


# Chapter 2

# COURSE DESCRIPTIONS

On the following pages are the descriptions (alphabetical by prefix) for credit courses offered at Southeast Community College.

Each course is identified with a lettered prefix and a course number, followed by the course title and campus where class is taught, class hours, lab/clinical/Co-op/practicum hours (when applicable) and credit hours.

Following that is any prerequisite needed before taking the course and a brief description.

COURSE #	COURSE TITLE	LOCATION OFFERED	CLASS HOURS	LAB HOURS	CREDIT HOURS
ENGL 2100	Introduction to Literature	B/L	45	-	4.5
<small>COURSE PREFIX</small>	<small>COURSE #</small> <small>COURSE TITLE</small>	<small>OFFERED AT THIS CAMPUS LOCATION</small>	<small>CLASS HOURS</small>	<small>LAB HOURS</small>	<small>CREDIT HOURS</small>
<p><i>Prerequisite:</i> ENGL1010 or permission of instructor.</p> <p>Introduction to the major genres and conventions associated with literature. Includes fiction, poetry, drama, and memoir. By employing critical reading/thinking skills and analytical and creative writing skills, students will understand literature more fully. Exposure to a range of authors representing a variety of cultural and ethnic backgrounds.</p> <p>*Please note that those courses with a zero (0) as the first digit of the course number are designated as developmental and may not be used to fulfill degree requirements. Example ENGL 0810.</p> <p> = A computer icon is visible for courses available online.</p>					

ACCT	Accounting	INFO	Computer Information Technology, Computer Programming Technology
ACFS	Academic Foundation	INSU	Insurance
AGRI	Agriculture Business & Management Technology	JDAT	John Deere Tech
AGST	Diesel Ag Equipment Service Tech	JDCE	Deere Construction & Forestry Equipment Tech
ANTH	Anthropology	JOUR	Journalism
ARCH	Architectural-Engineering Technology	LBST	Laboratory Science Technology
ARTS	Art	LIBR	Library Science
ASEP	General Motors ASEP	LPNS	Practical Nursing
ASST	Ford ASSET	LSCE	Land Surveying/Civil Engineering Technology
AUTB	Auto Collision Repair Technology	LTCA	Long Term Care Administration
AUTT	Automotive Technology	MAAP	Major Appliance Professional Technology
BIOS	Bioscience	MACH	Machine Tool Technology
BSAD	Business Administration	MATH	Math
CAPP	Chrysler CAP	MEDA	Medical Assisting
CHEM	Chemistry	MEDT	Medical Laboratory Technology
CNST	Building Construction Technology	MFGT	Manufacturing Engineering Technology
CRIM	Criminal Justice	MSTT	Motorcycle, ATV & Personal Watercraft Technology
DENT	Dental Assisting	MUSC	Music
DESL	Diesel Technology	NDTT	Nondestructive Testing Technology
DRAF	Computer Aided Design Drafting	NURA	Nursing Assistant
ECED	Early Childhood Education	NURS	Associate Degree Nursing
ECON	Economics	OFFT	Office Professional
EDUC	Education	PDSM	Parts Marketing & Management
EIGT	Graphic Design	PHED	Physical Education
ELEC	Electrical & Electromechanical Technology, Electronic Systems Technology	PHIL	Philosophy
ELET	Electrician Construction - IBEW Option	PHOT	Photography
EMTL	Emergency Medical Services/Paramedic	PHRM	Pharmacy Technician
ENER	Energy Generation Operations	PHYS	Physical Sciences
ENGL	English	POLS	Political Science
ENGR	Engineering	PSGT	Polysomnographic Technology
ENTR	Entrepreneurship	PSYC	Psychology
ESLX	English as a Second Language	PTAS	Physical Therapist Assistant
EVOM	Event-Venue Operations Management	RADT	Radiologic Technology
FINA	Financial Services	RELS	Religious Studies
FIRE	Fire Protection Technology	RESP	Respiratory Care
FSDT	Food Service/Hospitality	SIGN	Sign Language
GEOG	Geography	SOCI	Sociology
GEOL	Geology	SPAN	Spanish
GERM	German	SPCH	Speech
GLST	Global Studies	SURT	Surgical Technology
HIMS	Health Information Management Services	THEA	Theatre
HIST	History	THNC	Intelligent Machine Integration
HLTH	Health	TRUK	Professional Truck Driver Training
HMRS	Human Services	VPUB	Visual Publications
HORT	Horticulture	WELD	Welding Technology
HUMS	Humanities		
HVAC	Heating, Ventilation, Air Conditioning & Refrigeration Technology		

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## SPECIAL AND INDIVIDUALIZED COURSES

**Special Topics Course (numbered 2799 with program prefix)**, are one-time course offerings that cover a specific topic that cannot be offered on a consistent basis. The course will need to be approved through the SCC approval process and follow all guidelines affiliated with a regular course, i.e. course syllabus and outline.

**Individual Special Topic (numbered 2999 with program prefix)**, are courses listed in various programs in which a student will be required to do an individual project. The course will be an elective course only, and will also require a course syllabus and outline for the student enrolled in the course.

## ACCT • ACCOUNTING

ACCT1200	Principles of Accounting I	B/L/M	45	-	4.5
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*Prerequisite: Accounting Competency recommended.*

This course is designed to provide introductory knowledge of accounting principles, concepts, and practices. Included topics are the balance sheet, the income statement, the statement of owners equity, the statement of cash flows, worksheets, journals, ledgers, accruals, adjusting and closing entries, internal controls, inventories, fixed and intangible assets, liabilities, equity, and financial statement analysis. This course provides a foundation for more advanced work in the fields of accounting and business.

ACCT1210	Principles of Accounting II	B/L/M	45	-	4.5
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*Prerequisite: ACCT1200.*

This course is a continuation of ACCT1200. Principles of Accounting II includes accounting for businesses organized as corporations, cash flow statements, accounting for manufacturing businesses, preparing and using accounting data for management decision making, and analyzing and interpreting financial statements.

ACCT2050	Payroll Accounting	B/L/M	30	-	3
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*Prerequisite: ACCT1200.*

Comprehensive course in payroll accounting principles and practices. Includes the evolution of payroll laws and regulations, computation of wages and salaries and related withholdings as well as the filings of payroll reports. From the financial accounting perspective it will cover the analysis and journalizing of various payroll transactions.

ACCT2090	Cost Accounting	B/L/M	45	-	4.5
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*Prerequisite: ACCT1210.*

Overview of the basic concepts and objectives of cost accounting for merchandising and manufacturing companies. Elements of the job order system are presented in-depth with emphasis on controlling materials, labor, and factory overhead.

ACCT2100	Individual Income Tax Procedures	B/L/M	45	-	4.5
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Through the Individual Income tax class students will complete the Form 1040 which includes the various forms and schedules used. In addition to preparation of forms and schedules students will be introduced to the Internal Revenue Code in relation to form 1040.

ACCT2130	Intermediate Accounting I	B/L/M	45	-	4.5
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*Prerequisite: ACCT1210.*

Begins with review of basic accounting principles. Provides transition to more rigorous professional levels of accounting. Topics include extraordinary items, long-term construction contracts, earnings per share, cash and receivables, marketable securities and inventories.

ACCT2230	Computerized Accounting	B/L/M	45	-	4.5
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*Prerequisites: ACCT1200 and BSAD1010.*

Accounting software integrates accounts payable, accounts receivable, payroll, inventory activities and general ledger activities. The accounting cycle is completed using accounting software. Spreadsheets are also used to create financial statements. Instruction on 10-key will also be provided.

ACCT2800	Applied Accounting Capstone	B/L	45	-	4.5
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*Prerequisites: ACCT2050, ACCT2100, ACCT2130 & ACCT2230.*

This course is designed as a capstone experience before entering the workplace. Students will practice and enhance their communication, analytical and computer skills; manage and/or develop accounting projects using problem solving and decision making skills; and display leadership, initiative, and positive interpersonal skills.

## ACFS • ACADEMIC FOUNDATIONS

ACFS0840	Collegiate Study Skills	B/L/M	-	30	1.5
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A general information course to help students develop skills for study, research, and test preparation. Includes computer aided instruction and personal tutoring. Instructional time is arranged to accommodate students class and work schedules. Excellent course for students returning to school who are needing to upgrade skills in the use of computers for school work. Graded pass/no pass.

ACFS0860	Student Success	B/L/M	30	-	3
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This course offers students an array of strategies to help them succeed in college.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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ACFS0890	Freshman Seminar	B/L	15	-	1.5
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This course is a basic introduction to college life including academic and personal skills needed for success. It includes a review of study skills, test taking strategies, time and stress management. A portion of the class is devoted to responsible money management and use of credit. Students will develop a personalized college budget plan aimed at minimizing debt at graduation.

ACFS1010	Academic & Career Development	L	15	-	1.5
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*(Recommended to be taken during the first term of the Academic Transfer program-Lincoln Campus)*

Insight into career satisfaction and selection, understanding of self, full scope of career exploration, development and professional relationships, overview of the A.A. and A.S. degrees, and development of an academic plan to help achieve career goals. Designed to foster a positive adjustment to college and work environments.

ACFS1020	Academic and Career Skills for Success	L	45	-	4.5
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This course is designed to assist students in making decisions about academic and career goals based on their personality, interests, skills, and values. The course will also focus on an array of skills the college student needs to be successful.

ACFS2020	Career Development	L/M	25	-	2.5
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Overview of career development with emphasis on the skills necessary for a job search, interpersonal skills, and communication.

## AGRI • AGRICULTURE BUSINESS & MANAGEMENT TECHNOLOGY

AGRI1000	Introduction to Agriculture and Horticulture Technologies	B	45	-	4.5
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Introduction to the fundamental skills and knowledge-base necessary to succeed in the agriculture industry.

AGRI1116	Electric & Gas Welding	B	15	30	2
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Introduction to all types of welding, basic to advanced, for use in maintenance and repair of machinery. Electric and gas welders including stick, MIG, TIG, hard-facing, brazing, aluminum and stainless steel.

AGRI1123	Agribusiness Careers	B	45	-	4.5
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Overviews of occupations in the field of agribusiness. In-depth exploration of several broad occupational areas and personal interview of at least two agribusiness management level employers.

AGRI1124	Basic Ag Leadership	B	45	-	4.5
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This course will help students become more successful in life and the workplace through learning and enhancing personal development and communication skills; attaining desired leadership positions both in their careers and community.

AGRI1131	Crop & Food Science	B	45	-	4.5
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Principles and practices of production of the major agronomic crops of the high plains.

AGRI1135	Basic Fertilizer Management	B	28	20	3
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Methods of evaluating soil fertility, prescribing and formulating fertilizer blends, and calibration and operation of application equipment. Forms of fertilizer, uses, storage and plant processes and operations.

AGRI1141	Livestock Management & Selection	B	42	54	6
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Management of livestock production. Work with the school's sow herd in farrowing and nursery, and with sheep during lambing. Basic production systems and methods for beef, sheep and swine.

AGRI1143	Introduction to Equine Management	B	45	-	4.5
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An introduction to the fundamental aspects of horse management.

AGRI1153	Soils & Plant Nutrition	B	42	54	6
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Study of the physical and chemical properties of soil as they apply to agriculture production, land evaluation and land use planning. Practical application to farming in relation to the characteristics of the soil, conservation of soil, water and conservation tillage.

AGRI1171	Ag Technology	B	21	27	3
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Introduction to electronic spreadsheets for solving agricultural problems with emphasis on logical and systematic decision making. Preparation for computer use in subsequent courses.

AGRI1177	Companion Animals	B	45	-	4.5
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Principles and practices for the life cycle and care of companion animals which may include nutrient regimen, breed identification, various infections and non-infectious disease diagnostics and treatment, anatomy, physiology, parasitic life cycles and internal and external identification, medication requirements for certain problems and the importance of companion animals in contemporary society.

AGRI1195	Advanced Electric and Gas Welding	B	15	30	2
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*Prerequisite: AGRI1116 or instructor permission.*  
Advanced instruction in all types of welding, for use in maintenance and repair of machinery and project construction. Electric and gas welders such as Stick, MIG, TIG, hard-facing, brazing and stainless steel welding.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AGRI1205	<b>Enterprise Analysis</b> Study of record keeping techniques and processes for horticulture, crop, and livestock production units. Manual and computerized record keeping techniques for production operations used to determine alternatives, effective and efficient cash flow operations and cost accounting with the least amount of additional training.	B	45	-	4.5
AGRI1211	<b>Fundamentals of Ag Marketing</b> Study of new market opportunities in the agriculture industry. Developing a marketing plan and promotional strategies for agriculture products.	B	45	-	4.5
AGRI1216	<b>Agribusiness Management</b> Introduction to management principles in agribusiness. Management simulation and computer systems illustrate the decision-making process.	B	45	-	4.5
AGRI1218	<b>Basic Farm Engines</b> Principles of operation and care of diesel, gasoline and LP gas engines. Parts identification and analysis of engine and parts failure. Tune-up of engines and familiarity with overhaul procedures.	B	30	45	4.5
AGRI1221	<b>Livestock Nutrition</b> <i>Prerequisite: AGRI1141 or instructor permission.</i> Introduction to animal nutrition and foodstuffs. Feed formulation, feed processing, handling, sales and service.	B	45	-	4.5
AGRI1257	<b>Live Animal Selection &amp; Carcass Evaluation</b> Methods of selection and evaluation of live animals and carcasses. Training in selection of replacement breeding animals of economic importance. Purchasing slaughter animals and carcasses for primal cuts within the meat industry.	B	45	-	4.5
AGRI1258	<b>Introduction to Meats</b> <i>Prerequisite: AGRI1141 &amp; AGRI1257.</i> Identification and grading of retail and wholesale cuts of meat of swine, beef and sheep, with emphasis on economic and nutritional value. Carcass grading and processing is covered.	B	45	-	4.5
AGRI1272	<b>Intermediate Live Animal Selection</b> <i>Prerequisite: AGRI1257.</i> Introduction in methods of livestock evaluation and oral reasons presentations including beef, swine, sheep and horses. Includes fieldwork in selection.	B	8	22	1.5
AGRI2202	<b>Advanced Ag Business Management</b> <i>Prerequisites: Students should have completed or be currently enrolled in AGRI1133, AGRI1205, and AGRI1216.</i> Study of business management systems within the total business operation. Methods of acquiring financial resources for agricultural or any business such as purchasing, leasing, and contractual agreements. Includes developing cash flow, income balance sheets, partial budgets, and developing and utilizing a management plan.	B	51	45	6
AGRI2204	<b>Agribusiness Seminar I</b> <i>Prerequisite: AGRI1123 or instructor permission.</i> Guidelines for agribusiness internship. Applying and interviewing for placement, basic preparation for the specific internship experience and the process to be used for supervision and evaluation on the job.	B	45	-	4.5
AGRI2212	<b>Ag Machinery Maintenance</b> Study of engines, hydraulics and power trains for use in maintenance of agriculture machinery. Proper maintenance, adjustment, operation and minor repair of agricultural power machinery.	B	6	90	3
AGRI2219	<b>Pesticide Certification</b> Study of the current laws and regulations as they affect the commercial application of pesticides. Serves as preparation for the Nebraska Commercial Pesticide Applicators Examination.	B	28	20	3
AGRI2220	<b>Ag Chemicals &amp; Equipment Application</b> <i>Pre/co-requisite: AGRI1153.</i> Intensive study of insects, diseases and weed identification and control. Study and application of herbicides, insecticides, fungicides, and fertilizers with emphasis on safety, toxicity, dangers, chemicals, formulation and application procedures. Operational maintenance and application experience with various types of equipment with emphasis on chemical and fertilizer application equipment.	B	23	73	4.5
AGRI2222	<b>Agriculture Analysis</b> <i>Prerequisite: AGRI1153 or AGRI2223.</i> Practical course in equipment use, testing procedures and analysis interpretation. Testing in areas of soil, forages, feed stuffs and water.	B	21	27	3
AGRI2223	<b>Principles of Livestock Feeding</b> <i>Prerequisite: AGRI1221.</i> Provides a practical background in feed formulation, feed processing, handling, sales and service. Includes a basic study of livestock performance and feed trials.	B	23	72	4.5
AGRI2225	<b>Advanced Leadership Skills</b> <i>Prerequisite: AGRI1124 or permission.</i> The intent of this course is the help the student attain professional and personal success through advanced leadership development.	B	30	-	3
AGRI2231	<b>Animal Breeding</b> <i>Prerequisites: AGRI1141 or permission.</i> Anatomy and physiology of breeding animals. Breeding management, pre- and post-natal development of farm animals. Includes principles of artificial insemination and embryo transfer.	B	66	30	7.5

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AGRI2232	<b>Forage Harvesting &amp; Management</b> <i>Prerequisite: AGRI1131.</i> Operation, adjustment and maintenance of grain, forage and hay harvesting equipment. Hands-on experience with equipment used on the land laboratory in actual cropping situations.	B	42	54	6
AGRI2233	<b>Planting &amp; Tillage Equipment</b> <i>Prerequisite: AGRI1131 or co-enrolled.</i> Study of tillage and planting equipment used in agriculture crop production. Operation, uses, maintenance and field adjustment of equipment.	B	42	54	6
AGRI2240	<b>Range Management</b> <i>Prerequisites: AGRI1131, AGRI1141, AGRI1153.</i> Study of efficient utilization of range resources. Consolidates the range ecosystem with the utilization systems employed in modern livestock based agriculture. Includes study of production, harvesting, and utilization of forage crops to facilitate a year-round forage plan for livestock management.	B	42	54	6
AGRI2245	<b>Animal Health</b> <i>Prerequisite: AGRI1141.</i> Study of management of animal health products. Review of common animal health problems and proper use of animal health products and equipment.	B	42	54	6
AGRI2253	<b>Grain Harvesting &amp; Management</b> <i>Prerequisite: AGRI1131.</i> Methods of cereal grain crop storage. Maintenance of grain quality in farm and agribusiness storage facilities. Operation and adjustment of grain drying and handling equipment.	B	42	54	6
AGRI2254	<b>Advanced Swine Production</b> <i>Prerequisite: AGRI1141.</i> Study of profitable swine production. Consolidates swine production, marketing, meat processing and sales to consumers of pork products.	B	45	-	4.5
AGRI2255	<b>Advanced Sheep &amp; Goat Production</b> <i>Prerequisite: AGRI1141.</i> Study of profitable sheep production. Issues facing sheep producers and lamb feeders as a national industry working toward common goals.	B	44	-	4.5
AGRI2256	<b>Advanced Beef Cattle Production</b> <i>Prerequisite: AGRI2231.</i> Study of beef cattle and the interrelationship in the beef production chain.	B	45	-	4.5
AGRI2258	<b>Livestock Ultrasound Technology</b> <i>Prerequisites: AGRI2231 and AGRI1257.</i> Principles and technology of the use of ultrasound and supporting computer analysis software as it pertains to livestock.	B	25	23	3
AGRI2265	<b>Irrigation &amp; Water Management</b> <i>Prerequisite: AGRI1153.</i> Principles of irrigation, soil, water and plant relationships, and operation of irrigation equipment. Irrigation scheduling, chemigation, and management of water to prevent erosion and maintain surface and groundwater quality.	B	42	54	6
AGRI2267	<b>Advanced Marketing</b> <i>Prerequisite: AGRI1211.</i> Study and application of commodity marketing strategies in a market plan in conjunction with other market alternatives. Use of indicators through fundamental and technical analysis for pricing and timing to market ag commodities.	B	45	-	4.5
AGRI2272	<b>Advanced Live Animal &amp; Carcass Selection</b> <i>Prerequisite: AGRI1257.</i> Advanced methods of livestock evaluation. Training in evaluation of live animals and carcasses of beef, sheep, swine and horses. Includes field work in selection. Extensive oral reasons presentations.	B	8	22	1.5
AGRI2279	<b>Precision Technology</b> <i>Prerequisite: AGRI1171 or permission.</i> Study of precision agriculture technology using hardware and software applications.	B	45	-	4.5
AGRI2280	<b>Advanced Crops</b> <i>Prerequisites: AGRI1131, AGRI1135, AGRI1153.</i> Study of crop production, including the major elements of growth and development, seed formation, fertilization, insect and disease control of crops grown on the high plains.	B	45	-	4.5
AGRI2291	<b>Agribusiness Sales</b> <i>Prerequisite: Completed 60 credit hours or permission.</i> Exploration of agribusiness sales. Functions and role of sales representatives. Productive relationships between consumers and sales representatives.	B	45	-	4.5
AGRI2795	<b>Special Topics - Cooperatives</b> <i>Prerequisite: Permission of instructor.</i> This course is intended for those students with an interest in Ag business. The students will participate in the College Conference on Cooperatives of a similar activity to learn about the history, organization and modern applications of the Cooperative structure.	B	10	-	1.0

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AGRI2901	Agribusiness Cooperative Experience <i>Prerequisite: Must have completed AGRI2204 or instructor permission.</i> Instructor supervised on-the-job training to gain experience in an agribusiness occupation. Apply skills and principles learned and acquire additional skills for growth and advancement.	B	-	420	12
AGRI2999	Individual Special Project Selected educational experiences that provide intensive study in a topic area above and beyond the regular curriculum. Credit hours will vary. Must have permission of instructor and program chair.	B	-	-	.5-4.5

## AGST • DIESEL AG EQUIPMENT SERVICE TECH

AGST1120	Basic Electrical / Electronics Basic principles and applications of electronic circuits, magnetism, electromagnetism, and the safe use of a Digital Multi-meter when measuring Volts, Amperes, and Ohms. Circuit theory exercises with basic math skills will be used to understand Ohm's Law for Series, Parallel, and Series Parallel circuits. The Design, Construction, safe operation and testing of Lead Acid Storage Batteries.	M	20	20	2.5
AGST1121	Electrical / Electronic Circuit Diagnostics <i>Prerequisites: AGST1120</i> Basic principles and applications of the safe operation and testing of Cranking, Lighting, and Accessory Circuits and Components. Emphasis is placed on OEM Diagnostic Tools and On-Board Diagnostic procedures used for identifying and repairing faults with CAN BUS Controllers, Sensors, Actuators, Wiring, and Connections in a manner which is safe for the technician and the equipment.	M	30	30	4
AGST1122	Electrical Charging Systems <i>Prerequisites: AGST1120</i> Basic principles of operation and safe procedures for testing and repair of electrical charging circuits. Emphasis will be placed on the diagnosis, testing, and repair of alternators, wiring, connections, gauges, sensors, and controls.	M	20	20	2.5
AGST1123	Shop Safety / Shop Tools & Precision Measuring General Shop Safety, Hazard Communication, and Forklift Operator Training with Certification. Safe and proper use of power tools, hand tools and common measuring instruments used in the equipment repair shop.	M	30	30	4
AGST1124	Power Trains I <i>Prerequisites: AGST1123</i> Theory of power transmission from engine to drive wheels, power take off and auxiliary drives. Includes power train effects on engine output, levers, gears, chains, clutches, transmissions, final drives, drive lines, differentials. Procedures for safe disassembly, inspection, adjustment, and reassembly of standard mechanical shift transmissions and differentials will be practiced in the Laboratory.	M	35	25	4
AGST1125	Theory of Agricultural Equipment Engine Fuel Systems <i>Prerequisites: AGST1121 and AGST1123</i> Theory of operation, construction, safe testing and repair of Diesel Engine Fuel Systems and Air Induction and Exhaust Systems, valve timing and injection timing. Physical and Chemical properties of distillate fuels as well as alternative fuels used in current internal combustion engines. Safe procedures for storage, use and testing of Diesel fuels.	M	25	15	3
AGST1226	Theory of Engine Operation <i>Prerequisites: AGST1125</i> Theory of operation, design and construction of four stroke cycle engines. Safe and proper operation of engine test equipment; including Dynamometer setup and operation, Cylinder compression, cylinder balance and cylinder leakage testing. Theory of operation, design, construction and safe procedures for repair and maintenance of cooling systems for Ag equipment engines.	M	25	25	3
AGST1228	Valve Trains <i>Prerequisites: AGST1226</i> Theory of operation, design and construction of engine valve trains. Safe and proper use of valve train service tools for disassembly, inspecting, measuring, reconditioning, and adjusting diesel engine cylinder heads and valve operating mechanisms.	M	25	35	3.5
AGST1230	Diesel Engine Overhaul and Inspection <i>Prerequisites: AGST1226 &amp; AGST1228</i> Complete out-of-frame Diesel Engine overhaul to include the safe and proper use of service methods for disassembly, inspection, measuring, reconditioning, reassembly, adjusting, and performance testing of AG Equipment Diesel engines.	M	70	80	9.5
AGST1342	Heating, Ventilation & Air Conditioning I <i>Prerequisites: AGST1123</i> Heating, ventilation, and air conditioning fundamentals, safety and service procedures. Diagnosing, system evaluation, repairing, reclaiming, evacuating, and recharging are exercises in the lab. Certification for handling refrigerant is required as part of this course. The student will be responsible for a fee to receive the certification.	M	25	15	3

