 1179 1
Intercollegiate Women's Soccer
 Includes participation in intercollegiate competition in women's soccer at the community college level representing Minnesota West Community and Technical College in the Minnesota Community College Athletic Conference.

PHED 1180 3
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 1189 1
Intercollegiate Men's Soccer
 Includes participation in intercollegiate competition in men soccer, that they acquired knowledge at the freshmen intercollegiate level, and represented Minnesota West Community and Technical College in the Minnesota College Athletic Conference and National Junior College Athletic Association.

PHED 2020 4
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. Prerequisites: PHED 1101 and NSCI 1100.

PHED 2090 3
Sport in Society
 Introduces students to an in-depth study of the major issues in the world of sports and how they relate to society. All primary issues impacting contemporary sports are covered, including performance-enhancing drugs; human growth hormones; gender inequality; race and ethnicity; youth, adolescent, and adult programs; media involvement; economics; management structures; and globalization.

PHED 2101 2
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	2	PHED 2178	1
Prevention and Care of Athletic Injuries II		Intercollegiate Men's Golf	
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.		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 2111	3	PHED 2179	1
Sports Management		Intercollegiate Women's Soccer	
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.		Includes participation in intercollegiate competition in women's soccer at the community college level representing Minnesota West Community and Technical College in the Minnesota Community College Athletic Conference. Prerequisite: PHED 1179.	
PHED 2135	1	PHED 2181	2
Intermediate Tennis		Wrestling Coaching and Officiating	
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.		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 2140	2	PHED 2183	2
Theory and Technique of Body Conditioning		Basketball Coaching and Officiating	
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.		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 2170	1	PHED 2184	1
Intercollegiate Football		Officiating Volleyball	
Consists of intercollegiate competition in football at the community college level. Football skills, sportsmanship, competitiveness, and sound athletic principles are taught.		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.	
PHED 2171	1	PHED 2185	2
Intercollegiate Volleyball		Volleyball Coaching and Officiating	
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.		Reviews in detail high school, club and college level volleyball rules and the basic mechanics of officiating volleyball. A comparison between high school, club and college rules is made to better enable students to understand various levels of coaching. Course also looks at proper training techniques to improve, and teach the game of volleyball. Students will learn all avenues of running a program so they can prepare to be a coach.	
PHED 2172	1	PHED 2187	2
Intercollegiate Men's Basketball		Baseball/Softball Coaching and Officiating	
Provides credit for second year participants. The course consists of a twenty-game schedule against other community colleges in Minnesota.		Covers the guidelines of the State and National High School League rules including rules interpretation, game technique, and casebook studies. Course will also cover the coaching aspects of baseball and softball, game tactics, scouting, recruiting, team goals, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.	
PHED 2173	1	PHED 2188	2
Intercollegiate Women's Basketball		Football Coaching and Officiating	
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.		Covers the guidelines of the State and National High School League rules, including rules interpretation, field mechanics, and casebook studies. Course will also cover the coaching aspects of football, game tactics, scouting, recruiting, teams, methods of conducting practice, student academic concerns, and handling players at both high school and college settings.	
PHED 2174	1	PHED 2189	1
Intercollegiate Wrestling		Intercollegiate Men's Soccer	
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.		Includes participation in intercollegiate competition in men soccer, they acquire knowledge at the sophomore intercollegiate level, and represent Minnesota West Community and Technical College in the Minnesota Community College Athletic Conference and National Junior College Athletic Association. Prerequisite: PHED 1189.	
PHED 2175	1	PHED 2215	3
Intercollegiate Women's Softball		Sport Marketing	
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.		Introduces students to an in-depth study of sports marketing and its influence on the accomplishment of objectives in the world of sports. It involves a thorough review of the product, be it tangible or a service, and details bringing the product to market. Topics include advertising, promotions, public relations, location, pricing, sponsorships, licensing, market segmentation, and the role of research.	
PHED 2176	1		
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	1		
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 2235 1-3
Special Topics
Covers a wide range of issues and skill development. Particular topics will be chosen to meet the needs of Physical Education students. The class may be retaken for credit if the topic varies.