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AGST1344	Ag Equipment Fuel Systems <i>Prerequisites: AGST1125.</i> Theory and design of diesel fuel injection including fuels, pumps, nozzles, governors, fuel flow, filtering, handling and storage. Diagnostics, testing, repair of pumps and nozzles, and common rail (hydraulic) and electronic operated systems. Fundamentals of safety while servicing and repairing fuel systems is emphasized.	M	50	60	7
AGST1346	AG Equipment Hydraulics Systems <i>Prerequisites: AGST1123.</i> Introduction to Hydraulics Systems and Symbols. Theory, design, principles and applications of pumps, valves, actuators, reservoirs, lines, fittings, filters, and fluids. Theory and function of open, closed, PFC, and combination systems. Safety, diagnostics, testing and repair of hydraulic systems and components.	M	60	90	9
AGST1901	AG Equipment Cooperative Experience <i>Prerequisites: AGST1346</i> On-the-job experience with the student's sponsoring Cooperative Experience employer. Application of skills and concepts learned in previous quarters. Safety is emphasized throughout the work experience. Supervised by Southeast Community College-Milford Campus AG Equipment Service Tech Instructors.	M	-	480	12
AGST2554	AG Equipment Electricity <i>Prerequisites: AGST1901</i> Review of electrical fundamentals and introduction to basic electronics plus procedures and use of digital multimeter in electrical circuits. An introduction to combine and tractor electrical systems is included as well as troubleshooting techniques for circuit diagnosis using electrical schematics. Function, operation, and testing of semiconductors and transistors. Microprocessor operation, including inputs and outputs. CAN BUS theory of operation and testing is included. Testing of tractor circuits including lighting, accessory, safety, instrumentation and gauges is included in the lab exercises.	M	60	90	9
AGST2556	AG Equipment Power Trains <i>Prerequisites: AGST1124</i> Advanced study of power trains. Safety, theory, design, construction, diagnosis, repair, and testing of farm equipment power trains, particularly those transmissions classified as "on-the-go" shift types. AG equipment CVT/IVT systems included. Lab projects are accepted.	M	25	90	5.5
AGST2558	Heating, Ventilation & Air Conditioning II <i>Prerequisites: AGST1342.</i> Review of heating, ventilation, and air conditioning fundamentals, safety and service procedures. Diagnosing, system evaluation, repairing, reclaiming, evacuating, and recharging are exercises in the lab.	M	5	30	1.5
AGST2662	Planting, Seeding, Precision Guidance & Control Systems <i>Prerequisites: AGST1901</i> Theory, design, principles of operation, setup, adjustments, diagnostics and repair of row-crop planting and seeding equipment. Theory, testing and repair of precision guidance and electronic monitoring and control systems. Safety as related to planting and seeding equipment is applied.	M	50	75	7.5
AGST2663	Harvesting, Precision Guidance and Control Systems <i>Prerequisites: AGST2662</i> Theory, design, principles of operation, setup adjustment diagnostics, and repair of hay and forage harvesting equipment. Theory, design, principles of operation diagnostics and repair of combine, headers, and attachments. Safety and safe operation while servicing equipment is emphasized.	M	50	70	7
AGST2664	Spraying Equipment, Precision Guidance & Control Systems <i>Prerequisites: AGST2663</i> Spraying equipment safety, theory, design, principles of operation, set-up, operation, calibration, troubleshooting and repair is included. Precision guidance and control systems are included.	M	20	35	3
AGST2901	AG Equipment Cooperative Experience <i>Prerequisites: AGST2558</i> On-the-job experience with the student's sponsoring Cooperative Experience employer. Application of skills and concepts learned in previous quarters. Safety is emphasized throughout the work experience. Supervised by Southeast Community College-Milford Campus AG Equipment Service Tech Instructors.	M	-	480	12

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## ANTH • ANTHROPOLOGY

**ANTH1020 Introduction to Cultural Anthropology** B/L 45 - 4.5  
Introduction to the general topics and theoretical perspectives of cultural anthropology including ethnology, linguistics, applied anthropology, ethnicity, race, political organization, gender, kinship and descent, marriage, and religion.

**ANTH1120 General Anthropology** B/L 45 - 4.5  
A survey of the study of the races, their characteristics, customs, social relationships and work; the cultural and linguistic diversity of living people.

## ARCH • ARCHITECTURAL-ENGINEERING TECHNOLOGY

**ARCH1103 Materials of Construction** M 30 - 3  
Fundamental aspects of modern construction materials. Manufacturing, sizes, and application of materials.

**ARCH1107 Heating & Air Conditioning Systems I** M 30 20 3.5  
*Co-requisite: ARCH1103.*  
Methods of calculating heat loss and heat gain for residential buildings according to ACCA Manual J.

**ARCH1115 Light Construction Principles** M 50 - 5  
*Co-requisite: ARCH1158.*  
Methods of light construction on wood frame and masonry structures. Theory of architectural drafting with emphasis on lettering, line work and the procedures related to producing architectural working drawings.

**ARCH1150 Computer Aided Drafting I (CAD)** M 20 - 2  
*Co-requisite: ARCH1115.*  
Fundamentals of Computer Aided Drafting using the current AutoCAD program. Instruction on computer operating system. AutoCAD menus, AutoCAD settings and drawing set up. Draw and Edit commands, AutoCAD coordinate systems.

**ARCH1158 Basic Architectural Drafting** M - 100 3  
*Co-requisite: ARCH1115.*  
Techniques and fundamental skills of architectural drafting. Lettering, line work and basic technical drawing. Schedules, details, framing drawings and construction assembly methods used by drafters.

**ARCH1208 Heating & Air Conditioning Systems II** M 50 - 5  
*Prerequisites: ARCH1107, ARCH1158 and MATH1080. Co-requisite: ARCH1226.*  
Methods of sizing residential duct work systems according to ACCA Manual D. Equipment selection is also covered.

**ARCH1210 Elementary Structural Design** M 45 - 4.5  
*Prerequisite: MATH1080.*  
Basic structural design. Study of mathematics and trigonometry used in determining strength of materials. Wood, concrete, and steel reactions to varying loads.

**ARCH1224 Plumbing Systems Drafting** M - 80 2.5  
*Prerequisites: ARCH1158 and MATH1080. Co-requisite: ARCH1225.*  
Production of drawings of waste, vent and water piping systems that are acceptable to industry standards.

**ARCH1225 Plumbing Systems Theory** M 50 - 5  
*Prerequisites: ARCH1158 and MATH1080. Co-requisite: ARCH1224.*  
Methods of design, layout and sizing of waste, vent, and water piping systems as required on commercial building projects.

**ARCH1226 Heating & Air Conditioning Systems Drafting** M - 70 2.5  
*Prerequisites: ARCH1107, ARCH1158 and MATH1080. Co-requisite: ARCH1208.*  
Methods of drawing duct work systems for residences using calculations from course ARCH1208 as a guide.

**ARCH1240 Computer Aided Drafting II (CAD)** M 25 25 3  
*Prerequisites: ARCH1115, ARCH1150, ARCH1158, MATH1080.*  
Continuation of ARCH1150, Computer Aided Drafting I. Exercises in drawings, including drawing setup, layer setup, dimensioning setup, sheet setup, dimensioning, plotting setup and plotting.

**ARCH1311 Basic Estimating** M 50 - 5  
*Prerequisites: ARCH1103, ARCH1115, ARCH1158, and ARCH1210.*  
Methods of performing a quantity survey of a residential building project. Residential construction techniques.

**ARCH1320 Freehand Drawing for Design Detailers** M 5 20 1  
Techniques of freehand drawing for construction work. How to express ideas graphically to assure correct interpretation.

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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**ARCH1328 Structural Building Systems I** M 50 - 5  
*Prerequisites: ARCH1103, ARCH1115, ARCH1210, ARCH1240. Co-requisite: ARCH1330.*  
Concepts of heavy structural systems. Structural steel and detailing.

**ARCH1329 Structural Building Systems II** M 50 - 5  
*Prerequisites: ARCH1103, ARCH1115, ARCH1210, ARCH1240. Co-requisites: ARCH1332.*  
Concepts of heavy structural systems. Reinforced concrete, commercial and industrial wood applications.

**ARCH1330 Structural Detailing & Design I** M - 50 1.5  
*Prerequisites: ARCH1103, ARCH1115, ARCH1210, ARCH1240. Co-requisite: ARCH1328.*  
Methods of graphically representing structures. Drafting and detailing steel structural systems.

**ARCH1332 Structural Detailing & Design II** M - 50 1.5  
*Prerequisites: ARCH1103, ARCH1115, ARCH1210, ARCH1240. Co-requisite: ARCH1329.*  
Methods of graphically representing structures. Drafting, detailing concrete and wood structural systems.

**ARCH1340 Computer Aided Drafting III (CAD)** M 15 10 1.5  
*Prerequisite: ARCH1240.*  
Exercises in drawing the Floor Plan, Elevations, Section, Details, using the current drafting software.

**ARCH1434 Fundamentals of Commercial Architecture** M 34 - 3  
*Prerequisites: ARCH1329, ARCH1328, ARCH1330, and ARCH1332. Co-requisite: ARCH1436.*  
Study of construction methods for commercial buildings. Techniques of industry in developing working drawings and written specifications for a commercial building.

**ARCH1436 Commercial Architectural Drafting** M - 172 5.5  
*Prerequisites: ARCH1320, ARCH1328, ARCH1329, ARCH1330, ARCH1332 and ARCH1340. Co-requisite: ARCH1434.*  
Project: Production of architectural and structural working drawings for a small commercial building.

**ARCH1438 Residential Design & Drafting** M 20 78 4.5  
*Prerequisites: ARCH1320, ARCH1328, ARCH1329, ARCH1330, ARCH1332 and ARCH1340.*  
Advanced study of residential architectural drafting. Drafting a complete set of plans from an original design of a new residence using Revit® including site, floor, and framing plans; door, window, and room finishing schedules; building, wall, and stairway sections; construction details and exterior and interior elevations.

**ARCH2531 Electrical Systems Theory** M 50 - 5  
*Prerequisites: BSAD1010 and MATH1080. Co-requisite: ARCH2542.*  
Techniques for calculating lighting levels, lighting requirements and circuiting loads required for the building trades.

**ARCH2533 Advanced Mechanical Systems Theory** M 50 - 5  
*Prerequisite: ARCH1208. Co-requisite: ARCH2544.*  
Methods of calculating heat loss and heat gain of a commercial structure and the layout and sizing of duct work systems.

**ARCH2542 Electrical Systems Drafting** M - 75 2.5  
*Prerequisite: ARCH1340. Co-requisite: ARCH2531.*  
Practice in drafting power and lighting systems for commercial buildings using ARCH2531 as a guide.

**ARCH2544 Advanced Mechanical Systems Drafting** M - 75 2.5  
*Prerequisites: ARCH1226 and ARCH1340. Co-requisite: ARCH2533. Co-requisite: ARCH2533.*  
Practice in design of duct work systems required in building using information from ARCH2533 as a guide for the required duct work.

**ARCH2546 Site Planning & Surveying** M 25 25 3  
*Prerequisite: MATH1080.*  
Basic surveying. Practice in running levels and a topographic survey to aid in a site plan. Computations in determining lot measurements, areas of lots, earth work excavation quantities, and contours prepare the student for the site plan for the sixth quarter project.

**ARCH2637 Comprehensive Project Design** M 30 - 3  
*Prerequisites: All courses ARCH1103 through ARCH2546. Co-requisite: ARCH2648, ARCH2639.*  
Logical sequence of steps involved in design of a building following the design and planning of a nearby structure. Instructor and guest consultants provide criteria of the project for the class. An accumulation of the five previous quarters' experiences are used by the student to prepare a functional design that fits the needs and budget of the client. Minimum of "C" grade for graduation.

**ARCH2639 Construction Estimating** M 35 - 3.5  
*Prerequisites: All courses ARCH1103 through ARCH2546. Co-requisite: ARCH2648, ARCH2637.*  
Methods of performing material takeoff and pricing materials for commercial construction. The building used for estimating will be drawn by the student in ARCH2648. Minimum of "C" grade for graduation.

**ARCH2641 Life Safety Code** M 31 - 3  
The basics of building design utilizing the International Building Codes (IBC). Occupancy classifications means and sizing of egress components and features of fire protection are covered. Minimum of "C" grade for graduation.

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ARCH2648	<b>Comprehensive Project Drafting</b> <i>Prerequisites: All courses ARCH1103 through ARCH2546. Co-requisite: ARCH2637, ARCH2639.</i>	M	28	177	8
Preparation of a full set of working drawings from information accumulated from ARCH2546 and ARCH2637. Speed is an important factor as the student applies the accumulated knowledge of the five previous quarters. Minimum of "C" grade for graduation.					

ARCH2710	<b>Construction Law</b> Introductory legal overview of the major aspects of contemporary construction law applicable to architects, contractors, and/or subcontractor. Legal, financial and accounting problems experienced within the day-to-day work environment. Minimum of "C" grade for graduation.	M	45	-	4.5
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## ARTS • ART

ARTS1010	<b>Introduction to the Visual Arts (Art Appreciation)</b> ☑ An appreciation of the visual arts from a historical perspective. Includes an overview of the creative process, the evolution of art, and art as it relates to society.	B/L/M	45	-	4.5
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ARTS1050	<b>Introduction to Art History and Criticism I</b> ☑ A survey of major works of art in all media from Prehistory through the end of the Middle Ages. Artistic styles will be discussed in relation to contemporary history, society and culture. Individual works of art will be explored as well as the role of art and architecture in a cultural context.	B/L	45	-	4.5
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ARTS1060	<b>Introduction to Art History and Criticism II</b> ☑ A survey of major works of art in all media from the Renaissance to the present. Artistic styles will be discussed in relation to contemporary history, society and culture. Individual works of art will be explored as well as the role of art and architecture in a cultural context.	B/L	45	-	4.5
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ARTS1110	<b>Beginning Drawing I</b> Introduction to drawing. Emphasis on basic techniques and composition. Subjects: still life, figure, landscape. Materials: charcoal, graphite, ink wash.	B/L	15	60	4.5
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ARTS1120	<b>Beginning Drawing II</b> <i>Prerequisite: ARTS1110.</i> Continuation of Beginning Drawing I with an emphasis on advanced studio problems, techniques, materials, and creative solutions.	B/L	15	60	4.5
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ARTS1210	<b>Design &amp; Composition</b> Introduction to the principles of design and composition. Skills, techniques and basic ideas necessary to artistic planning. Development of sensitivity and creativity.	B	15	60	4.5
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ARTS1330	<b>Beginning Ceramics I</b> Introduction to the construction of pottery and sculptural clay forms. Hand building, wheel-throwing, and glaze application.	B	15	60	4.5
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ARTS1340	<b>Beginning Ceramics II</b> <i>Prerequisite: ARTS1330.</i> Continuation of Beginning Ceramics I with an emphasis on advanced studio problems, techniques, materials and creative solutions.	B	15	60	4.5
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ARTS2210	<b>Beginning Graphic Design</b> Introduction to graphic art and the foundations of visual communication. History, principles of design and layout, methods, materials and applications.	B	15	60	4.5
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ARTS2510	<b>Beginning Painting I</b> Introduction to painting. Emphasis on basic techniques and composition. Subjects: still life, landscape. Materials: alkyds or acrylics.	B	15	60	4.5
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ARTS2520	<b>Beginning Painting II</b> <i>Prerequisite: ARTS2510.</i> Continuation of ARTS2510. Emphasis on advanced studio problems, materials, techniques, and creative solutions.	B	15	60	4.5
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ARTS2650	<b>Introduction to Native American Art</b> ☑ Survey of Native American art of North America from prehistory to the present, emphasizing the art of indigenous peoples as a fine art form. History, cultural environment, special issues, art methods and materials.	B/L	45	-	4.5
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ARTS2750	<b>Women In Art</b> ☑ Survey of the lives and achievements of women artists from prehistory to the present in Europe and America. History, cultural environment, and special issues will be covered.	B/L	45	-	4.5
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ARTS2799	<b>Special Topics in Art</b> The purpose of this class is to explore a specific topic in studio art in greater detail, to provide students with a deeper understanding and appreciation of a given medium.	B	15	60	4.5
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Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ARTS2804	<b>Arts Practicum</b> Under a cooperative experience, students will earn credit by working a minimum of 30-45 hours per quarter in conjunction with staff at an art gallery and/or museum. This practical experience will include, but not be limited to, the selection process, sales, installation, and promotion.	B/L	30-60-90	-	1.5-4.5

ARTS2999	<b>Individual Special Topics in Art</b> The purpose of this class is to explore a specific topic in studio art in greater detail, to provide individual students with a deeper understanding and appreciation of a given medium.	B	15	60	4.5
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## ASEP • GENERAL MOTORS AUTOMOTIVE SERVICE EDUCATIONAL PROGRAM (ASEP)

ASEP1170	<b>GM Shop Orientation &amp; Safety</b> Introduction to automotive shop procedures, shop safety. Proper use service manuals and service information. Thread repair, tube flaring and fasteners.	M	20	12	2
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ASEP1173	<b>GM Fundamentals</b> Introduction to warranty flat rate manuals, daily time ticket, vehicle identification numbers and repair order completion. Proper use of hand tools, power tools and other equipment used by the automotive technician.	M	30	10	3
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ASEP1175	<b>GM Electrical &amp; Electronic Principles</b> Specialized Electronics Training Part 1. Principles and concepts of GM electrical systems. Study of operation and testing of batteries, charging and starting systems, ignition systems principles, body wiring and components for power windows, seats and door-locks, windshield wipers, cruise control and theft deterrent systems.	M	110	40	12
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ASEP1177	<b>GM Brake Systems</b> Theory, diagnosis, and repair procedures of disc and drum brake systems on current General Motors vehicles.	M	30	30	4
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ASEP1360	<b>GM Powertrain Electronic Systems</b> <i>Prerequisite: ASEP1268.</i> Specialized Electronics Training, Part 2. Operation of solid state automotive electrical components. Study of operation of basic computer operation, input and output devices. Also GM ignition systems, fuel delivery systems, emission control systems and diagnostic routines.	M	55	35	6.5
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ASEP1363	<b>GM Engine Repair</b> <i>Prerequisite: ASEP1268.</i> Operation and construction of General Motors gas and diesel engines. Techniques and skills for testing and diagnosis of engine mechanical condition, cylinder head reconditioning, complete disassembly, inspection, measurement and reassembly of GM gas and diesel engines. Accuracy of measurements, repair decisions and procedures involving correct and safe engine removal and installation.	M	80	50	9.5
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ASEP1379	<b>GM Heating &amp; Air Conditioning</b> <i>Prerequisite: ASEP1268.</i> Study of theory, operation, diagnosis and repair of late model GM air conditioning, heating and ventilation systems. Includes manual and automatic systems. Refrigerant recovery and recycling procedures.	M	40	40	5
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ASEP1901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASEP1170, 1171, 1173, 1175, 1177.</i> Coordinated work experience from General Motors dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASEP coordinator.	M	-	480	12
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ASEP1902	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASEP1360, ASEP1363, and ASEP1379.</i> Coordinated work experience from General Motors dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASEP coordinator.	M	-	480	12
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ASEP2528	<b>GM Steering &amp; Suspension Systems</b> <i>Prerequisite: ASEP1468.</i> Principles of operations, disassembly procedures, and repair of General Motors steering and suspension systems. Power and manually controlled Integral and Rack and Pinion steering gears. Conventional and McPherson Strut suspensions. Techniques and procedures for four wheel alignment and computer wheel balancing, both on and off the vehicle.	M	30	50	4.5
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ASEP2529	<b>GM Manual Transmission, Transaxles, Clutch &amp; Transfer Case</b> <i>Prerequisite: ASEP1468.</i> Operating principles and service of General Motors manual transmissions and related drive train components. Diagnosis and repair procedures.	M	60	30	7
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Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ASEP2537	<b>GM Rear Axle Service</b> <i>Prerequisite: ASEP1468.</i> Operation, diagnosis, and repair of drive shafts, universal joint axles, axle bearings, seals, and differentials used on late model General Motors vehicles.	M	20	10	2
ASEP2538	<b>GM Advanced Powertrain Electronic Systems</b> <i>Prerequisite: ASEP1468.</i> Advanced study of GM ignition systems, fuel delivery systems, emission control systems and diagnostic routines.	M	20	50	3.5
ASEP2561	<b>GM Diesel Fuel &amp; Emission Control System</b> <i>Prerequisite: ASEP1468.</i> Theory and operation of GM Diesel Fuel Injection Nozzles; operation and repair of the Injector Pump, Injector Nozzles, Glow Plug System and Emission Control Systems.	M	20	10	2
ASEP2743	<b>GM Powertrain Electronic Systems &amp; Drivability Diagnosis</b> <i>Prerequisite: ASEP2668.</i> Diagnosis, adjustments and repair procedures using electrical meters, oscilloscopes and GM approved diagnostic test equipment.	M	40	40	5.5
ASEP2747	<b>GM Body Electrical &amp; Electronics</b> <i>Prerequisite: ASEP2668.</i> Advanced electrical course covering operation, testing, diagnosis and repair of GM computerized body electrical and electronic systems.	M	50	30	6
ASEP2748	<b>GM Automatic Transmission &amp; Transaxles</b> <i>Prerequisite: ASEP2668.</i> Operation, diagnosis, adjustment, and repair of the automatic transmissions used in rear-wheel and front-wheel drive General Motors cars. Removal and installation procedures and safety.	M	80	40	9
ASEP2749	<b>GM New Product Update</b> <i>Prerequisite: ASEP2668.</i> Overview of new product features for current model year. Includes available General Motors New Product information.	M	20	-	2
ASEP2901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASEP2528, 2529, 2537, 2538 and 2561.</i> Coordinated work experience from General Motors dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASEP coordinator.	M	-	480	12

## ASST • FORD (ASSET) AUTOMOTIVE STUDENT SERVICE EDUCATIONAL TRAINING PROGRAM

ASST1110	<b>Ford Shop Orientation</b> Introduction to automotive shop procedures and repair. Proper use of hand and power tools. This course deals with many basic elements of automotive repair.	M	15	6	1.5
ASST1170	<b>Ford Shop Safety &amp; Repair</b> This course deals with shop safety, OSHA hazard communication standards/hazard chemical right-to-know. Thread repair, tube flaring, fasteners, micrometers and other equipment used by the professional automotive technician.	M	15	6	1.5
ASST1173	<b>Ford Fundamentals</b> Introduction and use of Ford service manuals, warranty flat rate manuals, daily time tickets and repair order completion. Overview of service manual groups with emphasis on theory of operation of systems and components, Pre-delivery Inspection and MasterTech Training.	M	20	10	2
ASST1175	<b>Ford Electrical &amp; Electronic Principles</b> Study of Electronics Training building from electrical principles and concepts through automotive semiconductors to microprocessors. Batteries, charging systems, starting systems and ignition system principles, operation and testing.	M	110	40	12
ASST1178	<b>Ford Brake Systems</b> Study of operation, diagnosis, and service of disc, drum, and electronic brake systems on late model Ford vehicles.	M	30	30	4
ASST1360	<b>Ford Engine Performance Theory &amp; Operation</b> <i>Prerequisite: ASST1268.</i> Study of engine tune-up, oscilloscope use and Ford computer system; basic computer operation, sensor operation and actuator operation. Theory and principles of operation of Ford fuel systems: fuel pumps, fuel tanks, filters and emission control systems. Ford fuel injection systems.	M	85	55	10
ASST1362	<b>Ford Climate Control</b> <i>Prerequisite: ASST1268.</i> Study of operation, diagnosis, and service of air conditioning, heating and ventilation systems on late model Ford vehicles.	M	45	35	5.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ASST1363	<b>Ford Engine Repair</b> <i>Prerequisite: ASST1268.</i> Study of operation and construction of Ford gas and diesel engines. Techniques and skills in testing and diagnosing of engine mechanical condition. Cylinder head reconditioning, disassembly, inspection, measurement and reassembly. Accuracy of measurement and repair decisions. Correct and safe engine removal and installation.	M	65	35	7.5
ASST1901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASST1110, 1170, 1171, 1173, 1175, and 1178.</i> Coordinated work experience from Ford dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASSET coordinator.	M	-	480	12
ASST1902	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASST1360, 1362, and 1363.</i> Coordinated work experience from Ford dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASSET coordinator.	M	-	480	12
ASST2529	<b>Ford Manual Transmissions, Transaxles, Clutches and Transfer Cases</b> <i>Prerequisite: ASST1468.</i> Operating principles and service of Ford manual transmissions and related drive train components. Diagnosis and repair procedures.	M	60	30	7
ASST2531	<b>Ford Diesel Fuel &amp; Emission Systems</b> <i>Prerequisite: ASST1468.</i> Study of operation, diagnosis, and service of diesel electronic and emission systems on late model Ford vehicles.	M	35	25	4
ASST2537	<b>Ford Rear Axle &amp; Driveline</b> <i>Prerequisite: ASST1468.</i> Operation, diagnosis and repair of drive shafts, universal joint axles, axle bearings, seals and differentials on late model Ford vehicles.	M	20	10	2
ASST2538	<b>Ford Engine Performance Diagnosis &amp; Testing</b> <i>Prerequisite: ASST1468.</i> Intermediate and advanced electronic engine control diagnosis and testing of ignition, fuel, computer, emission, and EVAP systems. Analysis of OBD II monitors, intermittent problems, I/M testing, and gas emissions using the latest in diagnostic equipment including scopes and scanners.	M	60	40	7
ASST2728	<b>Ford Steering &amp; Suspension Systems</b> <i>Prerequisite: ASST2668.</i> Study of the principles of operations, disassembly procedures and repair of Ford steering and suspension systems. Power and Manually controlled integral and rack and pinion steering gears. Conventional and McPherson Strut suspensions. Techniques and procedures for four wheel alignment and computer wheel balancing, on and off of vehicle.	M	50	50	6
ASST2747	<b>Ford Body Electrical &amp; Electronics</b> <i>Prerequisite: ASST2668.</i> Advanced auto electricity covering theory, testing, diagnosis and repair of body electrical accessories: windows, power seats, windshield wipers, cruise controls and computer controlled body electronics.	M	50	15	5.5
ASST2748	<b>Ford Automatic Transmissions &amp; Transaxles</b> <i>Prerequisite: ASST2668.</i> Operation, diagnosis, adjustment and repair of automatic transmissions in rear-wheel and front-wheel drive Ford vehicles. Removal and installation procedures and safety.	M	70	40	8
ASST2749	<b>Ford New Product Update</b> <i>Prerequisite: ASST2668.</i> Overview of new product features for current model year. Includes available Ford New Product information.	M	20	-	2
ASST2901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: ASST2529, 2531, 2537, and 2538.</i> Coordinated work experience from Ford dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and ASSET coordinator.	M	-	480	12

## AUTB • AUTO COLLISION REPAIR TECHNOLOGY

AUTB1150	<b>Tools and Equipment</b> Proper Identification, selection, usage, maintenance, and cost of tools and equipment used in the collision repair and maintenance program.	M	20	-	2
AUTB1155	<b>Collision Repair Theory</b> <i>Prerequisite: AUTB1150.</i> Theory of repair processes using basic hand tools and progressing into use of power tools and filler materials. Theory of metal bending including the study of sheet metal, damage classification, types of damage, and corrective forces used to restore damaged components to original dimensions and contours. The processes involved in repairing minor non-structural automotive body panels as well as automobile body panel alignment. Material safety data sheet information to follow EPA and OSHA standards.	M	75	-	7.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AUTB1160	<b>Welding Theory</b> Study of welding processes used in the auto collision repair industry including oxyacetylene fusion welding, brazing, S.M.A.W., G.M.A.W., aluminum processes, plasma arc cutting and resistance spot welding. Safety factors and equipment selection, application of the theory of expansion and contraction, and the effects of distortion and its control. Heavy emphasis on the MIG welding and structural spot welding used in structural unibody and non-structural panel replacement because of the heavy use of high strength steels used in the modern automobile following I-CAR (Inter-Industry Conference on Auto Collision Repair) welding certification standards.	M	20	-	2
AUTB1165	<b>Collision Repair Lab</b> <i>Prerequisites: AUTB1155.</i> Practice in basic metal repair fundamentals as it relates to the repair of non-structural automobile body panels. Repair on non-structural automobile body panels is done to replicate real world repairs. Automobile body panel alignment on vehicles to ensure quality repairs required according to collision repair industry standards.	M	-	105	3.5
AUTB1170	<b>Welding Lab</b> <i>Prerequisites: AUTB1160.</i> Practical experience in oxyacetylene welding, brazing, MIG welding, aluminum welding, gas and plasma cutting techniques used in collision repair following I-CAR (Inter-Industry Conference on Auto Collision Repair) welding certification standards.	M	-	30	1
AUTB1175	<b>Paint Finishes Theory</b> Study of the sequence of surface preparation operations needed to acquire a durable, high quality, long lasting topcoat. Paint gun care, troubleshooting and proper usage in applying primer surfaces.	M	20	-	2
AUTB1250	<b>Collision Repair Theory II</b> <i>Prerequisites: AUTB1150 through AUTB1175.</i> Application of replacing parts, use of materials, and operating hydraulic external pull equipment. Identification and repair procedures for composites and plastics using the latest repair procedures currently used in the collision repair industry.	M	45	-	4.5
AUTB1255	<b>Collision Repair Lab II</b> <i>Prerequisites: AUTB1150 through AUTB1175.</i> Projects will be assigned to students that will include basic metal repair, plastic repair, composite repair, as well as corrosion protection and priming operations with care of vehicle to be taken to ensure customer satisfaction.	M	-	210	7
AUTB1260	<b>Electrical Repair I</b> <i>Prerequisites: AUTB1150–AUTB1175.</i> Theory of the automobile electrical storage and wiring system. Wiring troubleshooting processes and automobile lighting.	M	15	-	1.5
AUTB1350	<b>Paint Finishes Theory II</b> <i>Prerequisites: AUTB1150–AUTB1260.</i> The study of equipment, preparation, materials, topcoat selection, and application to an overall painting operation will be emphasized. Techniques of spot painting repairs to include color matching and application.	M	30	-	3
AUTB1355	<b>Estimating Theory</b> <i>Prerequisites: AUTB1150–AUTB1260.</i> Estimating principles and procedures of cost accounting. Emphasis is based on present day business practices and operations of the automobile collision repair field.	M	15	-	1.5
AUTB1360	<b>Electrical Repair II</b> <i>Prerequisites: AUTB1150–AUTB1260.</i> Introduction to proper usage of diagnostic procedures including flow charts, wiring diagrams, scan tools, digital and analog multimeters. This will include identification of programmable electrical, electronic components, including servicing precautions of body electronic and body computers.	M	15	-	1.5
AUTB1365	<b>Refinishing Lab I</b> <i>Prerequisites: AUTB1150–AUTB1260.</i> Lab experience will include analyzing condition and type of existing finish and determining the sequence of preparation for a high quality, durable finish. The proper use of various refinishing systems and clear top-coatings to perform overall and spot painting tasks will be covered.	M	-	165	5.5
AUTB1370	<b>Collision Repair Lab III</b> <i>Prerequisites: AUTB1150–AUTB1260.</i> Practical on the job experiences in the proper repair of sheet metal damages on current model vehicles. Some weld-on and bolt-on panel replacement will be included.	M	-	45	1.5
AUTB1450	<b>Structural Repair Theory</b> <i>Prerequisites: AUTB1150–AUTB1365.</i> This course will cover the study of conventional frame and unitized body construction, body alignment, steering components and how it relates to frame and unitized body construction of modern day vehicles. The proper identification of structural damages and measurement techniques will be covered. Methods of repair and operation of equipment, safety is stressed at all times.	M	30	-	3

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AUTB1455	<b>Safety Restraint Systems</b> <i>Prerequisites: AUTB1150–AUTB1365.</i> Introduction to active and passive restraint systems, operation and basic troubleshooting of restraint systems including air bag supplemental restraint systems.	M	15	-	1.5
AUTB1460	<b>Collision Repair Lab IV</b> <i>Prerequisites: AUTB1150–AUTB1365.</i> Assigned training projects will include following repair estimates being evaluated by the quality of work and the time taken to complete assigned training projects.	M	-	105	3.5
AUTB1465	<b>Refinishing Lab II</b> <i>Prerequisites: AUTB1350, AUTB1365, and AUTB1370.</i> Advanced practical experiences in spot painting with the concentration on correct color matching and problem solving.	M	-	120	4
AUTB2550	<b>Suspension &amp; Alignment Theory</b> <i>Prerequisites: AUTB1150–AUTB1465.</i> Evolution and theory of front and rear suspension design. Transaxle and four wheel alignment and its relationship to collision damaged vehicles.	M	20	-	2
AUTB2555	<b>Automotive Heating &amp; Air Conditioning</b> <i>Prerequisites: AUTB1150–AUTB1465.</i> Operation of the automotive cooling system and theory of air conditioning systems, and the repair of damaged components after a collision. Refrigerant recovery and recycling is covered.	M	10	-	1
AUTB2560	<b>Brake Systems</b> <i>Prerequisites: AUTB1150–AUTB1465.</i> Introduction to drum, disc, manual, power-assisted braking systems, theory and operation of the anti-lock brake systems.	M	15	-	1.5
AUTB2565	<b>Collision Repair Lab V</b> <i>Prerequisites: AUTB1150–AUTB1465.</i> Laboratory on collision repair with comprehensive practice in problem solving in structural analysis and repair of collision damaged vehicles. Estimating, structural alignment, major body repair, panel replacement, refinishing, glass installation, wheel alignment, mechanical and electrical repairs on a production basis.	M	-	225	7.5
AUTB2650	<b>Collision Repair Lab VI</b> <i>Prerequisites: AUTB1150–AUTB2565.</i> Practice in major structural repair operations including body, frame, unitized construction, major panel replacement, mechanical repairs, electrical repairs, paint refinishing, suspension alignment, all of which is based on a production basis following damage reports as used in the collision repair industry. Repairs to vehicles including analysis, through all processes including detailing prior to delivery of the vehicle and will also include delivery to the customer.	M	15	255	10

## AUTT • AUTOMOTIVE TECHNOLOGY

AUTT1000	<b>Shop Procedures</b> Introduction to automotive shop procedures and repair. This course deals with the many basic elements of automotive repair and the proper use of hand and power tools.	L/M	20	-	2
AUTT1100	<b>Shop Safety and Repair</b> This course deals with shop safety, OSHA hazard communication standards/hazard chemical right-to-know. Thread repair, tube flaring, fasteners, micrometers and other equipment used by the professional automotive technician.	L/M	20	20	2.5
AUTT1103	<b>Drive Trains</b> Theory and principle of power train operation from the engine to the drive wheels on automotive systems.	L/M	25	30	3.5
AUTT1106	<b>Electrical Concepts</b> Basic electrical and electronic principles, Ohm's law, magnetism and electromagnetism as applied to automotive systems are covered. The use of DVOM meters along with the practical use of them is covered. The design of storage batteries used in automotive systems is covered.	L/M	55	15	6
AUTT1107	<b>HVAC I</b> Theory and operation of automotive HVAC systems is covered including diagnosis and repair of all manual heating and air conditioning systems.	L/M	40	20	4.5
AUTT1108	<b>Automotive Fuel and Control Systems</b> Theory, design and operation of the automotive fuel system are covered. This includes fuel gauges, tanks, pumps and fuel injection components. A study of fuel manufacturing, testing, and fuel reaction as it applies to emission systems is covered. The use of service equipment to diagnose, evaluate and repair components of the fuel system are covered.	L/M	70	50	8.5
AUTT1202	<b>Steering &amp; Suspension Theory</b> Theory of automotive steering and suspension components, wheels and tires, balancing and wheel alignment. Class includes active suspension and tire pressure monitor systems.	L/M	40	-	4

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
AUTT1205	<b>Brake Systems Theory</b> Theory of automotive disc and drum brake systems including anti-lock, traction and stability control applications.	L/M	50	-	5
AUTT1203	<b>Manual Transmission/Transaxle Theory</b> Theory, diagnosis, evaluation and repair of manual transmissions, clutches, drive lines, transfer cases and 4WD components.	L/M	30	35	4
AUTT1206	<b>Automotive Electricity</b> Starting and charging systems theory, design and operation are covered. Starting and charging systems diagnosis and repair are also covered.	L/M	30	15	3.5
AUTT1207	<b>HVAC II</b> Advanced theory, operation, and diagnosis of the HVAC systems including automatic HVAC system diagnostics and repair.	L/M	10	30	2
AUTT1212	<b>Steering &amp; suspension Lab</b> Diagnosis and practical experience of automotive steering and suspension applications. This class includes the replacement of suspension components and 4-wheel alignment.	L/M	-	60	2
AUTT1215	<b>Brake Lab</b> Diagnosis and practical experience of automotive brake system applications. This class includes diagnosis and repair of brake systems, R & R of brake pads and shoes and the proper method of bleeding of standard and anti-lock brake systems.	L/M	-	60	2
AUTT1221	<b>Engine Theory</b> Basic construction, physical principles and operation of two and four cycle engines as applied to single and multiple-cylinder engines. Ignition systems, fuel system, lubrication systems, cooling systems and valve trains are covered.	L/M	50	-	5
AUTT1222	<b>Engine II</b> Advanced automotive engine coursework on removal, disassembly, and machining operations for complete major engine overhaul.	L/M	70	130	11
AUTT1306	<b>Automotive Ignition Systems</b> Theory, operation and testing of automotive ignition systems is covered. This will include individual component testing, inspection and repair with the use of DVOM meters.	L/M	10	15	1.5
AUTT1406	<b>Automotive Electronics I</b> This course is an advanced auto electronics course covering the automotive wiring and accessories. Emphasis is placed on procedures, testing, diagnosing and repairing automotive systems.	L/M	30	15	3.5
AUTT1408	<b>Advanced Engine Performance</b> Advanced engine performance includes fuel injections systems, ignition systems and vehicle driveability. Practical experience is gained through the inspection, service and repair of computer engine control systems using state-of-the-art equipment.	L/M	60	90	9
AUTT1506	<b>Automotive Electronics II</b> Advanced interpretation and use of wiring diagrams, electronic component testing and repair. The use of advanced test equipment is covered.	L/M	30	30	4
AUTT2102	<b>Automatic Transmission/Transaxle</b> Theory of operation, basic design, components, disassembly diagnosis and reassembly of automatic transmissions/transaxles is covered. Disassembly, reassembly and dyno-testing of transmissions / transaxles.	L/M	100	80	12.5
AUTT2303	<b>Manual Transmission/Transaxle Lab</b> Diagnosis, evaluation and repair of manual transmissions/transaxles, rear axles, transfer cases, drive lines and front axles.	L/M	25	45	4

## BIOS • BIOSCIENCE

BIOS1000	<b>Structure and Function of Human Body</b> ☐ Overview of the normal structure and function of the human body systems and their interrelationships.	B/L	60	-	6
BIOS1010	<b>General Biology</b> ☐ Fundamental processes of cells and organisms, cell structure, genetics, evolution, classification, diversity, and interaction of organisms at the molecular, cellular, organismic, ecosystem, and biosphere level. Designed for both non-majors and as a foundation for those planning additional work in biology. Includes lab.	B/L	45	30	6
BIOS1090	<b>General Botany</b> ☐ <i>Prerequisite: BIOS1010 or instructor permission.</i> Survey of the plant kingdom with a study of representative plants from each of the major plant groups. Structure, relationships, economic importance and natural history of major plant groups.	B/L	45	30	6
BIOS1110	<b>Biology of Microorganisms</b> Comparative study of microorganisms, principles and applications. Structure, function, development and control of pathogenic organisms. Laboratory includes isolation, culturing and staining techniques plus identification of unknown organisms.	B/L	45	30	6
BIOS1120	<b>Introduction to Zoology</b> ☐ <i>Prerequisite: BIOS1010 or instructor permission.</i> Survey of the phyla of the animal kingdom. Emphasis on morphology, physiology, developmental cell biology and diversity of animal life. Laboratory includes observation and dissection of selected specimens.	B/L	45	30	6

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
BIOS1140	<b>Human Anatomy &amp; Lab</b> ☐ Study and identification of anatomical structures of the human body. Includes a detailed study of: tissues that make up the various body systems, integument, skeletal structures, joints, muscles (origin, insertion, action), peripheral and cranial nerves, brain structures, major blood vessels, heart structures, respiratory, digestive, reproductive, endocrine, and urinary systems. Lab complements the material presented in lecture. Utilize the knowledge in a laboratory setting by studying with a "hands-on" approach using models, dissected tissues, and pictures. Lecture concurrent with lab.	L	45	30	6
BIOS1210	<b>Human Anatomy &amp; Physiology I</b> Introduction to anatomy and physiology for students in biological medical and health related programs. Relationships between structure and function. Chemical, cellular and tissue levels of organization. Introduction to principal systems of the human body. Structure and function of the integumentary skeletal, muscular and nervous systems of the body. Important physiology experiments and structural identification experiments.	B	45	30	6
BIOS1220	<b>Human Anatomy &amp; Physiology II</b> Continuation of the study of BIOS1210. Relationships between structure and function. Detailed study of the major systems of the human body including cardiovascular, respiratory, digestive, urinary, reproductive, endocrine and lymphatic systems. Special senses, immunity, fluid, electrolyte and acid-base dynamics. Important physiology experiments and structural identification experiments.	B	45	30	6
BIOS2130	<b>Human Physiology &amp; Lab</b> ☐ Study of the functions of the various human body systems including the study of cells, chemical reactions in the body (metabolism), bone growth, muscle contraction, digestive processes, functions of various blood components, nerve impulses, urinalysis, endocrinology, reproduction, and immunology. Lab complements the material presented in lecture. Utilize the knowledge in a laboratory setting by studying with a "hands-on" approach using a variety of instruments that are used in hospital settings. Lab concurrent with lecture.	L	45	30	6
BIOS2410	<b>General Genetics</b> <i>Prerequisites: 1000 level Bioscience course and one year of high school algebra or instructor permission.</i> Study of heredity factors of plants and animals. Genetic mechanisms of evolution; molecular genetics.	B/L	60	-	6

## BSAD • BUSINESS ADMINISTRATION

BSAD1010	<b>Microsoft Applications I</b> ☐ <i>Prerequisite: Keyboarding skills and prior computer experience recommended.</i> Use the Windows operating system and Windows Explorer to manage folders and files. Use of an Internet browser to explore the World Wide Web and work with electronic mail. Use of Microsoft Office software suite to learn basic features and integration of Word, Excel, Access, and PowerPoint.	B/L/M	45	-	4.5
BSAD1020	<b>Microsoft Applications II</b> ☐ <i>Prerequisite: BSAD1010.</i> Continues efficient use of Windows Explorer. Use of Microsoft Office software suite to continue integration and to learn intermediate features of Word, Excel, Access, and PowerPoint. Students will apply their knowledge of the Microsoft Office software suite to the creation of various application projects.	B/L/M	45	-	4.5
BSAD1050	<b>Introduction to Business</b> ☐ An introductory study and overview of the role of business in society as well as a discussion of the various disciplines of business including an overview of business organization, management, marketing, human resource management, and finance. Also, a study and discussion of various strategies for success of specific public and private firms as well as small business. Business vocabulary used to understand and interpret business news and information.	B/L/M	45	-	4.5
BSAD1070	<b>Customer Service</b> ☐ Students will learn the skills necessary to build and maintain good relationships with internal and external customers and the role the customer service team plays in developing, evaluating, and improving customer service systems. The course will cover basic customer service principles of assessing customer expectations and satisfaction and providing quality service. Problem-solving, challenges of customer service, communication, and customer retention will be covered.	B/L	45	-	4.5
BSAD1090	<b>Business Law I</b> ☐ Introduction to the history and origin of the legal system. All facets of the course are related to business including ethics and business crimes, contract law relative to dispute settlements, torts, sales contracts under the U.C.C. and agency.	B/L/M	45	-	4.5
BSAD1100	<b>Business Law II</b> ☐ <i>Prerequisite: BSAD1090</i> Continuation of Business Law I. Study of business law relationships including personal and real property, will, trusts, estates and probate, landlord/tenant law, sales, commercial paper, business organization, credit transactions, insurance, power of attorney, and government regulation, HIPAA, and licensure.	B/L/M	45	-	4.5