PHILOSOPHY (PHIL)

PHIL 1101 3
Introduction to Philosophy Meets Goal Area: 06
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 placement by multiple measures.

PHIL 1102 2
Philosophy of Religion Meets Goal Area: 06
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 placement by multiple measures.

PHIL 1200 3
Logic Meets Goal Area: 04
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 2101 3
Ethics Theory and Practice Meets Goal Areas: 06, 09
Introduces classical and contemporary ethical theories and how to apply them in analyzing contemporary ethical issues. Prerequisite: STSK 0095 or placement by multiple measures.

PHIL 2201 1
Introduction to Ethical Theory Meets Goal Areas: 06, 09
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, 2223). Prerequisite: STSK 0095 or placement by multiple measures.

PHIL 2202 1
General Applied Ethics Meets Goal Areas: 06, 09
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 2205 2
Business Ethics Meets Goal Areas: 06, 09
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 1
Medical Ethics Meets Goal Areas: 06, 09
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, nonmaleficence, 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 1
Ethics for Human Services Workers
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 question 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 3
World Religions Meets Goal Areas: 06, 08
Explore various world religions through reading about the religions and reading texts from various faith traditions. Prerequisite: STSK 0095 or placement by multiple measures.

PHIL 2235 1-3
Special Topics in Philosophy
Explores specific issues and topics in philosophy. The class may be retaken if the topics vary. Prerequisite: STSK 0095 or placement by multiple measures.

PHARMACY TECHNOLOGY (PHRM)

PHRM 1100 5
Pharmacy Principles and Practices I
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.

PHRM 1105 5
Pharmacy Principles and Practices II
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. Apply 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.

PHRM 1110 3
Pharmaceutical Calculations
In this class students will 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.

PHRM 1115 4
Pharmacology for Technicians I
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.

PHRM 1120 3
Pharmacology for Technicians II
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. Prerequisite: PHRM 1115.

PHRM 1130 **3**
Hospital Externship

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.

PHRM 1135 **3**
Retail Externship

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.

PHYSICS (PHYS)

PHYS 1100 **3**
Survey of Physics

Meets Goal Area: 03

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: MATH 0099 or placement by multiple measures.

PHYS 1150 **3**
Survey of Astronomy

Meets Goal Area: 03

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 0099 or placement by multiple measures.

PHYS 1201 **4**
Fundamentals of Physics I

Meets Goal Area: 03

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 0100 or placement by multiple measures.

PHYS 1202 **4**
Fundamentals of Physics II

Meets Goal Area: 03

Continues PHYS 1201. Topics include temperature and heat transfer, Laws of Thermodynamics and heat engines, electric fields, electricity of direct circuits, electronics, magnetism, electromagnetism, optics, modern physics, and radioactivity. Prerequisite: PHYS 1201 or permission of the instructor.

PHYS 2121 **5**
General Physics I

Meets Goal Area: 03

Teaches the fundamentals of physics using calculus and vectors. Uses laboratory centered instruction with 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 fluids. Prerequisite: MATH 1121 (can be taken concurrently).

PHYS 2122 **5**
General Physics II

Meets Goal Area: 03

Continues Physics 2121. Calculus and vectors are used throughout. Uses laboratory-based instruction. Topics include heat and thermodynamics, heat engines, electric charges and forces, electric potential, electric fields, Gauss' Law, direct and alternating current circuits,

capacitors and RC circuits, electronics, magnetism and magnetic fields, modern physics, and radioactivity. Prerequisite: PHYS 2121 and MATH 1121, with MATH 1122 being taken concurrently or before.

PHYS 2235 **1-3**
Special Topics

Explores specific areas of physics to meet specialized student needs or interests. The class may be retaken if the topics vary.

PLUMBING AND HEATING (PLHT)

PLHT 1100 **3**
Introduction to Plumbing

Introduces students to the tools and equipment of the plumbing trade, the necessity of safety in the workplace and methods described in the Minnesota Plumbing Code. Students will study plastic piping, which involves the joining of drainage, waste & vent, water supply and distribution lines. Students will become familiar with the different types of copper pipe, fittings and tubing. PEX water and heating distribution piping will be discussed and utilized. Students will also utilize and study water pumps.