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
BSAD1230	<b>Visual Merchandising</b> Fundamentals of planning promotional activities and store design. Design and art principles for use in window and in-store displays. Lab includes construction of window displays and props, signing, store design planning and field experience.	L	45	-	4.5
BSAD1730	<b>Quality Management</b> Introductory course covering the rationale for a continuous improvement process, the use of analytical and statistical data to make decisions, and the eight basic TQM tools used to gather and report data.	M	25	-	2.5
BSAD2270	<b>Professional Selling</b> Development of selling principles and concepts used in a wide variety of selling situations including specialty, wholesale and retail. Necessary personality traits, ethics, and negotiation techniques required for successful selling are stressed and applied through the use of sales presentations and demonstrations.	B/L/M	45	-	4.5
BSAD2310	<b>Business Ethics</b> <i>Prerequisite: Writing/English Competency recommended.</i> This course explores the challenging world of business ethics. By examining issues and scenarios that relate directly to the work environment, students can develop a clearer sense of how their corporate and personal code of ethics relates to operational decisions made on a daily basis. In addition, the course will allow students to examine their individual ethical standards and how those standards influence personal and work decisions.	B/L/M	45	-	4.5
BSAD2365	<b>Leadership Practicum</b> This course provides students with hands-on experience in leadership, managerial decision-making, and professional communication including project management, team building, training and development, cultural competencies and social responsibility. Students will learn to plan, forecast, organize events and resources, lead, delegate, and motivate others. It is an interactive course that integrates all aspects of formal business education and training through service learning in collaboration with the international student organization, Students in Free Enterprise (SIFE). Students will be required to take a significant leadership role in SIFE and contribute to the annual written report and visual presentation for SIFE competition as part of this upper division credit class.	L	-	200	5
BSAD2370	<b>Human Resources Management</b> Study of the functions of personnel: recruiting, selection, assessment, remuneration, training, and union relations. Emphasis on negotiations, communications, ADA, EEOC leadership, and the legalities of hiring and firing.	B/L/M	45	-	4.5
BSAD2390	<b>Small Business Management</b> <i>Prerequisites: ACCT1210.</i> How to plan, organize, operate and fund a small business. Creation of a business plan for either a retail, service, franchise or manufacturing operation. Entrepreneurial personality, buying or starting a business from scratch, evaluating franchising opportunities, and planning small business operation.	B/L/M	45	-	4.5
BSAD2400	<b>Principles of Retailing</b> Introduction to retailing principles in major retail areas. Policies and practices, marketing and business systems of small and large retailers are studied.	B/L/M	45	-	4.5
BSAD2430	<b>Marketing Communications</b> Focus on planning for the optimal use of all communication elements: advertising, personal selling, sales promotions, public relations. Combination of these elements must be tightly interwoven for successful management of brand equity, coordinating all aspects to achieve the same goals.	B/L/M	45	-	4.5
BSAD2460	<b>Electronic Commerce Marketing</b> Application and management techniques in utilizing electronic commerce in the workplace. Strategies for businesses that may initiate or reassess the overall effectiveness and value of the digital elements of doing business to their overall corporate goals. Ethical and societal implications of e-commerce on the marketplace, customer base and employee commitment.	B/L/M	45	-	4.5
BSAD2470	<b>International Marketing</b> Focus on theory and strategy involved in the effective development and implementation of marketing strategies in the global business arena. Emphasis on managerial aspects of import and export marketing and of US products and services relating to the following areas: demand, competition, economics, social-cultural, political-legal, and technology. Special attention placed on the following details: culture, consumer behavior, distribution and trade agreements.	B/L/M	45	-	4.5
BSAD2480	<b>Event Marketing</b> Develop skills based on a mix of concepts and theories that are unique to marketing of events and venues. Examine strategies for marketing in the events and venue environment. There will be a specific focus on planning, execution and evaluation of sponsorship activities for events, the principles and strategic issues of fundraising in nonprofit organizations, and the planning, marketing, and selling of any type of event from company social functions to major conventions.	B/L/M	45	-	4.5
BSAD2520	<b>Principles of Marketing</b> A study of the development of an effective marketing program including consumer behavior, product, pricing, distribution, and promotional strategies.	B/L/M	45	-	4.5

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
BSAD2540	<b>Principles of Management</b> Introduction to management theory and practice for supervisors of employees or managers of organizations. Functions of planning, organizing, directing, controlling and supervising. New and rapidly developing areas of management.	B/L/M	45	-	4.5
BSAD2900	<b>Internship</b> <i>Prerequisites: OFFT2000.</i> Under the guidance of an internship coordinator, students will receive unpaid practical work experience for development of marketable skills in an approved business setting. Open to Business Administration students only who have a minimum GPA of 2.0.	B/L/M	-	200	5
BSAD2901	<b>Cooperative Experience</b> <i>Prerequisites: OFFT2000.</i> Practical work experience for the development of marketable skills for employment in the selected specialization. The course is under the guidance of the cooperative experience coordinator. Open to Business Administration students only.	B/L/M	-	200	5
BSAD2993	<b>Special Projects</b> <i>Must have permission of instructor, program chair, and division dean.</i> Credit hours will vary.	-	-	-	1-3

## CAPP • CHRYSLER (CAP) COLLEGE AUTOMOTIVE PROGRAM

CAPP1110	<b>Chrysler Shop Orientation</b> Introduction to automotive shop procedures and repair. Proper use of hand and power tools. This course deals with the many basic elements of automotive repair.	M	15	6	1.5
CAPP1170	<b>Chrysler Shop Safety and Repair</b> This course deals with shop safety, OSHA hazard communication standards/hazardous chemical right-to-know. Thread repair, tube flaring, fasteners, micrometers and other equipment used by the professional automotive technician.	M	15	6	1.5
CAPP1173	<b>Chrysler Fundamentals</b> Introduction and use of Chrysler service manuals, warranty flat rate manuals, daily time tickets and repair order completion. Overview of service manual groups with emphasis on theory of operation of systems and components, Pre-delivery Inspection and MasterTech Training.	M	20	10	2
CAPP1175	<b>Chrysler Electrical &amp; Electronic Principles</b> Study of Electronics Training building from electrical principles and concepts through automotive semiconductors to microprocessors. Batteries, charging systems, starting systems and ignition system principles, operation and testing.	M	110	40	12
CAPP1177	<b>Chrysler Brake System</b> Theory, diagnosis, and repair procedures of disc, drum and Antilock brake system on current Chrysler vehicles.	M	40	20	4
CAPP1360	<b>Chrysler Electronic Fuel Systems</b> <i>Prerequisite: CAPP1268.</i> The study of Chrysler computer systems. Basic computer operation, input and output devices, computer system diagnosis. Theory of operation of fuel pumps, fuel tanks, filters, fuel injection systems, and emission control systems.	M	70	60	9
CAPP1362	<b>Chrysler Body Electrical and Electronics</b> <i>Prerequisite: CAPP1268.</i> Advanced auto electricity course covering theory, testing, diagnosis, and repair of body electrical accessories, electric windows, power seats, windshield wipers, cruise controls, and computer controlled body electronics.	M	50	30	6
CAPP1364	<b>Chrysler Advanced Drivability Diagnosis</b> <i>Prerequisite: CAPP1268.</i> Advanced electrical and fuel systems including OBD II, throttle body, multiple port injection systems, sequential fuel injection, turbo chargers, electronic and computer controlled ignition systems, charging systems and cranking systems. Diagnosis, adjustments and repair procedures, using electrical meters, scopes and Chrysler Diagnostic equipment.	M	60	40	7
CAPP1901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: CAPP1110–CAPP1177.</i> Coordinated work experience from Chrysler dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and CAP coordinator.	M	-	480	12
CAPP1902	<b>Dealer Cooperative Experience</b> <i>Prerequisites: CAPP1360, CAPP1362, &amp; CAPP1364.</i> Coordinated work experience from Chrysler dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and CAP coordinator.	M	-	480	12
CAPP2528	<b>Chrysler Steering &amp; Suspension Systems</b> <i>Prerequisite: CAPP1468.</i> Study of the principles of operations, disassembly procedures and repair of Chrysler steering and suspension systems. Power and Manually controlled integral and rack and pinion steering gears. Conventional and McPherson Strut suspensions. Techniques and procedures for four wheel alignment and computer wheel balancing, on and off of vehicle.	M	30	50	4.5

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
CAPP2530	Chrysler HVAC Systems <i>Prerequisite: CAPP1468.</i> Advanced heating and air conditioning course with emphasis on diagnosis and repair. Theory and repair of all the automatic and electronic air conditioning control systems Chrysler is using.	M	50	30	5.5
CAPP2531	Chrysler Engine Repair <i>Prerequisite: CAPP1468.</i> Operation and construction of Chrysler gas and diesel engines. Techniques and skills for testing and diagnosis of engine mechanical condition, cylinder head reconditioning, complete disassembly, inspection, measurement and reassembly of Chrysler gas and diesel engines. Accuracy of measurements, repair decisions and procedures involving correct and safe engine removal and installation.	M	65	65	8.5
CAPP2740	Chrysler Manual Transmission, Transaxles, Clutch and Transfer Case <i>Prerequisite: CAPP2668.</i> Operating principles and service of Chrysler manual transmissions and related drive train components. Diagnosis and repair procedures.	M	55	40	7
CAPP2741	Chrysler Rear Axle Service <i>Prerequisite: CAPP2668.</i> Operation, diagnosis, and repair of drive shafts, universal joint axles, axle bearings, seals and differentials used on late model Chrysler vehicles.	M	15	15	2
CAPP2742	Chrysler Diesel Fuel and Emission System <i>Prerequisite: CAPP2668.</i> This course provides the theory and operation of Chrysler diesel fuel injection systems, including pump repair, operation, repair of nozzles, and diagnosis and service of diesel electrical and emission control systems.	M	15	15	2
CAPP2748	Chrysler Automatic Transmissions & Transaxles <i>Prerequisite: CAPP2668.</i> Operation, diagnosis, adjustment and repair of automatic transmissions in rear-wheel and front-wheel drive Chrysler vehicles. Removal and installation procedures and safety.	M	80	40	9
CAPP2749	Chrysler New Product Update <i>Prerequisite: CAPP2668.</i> Overview of new product features for current model year. Includes available Chrysler New Product Information.	M	20	-	2
CAPP2901	Dealer Cooperative Experience <i>Prerequisites: CAPP2528-CAPP2531.</i> Coordinated work experience from Chrysler dealer in accordance with program schedule. Work experience supervised by Southeast Community College-Milford and CAP coordinator.	M	-	480	12

## CHEM • CHEMISTRY

CHEM0950	Pre-chemistry Summer session. Designed for student who does not have background necessary for success in college chemistry. Formula writing, naming compounds, balancing equations, chemical computations. Does not fulfill science requirement for A.A. or A.S. degree.	B	45	-	4.5
CHEM1050	Chemistry and the Citizen <i>Prerequisite: MATH1100.</i> Designed for the non-science major. Survey of principles of chemistry, stressing concepts and qualitative understanding rather than problem solving and technical skills.	L	45	30	6
CHEM1090	General Chemistry I <i>Prerequisite: MATH1100.</i> Introduction to the principles of chemistry. States of matter, atomic and molecular structures and bonding, Periodic Law, gas laws, and kinetic molecular theory, solutions and their properties.	B/L	45	30	6
CHEM1100	General Chemistry II <i>Prerequisite: CHEM1090 with a grade of "C" or higher.</i> A continuation of CHEM1090. Topics include the nature of solutions, chemical equilibrium, chemical kinetics, acids and bases, solubility product, qualitative analyses of ions, oxidation and reduction, and electrochemistry.	B/L	45	30	6
CHEM2510	Organic Chemistry I <i>Prerequisite: CHEM1100.</i> The chemistry of compounds of carbon, hydrogen, oxygen and other elements. Alkanes; alkenes, petroleum products; alcohol; ethers; acids, fats, and oils; aldehydes and ketones; amino acids and proteins; carbohydrates; and applications to biochemistry.	B	45	60	6
CHEM2520	Organic Chemistry II <i>Prerequisite: CHEM2510.</i> Continuation of CHEM2510. Benzene and related compounds, nitro compounds, sulfuric acids, amines, diazonium compounds, phenols, alcohol, acids, dyes, stains and indicators, heterocyclic compounds and applications to biochemistry.	B	45	60	6

**Note: Computer Aided Design Drafting— see DRAF  
Computer Information Technology & Computer Programming —  
see INFO**

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## CNST • BUILDING CONSTRUCTION TECHNOLOGY

CNST1121	Concrete & Masonry Tools & Material Theory designed to acquaint the student with materials and techniques for planning, estimating and constructing masonry and concrete structures including foundations. Demonstrations, videos, and clinics emphasizing the best practices in concrete and form work.	M	83	-	8
CNST1122	Concrete & Masonry Applications Laboratory application in proper use of concrete and masonry tools, materials. Experience in block and brick laying, fireplace construction, concrete forming, and reinforcing and finishing. Safety habits.	M	-	217	7
CNST1223	Residential Blueprint Reading <i>Prerequisite: MATH1040.</i> Introduction to blueprint reading, residential drawings, reproduction processes of drawings, scale reading, terms, abbreviations, symbols and basic sketching. Estimating procedures for some aspects of construction are covered. The course emphasizes layout and design of a basic residential floor plan with reading specifications and understanding of the International Dwelling Code Book. The student completes a preliminary floor plan with schedules to be utilized in CNST1326, Residential Construction Drafting Lab. Coincides with CNST1225, Tools and Materials.	M	20	30	3
CNST1224	Construction Processes & Practices <i>Prerequisite: MATH1040.</i> Introduction to hand tools, construction safety, machine woodworking, modern practices and processes used in the building construction industry. Carpentry techniques, competency in blueprint reading, proper layout practices, parts cutting and assembly procedures.	M	-	175	5.5
CNST1225	Tools & Materials <i>Prerequisite: MATH1040 and CNST1223.</i> Introduction to care, use and maintenance of hand tools, portable power and stationary lab equipment. New construction methods, materials and concepts. Origin, manufacturing processes, and characteristics and application of materials used in residential and light commercial construction today.	M	75	-	7.5
CNST1326	Residential Construction Drafting Laboratory <i>Prerequisite: CNST1223.</i> Laboratory which applies concepts acquired in CNST1327. Purposes of residential working drawings. Making door and window schedules, and drawing a floor plan, a basement/foundation plan, and construction details. Emphasis on methods of construction.	M	-	84	2.5
CNST1327	Residential Construction Drafting Theory <i>Prerequisite: CNST1223.</i> Architectural drafting for beginners including drafting and detailing techniques and methods, lettering, standard symbols and drafting equipment. Concepts for door and window schedules. Floor plans, basement/foundation plan, stair calculations and construction details.	M	50	-	5
CNST1328	Residential Construction Estimating Laboratory <i>Prerequisite: CNST1223 and BSAD1010.</i> Application of skills acquired in CNST1329. Using standardized forms and information, student develops lists of construction materials and prices for residential construction. Emphasis on accuracy, organization, and completeness.	M	-	84	2.5
CNST1329	Residential Construction Estimating Theory <i>Prerequisite: CNST1223.</i> Concepts of estimating quantities of residential construction materials. Interpretation of residential construction drawings and an introduction to quantity survey techniques and formulas. Decision making and materials estimate organization.	M	50	-	5
CNST1331	Commercial Construction Communications <i>Prerequisite: CNST1223.</i> Fundamentals of commercial blueprint reading, contractor responsibilities, project specifications and an introduction to LEED construction practices.	M	32	-	3
CNST1430	Cabinetry & Carpentry Laboratory <i>Prerequisites: CNST1223, CNST1224 and CNST1225. Companion course to CNST1433.</i> Application of classroom instruction to job situations through the use of mock-up training aids, cabinets and other projects.	M	-	200	6.5
CNST1433	Carpentry Theory <i>Prerequisite: CNST1225. Co-requisite: CNST1430.</i> Fundamentals of carpentry, emphasizing the process of home building through the study of blueprints and construction texts and references. Site layout, foundations, framing, roofing, exterior trim, interior trim and cabinet making. Prerequisite to house project in the fifth quarter.	M	100	-	10
CNST2532	Residential Construction Applications <i>Prerequisites: CNST1430 and CNST1433. CPR and First Aid Certification training required.</i> Application of theory and technical courses to practical situations including residential framing, exterior finish, interior trim, cabinet making, and roofing. Primary project is a frame residence which provides experiences in all aspects of framing through exterior and interior trim work. Includes short information briefing daily.	M	-	280	9

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
CNST2537	<b>Residential Construction Principles</b> <i>Prerequisites: CNST1430 and CNST1433.</i> Acceptable methods of home construction as established by federal, state and local building codes. Work procedures and practices for home construction. Includes daily briefing for the house construction.	M	20	-	2
CNST2634	<b>Commercial Construction Drafting Laboratory</b> <i>Prerequisite: CNST1326.</i> Laboratory for drawing and representation of commercial structures. Preliminary information provided by instructor, but student bears more responsibility for planning design than in earlier drafting courses. Use of the International Residential Code for floor plan design and the Interrelationship of drawings and information for a set of construction drawings is included. Fundamentals of computer-aided drafting using SoftPlan. Draw, edit and print a house plan.	M	-	69	2
CNST2636	<b>Commercial Construction Estimating Laboratory</b> <i>Prerequisite: CNST1328.</i> Laboratory for creation of commercial materials estimate using the procedures described in CNST2641. The R.S. Means Company format, estimating forms and procedures used. Emphasis on creativity, accuracy, and completeness.	M	-	76	2.5
CNST2639	<b>Commercial Construction Drafting Theory</b> <i>Prerequisite: CNST1327 and ENGL1010 or higher.</i> Study of light commercial structures and methods of construction. Requirements of the International Residential Code for commercial construction. Construction materials and methods. Methods of graphic representation for each drawing.	M	37	-	3.5
CNST2641	<b>Commercial Construction Estimating Theory</b> <i>Prerequisite: CNST1329.</i> Procedures and methods of estimating commercial structures as defined by the R.S. Means estimating system. Quantity survey and cost analysis forms and procedures.	M	50	-	5
CNST2643	<b>Fundamentals of Structural Steel</b> <i>Prerequisites: CNST1327 and CNST1331.</i> Introduction to iron and steel making, structural shapes, design and sizing of steel structural systems, joists, beams and columns.	M	32	-	3

## CRIM • CRIMINAL JUSTICE

CRIM1010	<b>Introduction to Criminal Justice</b> Provides an overview of the history, development, and philosophies of crime control within a democratic society. Examines the criminal justice system with emphasis on the police, the prosecution and defense, the courts, and the correctional agencies.	B/L	45	-	4.5
CRIM1020	<b>Introduction to Corrections</b> Outlines corrections in a systematic process showing the evolving changes within institutional and community based corrections. Topics include, but are not limited to, the history of corrections, the influence of social thought and philosophy on the development of corrections, the rights of the incarcerated inmate, and the duties of the correctional officer.	B/L	45	-	4.5
CRIM1030	<b>Courts &amp; the Judicial Process</b> <i>Prerequisite: CRIM1010 or advisor approval.</i> Surveys the United States judicial system. Topics include, but are not limited to, legal and constitutional concepts, institutions and processes. Coverage includes adult and civil courts.	B/L	45	-	4.5
CRIM1050	<b>Introduction to Forensic Science</b> This course will provide an overview of several different disciplines that constitute forensic science. The topics covered will include safety, basic chemical principles, photography and the collection of evidence.	B/L	45	30	6
CRIM1140	<b>Reporting Techniques for Criminal Justice</b> <i>Prerequisite: ENGL1010 or ENGL1015 or equivalent. CRIM1010 or advisor approval.</i> The student learns to observe and document the behavior of crime victims, witnesses and suspects. The student also learns to accurately describe and record conditions and activities of crime scenes for courtroom presentations. In accordance with the legal guidelines of confidentiality, each student maintains a log of classroom and field experiences.	B/L	45	-	4.5
CRIM2000	<b>Criminal Law</b> Outlines the purpose and function of criminal law. Topics include, but are not limited to the rights and duties of citizens and police in relation to local, state, and federal law (i.e. arrest, search and seizure, confessions); the development, application, and enforcement of laws; constitutional issues; and sentencing.	B/L	45	-	4.5
CRIM2030	<b>Police and Society</b> Examines the role of the police in relationship to law enforcement and American society. Topics include, but are not limited to the role and function of police, the nature of police organizations and police work, and the patterns of police-community relations.	B/L	45	-	4.5
CRIM2100	<b>Juvenile Justice</b> Examines the origins, philosophy, and objectives of the juvenile justice system. Topics include, but are not limited to causation of crime (i.e. race/gender, socioeconomic relevance, victimization), the juvenile court system, the law enforcement approach, corrections, and prevention.	B/L	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
CRIM2150	<b>Contemporary Issues in Criminal Justice</b> Examines the relationships between law enforcement agencies and such complex social issues as, but not limited to, domestic violence, child abuse, elder abuse, gangs, and drugs.	B/L	45	-	4.5
CRIM2200	<b>Criminology</b> Examines crime and criminology from a broad social perspective. Emphasizes the nature and causes of crimes, investigation and prosecution, and treatment and prevention.	B/L	45	-	4.5
CRIM2250	<b>Ethics in Criminal Justice</b> Examines contemporary and historical theories that enhance today's ethical practices and dilemmas. Provides an introduction to the language, concepts, and traditions of ethics as they relate to the functional areas of criminal justice.	B/L	45	-	4.5
CRIM2260	<b>Criminal Investigation</b> <i>Prerequisite: CRIM1010 or advisor approval.</i> Introduces criminal investigation procedures. Reviews the historical development and investigative processes related to law enforcement functions. Topics include, but are not limited to the proper collection, organization, and preservation of evidence using basic investigative tools; examining the primary sources of information; analyzing the importance of writing skills; and reviewing the constitutional (legal) limitations of the investigation.	B/L	45	-	4.5
CRIM2310	<b>Rules of Evidence</b> Emphasizes the concept of evidence and the rules governing its admissibility. Includes theoretical and pragmatic consideration of constitutional requirements affecting evidence and procedure.	B/L	45	-	4.5
CRIM2900	<b>Criminal Justice Internship</b> <i>Prerequisite: Successful completion of previous CRIM courses and on condition of being accepted at the training site.</i> This course entails a series of planned and supervised activities in actual work situations. The employment must be directly related to the student's program of study. A total of 180 contact hours are required for this course.	B/L	-	180	4.5
CRIM2903	<b>Law Enforcement Internship</b> <i>Prerequisite: Successful completion of previous CRIM courses and on condition of being accepted into the NLETC program.</i> Provides instruction in basic law enforcement techniques at the Nebraska Law Enforcement Training Center. Instruction includes, but is not limited to: courtroom performance, traffic enforcement, civil process, techniques of arrest, firearms training, and criminal investigation applications.	B/L	-	480	12

Please Note • Deere Construction & Forestry  
Equipment Tech— See JDCE

## DENT • DENTAL ASSISTING

*The clinical track portion of the program begins two times each year during the Fall and Spring quarters. The Fall Quarter intakes day and online students, and the Spring Quarter intakes only day students. In order to register for a dental assisting course (DENT), the advisor must sign the registration form first.*

DENT1103	<b>Oral Sciences I</b> <i>Prerequisite: Declared clinical track students only.</i> Understanding basic structures of anatomy and physiology of the human body, oral embryology and oral histology with emphasis on relating to dentistry.	L	20	-	2
DENT1110	<b>Preclinical Concepts</b> Introduction to the history of the profession of dental assisting, the legal and ethical responsibilities of the dental assistant in the practice of dental assisting, professional terminology, state and national regulations governing dentistry, education of the dental team, and the requirements for obtaining certification (CDA) through the Dental Assisting National Board, Inc. Basic skills learned in dental health care worker protocol, patient care, communication with diverse population, equipment and instrument identification, high velocity evacuation, four-handed instrument exchange, manipulation of temporary cement, and occupational exposure protocol techniques.	L	40	75	6.5
DENT1210	<b>Oral Sciences II</b> Thorough study of anatomical concepts pertaining to the structures of the face and oral cavity and tooth morphology.	L	30	15	3.5
DENT1211	<b>Dental Assisting Foundations I</b> Continuation of basic skills, manipulation of specific types of dental materials, rubber dam placement, assembly of matrix retainers, basic treatment setups, techniques for control of disease-producing blood-borne pathogens, personal protective equipment (PPE), standard precautions, and hazard protection as required by OSHA guidelines for health care providers. Laboratory experiences at the UNMC College of Dentistry and at SCC Lincoln Campus.	L	30	45	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
DENT1212 ☐	<b>Oral Hygiene</b> Study methods and supplemental aids for the control of dental disease and demonstration of oral health instructions to a patient. Coronal polish is taught to clinical competency level and pit and fissure sealants is taught to preclinical competency level.	L	20	30	3
DENT1214 ☐	<b>Clinical Concepts</b> Recognition and management of medical and dental emergencies, assisting with dental examination data gathering, oral pathology and overview of pharmacology and pain control.	L	30	20	3.5
DENT1311 ☐	<b>Dental Assisting Foundations II</b> Principles of the foundation of clinical dentistry are taught. Clinical and dental laboratory infection control practices (OSAP standards) with further development in specialized technical skills including special patient care practices.	L	30	30	4
DENT1312 ☐	<b>Dental Materials I</b> Introduction to physical properties, principles of manipulation and storage of materials, manipulation of specific types of dental materials, laboratory projects pertaining to diagnostic impressions, and casts on a manikin and human patient.	L	15	45	3
DENT1313 ☐	<b>Oral Radiography I</b> Extensive study in oral radiography including: legal and ethical responsibilities, recognizing a diagnostic quality radiograph, production of radiographs, biological effects of radiation, processing of films, patient education and management. Laboratory emphasis on DXTR manikin.	L	35	30	4.5
DENT1314 ☐	<b>Clinical Education I</b> Clinical education is scheduled throughout quarters two, three and four. Under supervision, students will care for patients applying specialized technical skills and principles previously learned in the classroom and laboratory settings while in the dental clinical environment.	L	15	150	6.5
DENT1410 ☐	<b>Practice Management Skills</b> Principles of dental office procedures, resume writing, letter of application, and inventory control. The integration of a current dental software program is utilized throughout the entire course.	L	20	30	3
DENT1411 ☐	<b>Dental Assisting Foundations III</b> Principles and techniques associated with the specialties in dentistry.	L	35	15	4
DENT1412 ☐	<b>Dental Materials II</b> Continuation of Dental Materials I course with laboratory emphasis on human patient diagnostic impressions, casts and other specific laboratory projects.	L	15	45	3
DENT1413 ☐	<b>Oral Radiography II</b> Laboratory projects including intra-oral panoramic radiographic exposure, intra-oral exposures using both traditional radiographs and digital imaging techniques. Emphasis placed on quality control, infection control practices and patient management.	L	-	45	1.5
DENT1414 ☐	<b>Clinical Education II</b> Adaptation to a variety of new clinical environments, with higher-level development of chairside and business office skills.	L	15	150	6.5

Please Note • Diesel Ag Equipment Service Tech— See AG2T

## DESL • DIESEL TECHNOLOGY TRUCK

DESL1201	<b>Electrical Systems I-Truck</b> Basic electrical and electronic principles and applications of magnetism, electromagnetism, and the practice of electrical measurements with analog and digital meters.	M	23	18	2.5
DESL1211	<b>Batteries &amp; Cranking Motors-Truck</b> <i>Prerequisite: DESL1201.</i> Purpose, theory, construction, operation, and testing of lead acid batteries. Theory of cranking motor operation and its application to modern cranking systems. Lab activities include component and circuit testing with analogue and digital meters. Review of conventional ignition systems.	M	24	29	2.5
DESL1221	<b>Electronic Ignition &amp; Charging Systems-Truck</b> <i>Prerequisite: DESL1201.</i> Theory, operation, and testing of electronic ignition systems. Theory of AC type charging systems and their application to modern vehicles. Lab work in charging system diagnosis, proper disassembly procedures, alternator component testing, reassembly, and complete system testing with results compared to specifications.	M	22	34	3
DESL1231	<b>Power Trains I-Truck</b> <i>Prerequisite: DESL1261.</i> Theory of power transmission from engine to rear wheels. Engine measurements and performance, levers, gears, chains, clutches, transmissions, planetary gears, drive lines, differentials, rear axles, and disassembly, inspection, adjustments and reassembly of standard transmissions and differentials.	M	30	26	3.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
DESL1251	<b>Theory of Engine Operation-Truck</b> <i>Prerequisites: DESL1261</i> Basic physical operation and construction of two and four stroke cycle, single, and multiple cylinder engines. Ignition timing of four stroke cycle engines to factory specifications balance, compression, and cylinder leakage tests; type of internal combustion engine cooling systems, components and coolants.	M	25	15	3
DESL1261	<b>Hand &amp; Precision Measuring Tools-Truck</b> Proper use and care of power and hand tools. Micrometers, dial indicators, torque wrenches, twist drills, taps, dies, screw extractors, thread restoration, tube flaring, fittings, and fasteners. Students project utilizing hand tools and measuring instruments.	M	20	46	3.5
DESL1271	<b>Theory of Fuel System Operation-Truck</b> <i>Prerequisites: DESL1251</i> Study of fuel fundamentals, testing, octane and cetane numbers, additives, and how fuels react during compression and combustion in gasoline and diesel applications. The use of alternate fuels in gasoline and diesel engines including a discussion of the pros and cons. Theory, construction, and operation of fuel tanks, fuel gauges, fuel lift pumps, air and fuel filtering systems, fuel lines and intake/exhaust manifold systems. Includes theory, construction, and operation of heat exchangers. Theory, construction, operation, servicing, and troubleshooting of turbochargers is covered.	M	35	20	4
DESL1281	<b>Valve Trains-Truck</b> <i>Prerequisites: DESL1271</i> Basic theory, construction and operation of engine valve trains. Valves, valve seats, camshafts, cam followers, valve springs, rocker arm assemblies, push rods, and related parts. Valve timing and adjustments will be judged for proficiency by actual engine operation. Basic procedure and operation of valve and seat reconditioning is performed and proficiency evaluated.	M	21	34	3
DESL1301	<b>Engine Overhaul &amp; Inspection-Truck</b> <i>Prerequisites: DESL1281</i> Design, construction, operation, and servicing of the following engine components; crankshaft, pistons, piston rings, connecting rods, and bearings. It also covers lubricants, lubrication systems, and filtration systems. Activities include disassembly, inspection, measurements, reassembly, and adjustments. Performance exhibited by assembly and adjustments of engine.	M	30	25	3.5
DESL1321	<b>Diesel &amp; Gas Fuel Injection-Truck</b> <i>Prerequisite: DESL1301</i> Theory of operation and construction of diesel/gasoline fuel injection system nozzles and injectors. Electronic injectors are covered. Lab work consists of testing and service procedures for nozzles/injectors. Theory of operation and service procedures for emission control devices used on diesel and gasoline applications included.	M	35	20	4
DESL1341	<b>Air Brakes-Truck</b> <i>Prerequisites: DESL1261</i> Principles, components, operation, service, repair, adjustment and troubleshooting of the air brake system used on today's trucks, including safety, brake balance and anti-lock brakes.	M	30	75	5.5
DESL1352	<b>Electrical/Electronic Systems I-Truck</b> <i>Prerequisites: DESL1321</i> Theory of operation, troubleshooting, diagnosis, and repair of truck cab/chassis and trailer wiring/lighting systems. Instruments, gauges, and electrical accessories are also covered. Engine/vehicle electronic sensors and computers included.	M	35	20	4
DESL1355	<b>Steering and Suspension-Truck</b> <i>Prerequisites: DESL1341</i> Principles, components, operation, service, repair, adjustment and troubleshooting of the steering and suspension system used on today's trucks tractor and trailer alignment, use of equipment and shop safety.	M	30	60	5
DESL1361	<b>Hydraulic Brakes-Truck</b> <i>Prerequisite: DESL1355</i> Principles, components, operation, service, repair, adjustment and troubleshooting of the hydraulic brake system used on today's trucks, including safety, brake balance and anti-lock brakes.	M	20	30	3
DESL1385	<b>Basic Hydraulics-Truck</b> <i>Prerequisite: DESL1361</i> Principles and application of theory design, construction, and testing of hydraulic systems including pumps, actuators, reservoirs, accumulators, lines, fittings, filters and fluids.	M	20	15	2.5
DESL1441	<b>Heating and Air Conditioning I-Truck</b> <i>Prerequisite: DESL1385</i> Principles and application of theory design, construction, components, operation, service, repair, adjustment and troubleshooting of the air conditioning and heating systems used on today's trucks, use of equipment and shop safety.	M	30	20	3.5
DESL1451	<b>Conventional Transmissions &amp; Clutches-Truck</b> <i>Prerequisites: DESL1352</i> Lecture, demonstration and laboratory course encompassing the principles, design, construction, operation, repair and adjustment of five through eighteen speed manual shift transmissions. Clutch removal, troubleshooting, repair, installation and adjustment plus PTO installation and adjustment are also covered.	M	40	85	6.5
DESL1471	<b>Truck Final Drives-Truck</b> <i>Prerequisites: DESL1451</i> Lecture, demonstration and laboratory course encompassing principles, design, construction and repair of truck final drives and related components. Phasing and angularity of drivelines is covered along with operation, inspection and replacement of U-joints.	M	30	40	4

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
DESL1481	<b>Preventative Maintenance &amp; Inspection-Truck</b> <i>Prerequisites: DESL1471</i> Lecture, demonstration, and laboratory course for the entry level technician designed to introduce the student to correct procedures and practices of vehicle preventative maintenance and inspection.	M	30	75	5.5
DESL2302	<b>Heating &amp; Air Conditioning II-Truck</b> <i>Prerequisite: DESL2901</i> Study of advanced mobile air conditioning to include heat exchange, diagnosing, evacuating, charging, leak testing, adjusting and proper handling of required service tools in the laboratory.	M	15	35	2.5
DESL2432	<b>Automatic Truck Transmissions-Truck</b> <i>Prerequisite: DESL2302</i> Principles, design, and construction of Allison automatic truck transmissions. Lab work in disassembly, inspection, reassembly, adjustment, repair, and testing of the automatic transmission.	M	25	35	3.5
DESL2452	<b>Electrical Systems III-Truck</b> <i>Prerequisite: DESL2432</i> Electrical principles and concepts, semiconductors and microprocessors. The use of digital multi-meters and wire repairing including weather pack service techniques. Bench and on vehicle diagnostic procedures for present and future diesel electronic systems.	M	40	60	6.0
DESL2482	<b>Electronic Diesel Engine Diagnostics &amp; Tune-Up-Truck</b> <i>Prerequisite: DESL2452</i> Lecture, demonstration and laboratory course designed to give students an introduction to the electronic heavy duty diesel engine. Includes tune-up and troubleshooting the electronic engine, setting customer specified parameters, progressive shifting to include the operation and adjustment of the engine brake system.	M	40	50	5.5
DESL2901	<b>Cooperative Experience-Truck</b> <i>Prerequisite: DESL1441</i> On-the-job experience in a diesel repair shop. Practice of skills and knowledge acquired in previous quarters.	M	-	400	12

## DRAF • COMPUTER AIDED DESIGN DRAFTING

DRAF1110	<b>Design Drafting Concepts</b> A study of the application of communication and documentation of basic design skills using industry accepted standards and practices.	L	30	-	3
DRAF1120	<b>Basic Computer Aided Drafting</b> <i>Prerequisite: Students may take a CAD placement test or apply Tech Prep credit from their high school; or take the Basic Computer Aided Design Drafting course (DRAF1120) before taking 3-D Solid Modeling (DRAF1220).</i> Introductory two-dimensional drafting as used in Architectural, Electrical/Electronic, Mechanical, Structural, Piping. Menus, display, coordinates, draw, edit, save, plot, file management, drawing set-up, lettering, line types.	L	45	15	5
DRAF1215	<b>Architectural Concepts</b> A study of commonly used materials and accepted methods of commercial construction. An introduction to construction drawings and documents.	L	30	-	3
DRAF1220	<b>3-D Solid Modeling</b> <i>Prerequisite: DRAF1120 or two years of recent industry AutoCad experience or Career Pathways Advanced Placement credit from high school within the last year.</i> Use of solid primitives, surfaces, objects. Application of attributes and data base information within drawings. 3-D design as used in Architectural, Electrical/Electronic Mechanical Structural, Product Design.	L	45	15	5
DRAF1224	<b>Basic Land Desktop</b> <i>Prerequisite: DRAF1220.</i> Land Desktop enables students to create maps, model terrain, label points, perform alignments, define parcels quickly and easily, perform topographic analysis, use realworld coordinate systems, calculate volume totals and roadway geometry more rapidly and accurately.	L	45	15	5
DRAF1310	<b>3-D Visualization</b> <i>Prerequisite: DRAF1330</i> Using computer aided design for the creation of illustrations for display and/or print incorporating color, texture, and spatial organization of ideas.	L	15	45	3
DRAF1330	<b>Solid Works</b> <i>Prerequisite: DRAF1110 and DRAF1220.</i> Using SolidWorks software students create designs to produce parts, assemblies and drawings of 3D and 2D products. Design of products follows typical designs from local companies.	L	45	15	5
DRAF1340	<b>Strength of Materials</b> <i>Prerequisite: DRAF1110 and MATH1080 or higher.</i> Theories of forces acting on bodies. Moments of forces, formulas for stresses in materials and structural members.	L	44	-	4

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
DRAF1400	<b>Virtual Building Design with Revit Architecture</b> <i>Prerequisites: DRAF1220, DRAF2100.</i> Using Revit Building software to create Building Information Models and using tools for parametric building design and documentation.	L	45	15	5
DRAF1500	<b>Advanced Virtual Building Design w/Revit</b> <i>Prerequisites: DRAF1400</i> Using Revit Building software to create Building Information Models and using tools for parametric building design and documentation at an advanced level.	L	45	15	5
DRAF2100	<b>Commercial Construction Materials</b> <i>Prerequisite: DRAF1215 and ENGL1010.</i> A comprehensive study of common building materials used in many areas and stages of commercial construction.	L	30	-	3
DRAF2110	<b>Architectural Design</b> <i>Prerequisite: DRAF2120.</i> A study of a variety of design options and how these options apply to the many different areas and stages of commercial design.	L	15	45	3
DRAF2120	<b>Commercial Building Process</b> <i>Prerequisites: DRAF2100 and DRAF1340.</i> A study of construction procedures and application of mathematical calculations necessary in the commercial construction process.	L	30	-	3
DRAF2130	<b>Industrial Plastics</b> <i>Prerequisite: DRAF1110.</i> Identification of thermoplastics and thermosetting plastics, their properties, uses and applications. Study of the manufacturing processes associated with the use of plastics products.	L	30	-	3
DRAF2140	<b>Building Utility Design</b> <i>Prerequisite: DRAF1500 and DRAF2120</i> Electrical, plumbing, mechanical systems, code requirements, calculation methods, related design techniques, symbols, and preparation of working drawings using Revit MEP.	L	15	45	3
DRAF2150	<b>Structural Steel Design with SDS/2</b> <i>Prerequisites: DRAF1220 and DRAF1340.</i> Use of SDS/2 software to teach design and detailing of structural steel in a 3-D environment.	L	45	15	5
DRAF2160	<b>Structural Design with Revit Structure</b> <i>Prerequisite: DRAF1500 and DRAF2120</i> Design of non-steel structural systems, code requirements, calculation methods, related design techniques, symbols, and preparation of working drawings using Revit Structure.	L	45	15	5
DRAF2180	<b>Professional Practice-Architectural</b> <i>Prerequisites: DRAF1500 and DRAF2110</i> Simulation of circumstances encountered designing and drafting commercial construction plans.	L	15	45	3
DRAF2190	<b>Construction for Americans with Disabilities</b> <i>Prerequisite: DRAF2110.</i> Planning, design, and layout for buildings with attention given to the needs of people with special requirements. A study of the compliance for Federal, state, and local building code requirements.	L	15	45	3
DRAF2200	<b>Geometric Dimensioning &amp; Tolerancing</b> <i>Prerequisite: DRAF1110 and DRAF1220.</i> Study of the language of geometric dimensioning and tolerancing using ASMEY 14.5 2009. Application of the rules and symbols for G.D.T. (Required course for DRAF2210.)	L	30	-	3
DRAF2210	<b>Engineering Processes</b> <i>Prerequisite: DRAF2200 and DRAF1330.</i> Application of engineering responsibility to the manufacturing, quality assurance, and marketing of consumer products. Building 3-D functional piece parts using a 3-D rapid prototyping plotter.	L	15	45	3
DRAF2215	<b>Plastics Part Design</b> <i>Prerequisite: DRAF1330, DRAF2200, DRAF2130 and DRAF1340.</i> Application of concurrent engineering to solve plastics part design problems from the "Need Recognition" stage through product implementation.	L	15	45	3
DRAF2220	<b>Flat Pattern Layout</b> <i>Prerequisites: DRAF1330 and DRAF2200.</i> Study of flat pattern developments used for consumer products, product packaging, and sheet metal design applications.	L	15	45	3
DRAF2230	<b>Design Concepts</b> <i>Prerequisite: DRAF2210.</i> A study of the Design process requires resolution of constraints arising from technical, aesthetic, human and business concerns where the designer uses creativity, imagination and technical knowledge to satisfy these requirements and create products to satisfy human needs.	L	30	-	3

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
DRAF2240	<b>Consumer Products-Design</b> <i>Prerequisite: DRAF2230.</i> Application of the steps used in the design process. Developing designs to solve typical consumer product design problems. Research current product history and cost related to the manufacture of consumer products.	L	15	45	3
DRAF2260	<b>Jig &amp; Fixture-Design</b> <i>Prerequisite: DRAF2210.</i> Study of the design and economics of work holding devices. Top-down design layout for product relationship to fixture use.	L	15	45	3
DRAF2520	<b>Electronic Drafting</b> <i>Prerequisite: DRAF1110 and DRAF1120.</i> The use of electronic symbols to create block diagrams and schematic diagrams of electronic circuits. Drawing highway cable designs and cabinet and panel layouts.	L	15	45	3
DRAF2901	<b>Cooperative Experience Drafting</b> <i>Prerequisite: Permission of Program Chair.</i> Training in a work situation. Guidance from the instructor/coordinator and the training supervisor. Individualized, specific, written objectives which have been approved by the College. During the Co-op period, the student will attend a mandatory program class each week.	L	-	200	3
DRAF2902	<b>Cooperative Experience Drafting</b> <i>Prerequisite: Permission of Program Chair and DRAF2901.</i> A continuation of the DRAF2901 course giving students an extended opportunity to experience a work situation.	L	-	200	3
DRAF2999	<b>Individual Special Projects</b> <i>Prerequisite: Permission of Program Chair.</i> Study of a special area in drafting or completion of a special drafting project not previously covered in the curriculum.	L	15	45	3

## ECED • EARLY CHILDHOOD EDUCATION

ECED1010	<b>Introduction to ECED Professional Portfolio Development</b> <i>Class must be completed within the first year as a declared student in the ECED Program.</i> This introduction will identify the purpose and benefits of developing and maintaining a professional portfolio in the field of early childhood education. Instruction will include use of the electronic portfolio materials and effective methods of collecting information.	L	5	-	.5
ECED1020	<b>Home Visitor/Family Advocate Portfolio</b> <i>Class must be completed the first quarter of the Certificate program.</i> This introduction will identify the purpose and benefits of developing and maintaining a professional portfolio in the area of home visitation. Instruction will include portfolio requirements and effective methods of collecting and compiling relevant content.	L	5	-	.5
ECED1050	<b>Expressive Arts</b> ☑ This course focuses on the selection, construction and use of materials, activities and experiences that encourage the young child's creativity and aesthetic appreciation through the visual arts, music, body movement, and dramatic play. Curriculum designed for 3-8 year olds. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1060	<b>Observation, Assessment and Guidance</b> ☑ This course introduces a variety of observation, assessment and guidance strategies used in an early childhood education setting birth through age 8. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1110	<b>Infant and Toddler Development</b> ☑ This course focuses on typical / atypical development of children in the prenatal period of development through age two. Planning curriculum in the domains of physical growth and motor skills, cognition and language, and social / emotional development are examined. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1112	<b>Advanced Infant and Toddler Concepts</b> ☑ <i>Prerequisite: ECED1110.</i> A continued and in-depth study and application of typical growth and development of the child from birth through age two. Infusion of exceptionalities into course work to prepare the student to work with children with disabilities. Developmentally appropriate practices and curriculum are examined. Emphasis on supporting partnership with the family as a crucial factor in the child's development and learning. Required class for Coop students working in an Infant/Toddler setting.	L	30	-	3
ECED1120	<b>Preschool Child Development</b> ☑ This course focuses on typical / atypical development of the child ages 3 through 5 years, in the domains of physical growth and motor skills, cognition and language, and social/emotional development. Grade of "C" or higher required for ECED2065.	L	30	-	3