PLHT 1105 **4**
Plumbing Installation and Fixtures

Expands on PLHT 1100 to begin construction systems for residential and light commercial structures. Safe methods of handling and installing piping in accordance with Minnesota State Plumbing Code and general industry accepted standards will be emphasized. Both copper and plastic materials will be utilized in installations. Common fixtures, faucets, and valve selection and installation will be included in lab activities. Proper structural support will be included.

PLHT 1110 **2**
Code I

Provide an understanding of many of the technical rules of the Minnesota Plumbing Code. Topics included are Minnesota licensing laws, plumbing industry definitions, basic plumbing principles and general regulations, requirements and calculations for plumbing installations, potable water distribution systems, Drain, Waste and Vent (DWV) systems, and various requirements for plumbing fixtures.

PLHT 1115 **1**
Print Reading I

Introduce students to fundamental print reading skills. Students will read building plans and pipe diagrams, interpret floor plan elevations, draw isometric views and sketch working drawings.

PLHT 1120 **3**
Heating & Air Conditioning Electrical & Control Circuits

Understand the fundamentals of electricity, electrical controls and circuits, safety and operative controls in residential heating and air conditioning. Students will learn how they operate, what they control, and what the controls are protecting and how they are protecting the unit, device or structure.

PLHT 1125 **3**
Heating & Air Conditioning Fundamentals

Explore heating systems, various energy sources and the technology around modern heating systems. Topics will include controls, sizing, types of heat, venting and distribution requirements. This course will explore the evolving impact of technology and efficiency of systems and energy consumption.

PLHT 1130 **5**
Plumbing Installation and Fixtures II

Expand on PLHT 1105 for more complex construction systems for residential and light commercial structures. Installation, service and repair of common fixtures, faucets, water treatment, water heaters installation will be included in lab activities. Students will be provided more complex projects and develop solutions to complete system installations, various piping installations applying code requirements.

PLHT 1135 **2**
Code II

Build on knowledge learned in PLHT 1110 and apply this information to gain thorough understanding of Minnesota plumbing code. Course includes pipe sizing of residential homes, plumbing license requirements and practical testing to achieve the journeyman license.

PLHT 1140 2
Print Reading II
Learn how to read building plans and pipe diagrams, interpret floor plans, elevation views, draw isometrics and sketch detailed work drawings. Students will develop skills in estimating plumbing cost for basic residential installations and remodels. Building on these skills, the student will gain knowledge of complex residential pipe diagrams, and isometric drawings. Prerequisite: PLHT 1115

PLHT 1145 5
Heating & Air Conditioning Installation and Service
Develop skills in system operation, installation, service and repair. Emphasis in this course will be on controls and safety components. Testing of systems, calculating corrections, installation of new and replacement parts, and methods of system repair will be practiced.

PLHT 1150 2
Sheet Metal Technology
Gain experience using sheet metal tools with proper applications. Measuring and layout, pattern matching, making edges and seaming will be taught. Students will be exposed to sizing, measuring pressures and calculating losses.

POWER SPORTS (PRSP)

PRSP 1100 4
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 operations 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. Prerequisite: TRAN 1100

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. Prerequisite: TRAN 1100

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. Prerequisite: TRAN 1100

PRSP 1130 3
ATV/Motorcycle Technology
This course will cover fundamental operating principles and service techniques for ATV 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. Prerequisite: TRAN 1100

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 ATV 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. Prerequisite: TRAN 1100

PRSP 1140 2
Principles of Shop Operations
This course will prepare students for the day-to-day operation of a service center. Manufacturer's service procedures, record management, work order processing, warranty service, new vehicle preparations, and customer relations will all be focal points of this course. Prerequisite: TRAN 1100

PRSP 1145 4
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. Prerequisite: TRAN 1100

POLITICAL SCIENCE (PSCI)

PSCI 1101 3
Introduction to Political Science Meets Goal Areas: 05, 08
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 placement by multiple measures.