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ECED1130	<b>Social-Emotional Development and Behavior Guidance</b> Study the stages of development and the multiple influences that impact social and emotional development of children birth to age eight. Gain an understanding of the adult role in the child's life and a wide range of effective techniques for supporting healthy development. Explore effective methods of guiding behavior and determining appropriate intervention. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1150	<b>Introduction to Early Childhood Education</b> ☑ An overview of early childhood education, history, trends and the philosophies of various programs, diversity, inclusion, licensing standards, current legislation, professionalism and advocacy are examined. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1160	<b>Early Language and Literacy</b> ☑ This course focuses on the development of literacy and language skills for children from birth through age 8. Students will plan and prepare developmentally appropriate literacy and language activities. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1220	<b>Pre-Practicum</b> ☑ <i>This class is a pre or co-requisite for first ECED practicum.</i> This course is designed to provide an orientation to practicum experiences in the early childhood education program. Students will understand practicum expectations and responsibilities, methods of evaluation, and the importance of professionalism in the work place. Students will review the process for setting up a practicum, forms used during the practicum, understand child care licensing requirements for their state, and have their names cleared through appropriate background checks. A grade of "C" or higher is required to pass.	L	15	-	1.5
ECED1221	<b>Infant / Toddler Practicum</b> ☑ <i>Pre/Co-requisite: ECED1110, 1060. Co-enrolled in ECED1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children six weeks through age two by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interaction while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for infants and toddlers are also presented. Students are required to complete a minimum of 90 clock hours of practical work experience. Attendance at discussion / orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. A passing grade of "C" or higher is required for ECED majors.	L	-	90	3
ECED1224	<b>Preschool Math, Science and Social Studies Curriculum</b> ☑ Planning and implementing developmentally appropriate activities for children. Grade of "C" or higher required for ECED2065.	L	30	-	3
ECED1230	<b>School Age Child Development</b> ☑ This course focuses on typical / atypical development of the child ages 5-12 years in the domains of physical growth and motor skills, cognition and language, and social/emotional development. Grade of "C" or higher required for ECED2065.	L	30	-	3
ECED1240	<b>Preschool/School Age Practicum</b> ☑ <i>Pre/Co-requisites: ECED1120, 1230, 1060. Co-enrolled in ECED1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children from three to eight years of age by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interactions while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for children 3-8 years of age are also presented. Students are required to complete a minimum of 90 clock hours of practical work experience. Attendance at discussion / orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. Grade of "C" or higher required for all ECED majors.	L	-	90	3
ECED1260	<b>Early Childhood Health, Safety and Nutrition</b> ☑ Defines interrelationship of safety, nutritional planning & health and how environmental factors affect young lives. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED1270	<b>Integrated Curriculum; Ages 3-8 years</b> ☑ <i>Prerequisite: ECED1110, 1120, 1230, 1060, 1260.</i> This course will combine the learning domains of language and literacy, math/science/social studies and expressive arts along with the fundamental elements of curriculum design to provide an application based learning experience of children's learning experiences and instructor curriculum design. Grade of "C" or higher required for ECED majors.	L	30	90	6
ECED1340	<b>How Children Learn</b> ☑ Theory, methods, and planning techniques for teaching the young child in relation to thinking patterns and learning styles. Grade of "C" or higher required for ECED2065.	L	30	-	3
ECED1401	<b>Displays in the Early Childhood Classroom</b> Selection, construction and use of materials, activities and experiences that encourage creative displays and bulletin board design. Curriculum designed for three to eight-year-olds.	L	5	-	.5
ECED1402	<b>Effective Technology in the Early Childhood Classroom</b> Introducing students to skills and techniques of incorporating computers and other forms of technology into the classroom.	L	5	-	.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ECED1403	ECED Professional Portfolio Development <i>Prerequisite: ECED1010</i> Focuses on assisting the early childhood educator with beginning the process of developing and assembling a personal/professional portfolio to be used throughout their professional career.	L	5	-	.5
ECED1404	Understanding Diversity in the Early Childhood Classroom Focuses on developing a culture and ethnic awareness for early childhood educators as they respond sensitively to diversity in the classroom.	L	5	-	.5
ECED1405	Portfolio Assessment in the Early Childhood Classroom Focuses on helping the early childhood educator understand the importance of this alternative method of assessment and ways to incorporate it into the classroom curriculum and environment.	L	5	-	.5
ECED1406	Effective Transitions in the Early Childhood Classroom Fun and effective ways to make transitions work in an early childhood setting.	L	5	-	.5
ECED1407	Creative Group Times in the Early Childhood Classroom This course focuses on the awareness of using creative techniques during group times in early childhood settings infant through age eight.	L	5	-	.5
ECED1408	Effective Home Visits for the Early Childhood Educator Focuses on how to establish a stronger relationship with parents by planning and conducting positive, successful home visits.	L	5	-	.5
ECED1409	PPST Preparation This course is designed to help you prepare for the Pre-Professional Skills Test. It will include an overview of the Praxis format, various test taking strategies, test myths and facts, and a pre/post test analysis.	L	5	-	.5
ECED1475	Professional In-Home Care ☐ Skills and requirements specifically for the person working in a home setting as a professional nanny or a family child care provider. Discussion of business plans, development of a parent handbook, selection of employment agencies, contract negotiations and interviewing of prospective clients and employers. Activity planning and scheduling for children of diverse ages and abilities. A grade of "B" or higher is required for the In-home Child Care Professional Focus.	L	45	-	4.5
ECED1520	Preschool Practicum ☐ <i>Pre/Co-requisites: ECED 1120, 1060. Co-enrolled in ECED 1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children from three to five years of age by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interactions while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for children 3-5 years of age are also presented. Students are required to complete a minimum of 45 clock hours of practical work experience in a two day per week format. Attendance at orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. Grade of "C" or higher required for all ECED majors.	L	-	45	1.5
ECED1521	Infant Practicum ☐ <i>Pre/Co-requisites: ECED 1110, 1060. Co-enrolled in ECED1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children from six weeks through eighteen months of age by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interactions while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for infants are also presented. Students are required to complete a minimum of 45 clock hours of practical work experience in a two day per week format. Attendance at orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. Grade of "C" or higher required for all ECED majors.	L	-	45	1.5
ECED1522	Toddler Practicum ☐ <i>Pre/Co-requisites: ECED 1110, 1060. Co-enrolled in ECED 1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children from eighteen months through thirty-six months of age by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interactions while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for toddlers are also presented. Students are required to complete a minimum of 45 clock hours of practical work experience in a two day per week format. Attendance at orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. Grade of "C" or higher required for all ECED majors.	L	-	45	1.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ECED1545	School Age Practicum ☐ <i>Pre/Co-requisites: ECED 1230, 1060. Co-enrolled in ECED 1220 if this is the first practicum.</i> This course is designed to provide an understanding of the developmental stages of children from five to eight years of age by participating in hands-on learning experiences in selected child care settings. Students will develop an awareness of appropriate adult/child interactions while developing positive employee skills. Basic skills in planning and implementing a daily routine and curriculum activities for toddlers are also presented. Students are required to complete a minimum of 45 clock hours of practical work experience in a two day per week format. Attendance at orientation sessions is required. A nominal fee will be assessed for liability insurance coverage on each student. Grade of "C" or higher required for all ECED majors.	L	-	45	1.5
ECED1550	Home Visit Practicum <i>Prerequisite: Program Permission. Open only to declared students graduating with the Home Visitor/Family Advocate Certificate or with program permission. Pre/Co-requisites: ECED1060, 1110, 1120, and 2070.</i> Supervised experience as a home visitor or family advocate using advanced skills and techniques. Presentation and discussion of child development topics and practicum experiences. Grade of "B" or higher to meet graduation requirements.	L	5	45	2
ECED1560	Comprehensive Family Child Care Practicum ☐ <i>Open only to declared ECED students. Prerequisites: Program permission required and an overall GPA of 2.5 or higher. Current First Aid/CPR certification. ECED1110, 1120, 1230, 1060, 1260, 1270. Pre- OR Co- requisite: ECED1475. Coenrolled in ECED1220 if this is the first practicum.</i> Supervised experience as an in-home provider using advanced skills and techniques. Presentation and discussion of child development topics and practicum experiences. Grade of "B" or higher to meet graduation requirements.	L	-	45	1.5
ECED1570	Comprehensive Professional Nanny Practicum ☐ <i>Open only to declared ECED students. Prerequisites: Program permission required and an overall GPA of 2.5 or higher. Current First Aid/CPR certification. ECED1110, 1120, 1230, 1060, 1260, 1270. Pre- OR Co- requisite: ECED1475. Coenrolled in ECED1220 if this is the first practicum.</i> Supervised experience as a professional nanny using advanced skills and techniques. Presentation and discussion of child development topics and practicum experiences. Grade of "B" or higher to meet graduation requirements.	L	-	45	1.5
ECED1575	In-Home Child Care Professional Practicum ☐ <i>Prerequisite: Program Permission. Open only to declared students graduating with the In-home Child Care Professional diploma or with program permission. Must have taken or be taking ECED1475. Overall GPA of 2.5 or higher. Current first aid/CPR certification. ECED1110 and ECED1120.</i> Designed to provide an understanding of the role and duties of an in-home child care provider / nanny. Various areas will include good communication skills, professional practices, planning skills, parental needs and knowledge of business practices. Student will spend 75 hours working in a private home (nanny) setting and 75 hours working in a family child care home I or II. 10 seminar / lecture hours will be arranged with the instructor/supervisor. Grade of "B" or higher to meet graduation requirements.	L	10	150	6
ECED2050	Children with Exceptionalities ☐ This course focuses on the awareness of the theory, development and philosophy of early childhood education programs serving children with exceptionalities. Topics include working with families, legislation, role of the interventionist, interdisciplinary teams, and inclusion of children with special needs in natural environments. 9-15 additional clock hours observing children in an inclusive setting are required. Grade of "C" or higher required for ECED2065.	L	40	15	4.5
ECED2055	Inclusion in the Early Childhood Classroom ☐ This course focuses on the practical application of including children with special needs in natural environments. Topics include: inclusion, high incidence disabilities, appropriate adaptations, communicating with parents, and resources available for children with disabilities.	L	45	-	4.5
ECED2060	Early Childhood Education Curriculum Planning ☐ <i>Students will be withdrawn from this class if they have not completed ECED1120, 1230, 1240 and three of the following methods classes: ECED 1050, 1160, 1224, 1260. The fourth methods class must be taken prior to or as a co-requisite with this class.</i> This course prepares students to plan a developmentally appropriate curriculum and environments for children ages 3-8 years of age. Topics include environment design, writing goals and objectives, lesson plans, daily schedules, working with parents, and inclusionary practices. Grade of "C" or higher required for ECED2065.	L	45	-	4.5
ECED2065	Child Care Head Teacher Practicum L 30 150 8	L	30	150	8
ECED2066	Child Care Head Teacher Practicum (E-Focus) ☐ <i>Open only to declared ECED students. Prerequisites: Program Permission. Overall GPA of 2.5 or higher. Current first aid/CPR certification. ECED1050, 1060, 1110, 1120, 1160, 1220, 1221, 1224, 1230, 1240, 1260, 2060 with a grade of C" or higher. Student must pass a comprehensive competency exam with a 75% or higher before enrolling. A grade of "B" or higher to meet graduation requirements.</i> Experience as a teacher in a cooperating childcare facility using advanced skills and techniques. Presentation and discussion of child development topics and practicum experiences.	L	15	105	5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ECED2070 ☐	<b>Family and Community Relationships</b> This course focuses on the development of skills, techniques, and attitudes needed to form successful collaboration with diverse family systems and communities. Ten hours of volunteer service learning required. Grade of "C" or higher to meet graduation requirements.	L	45	-	4.5
ECED2450 ☐	<b>ECED Administration</b> <i>Prerequisites: Completion of 50.0 ECED credits or Program Permission, and ENGL1010 or ENGL1015.</i> It is strongly recommended that students have completed ECED2065 and their core Behavioral Science and Speech requirements before enrolling in this class. Special program permission to enroll may be given to non-degree seeking administrators with prior administration experience. Analysis of supervisory and administrative procedures for the application of management theory in early childhood education programs. A grade of "B" or higher to meet graduation requirements.	L	45	-	4.5
ECED2457 ☐	<b>ECED Administration for the Entrepreneur</b> <i>Prerequisite: Completion of 50.0 ECED credits or Program Permission, and ENGL1010 or ENGL1015. It is strongly recommended that students have completed ECED2065 and their core Behavioral Science and Speech requirements before enrolling in this class.</i> A study of administrative principles designed for students pursuing a management/supervisory position. This class will focus on the application and practice of the administrative duties and skills required in various early childhood education settings. A grade of "B" or higher to meet graduation requirements.	L	45	-	4.5
ECED2510 ☐	<b>ECED Administration Practicum</b> <i>Prerequisite: Program permission required to register. ECED2065 with grade of B or higher. Must be taking or have taken ECED2450.</i> A study of the skills needed for working in a comprehensive early childhood education setting in a leadership position. A grade of "B" or higher to meet graduation requirements.	L	-	60	2
ECED2570 ☐	<b>ECED Administration for the Entrepreneur Practicum</b> <i>Prerequisite: Program permission required to register. ECED2065 with grade of B or higher. Must be taking or have taken ECED2457.</i> Practical experience in developing and administrating a quality early childhood education program. A grade of "B" or higher is required to meet graduation requirements.	L	-	150	5
ECED2607 ☐	<b>Individualized Practicum</b>	L	15	-	.5
ECED2617 ☐		L	30	-	1
ECED2627 ☐	<i>Prerequisite: Program permission</i> Practicum experiences designed to meet individual and program needs. A grade of B or higher is required.	L	60	-	2
ECED2800 ☐	<b>Early Childhood Education Graduation Seminar</b> <i>Prerequisite: Program Permission. Open only to students graduating at the end of the current quarter.</i> Designed for graduating Early Childhood Education students to complete and present their final project and professional portfolio in preparation for the workplace. Students will develop their personal philosophy of education and research current issues in education. A grade of B or higher is required.	L	30	-	3
ECED2810 ☐	<b>ECED Home Visitation Seminar</b> <i>Prerequisite: Program Permission. Open only to students graduating with a Home Visitor/Family Advocate Certificate at the end of the current quarter.</i> Designed for graduating ECED Home Visitor/Family Advocate students to complete and present their portfolio. Through the portfolio and presentation, students will have the opportunity to demonstrate their knowledge and skill in working with and supporting families of young children. A grade of B or higher is required for graduation.	L	5	-	.5
ECED2900 ☐	<b>Internship</b> <i>Prerequisite: Program Permission required to register. Prerequisites: ECED2510 with a "B" or higher, ECED2070 and four of the five General Ed. core classes. Open only to declared students graduating with an A.A.S. degree. Overall GPA of 2.5 or higher. Current first aid/CPR certification. ECED1112 Advanced Infant and Toddler required for Internship completion in an infant or toddler setting.</i> Structured temporary work-related (on-the-job training) experience for a college course. Work experience is a non-paid employment situation. Goals planned and implemented based on the needs of the early childhood site including the areas of appropriate environments, child development assessment, curriculum planning, family involvement and staff development. Presentation and discussion of child development topics and student's intern experiences. Site must be licensed or approved child care setting. 10 seminar/lecture hours arranged with instructor/supervisor. A grade of "B" or higher to meet graduation requirements.	L	10	240	7
ECED2901 ☐	<b>Child Care Head Teacher Cooperative Experience</b> <i>Prerequisite: Program permission required and an over all GPA of 2.5 or higher. Current First Aid/CPR certification. ECED 1050, 1060, 1110, 1120, 1160, 1220, 1221, 1224, 1230, 1240, 1260 and 2060 with a grade of "C" or higher. Student must pass a comprehensive competency exam with a 75% or higher before enrolling. A grade of "B" or higher to meet graduation requirements.</i> Practical work experience as a teacher in a licensed site. Site must meet certain guidelines set by the program. Work experience is paid employment. Presentation and discussion of child development topics and practicum experiences.	L	30	200	8

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ECED2902 ☐	<b>Cooperative Experience</b> <i>Prerequisite: Program permission required to register. Open only to declared students graduating with an A.A.S. degree. Pre-requisites: ECED2510 with a "B" or higher, ECED2070 and four of the five General Ed. core classes. Overall GPA of 2.5 or higher. Current first aid/CPR certification. ECED1112 Advanced Infant and Toddler required for Coop completion in an infant or toddler setting.</i> Structured temporary work-related (on-the-job training) experience for a college course. Work experience is paid employment. Goals planned and implemented based on the needs of the early childhood site including the areas of appropriate environments, child development assessment, curriculum planning, family involvement and staff development. Presentation and discussion of child development topics and student's coop experiences. Work site and job description must meet program standards. 10 seminar/lecture hours arranged with instructor/supervisor. A grade of "B" or higher to meet graduation requirements.	L	10	240	7
ECED2903 ☐	<b>Child Care Head Teacher Cooperative Experience (E-Focus)</b> <i>Prerequisite: Program permission required and an over all GPA of 2.5 or higher. Current First Aid/CPR certification. ECED 1050, 1060, 1110, 1120, 1160, 1220, 1221, 1224, 1230, 1240, 1260 and 2060 with a grade of "C" or higher. Student must pass a comprehensive competency exam with a 75% or higher before enrolling. A grade of "B" or higher to meet graduation requirements.</i> Practical work experience as a teacher in a licensed site. Site must meet certain guidelines set by the program. Work experience is paid employment. Presentation and discussion of child development topics and practicum experiences.	L	15	140	5
ECED2999 ☐	<b>Individual Special Project</b> <i>Prerequisite: Program Permission.</i> Selected educational experiences that provide intensive study and research on a topic beyond those included in the regular curriculum. Completed under the direction of a faculty member. Credit hours will vary, with 30 hours of lab per credit hour.	L	-	-	.5-3

## ECON • ECONOMICS

ECON1200 ☐	<b>Personal Finance</b> <i>Prerequisite: Math competency recommended.</i> Survey of principles and methods of managing personal finance resources. An introduction to how economic concepts and functions impact personal financial decisions. Topics include: economic concepts, banking, saving and investment, credit, major purchases (home/auto), risk management (home, life, health, auto), tax strategies, retirement and estate planning.	B/L/M	45	-	4.5
ECON2110 ☐	<b>Macroeconomics</b> <i>It is recommended that students have a strong college level math and accounting background before taking this class.</i> A study of the "big ideas" of macroeconomics such as GDP, inflation, unemployment, labor productivity, and rational economic decision making using the marginal principle and diminishing returns. A look at public policy decisions using fiscal and monetary policies, globalization and the economic challenges facing our economy.	B/L/M	45	-	4.5
ECON2120 ☐	<b>Microeconomics</b> <i>It is strongly recommended to complete Macroeconomics ECON2110, and have a strong college level math and accounting background before taking this class.</i> A study of basic economic principles such as elasticity of demand, consumer choice, profit maximization, types of competition and asymmetric markets. A microeconomic focus on the behaviors on individual households and firms.	B/L/M	45	-	4.5

## EDUC • EDUCATION

EDUC1080 ☐	<b>Professional Practicum Experience I</b> <i>Prerequisite/Concurrent enrollment: EDUC1310.</i> Guided participation and observation in the schools. Trends in teaching, certification, the professional role of the teacher and other issues in teacher education. Includes on-site class 1 hour each week and six hours per week in a school classroom. <i>Special requirement: A criminal background self-disclosure will be required of all students enrolled in this course. Based on the outcome, a student may be prevented from taking this and other EDUC classes.</i>	B/L	15	30	2.5
EDUC1310 ☐	<b>Introduction to Education</b> Overview of the foundations and the future of the field of education. Encourages critical thought regarding the role of education in society, the role of the teacher and educational practices in schools.	B/L	45	-	4.5
EDUC2160 ☐	<b>Children's Literature</b> <i>(Cross-listed as ENGL2160) Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i> Survey of the various genres of children's literature with an emphasis on methods of critically evaluating, analyzing, and sharing both traditional and recent selections.	B/L	45	-	4.5
EDUC2165 ☐	<b>Young Adult Literature</b> <i>(Cross-listed as ENGL2165). Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i> Survey of the various genres of adolescent literature. Emphases on evaluation of quality, thematic study and the inter/cross-disciplinary uses of young adult literature.	B/L	45	-	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
EDUC2590	<b>Instructional Technology</b> <i>Prerequisite: EDUC1310</i>	B/L	45	-	4.5
Introduction to the approaches, methods, and procedures for meaningful incorporation of computers, media, and other technologies into teaching and learning in the K-12 classroom.					
EDUC2610	<b>Educational Psychology</b> <i>Prerequisite: EDUC1310 for education majors; PSYC1810 for non-education majors.</i>	B/L	45	-	4.5
Principles of psychology as applied to classroom teaching. Emphasis on development, learning, motivation, evaluation, adjustment, and education techniques and innovations.					
EDUC2970	<b>Professional Practicum Experiences II</b> <i>Prerequisites: EDUC1080 and EDUC1310.</i>	B/L	15	30	2.5
Guided participation and/or observation in schools and/or agencies offering programs for children and/or youth. Includes seminar component.					
EDUC2971	<b>Professional Practicum Experiences III</b> <i>Prerequisites: EDUC1310, EDUC2970.</i>	B/L	15	30	2.5
Guided participation and/or observation in schools and/or agencies offering programs for children and/or youth. Includes seminar component.					

## EIGT • GRAPHIC DESIGN

EIGT1120	<b>Drawing/Illustration I</b> <i>Prerequisite: Program Permission.</i>	M	40	60	6
This course provides a foundation in basic perceptual, expressive and compositional aspects of drawing with an emphasis on perception and realistic rendering (learning to see with accuracy). A variety of black and white drawing media will be explored.					
EIGT1122	<b>Introduction to Graphic Design</b> <i>Prerequisite: Program Permission.</i>	M	40	15	4.5
This course is concerned with the basic principles of graphic design. Emphasis is placed on basic design processes and communication principles. Development of creative ideas, evaluation of diverse methods used to produce functional graphic translations will be explored. An introduction to basic technical procedures will also be studied.					
EIGT1126	<b>Typography I</b> <i>Prerequisite: Program Permission.</i>	M	40	15	4.5
This course provides a comprehensive introduction to effective type usage. The course builds upon the extensive language and practice of typography and its application. Typographic principles are combined with a general history, both aesthetic and technical. The impact of legibility and readability will be investigated in relation to a student's choice of selecting and applying type and integration with related design elements.					
EIGT1136	<b>Computer Graphics I</b> <i>Prerequisite: Program Permission.</i>	M	40	60	6
Computer Graphics I begins with an introduction to the Macintosh computer and operating system, then moves to the basics of working with Adobe InDesign, Adobe Photoshop, and Adobe Illustrator. This course teaches page layout, methods of formatting and controlling type, working with raster-based and vector-based images, plus methods for efficient file management and production.					
EIGT1230	<b>Typography II</b> <i>Prerequisite: EIGT1126</i>	M	40	15	4.5
This course examines typographic issues which emphasize the basic typographic areas of: historical, technical, and formal. Students study letterform and typographic usage as well as research and writing about typographic design. Project content includes typographic history, letterform development, and changing technology. This course provides students with a fundamental working knowledge of effective typographic methodology.					
EIGT1234	<b>Computer Graphics II</b> <i>Prerequisite: EIGT1136</i>	M	40	60	6
Computer Graphics II focuses on digital illustration, advanced layout methods, and image manipulation. Students work with Adobe InDesign, Adobe Photoshop, Adobe Illustrator and QuarkXPress. Projects include photo retouch, photo correction, compositing, illustration, creating informational charts and graphs, and graphics preparation for web.					
EIGT1238	<b>Drawing/Illustration II</b> <i>Prerequisite: EIGT1120.</i>	M	30	45	4.5
This course begins with an exploration of drawing the human figure with an emphasis on anatomy, proportion and form. A variety of media will be explored including pencil, ink, gouache, and an introduction to color. Projects will include working with the human form in the context of illustration applications and creating complete spatial compositions.					
EIGT1240	<b>Publication Design</b> <i>Prerequisite: EIGT1126</i>	M	40	15	4.5
The aesthetics of type and image is the core of graphic design. Virtually all aspects of the printed word and image are investigated and considered. The class focuses on the process by which visual communication ideas are developed, edited, and presented. Projects include magazine, newsletter, brochure, poster and financial/annual report design with an emphasis on the structure of layout, typography and image.					
EIGT1343	<b>Video Production/Editing</b> <i>Prerequisite: EIGT1234</i>	M	40	15	4.5
This course introduces students to the basic principles of video shooting and techniques of video production and editing using Final Cut Express with an emphasis on video use for the internet. Students are guided through the post-production process using Adobe After Effects.					