PSCI 1201 3
American Government and Politics Meets Goal Areas: 05, 09
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 placement by multiple measures.

PSCI 2202 3
State and Local Government Meets Goal Areas: 05, 09
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 placement by multiple measures.

PSCI 2210 3
Environmental Politics Meets Goal Areas: 05, 10
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 placement by multiple measures.

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 placement by multiple measures.

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.

PRACTICAL NURSING (PRNU)

PRNU 2235 1-3
Special Topics in Practical Nursing
Topics will be chosen to meet the needs of students. The class may be retaken for credits if the topic varies.

PRNU 2295 1
IV Skills for Practical Nurses
This course is 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.

PSYCHOLOGY (PSYC)

- PSYC 1101** **4**
Introduction to Psychology Meets Goal Areas: 05, 07
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 placement by multiple measures.
- PSYC 1111** **3**
Psychology of Adjustment Meets Goal Areas: 05, 07
Uses a cognitive-behavioral approach to achieve personal growth and manage common problems of daily living. Topics include development of self-esteem and assertiveness, health and wellness, relationships, loneliness and solitude, anger management, and handling death and loss. Prerequisite: PSYC 1101 or consent of instructor.
- PSYC 1141** **2**
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** **3**
Developmental Psychology Meets Goal Areas: 05, 07
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 are included. Contributions from and applications of research is a core component across all topics. Prerequisite: STSK 0095 or placement by multiple measures.
- PSYC 2210** **3**
Basic Counseling Skills Meets Goal Area: 05
Teaches individual interviewing and helping techniques, including attending skills, reflection of content, feeling and meaning, asking questions, giving information, challenging, and action planning. Students record sessions in a lab setting. Prerequisite: PSYC 1101 or consent of instructor.
- PSYC 2221** **3**
Abnormal Psychology Meets Goal Areas: 05, 07
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** **3**
Addictive Behavior Meets Goal Areas: 05, 07
Provides a comprehensive overview of psychological models to understanding addiction. Presents the process of addiction as sequence which includes: initiation, maintenance, dependence, and change. Also addressed is the 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** **3**
Behavior Modification Meets Goal Area: 05
Introduces basic principles of behavior modification and their application to the modification of maladaptive behavior and the development of adaptive behavior. Development of skills to adapt these principles to

address problems of daily living is emphasized. Prerequisite: PSYC 1101 or consent of instructor.

- PSYC 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.
- PSYC 2260** **3**
Social Psychology Meets Goal Areas: 05, 07
Provides students with the scientific studies of individual behaviors as influenced by other people and in social contexts. Specific emphasis will be placed on social psychological theories and research findings on such areas as the self-concept, social cognition, attribution theory, social influence, group processes, prejudice and discrimination, interpersonal processes, aggression, attitudes, stereotypes, the relation of self and culture/multicultural. Pre-requisite: PSYC 1101 or consent of instructor.
- PSYC 2280** **2-4**
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** **3**
Introduction to Radiography & Patient Care
Provide the basic concepts of patient care in radiography as well as introduce to 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** **4**
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 related patient care considerations.
- RADT 1120** **3**
Radiological Procedures II
This course will provide the student with the knowledge necessary to perform radiographic procedure relative 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** **3**
Radiological Exposures I
This course 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** **3**
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 7

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 8

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 3

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 4

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 2

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 1-4

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 3

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 8

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 8

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 2

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 1

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 1

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 3

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 2

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.

RNEW 1102 2

Biodiesel Process Fundamentals

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 1107 2

Industrial Safety

Introduces workplace safety concepts as they are related to federal and state agencies and regulations. Topics covered in the course include recognition and identification of safety issues, governing agencies and industry organizations, and details about voluntary standards.

RNEW 1110 1

Low & High Pressure Boiler Systems

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 3

Mechanical Fundamentals for Process Controls

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 1125 1

P & ID & PFD Reading

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 2

Pollution Control Fundamentals

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 1160 3

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 1175 2

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 1195 2

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 3

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 2120 2

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 2165 1

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.