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
EIGT1354	<b>Color Theory</b> <i>Prerequisite: EIGT1234</i>	M	30	45	4.5
This course is a study of color beginning with the color theories of Munsell, Albers, and others. Exercises to develop a sensitivity to color phenomena and color characteristics are studied. Mixing and matching of pigmented color as well as other sources of color are explored. Emphasis is placed on color as a tool for use in RGB and CMYK color applications for the graphic designer.					
EIGT1356	<b>Photography &amp; Digital Imaging</b> <i>Prerequisite: EIGT1136</i>	M	40	60	6
This course is an introduction to photography as a creative medium. An exploration of the technical issues related to camera operation, control of light, lenses, film/recording and digital scanning will be emphasized. In addition to learning technical skills, the focus of the course will be devoted to the wide variety of creative image making strategies employed by photographers over the past 180 years using digital methods. A portion of this course will include the use of Photoshop as an image manipulation tool.					
EIGT1455	<b>Design Portfolio Development</b> <i>Prerequisite: EIGT1230</i>	M	40	60	6
In this course students will study and explore and plan strategies for the development of their personal design portfolios. An emphasis will be placed on development of creative problem solving and demonstrating effective visual communication in unique and personal ways. Pro bono design projects will be an important element of this course.					
EIGT1456	<b>Environmental Design</b> <i>Prerequisite: EIGT1230</i>	M	40	15	4.5
In this course students will use the environmental sign to explore the aesthetics of sign and symbol. Students will explore and create applications in 2D and 3D environmental and exhibition design with an emphasis on effective communication. An emphasis will be placed on function and craft (execution).					
EIGT1457	<b>Interactive Design</b> <i>Prerequisite: EIGT1485</i>	M	40	15	4.5
Interactive Design focuses on development of strong concepts for interactive applications such as kiosks, DVD menus, and portable device applications. This will include the process of developing and effectively communicating an idea through sketches, storyboards, illustrations, and presentations.					
EIGT1460	<b>3-D Package Design</b> <i>Prerequisite: EIGT1465</i>	M	40	15	4.5
In this course students begin with an analysis of contemporary packaging and address the functional and aesthetic requirement of 3D package design. Production / technical requirements are also examined. Students will explore the creative potential for application of a diverse range of mediums and materials. An emphasis will be placed on function and craft (execution).					
EIGT1465	<b>Corporate Identity Design</b> <i>Prerequisite: EIGT1230</i>	M	40	60	6
In this course students will examine and analyze existing identity and explore the history of corporate identity. Branding strategy will be studied as it relates to identity. Students will create identity revision/ updates and create new identity systems based on specific branding requirements. Students will examine current identity requirements and will write a graphic standards and application manual for identity designs they create. An emphasis will be placed on use of appropriate typographic qualities, shape/form, color and integration of these elements.					
EIGT1485	<b>Web Design I</b> <i>Prerequisite: EIGT1243</i>	M	40	60	6
Beginning web skills include site planning fundamentals, understanding web standards, content organization, and visual evaluation of web design. Students are introduced to the fundamentals of HTML & CSS as well as the effective use of graphics and type in web design.					
EIGT2567	<b>Web Design II</b> <i>Prerequisite: EIGT1485</i>	M	40	60	6
Web Design II introduces the integration of interactivity on the web through the use of Adobe Flash. Students will learn how to use Flash in conjunction with Action script to create simple animations, dynamic navigation, and (RIA) Rich Internet Applications.					
EIGT2568	<b>Digital Marketing</b> <i>Prerequisite: EIGT2567</i>	M	40	15	4.5
Digital Marketing explores and evaluates the potential for digital technology, especially the Internet, to enhance the marketing of goods and services. Emphasis is on understanding the various methods and styles used to market on the Internet, and on integrating the digital environment into other elements of the marketing mix. Topics will include building an online strategy, social media and online communities, email marketing, rich media advertising, and viral marketing.					
EIGT2575	<b>Graphic Design Portfolio I</b> <i>Prerequisite: EIGT1455</i>	M	40	105	8
In this course students will begin to explore on an individualized basis the development of a personal portfolio with an emphasis on demonstration of typographic, layout and image making skills. Portfolio development will focus on self promotion and development of a full ad campaign. This portfolio will use all the skills and knowledge acquired in the previous four quarters.					

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
EIGT2585	Print Reproduction Processes <i>Prerequisite: EIGT1234</i>	M	30	-	3
In this course students learn the fundamental processes and standard technical requirements used in the graphic arts industry. Beginning with prepress requirements, digital requirements, film output, platemaking, presses, paper, bindery and finishing and ancillary production issues, students will learn how the graphic arts industry functions and how to establish a professional working relationship with the industry. In addition to lecture and research, students will take field trips to multiple industry work sites to observe the variety of processes that exist within the graphic arts industry.					
EIGT2662	Web Design III <i>Prerequisite: EIGT2567</i>	M	40	60	6
Web Design III will familiarize students with working with a client on a web based project while further exploring advanced topics in web design such as the use of databases, eCommerce, (CMS) Content Management Systems, and (SEO) Search Engine Optimization.					
EIGT2664	Graphic Design Portfolio II <i>Prerequisite: EIGT2575</i>	M	40	120	8
In this course students will on an individualized basis complete the development of a personal portfolio with an emphasis on demonstration of typographic, layout and image making skills. Portfolio development will focus on self promotion and development of a second full ad campaign. Along with completion of a portfolio, a personal sales/marketing presentation kit and resume will be required.					
EIGT2665	Web Design IV <i>Prerequisite: EIGT2662</i>	M	40	60	6
Students will focus attention on producing a visually compelling and skillfully created portfolio website for presenting themselves, and their work, to prospective employers. Each site must be fully functional and posted. The successful creation of a personal graphic design web site is a requirement for graduation.					
EIGT2900	Graphic Design Internship <i>Prerequisite: Program Permission.</i>	M	-	80	2
Practical graphic design work experience for the development of marketable employment skills. The course is under the guidance of the graphic design faculty.					
EIGT2999	Directed Independent Study in Graphic Design	M	-	-	1-5
<i>Must have permission of instructor and division dean.</i>					

# ELEC • ELECTRICAL & ELECTROMECHANICAL TECHNOLOGY

## AND ELECTRONIC SYSTEMS TECHNOLOGY

ELEC1129	DC Electronics <i>Prerequisite: MATH0950.</i>	L/M	60	60	8
Basic electrical concepts, Ohm's Law, Kirchoff's laws; series, parallel, and combination circuits. Magnetism and an introduction to inductors and capacitors are also covered. Familiarization with VOM, oscilloscope, power supply and other basic lab equipment.					
ELEC1131	DC Principles <i>Prerequisite: MATH0950.</i>	M	100	100	13
An in-depth study of electrical concepts, using Ohm's Law and Kirchoff's Voltage and Current Laws to understand series, parallel and combination circuitry. Magnetism is studied to gain knowledge of D.C. motors, generators and relays. Inductors and capacitor and their operation in DC circuits also are covered. Analyzation, diagnostic and trouble resolutions skills are enhanced using the VOM, DMM, Oscilloscope, power supplies and other lab test equipment.					
ELEC1217	AC Principles <i>Prerequisites: ELEC1131 and MATH1050.</i>	M	100	100	13
A study of AC circuits using passive and reactive components, including series resonance and power factor correction circuitry. Single-phase transformers are introduced, along with power supply rectification and filtering. The oscilloscope is utilized to measure phase shift and to make indirect measurements. Introduction to three phase systems concepts also are covered.					
ELEC1219	AC Electronics <i>Prerequisite(s): ELEC1129.</i>	L/M	60	60	8
AC circuits containing resistors, inductors, and capacitors in series and parallel combinations, including resonant and non-resonant circuits; single phase transformers, rectification and filtering. Uses of oscilloscope and familiarization with function generator, frequency counter, and DMM.					

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ELEC1227	Digital Circuits <i>Prerequisite: ELEC1129.</i>	L/M	40	40	5
Truth tables, Boolean algebra and number systems to explain the operation of AND, OR, and INVERTER functions. Flip-flop registers and arithmetic operations. Lab work includes wiring of pre-designed circuits using ICs.					
ELEC1317	Active Devices <i>Prerequisite: ELEC1219.</i>	L/M	60	60	8
Introduction to diodes, transistors, FETs, SCRs and TRIACs which make up complete electronic circuits. Device analysis, basic circuit design, and common troubleshooting practice for these devices.					
ELEC1336	CAD & Electrical Estimating <i>Corequisite: ELEC1365.</i>	M	20	30	3
Introduction to computer based drafting systems for electrical applications followed by the design of electrical distribution system and computerized cost estimating.					
ELEC1337	Sketching & CAD	M	20	30	3
Electromechanical students will learn the fundamentals of freehand sketching and computer based drafting for maintenance purposes.					
ELEC1344	Motor Controls <i>Prerequisite: ELEC1217.</i>	M	20	30	3
Practices in the operation, application, wiring, and troubleshooting of AC electrical control systems.					
ELEC1356	Fluid Power <i>Prerequisite: MATH1050.</i>	M	60	40	7
Study of fluid power (hydraulic and pneumatic) systems. Circuitry and various components, their design, operation, application, and maintenance.					
ELEC1362	Electronic Drafting <i>Prerequisite: Prior computer coursework or experience.</i>	L/M	5	20	1
Introduction to computer based drafting, circuit simulation, and PCB layout software for electronics applications. The software will include Capture, Multisim, and Visio.					
ELEC1365	Residential & Commercial Wiring <i>Prerequisite: ELEC1217.</i>	M	150	100	18
Practical experience in the construction of residential wiring systems. Design, layout and estimating of a residential electrical system based on the National Electrical Code (NEC).					
ELEC1422	Analog Circuits <i>Prerequisite: ELEC1317.</i>	L/M	60	60	8
Theory and lab experience in design, testing, troubleshooting, and repair of multistage, small signal and power amplifiers using discrete and integrated circuitry for linear amplifier and oscillator applications. Principles of audio, IF and RF amplifiers are addressed.					
ELEC1432	Power Supply Systems <i>Prerequisite: ELEC1317.</i>	L/M	25	25	3
Operational theory of voltage regulating supplies and related system components. Troubleshooting techniques and test specifications will be covered and reinforced through lab applications.					
ELEC1436	Power Transmission & Lubricants <i>Prerequisites: MACH1121 and MFGT1456.</i>	M	50	-	5
Fundamentals of power transmission equipment including belt drives, chain drives, couplings, bearings, lubrication, and open and enclosed gearing.					
ELEC1446	Industrial Machines & Mechanical Systems <i>Prerequisites: ELEC1356, ELEC1376, ELEC1337, MACH1121, and MFGT1456.</i>	M	60	40	7
Troubleshooting and repair of mechanical equipment. Bending, installing conduits, and repair of clutches and brakes.					
ELEC1464	Transformers, Three-Phase System <i>Prerequisite: ELEC1217.</i>	M	60	40	7
Study of transformers including three-phase use with balanced and unbalanced loads. Wiring techniques and performance characteristics of one-phase motors.					
ELEC1474	Predictive Maintenance Principles <i>Prerequisite: ELEC1217.</i>	M	40	10	4
Orientation, planning, and practical application of setting up a predictive maintenance program for inspection, testing, cleaning, fabricating, and adjusting of equipment.					
ELEC1482	Advanced Digital Circuits <i>Prerequisite: ELEC1227.</i>	L/M	40	40	5
Digital registers, counters, multiplexers, demultiplexers, encoders, decoders, arithmetic logic circuits, AD and DA conversion, and memory. Lab work includes circuit construction and measurement.					
ELEC1495	Industrial Wiring <i>Prerequisite: ELEC1365.</i>	M	100	100	13
Study of the construction of electrical systems used in the industrial and commercial areas. Circuitry required in lighting, controller systems, power distribution (overhead), and service entrance for electrical systems of public and commercial buildings. Study of the National Electrical Code for industrial wiring.					
ELEC2099	Military Service Electronics Training	-	-	-	30-60
Composite Electronics Technician training and experience received at US Government Armed Forces military training centers and deployment sites. SCC does not offer this course at their facilities. Credit depends on transcript.					

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ELEC2519	<b>Communications Systems</b> <i>Prerequisites: ELEC1422, ELEC1432, ELEC1482.</i> Introduction to voice communication principles in electronics. Public and private telephone systems are described including local loops, PBX and long distance techniques. Telephone transmission, switching and signaling systems are covered. T1, T3, FDM, TDM, ISDN, DSL explained. Students are introduced to AM modulation techniques. Super heterodyne receiver principles are introduced.	L/M	50	30	6
ELEC2530	<b>Microprocessor Applications</b> <i>Prerequisite: ELEC1482.</i> Introductory course covering instruction set, bus structures, memory and I/O techniques for microprocessor and microcontroller based systems. Assembly language programming techniques and concepts will be applied using an Integrated Development Environment.	L/M	50	30	6
ELEC2534	<b>Programmable Logic Controllers I</b> <i>Prerequisite: ELEC1344. Corequisite: ELEC2564.</i> An introduction to Logic functions and the Programmable Logic Controller (PLC).	M	50	25	5.5
ELEC2546	<b>Electrical Machine Controls</b> <i>Prerequisite: ELEC1344.</i> Continuation of ELEC1344 (Motor Controls) with more emphasis on design, troubleshooting and repair of electrical circuits.	M	25	25	3
ELEC2555	<b>Industrial Communications &amp; Alarm Systems</b> <i>Prerequisite: ELEC1217.</i> Installation and maintenance of data communications systems, security/fire alarm systems, and telephone systems.	M	25	25	3
ELEC2560	<b>Wi-Fi and RF Transmission Systems</b> <i>Prerequisite: ELEC1219.</i> Physical and electrical characteristics of antennas and transmission lines. Antennas of various types including Wi-Fi, directional, non-directional and isotropic are described. Marconi and Hertz antennas described in detail. Electromagnetic wave propagation explained. Transmission lines described include copper, fiber optic and waveguides. Radio frequencies from 30Khz through microwave are discussed.	L/M	30	20	3.5
ELEC2564	<b>Industrial Electronics</b> <i>Prerequisite: ELEC1217. Corequisite: ELEC2534.</i> Study of solid state components such as transistors, triacs, diacs, and SCR's.	M	75	50	9
ELEC2570	<b>Systems Troubleshooting</b> <i>Prerequisite: ELEC2640.</i> Introduction to the operational theory of audio systems and components. Test specifications, troubleshooting techniques will be covered and reinforced with lab applications. Video systems will be introduced. Basic troubleshooting techniques will be developed with lab projects.	L/M	50	30	6
ELEC2614	<b>Industrial Control Systems</b> <i>Prerequisites: ELEC2534, ELEC2564.</i> A study of open and closed loop control systems, AC, DC, and brushless DC motor drives used in industry. Systems including process control, servo systems, and Robotics. With hands on experience of installation, setup, and troubleshooting.	M	100	50	12
ELEC2624	<b>Programmable Logic Controllers II</b> <i>Prerequisites: ELEC2534 and ELEC2564.</i> Programming, wiring, and troubleshooting of Programmable Logic Controller (PLC).	M	100	100	13
ELEC2640	<b>Advanced Communications Systems</b> <i>Prerequisite: ELEC2519.</i> Study of SSB, FM, spread-spectrum modulation systems used in broadcast and two-way radios. Cellular telephone systems are explained. Home entertainment as well as broadcast systems used as examples of theory. Microwave communications are introduced. PLL (Phase-Locked Loops) circuits are included. Radio testing and alignment are performed in lab projects.	L/M	30	50	4.5
ELEC2735	<b>Advanced Microprocessor Applications</b> <i>Prerequisite: ELEC2530.</i> Advanced design, circuit construction, and troubleshooting of digital systems such as those encountered in computers, digital communications circuits, and other industrial control applications. Assembly language programming and hardware interfacing techniques will be covered for both microprocessor and microcontroller based systems.	L/M	30	50	4.5
ELEC2750	<b>Advanced Systems Troubleshooting</b> <i>Prerequisite: ELEC2570.</i> Security systems covered include video surveillance, access control and alarm systems. The analog and digital television broadcast systems will be explained and compared. NTSC, ATSC, DTV, DVD, Blu-ray, HD-DVD topics are included. Home entertainment equipment covered includes stereos, televisions and video recording equipment (analog, digital, DVR). Advanced troubleshooting techniques will be explored and practiced with lab projects.	L/M	30	50	4.5
ELEC2753	<b>PC Operating Systems &amp; Hardware</b> <i>Prerequisite: ELEC2530.</i> Current operating systems will be discussed and compared. An emphasis will be placed on their application and their interaction with hardware.	M	55	35	6.5
ELEC2755	<b>Structured Programming for Electronic Technicians</b> <i>Prerequisite: ELEC2530.</i> Programming utilizing an object-oriented programming language. Specialized programming for electronic technicians with an emphasis on programming for industrial controls and computer networking applications.	L/M	30	45	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ELEC2760	<b>Networking Infrastructure (CCNA 1)</b> Introductory course on networking infrastructure which includes switches, hubs, and routers. CCNA Exploration—Network Fundamentals course materials are utilized.	L/M	35	35	4.5
ELEC2761	<b>Router Implementation (CCNA 2)</b> <i>Prerequisite: ELEC2760.</i> Introductory course on networking infrastructure which includes switches, hubs, and routers. CCNA Exploration—Routing Protocols and Concepts course materials are utilized.	L/M	30	40	4
ELEC2823	<b>Network Operating Systems &amp; Administration</b> <i>Prerequisites: ELEC2753, ELEC2760.</i> Study of current network operating systems and applications installation, configuration and management, including Linux, Windows platforms and Novell Netware. Windows 2000 Server architecture will be studied in detail.	M	70	60	9
ELEC2853	<b>Hydraulics &amp; Pneumatics</b> <i>Prerequisite: ELEC1219.</i> Study of fluid power (hydraulic and pneumatic) systems and devices. Circuitry and various components, their design, operation, and application.	L/M	25	-	2.5
ELEC2860	<b>LAN Switching and Wireless (CCNA 3)</b> <i>Prerequisite: ELEC2760.</i> This course focuses on the application and configuration of Switches, VLANs, STP, VTP and Wireless networking access points and NIC. CCNA Exploration – LAN Switching and Wireless course materials are utilized.	L/M	30	40	4
ELEC2861	<b>Wide Area Networking (CCNA 4)</b> <i>Prerequisites: ELEC2761 and ELEC2860.</i> This course focuses on the application and configuration of advanced network address management, Wide Area Network technologies and terminologies, and network management. CCNA Exploration—Accessing the WAN course materials are utilized.	L/M	30	40	4
ELEC2863	<b>PLCs in Automation Systems</b> <i>Prerequisites: ELEC2672 or ELEC2735.</i> Lecture and lab projects featuring an in-depth study of industrial process control technologies, practices, and procedures.	L/M	40	85	6.5
ELEC2883	<b>Robotics and Vision Systems</b> <i>Prerequisites: ELEC2530.</i> Lecture and lab projects featuring an in-depth study of industrial robotic systems and Smart Image Sensor technology. Programming and interfacing.	L/M	20	30	3

## ELET • ELECTRICIAN CONSTRUCTION – IBEW OPTION

ELET1714	<b>DC Circuits and Blueprint Reading</b> <i>Prerequisite: Successful completion of SCC and IBEW entrance requirements. Co-requisite: ELET1715.</i> A first course in electricity and electronics. Covers physical and electrical safety principles, DC electrical circuits, magnetism and blue print reading. Includes the interpretation and application selected articles of the National Electrical Code (NEC).	120	60	14
ELET1715	<b>Electrical Wiring Applications I</b> <i>Prerequisite: Co-requisite in ELET1714.</i> On the Job Training (OJT) to apply construction electrician principles covered in ELET1714.	-	200	5
ELET1719	<b>AC Circuits and Wire Sizing</b> <i>Prerequisite: ELET1714. Co-requisite: ELET1720.</i> Alternating Current (AC) circuits are analyzed. Proper use of test equipment is stressed during lab. Study of the NEC is continued. Wire sizing for branch circuits is discussed. Conduit bending is introduced.	120	60	14
ELET1720	<b>Electrical Wiring Applications II</b> <i>Co-requisite ELET1719.</i> On the Job Training (OJT) to apply construction electrician principles covered in ELET1719.	-	200	5
ELET1724	<b>Electronic Devices and Electrical Grounding</b> <i>Prerequisite: ELET1719. Co-requisite ELET1725.</i> Diodes, transistors, silicon controlled rectifiers, triacs, and other active devices used in amplifier and switching circuits. NEC article 250 is covered. Proper electrical system grounding is stressed. Electrical load calculations are introduced.	120	60	14
ELET1725	<b>Electrical Wiring Applications III</b> <i>Co-requisite ELET1724.</i> On the Job Training (OJT) to apply construction electrician principles covered in ELET1724.	-	200	5
ELET1729	<b>Logic Circuits and Electrical Motors</b> <i>Prerequisite: ELET1724. Co-requisite ELET1730.</i> Logic devices and functions such as AND, OR, NAND, NOR and Boolean algebra are introduced. General principles of AC and DC motors and their control are studied. Power factor and power quality are discussed.	120	60	14
ELET1730	<b>Electrical Wiring Applications IV</b> <i>Co-requisite: ELET1729.</i> On the Job Training (OJT) to apply construction electrician principles covered in ELET1729.	-	200	5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ELET1734	Process Controllers and Special Electrical Circuits <i>Prerequisite: ELET1729. Co-requisite ELET1735.</i> Logic circuit input, output, timing and sequencing are studied. Programmable logic controllers (PLC's) are explored in theory and lab. Alarm and security systems, phone systems, air conditioning and other special control and instrumentation circuits are covered.		120	60	14
ELET1735	Electrical Wiring Applications V <i>Co-requisite ELET1734.</i> On the Job Training (OJT) to apply construction electrician principles covered in ELET1734.		-	200	5

## EMTL • EMERGENCY MEDICAL SERVICES/PARAMEDIC

EMTL1242	Emergency Medical Responder to EMT Bridge Course <i>Prerequisite: Emergency Medical Responder, current AHA Healthcare Provider CPR or ARC Professional Rescuer CPR card.</i> This curriculum covers the material that is necessary for a student to progress from the level of Nebraska Emergency Medical Responder to Emergency Medical Technician. This course is unique to Nebraska. It is adapted from the EMT curriculum.	L	64	48	8
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*Prerequisite: Emergency Medical Responder, current AHA Healthcare Provider CPR or ARC Professional Rescuer CPR card.*  
This curriculum covers the material that is necessary for a student to progress from the level of Nebraska Emergency Medical Responder to Emergency Medical Technician. This course is unique to Nebraska. It is adapted from the EMT curriculum.