FOR ADDITIONAL COURSE DESCRIPTIONS ON SMALL BUSINESS MANAGEMENT COURSES (SBMT) GO TO: WWW.MNWEST.EDU/PROGRAMS/LIST/SMALL-BUSINESS-MANAGEMENT-DIPLOMA.

SBMT 1110 2

Organization Planning

In this course the business owner or manager will conduct a self-study of the business and an analysis of the various business systems. The results will be used to begin the process of establishing a new or updated business plan, including a mission statement, vision statement, and business goals.

SBMT 1120 3

Business Systems

In this course, the business owner or manager will begin the process of creating or updating a business plan. The course will include an overview of the business planning process, the individual components of a business plan, and the process for building a business plan. A business plan for the business is the desired outcome.

SBMT 1210 3

Financial Systems

In this course the business owner or manager will study product pricing for optimizing business profits, budgeting to monitor business revenues and expenses, and cost control options

SBMT 1220 3

Financial Management

In this course the business owner or manager will study product pricing for optimizing business profits, budgeting to monitor business revenues and expenses, and cost control options for the small business. The student will also create a break-even analysis of the business and study the effect of different business decisions using a break-even analysis.

SBMT 1230 3

Financial Analysis

In this course the business owner or manager will study how to analyze the profit and loss statement, the balance sheet, and cash flow statement using ratio and trend analysis. Prerequisite: SBMT 1210.

SBMT 1268 2

Governmental Payroll Reporting for Small Business

This course covers the fundamentals, completion, and analysis of the federal and state employment tax forms and filing requirements.

SBMT 1310 1

Conflict Resolution

Covers techniques for resolving conflict and negotiating collaborative solutions in workplace settings. Conflict resolution and negotiation strategies are essential for supervisors and other persons in leadership positions. Emphasis will be placed on selecting and applying conflict resolution and negotiation strategies that are appropriate for a given situation. Students will learn to effectively confront conflict in its early stages and to negotiate solutions beneficial to all persons involved.

SBMT 1312 3

Marketing Systems

In this course the business owner or manager will study the 5 P's of marketing, product, pricing, presentation, promotion, and packaging. The business owner or manager will apply them to their business entity. They will also use these concepts to design a marketing strategy to create the desired business image.

SBMT 1315 3

Principles of Supervisory Leadership

Assists the student to become better acquainted with realistic problems, which must be confronted along with practical advice for solutions. The focus will be an explanation and translation of management principles and

theories into tools that can be used in the everyday practice of supervision.

SBMT 1320 1
Innovation and Creativity
Provides learners with an opportunity to explore the essential concepts of accelerated learning. Learners will be exposed to research on "how to learn", as well as examine the process of non-linear thinking. With this information learners will be able to utilize processes for finding business opportunities within their organization.

SBMT 1321 2
Marketing Management
Studies the basics of planning an advertising schedule. Topics include budgeting and designing advertisements for specific media. The student will construct both an advertising plan and a budget for the business.
Prerequisite: SBMT 1312.

SBMT 1325 2
Problem Solving and Decision Making
Provides learners with an opportunity to explore the essential concepts of problem solving and decision-making. Learners will learn how thinking differently can help them solve problems and make decisions. Learners will break complex problems into workable components and will learn to go beyond preconceived limitations when developing solutions.

SBMT 1330 1
Interpersonal Skills
Designed to assist learners in improving their one-on-one communication skills. The learner will analyze the variables common to interpersonal communication and learn techniques to overcome barriers to effective communication.

SBMT 1335 1
Teamwork
Addresses the context, which contributes to the growth of team based work systems, the essentials for conducting effective meetings and skills necessary for participating in and leading successful teams.

SBMT 1340 1
Time Management
Provides learners with an opportunity to explore the essential concepts of time management. The learner will explore ways of dealing with the daily challenge of successfully juggling multiple priorities, which require a clear understanding of individual time management strengths and weaknesses and a well-practiced self managed strategy. The learner will analyze their time management habits and development improvement plans to become a time master.

SBMT 1345 3
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 2
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 2
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 4
Personnel Supervision
Introduces the student to the various components of personnel supervision, which are unique to the healthcare industry.

SBMT 1415 4
Leadership
Introduces the student to the various components of leadership, which are unique to the healthcare industry.

SBMT 1420 2
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 Protection & Portability Act (HIPPA), 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 3
Finance for Healthcare
Assists the student to become better acquainted with terms and definitions used in finance for Healthcare Facilities.

SBMT 1430 1
Healthcare Industry Trends
Assists the student to become better acquainted with changing technology and new programs and services in healthcare.

SBMT 1435 1
Marketing in Healthcare
Assists the student to become better acquainted with the changing technology and new programs and services in healthcare.

SOCIOLOGY (SOC)

SOC 1101 3
Introduction to Sociology Meets Goal Area: 05
Introduces the student to basic sociological concepts. Topics include sociological theory, research, culture, socialization, groups, social stratification, social class, gender, race, and family. Secondly, a comprehensive study of society, with analysis of group life, and other forces shaping human behavior. Sociology is the scientific study of human society and social interaction. Prerequisite: STSK 0090 or placement by multiple measures.

SOC 1102 3
Social Problems Meets Goal Areas: 05, 07
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 3
Human Relations Meets Goal Areas: 07, 08
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 3
Marriage and the Family Meets Goal Areas: 05, 07
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 placement by multiple measures.

SOC 2224 3
Racial and Ethnic Minorities Meets Goal Areas: 05, 07, 08
Examines the relationship of racial and ethnic minorities to dominant American society. Emphasis on the African American, American Indian,

Hispanic, and Asian cultures. Topics include, but not limited to prejudice, discrimination, institutionalized racism, ethnocentrism, segregation, and persons with disabilities. Prerequisite: SOC 1101 or consent of instructor.

SOC 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.

SOLAR PHOTOVOLTAIC (SOLR)

SOLR 1030 **2**
Solar Energy Construction Projects

This course introduces students to basic construction skills and molting 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 **3**
Advanced Photovoltaic Systems

This course will introduce 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. Prerequisites: ELCO 1100 or ELCO 1110.

SOLR 2025 **2**
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. Prerequisites: ELCO 1100 or ELCO 1110.

SPANISH (SPAN)

SPAN 1101 **4**
Spanish I

Meets Goal Areas: 06, 08
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 placement by multiple measures.

SPAN 1102 **4**
Spanish II

Meets Goal Areas: 06, 08
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 **1-3**
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; Survival 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 **4**
Spanish III

Meets Goal Areas: 06, 08
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 **4**
Spanish IV

Meets Goal Areas: 06, 08
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 2235 **1**
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.

STUDY SKILLS (STSK)

STSK 0090 **2**
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 **1**
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 **2**
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 **2**
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 **2**
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 **2**
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 **1**
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 ITV/distance learning will be covered.

STSK 1135 2
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 2
Surgical Microbiology
 This course will enable you to recognize how you can prevent the spread of disease and promote wound healing. You 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. You will study the wound healing process and classifications in conjunction of the body's defenses against disease. Prerequisite: Concurrent enrollment in SURG 1130.

SURG 1120 2
Surgical Pharmacology
 This course will enable you to assist in the preparation of drugs used in the operating room. You 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. You 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. Prerequisites: SURG 1110 and SURG 1130. Can be taken concurrently with HC 1180.

SURG 1130 4
Operating Room Theory
 This course will enable 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. The principles of electricity, physics, Lasers, computers and Robotics will be covered. Emphasis will be placed on principles of aseptic technique. Prerequisites: Concurrent enrollment with HC 1180 and SURG 1110.

SURG 1140 4
Operating Room Practices
 This course will facilitate students in development of fundamental operating room skill, 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 the surgical technologist. The students will observe, practice and demonstrate these skills in a lab setting. Prerequisites: SURG 1110, SURG 1120, SURG 1130 and SURG 1150. Concurrent enrollment in SURG 1151 and SURG 1160.

SURG 1150 4
Operating Room Procedures I
 Enables students to understand various types of surgical procedures. Students will relate the knowledge learned in previous theory courses to specific surgical procedures. The types of cases to be studied will include general surgery (Gastrointestinal, Hernia repairs, Breast surgery, Thyroid & Parathyroid, Liver & Biliary Tract), OBGYN, Genitourinary, Orthopedic, Oral & Maxillofacial surgeries. The areas of anatomy, diagnostic testing, patient positioning, instrumentation, equipment and supplies necessary to complete a surgical procedure and the actual sequence of the procedure will be analyzed. Prerequisites: SURG 1110, SURG 1130, and HC 1180(this may be concurrent). Concurrent enrollment with SURG 1120.

SURG 1151 4
Operating Room Procedures II
 Enables students to understand various types of surgical procedures. Students will relate the knowledge learned in previous theory courses to specific surgical procedures. The types of cases to be studied will include Ophthalmic, Otorhinolaryngologic, Plastic & Reconstructive Surgery, Cardiothoracic, Peripheral Vascular surgeries. The areas of anatomy, diagnostic testing, patient positioning, instrumentation, equipment and supplies necessary to complete a surgical procedure and the actual sequence of the procedure will be analyzed.

SURG 1160 2
Clinical I
 This course provides supervised occupational experience in the clinical setting. It applies knowledge acquired in the classroom and laboratory to the development and performance of competencies associated with operating room policy and procedure. Prerequisites: SURG 1110, SURG 1120, SURG 1130, SURG 1150, HC 1180, and HC 1151. Concurrent enrollment with SURG 1140, SURG 1151 and BIOL 1115.

SURG 1170 12
Clinical II
 This course provides supervised occupational experience in the clinical setting. It applies knowledge acquired in the classroom and laboratory to the development and performance of competencies associated with operating room policy and procedure. Prerequisites: SURG 1110, SURG 1120, SURG 1130, SURG 1150, SURG 1160, HC 1151, and HC 1151.

SURG 1181 2
Board Review
 This course is designed to prepare students to take the National Board certification exam by the National Board of Surgical Technologist and Surgical Assists. A review of all course work presented in the program with an emphasis on Certification exam specifications will be presented. Prerequisites: SURG 1160, SURG 1170, SURG 1151, SURG 1140, SURG 1120, SURG 1150, SURG 1130 and SURG 1110.

THEATER (THTR)

THTR 1101 3
Introduction to Theater Meets Goal Area: 06
 Introduction to Theater introduces theater as an art form, discusses text analysis and examines elements of dramatic theater construction. This theater course reviews major movements in theater from Greek to modern theater. It is intended to give students a background in theater history, exposure to text analysis, examination of performance tactics and experience in bringing a text to the stage. Prerequisite: STSK 0090 or placement by multiple measures.

THTR 1102 3
Acting Basics Meets Goal Area: 06
 Emphasizes voice, body and concentration along with attention to character analysis and development.

THTR 1104 3
Survey of Musical Theatre Meets Goal Area: 06
 Exposes students to the path of the form from its birth to the Broadway shows of today. These works will include operas, operettas, vaudevilles, reviews and Broadway Musicals. Significant time will be spent studying major works and songs from the American Musical. Prerequisite: STSK 0090 or placement by multiple measures.

THTR 1105 1-3
Theater Production Meets Goal Area: 06
 Provides students with the opportunity for participation in major productions as actors or members of technical crews. Instructor will determine the number of credits to be assigned based on the student's role.

THTR 1106 1-3
Theater Production Meets Goal Area: 06
 Provides students with the opportunity for participation in major productions as actors or members of technical crews. Instructor will determine the number of credits to be assigned based on the student's role.

THTR 2105 1-3
Theater Production Meets Goal Area: 06
 Provides students with the opportunity for participation in major productions as actors or members of technical crews. Instructor will determine the number of credits to be assigned based on the student's role.

THTR 2106 1-3
Theater Production Meets Goal Area: 06
 Provides students with the opportunity for participation in major productions as actors or members of technical crews. Instructor will determine the number of credits to be assigned based on the student's role.

THTR 2122 3
Introduction to Film Meets Goal Area: 06
Reviews the technical, historical, and dramatic elements of film making. The course is intended to give students a more sophisticated perspective of this unique art form.

THTR 2235 1-3
Special Topics Meets Goal Area: 06
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.

AUTOMOTIVE TECHNOLOGY (TRAN ALSO SEE AUTO)

TRAN 1100 2
Intro to Transportation
Students will define correct procedures for servicing and maintaining vehicles. Shop safety, use of service manuals and bulletins, writing repair orders, and parts requisitions will also be addressed.

TRAN 1111 3
Electrical Fundamentals
Students will define the basic fundamentals of electricity and electronics and identify sources of electricity. Circuits, magnetism, resistance, coils, capacitance, instruments, diodes, and solid-state devices will be presented. 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.

TRAN 1145 2
Engine Performance I
Students will demonstrate the proper techniques necessary to diagnose and repair OBDI I and OBDI II computer systems using diagnostic equipment. This course also covers fuel system components testing and repair.

WELDING (WELD)

WELD 1130 3
Shielded Metal Arc Welding II
Provides training to develop skills necessary to produce quality multipass groove welds with backing on 3/4 inch plate in horizontal, vertical and overhead positions. The student will also be able to produce quality open root single V-groove welds on 3/8 inch mild steel plate in horizontal, vertical and overhead positions. Welding related information is also provided on hard surfacing, repair of cast iron and metal identification. In addition, welding related information is included about procedure and welder qualification on destructive and nondestructive testing methods. Corequisite: WELD 1120.

WELD 1150 2
Gas Tungsten Arc Welding II
Designed 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 2
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 2
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 3
Welding Principles
Provides students with details of welding and cutting processes, terminology and joint design, related areas of shop math, measurement, and reading technical drawings.

WELD 1200 3
Blueprint Reading for Welders
This course presents a thorough foundation for understanding the symbols, practices, and concepts used in prints created for 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 1210 2
Oxy-fuel/Plasma Arc Cutting
Provides the student with basic knowledge and skills in oxyacetylene cutting and welding and plasma arc cutting.

WELD 1220 3
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 3
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 2
Gas Tungsten Arc Welding I
Provides the student with a thorough technical understanding of Gas Tungsten Arc welding, welding safety, equipment and set-up, rod and shielding gas classifications and selection. It also provides training to develop the skills necessary to make quality gas tungsten arc welds on non-ferrous metals.

WELD 1260 2
Metallurgy and Materials
Evaluates the basic elements of metallurgy and weld-ability as it pertains to commonly welded materials. Instruction will be provide 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 2
Testing, Codes & Inspection
Describes 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 the American Welding Society Codes.

WELD 1280 2
Intermediate Shielded Metal Arc Welding
Perform horizontal, vertical, and overhead welding in accordance with American Welding Society procedures. Common joint types in various thicknesses are welding using various electrodes. Some sheet metal will be welded.

WELD 1300 3
Intermediate Gas Metal Arc Welding
Perform Gas Metal Arc Welding in the horizontal, vertical, and overhead positions in accordance with American Welding Society procedures. Operate power supplies that use shielded gases, short-arc and spray discharge. Identify wire types and sizes, common joint types in various thicknesses are welded.

WELD 1340 3

Welding Qualifications Lab

Determine the requirements of welding codes and specifications for welding qualifications. Emphasis will be placed on the American Welding Society and ASME tests and procedures for ferrous and nonferrous metals. Performance will be evaluated using visual and destructive testing.

WELD 1350 4

Pipe Welding Processes

This course provides an introduction to pipe welding processes in accordance with the American Welding Society 1G & 2G standards. Students will learn basic pipe layout and preparation techniques including bevel, quarter mark, cut, fit, and weld basic pipe joints in various positions from hand drawn templates. Cutting techniques will concentrate on manual Oxy-Fuel cutting pipe joints for accurate fit-up. Each pipe joint will be welded and inspected to meet visual inspection criteria. Hands-on welding techniques for Pipe processes using Shielded Metal Arc Welding, Gas Metal Arc Welding and Gas Tungsten Arc Welding of carbon steel pipe in the 1G & 2G position.

WELD 2110 2

Advanced Blueprint Reading

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 2

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 2140 3

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 2160 3

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 3

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.