EMTL1265	Emergency Medical Responder <i>Prerequisite: Minimum 18 years of age, high school diploma or GED current AHA Healthcare Provider CPR or ARC Professional Rescuer CPR card.</i> Emergency procedures and skills appropriate for the first person at a medical emergency. Especially appropriate for rescue squad members, law enforcement and fire personnel and persons needing advance first aid skills.	L	40	20	4.5
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EMTL1301	EMT Part I <i>Prerequisites: 18 years of age or older, or require special permission; have a current AHA Healthcare Provider CPR or ARC Professional Rescuer CPR card; Proof of current immunizations needed two weeks after the start of class.</i> This course is part one of the required training for any person seeking to become a Nebraska state-certified Emergency Medical Technician. The approved EMT curriculum is divided into seven modules. The material covered in this course includes the first 4 modules of the EMT curriculum and also two of the State of Nebraska Optional Modules.	L	40	30	5
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- Module 1 – Preparatory
- Module 2 – Airway Management
- Module 3 – Patient Assessment
- Module 4 – Medical Emergencies
- Pulse Oximetry
- Glucometer

EMTL1302	EMT Part II <i>Prerequisite: EMT Part I (EMTL1301) and completed Student Health Statement prior to registering.</i> This course is part two of the required training for any person seeking to become a Nebraska state-certified Emergency Medical Technician. The EMT curriculum is divided into seven modules. The material covered in this course includes the last 3 modules of the EMT Curriculum.	L	35	40	10
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- Module 5 – Trauma Emergencies
- Module 6 – Infants and Children
- Module 7 – Operations

EMTL1321	Introduction to Paramedic <i>Prerequisites: EMT1301 (EMT-Part I) &amp; EMT1302 (EMT-Part II), BIOS1140 &amp; BIOS1140L (Human Anatomy &amp; Lab), BIOS2130 &amp; BIOS 2130L (Human Physiology and Lab), and MEDA1101 (Medical Terminology I) or equivalent courses.</i> This course will present the foundations of paramedic practice as well as an introduction to pathophysiology, pharmacology, medication administration, and airway management and ventilation.	L	50	30	6
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EMTL1322	Advanced Pharmacology for the Paramedic <i>Prerequisites: EMT1321</i> This course will provide the student with a review of basic pharmacology and medication administration and a complete guide to the most common medications, their uses and dosages, used in prehospital emergency care.	L	50	45	6.5
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EMTL1323	Patient Assessment and Emergency Cardiac Care for the Paramedic <i>Prerequisites: EMT1322</i> This course will provide students with the cognitive and psychomotor skills of patient assessment, communications, documentation, and emergency cardiac care. Students will learn the appropriate assessment and management of patients suffering from cardiovascular emergencies. Students will ACLS certify.	L	90	90	12
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EMTL1324	Paramedic Practicum I <i>Prerequisites: EMT1322</i> This course includes 60 hours in the Emergency Department, 16 hours in the Operating Room and 50 hours in the field setting with various fire departments and ambulance services under the direct supervision of an approved field preceptor. This course is Part 1 of a 5 part series of clinical experiences that support the didactic elements of the paramedic courses.	L	-	90	3
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Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
EMTL1325	Medical Emergencies for the Paramedic <i>Prerequisites: EMT1323</i> This course will introduce the students to the appropriate assessment and management of medical emergencies involving the following: pulmonology, neurology, endocrinology, allergies and anaphylaxis, gastroenterology, urology and nephrology, and toxicology and substance abuse, hematology, environmental emergencies, infectious diseases, psychiatric and behavioral disorders, gynecology, and obstetrics. The students will also learn how to manage neonatal and pediatric emergencies. Students will AMLS certify.	L	90	75	11.5

EMTL1326	Paramedic Practicum II <i>Prerequisites: EMT1324</i> This course includes 60 hours in the Emergency Department, 16 hours in the Critical Care Unit (CCU), and 50 hours in the field setting with various fire departments and ambulance services under the direct supervision of an approved field preceptor. This course is Part 2 of a 5 part series of clinical experiences that support the didactic elements of the paramedic courses.	L	-	120	4
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EMTL1327	Traumatic Emergencies for the Paramedic <i>Prerequisites: EMT1325</i> This course will discuss trauma and trauma systems and introduce the students to the appropriate assessment and management of patients suffering from various traumatic emergencies. Students will PHTLS certify.	L	55	45	8
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EMTL1328	Paramedic Practicum III <i>Prerequisites: EMT1326</i> This course includes 60 hours in the Emergency Department, 4 hours in the Burn Unit, and 150 hours in the field setting with various fire departments and ambulance services under the direct supervision of an approved field preceptor. This course is Part 4 of a 5 part series of clinical experiences that support the didactic elements of the paramedic courses.	L	-	210	7
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EMTL1329	Special Considerations and Operations <i>Prerequisites: EMT1327</i> The students will also learn how to manage the following special situations: geriatric patients, abuse and assault, and the challenged patient. It will also discuss acute interventions for the chronic care patient. It will discuss special situations including hazardous materials incidents, medical incident command, and crime scene awareness. The course will also address how to recognize and respond to terrorist acts.	L	45	45	6
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EMTL1330	Paramedic Practicum IV <i>Prerequisites: EMT1328</i> This course includes 16 hours in Labor & Delivery, 4 hours in the Pediatric Intensive Care Unit (PICU), 16 hours in the Children's Emergency Department/Urgent Care, 8 hours in a psychiatric/behavioral unit, and 80 hours in the field setting with various fire departments and ambulance services under the direct supervision of an approved field preceptor. This course is Part 3 of a 5 part series of clinical experiences that support the didactic elements of the paramedic courses. Students will PALS & PEPP certify.	L	-	210	7
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EMTL1332	Paramedic Field Practicum <i>Prerequisites: EMT1330</i> This course includes 300 hours in the field setting with various fire departments and ambulance services under the direct supervision of an approved field preceptor. It will require the student to act as a Team Leader for each emergency call. This course is Part 5 of a 5 part series of clinical experiences that support the didactic elements of the paramedic courses and is an integral part in the final evaluation process in the completion of the program.	L	-	240	8
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## ENER • ENERGY GENERATION OPERATIONS

ENER1100	Introduction to Energy Generation and Distribution Introduction to the history of electric and fluid power in the U.S. including deregulation. Investor-owned and public utilities are discussed. Methods of commercial power generation including fossil fuels, nuclear power and renewable energy generation. Includes overview of electrical transmission and distribution systems. System reliability and governance are covered.	M	45	-	4.5
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ENER1110	Operator Safety Basic operator-based safety topics including: OSHA 10-hour, Personal Protective Equipment, ladders, body harnesses, confined space, lockout/tagout, MSDS, forklift driving, fire extinguishers, and rigging. Students will perform a supervised climb with fall-arrest-protection to above 20 feet.	M	25	15	3
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ENER1115	Mechanical and Fluid Fundamentals <i>Prerequisite(s): ENER1100</i> This course will give the student a basic understanding of pumps, valves, compressors, and heat exchangers. It will explain the proper procedure on how to start, operate and shutdown pumps. Troubleshooting common operating problems of various pumps will be discussed. Functions and characteristics of boilers, cooling towers, and condensers will be covered in detail.	M	45	-	4.5
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ENER1130	Electrical Schematics <i>Prerequisite(s): ENER1100</i> An introduction to electrical schematics, how to read them and how to troubleshoot electrical system problems using electrical schematics.	M	20	-	2
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Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ENER1210	<b>Electrical Power Theory</b> <i>Prerequisite(s): ENER1100, MFGT1413</i>	M	30	-	3
	This course introduces the student to the electrical power produced at an electrical generating station. Includes three-phase generation and transmission, power factor and correction. DC transmission, rectification, inverter systems, and grid transfer.				
ENER1220	<b>Process Dynamics</b> <i>Prerequisite(s): ENER1255, PHYS1017</i>	M	20	-	2
	The practical application of flow, temperature, pressure, heat, gases, liquids, solids, fluid systems, process dynamics and heat transfer are explored in detail. Case studies are used to explain real process dynamic systems in operation. Practice equipment used in course will include air compressors, pumps, valves, stainers, and traps.				
ENER1230	<b>Data Collection (SCADA)</b> <i>Prerequisite(s): ENER1235, PHYS1017</i>	M	10	-	1
	This course introduces the student to the process of data collection as it applies to energy generation systems. SCADA (Supervisory Control And Data Acquisition) is used as the primary model of data collection.				
ENER1235	<b>Piping and Process Drawings</b> <i>Prerequisite(s): ENER1100</i>	M	30	-	3
	This course will cover 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.				
ENER1250	<b>Emission Control Systems</b> <i>Prerequisite(s): ENER1100</i>	M	10	-	1
	Introduction to types of pollutants, methods of monitoring and reporting requirements for electrical generating plants as well as biofuels plants. Methods of controlling pollution and regulatory agencies are covered.				
ENER1255	<b>Instrumentation and Control Systems</b> <i>Prerequisite(s): ENER1115, MFGT1413, PHYS1017</i>	M	40	60	6
	Utilizing PLC's (Programmable Logic Controllers), 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 rates, pressures, temperatures, levels and analytic 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 feed-forward.				
ENER1900	<b>Internship</b> <i>Prerequisite(s): ENER1220, ENER1255</i>	M	-	(120)	3
	SCC Staff will coordinate site visits so students can work with various energy-generating facilities as an intern as they explore the various businesses in an attempt to choose a focus in their sixth quarter. One week per employer shall be spent in their facilities partnering with seasoned plant operators.				
ENER2100	<b>Motor Controls and Switchgear</b> <i>Prerequisite(s): ENER1255</i>	M	40	12	4.5
	This course is a study of various types of motors, motor controls, loads, drive systems and related electrical switchgear commonly used in power generating plants as well as any fuels processing system. Variable frequency controllers, contactors, protective relaying, overload protection, current transformers and other critical components are covered.				
ENER2105	<b>Boiler Systems</b> <i>Prerequisite(s): ENER1220</i>	M	30	-	3
	An introductory course covering boiler operation, inspection, maintenance, and repair. Emphasis throughout is on the vital interrelationship of operation, maintenance, inspection, controls and safety devices.				
ENER2110	<b>Backup Power Generation</b> <i>Prerequisite(s): ENER1100, MFGT1413</i>	M	30	-	3
	The need for using multiple redundancy backup generation is discussed in detail. The types of backup power include diesel, natural gas and other fuel types. Other topics discussed include black-start, auto-start, load limitations, transfer systems and operational and testing requirements. Gen-sets, special maintenance requirements, synchronizing and switching systems are also covered. Emerging backup technologies are discussed such as UPS, flywheels and others.				
ENER2115	<b>Advanced Operator Safety</b> <i>Prerequisite(s): ENER1110</i>	M	15	15	2
	Follow-up course to ENER1110, Operator Safety. This course provides OSHA basic safety training as well as CPR and First Aid practices that are desirable for any energy generating facility operator.				
ENER2120	<b>Steam Turbines</b> <i>Prerequisite(s): ENER1220, ENER1235</i>	M	20	-	2
	This is an introduction to the basic operation and maintenance of steam turbines. Practical system block diagrams are presented for steam turbine systems as used in biofuels and electricity-generating plants. System flow diagrams, block-level troubleshooting techniques are covered.				

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ENER2135	<b>Atomic Structures</b> <i>Prerequisite(s): ENER1900, MATH1050, LBST1101</i>	M	45	-	4.5
	This course discusses the basis of all matter. Students will be introduced to the fundamentals required to understand the atom and its components: the electron, neutron and proton. We will discuss how atoms are held together in both a stable and unstable condition resulting in various isotopes of the elements. Additional topics include atomic structure, chart of the nuclides, nuclear reactions, mass to energy conversion, industrial and science applications of nuclear processes, radioactive decay, half-life determination, and radioactive interaction with matter.				
ENER2200	<b>Introduction to Nuclear Energy</b> <i>Prerequisite(s): ENER2135</i>	M	45	-	4.5
	This course introduces and develops the concepts necessary for understanding the fission process used in modern power producing nuclear plants. Details will be provided on how the fission process is controlled and how it is affected by the design of the plant over the life of the fuel and how the reaction is affected by neutron absorbing poisons produced or designed into the fuel assemblies. Additional topics will include fissile and non-fissile fuels, the life cycle of a neutron, and the energy produced by the fission of an atom. Disposition of by-products will be explained.				
ENER2210	<b>Nuclear Plant Layout</b> <i>Prerequisite(s): ENER1220, ENER2135</i>	M	30	-	3
	This course covers the purpose, operation, flow paths and system interactions of basic reactor systems. Emergency operating procedures, automatic control systems, abnormal system conditions, alarm systems are among the many topics covered in this course.				
ENER2220	<b>Reactor Plant Materials</b> <i>Prerequisite(s): ENER1115, LBST1422</i>	M	45	-	4.5
	This course provides students with an understanding of the various materials used in the operation of a nuclear power plant. Topics include phase balance of materials, mechanical properties and behavior of materials, environmental effects on materials, and nuclear-specific topics such as fuel pellets, fuel rod cladding, control rods, radiation effects on materials, enrichment of radioactive isotopes and fuel pellet fabrication.				
ENER2230	<b>Radiation Detection and Protection</b> <i>Prerequisite(s): MATH1050, ENER2135. Co-requisite: ENER2240.</i>	M	30	15	3.5
	This course presents the theory, application detection and shielding of the various types of radiation. Topics covered include detection devices such as survey meters, core power detectors and personnel monitoring devices. The course also discusses how exposure to radiation can be minimized and the biological impact of radiation.				
ENER2240	<b>Reactor Safety</b> <i>Prerequisite(s): LBST1422. Co-requisite: ENER2230.</i>	M	45	-	4.5
	This course includes an explanation of reactor water chemistry fundamentals. We will cover basic concepts related to nuclear plant protection including administrative controls, procedural concepts and automatic reactor plant protection. Concepts related to accident analysis will be covered. Explanation of basic concepts related to transient prevention and mitigation of core damage and accident management is included.				
ENER2300	<b>Coal Plant Operations</b> <i>Prerequisite(s): ENER2100</i>	M	60	-	6
	Introduction to the general layout and system operations of a typical coal-fueled electric generating plant. Coal-handling systems, emission controls, life-cycle parts monitoring, combustion controls, fire systems and general operations of a coal plant are covered.				
ENER 2310	<b>Coal Plant Safety</b> <i>Prerequisite(s): ENER2120</i>	M	30	-	3
	Description of safety systems used in a typical coal-fueled electric power plant. Coal dust control systems, fire safety and automatic shut-down systems will be covered.				
ENER2400	<b>Gas Turbine Systems</b> <i>Prerequisite(s): ENER2100</i>	M	30	-	3
	This course introduces students to the various types of gas turbine generating systems such as micro, heavy frame and aero-derivative systems. Various topics include theory of operation, fuel systems, emission controls, inlet systems, cooling, heating, and filtering. History of gas turbines is covered as well as support systems, combustion controls, life-cycle monitoring and safety in a gas turbine power plant.				
ENER2410	<b>Combined Cycle Operations</b> <i>Prerequisite(s): ENER2120</i>	M	30	-	3
	This course covers various topics including purge sequences, HRSG (Heat Recovery Steam Generators), purge sequences and co-generation units. Horizontal, vertical and single/multiple drums are discussed. Multiple pressures, once-throughs, start-up processes, duct burners, exhaust gas dynamics, turbulence and emission controls are all addressed.				
ENER2420	<b>Plant Operations and Troubleshooting</b> <i>Prerequisite(s): ENER2100</i>	M	30	-	3
	A systems-approach to troubleshooting practical and realistic problems operators can expect to encounter in a typical electrical power plant fueled by fossil fuels. Critical and non-critical examples are practiced as students learn to quickly analyze and resolve system failures. Divide and conquer techniques are taught.				

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ENER2500 ☐	<b>Biofuels Process Fundamentals</b> <i>Prerequisite(s): ENER1115, ENER1235</i>	M	30	-	3
Covers the history, rationale, and overall fundamental processes of Biofuels production. A Process Flow Diagram (PFD) of a typical Ethanol Plant will be used to examine the sequence of operation including resident 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.					
ENER2510 ☐	<b>Distillation and Evaporation</b> <i>Prerequisite(s): ENER1115, ENER1220, ENER1235</i>	M	45	-	4.5
This course covers the theory behind distillation and evaporation. Students will learn the operating parts in a distillation system and how to interpret normal operating conditions. Students will learn how to troubleshoot common operational problems in a distillation and evaporation system. Students will become familiar with safety procedures in starting, cleaning, operating and shutting down a distillation system. Students will become familiar with the evaporative process and its role in processing plants. A distillation simulator will be available for laboratory use.					
ENER2520 ☐	<b>Microbial Ecology</b> <i>Prerequisite(s): LBST1205/LBST1215</i>	M	30	45	4.5
Introduces students to structure, classification, and ecology of microorganisms, especially as it relates to a Biofuels processing plant. Will include experience in microbiological laboratory practices and techniques as well as study of the enzymes supporting microbial ecology in Ethanol processing facilities.					
ENER2530 ☐	<b>Process Plant Chemistry</b> <i>Prerequisite(s): LBST1422</i>	M	30	-	3
This course explores the relationship of science, technology, and process management in regards to the operation and optimization of processing plant operations. The course has an emphasis on the science and technology that affect process operations, measures of product quality assurance and control, identify operational deviations, and incorporate process troubleshooting.					
ENER2540 ☐	<b>Biofuels Process Operations</b> <i>Prerequisite(s): ENER1220, LBST1205/LBST1215</i>	M	30	45	4.5
This advanced process course pulls together the various concepts involving a typical biofuels processing plant. Real-life case studies will be presented as we explore control models used in this business. Topics include feedback, cascade, PID, CIP (Clean In Place), start-up, shut-down and feed-forward. Process troubleshooting concepts will be taught and practiced by students to emulate real-world failures and how to deal with those.					
ENER2700 ☐	<b>Introduction to Wind Turbine Systems</b> <i>Prerequisite(s): Permission</i>	M	10	-	1
This course is an introduction to the basic concepts and terminology for how wind energy is captured and transformed into electrical power. Topics covered include mechanical physics, electricity and magnetism, fluid dynamics, and aerodynamics. A basic description of wind towers, and electrical generators is included. Small and large wind turbine systems will be included.					
ENER2710 ☐	<b>Rotor Systems</b> <i>Prerequisite(s): Permission</i>	M	20	-	2
This course introduces students to the construction of rotor blades used in small and large wind turbine systems. Materials used and inspection methods are discussed. The theory of aerodynamics, pitch and yaw systems are explained as they relate to a wind turbine power plant.					
ENER2720 ☐	<b>Wind Farm Management</b> <i>Prerequisite(s): Permission</i>	M	45	-	4.5
This course focuses on methods used to evaluate land opportunities for developing wind farms, and managing a wind farm in both a field and an office setting. Students learn how to read and analyze topographic and wind maps as a means to assessing the viability of developing wind farms on newly acquired land. Other topics covered include cranes and rigging methods, non-destructive materials testing, networking, and basic meteorological forecasting.					
ENER2730 ☐	<b>Wind Turbine Electrical and Fluid Systems</b> <i>Prerequisite(s): Permission</i>	M	45	-	4.5
This course presents the fundamentals of wind turbine construction. Emphasis is placed on mechanical and electrical systems in a complete utility-sized wind turbine from fasteners used to propellers, shafts and bearings. Basic alignment is covered with regard to wind turbine structural stability. Classical mechanical physics is used to demonstrate how wind energy is transmitted from propeller to electric generation. The importance of lubrication in maintaining gears and other movable parts is stressed.					
ENER2735 ☐	<b>Wind Turbine Safety</b> <i>Prerequisite(s): ENER2115</i>	M	20	30	3
This course provides climbing, rigging and rescue training specific for wind turbine technicians. Students will be exposed to high-altitude climbing apparatus, methodologies for safe, competent climbing and rescue skills training.					

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## ENGL • ENGLISH

*Placement in English courses will be determined by a placement examination. Your advisor will register you for the appropriate English course.*

ENGL0830 ☐	<b>Reading Skills Tune-up</b>	B	5	30	1.5
A developmental reading course to prepare students to succeed in college course work. Course work includes computer aided instruction and personal tutoring. Instructional time is arranged to accommodate students' class and work schedules. May be taken along with college courses not requiring high levels of reading skill. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0840 ☐	<b>Language Skills Tune-up</b>	B	5	30	1.5
A developmental course to upgrade students' language and writing skills to be successful in college courses. Includes computer aided instruction and personal tutoring. Instructional time is arranged to accommodate students' class and work schedules. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0845 ☐	<b>Language Skills</b>	B/L	20	20	3
<i>Prerequisite: Appropriate placement score.</i> This is the first course in a sequence designed to improve students' language and writing skills and prepare them to be successful in college courses. The course includes group and individualized instruction. Based on student progress, the instructor may strongly recommend a student take ENGL0846. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0846 ☐	<b>Language Skills II</b>	B/L	20	20	3
<i>Prerequisite(s): Grade of "C" or higher in ENGL0845</i> This course is designed to improve students' language and writing skills beyond ENGL0845 and to prepare them to be successful in college courses. The course includes group and individualized instruction. An instructor may strongly recommend a student take this course prior to ENGL0950. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0850 ☐	<b>Reading Strategies I</b>	B/L	45	-	4.5
<i>Prerequisite: Appropriate placement score.</i> This course is designed to improve students' reading and study skills and to prepare them to be successful in college courses. The course covers reading comprehension and speed, vocabulary building, and study skills. The course includes traditional classroom activities, sustained silent reading, and individualized, self-paced, computer-based instruction. Students will work toward the benchmark level of reading skill established by the College. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0880 ☐	<b>Reading Strategies II</b>	B/L	45	-	4.5
<i>Prerequisite: Grade of "C" or higher in ENGL0850.</i> This course is designed for students who require additional time and instruction beyond Reading Strategies I to work toward the benchmark level of reading skill established by the College. The course covers reading comprehension and speed, vocabulary building, and study skills. The course includes traditional classroom activities, sustained silent reading, and individualized, self-paced, computer-based instruction. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0885 ☐	<b>Advanced Reading Strategies</b>	B/L	45	-	4.5
<i>Prerequisite: Grade of "C" or higher in ENGL0880.</i> This course is designed for students who require additional time and instruction beyond Reading Strategies II to work toward the benchmark level of reading skill established by the College. The course covers reading comprehension and speed, vocabulary building, and study skills. The course includes traditional classroom activities, sustained silent reading, and individualized, self-paced, computer-based instruction. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0900 ☐	<b>Accelerated Reading Brush-Up</b>	B/L/M	20	-	2
<i>Prerequisite: Appropriate placement score and advisor recommendation.</i> This is a self-paced computer-assisted independent study course designed for students whose placement scores in reading are high but still indicate the need for improvement of reading skills in order to be best prepared for college-level courses. Students may register for this course at any time and have until the end of the term during which they register to reach the reading benchmark established by the College. Graded Pass/No Pass.					

ENGL0950 ☐	<b>Beginning Writing</b>	B/L/M	45	-	4.5
<i>Prerequisite: A grade of "C" or higher in ENGL0840 or ENGL0845 or appropriate placement score.</i> This course is designed to help students develop their writing skills. Within the context of their own essays, students learn how to improve the structure of their sentences and the expression of their ideas. The integration of thinking, reading, and writing is also emphasized. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

ENGL0980 ☐	<b>Intermediate Writing</b>	B/L	45	-	4.5
<i>Prerequisite: Grade of "C" or higher in ENGL0950 or appropriate placement score.</i> This is a developmental English course that prepares students to succeed in college-level composition. ENGL0980 does not fulfill the written communications general education requirement in any program. (NOTE: Credit is institutional credit and does not apply toward graduation or for transfer.)					

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
ENGL1010 ☑	<b>Composition I</b> <i>Prerequisite: Appropriate placement score OR grade of "C" or higher in ENGL0980.</i>	B/L/M	45	-	4.5
	ENGL1010 is designed to develop writing skills. Students write short papers and essays based upon their personal experience and/or assigned readings. The course emphasizes the clear written expression of ideas and importance of organization, word choice, logic, and sentence construction. The process of planning, writing, revising, and editing essays for a particular audience is also emphasized.				
ENGL1015 ☑	<b>Composition and Literature</b> <i>Prerequisite: Appropriate placement score OR grade of "C" or higher in ENGL0980.</i>	B/L/M	45	-	4.5
	ENGL1015 focuses on the study and practice of college composition with special emphasis on literature as a source of shared experience, topics, and models for expository writing.				
ENGL1020 ☑	<b>Composition II</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or equivalent.</i>	B/L	45	-	4.5
	ENGL1020 students engage in both written work and critical reading to acquire skills in researching, evaluating sources, citing sources appropriately, and recognizing elements of arguments. This course prepares students for professional, academic, and civic engagement beyond the classroom.				
ENGL1510 ☑	<b>Introduction to Creative Writing</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Study and practice of the techniques of creative writing of both fiction and poetry.				
ENGL2050 ☑	<b>Modern Fiction</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Exploration of short fiction and novels from 1900 to the present. Consideration of major literary critical theories and trends through the study of both American and international authors.				
ENGL2100 ☑	<b>Introduction to Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Introduction to the major genres and conventions associated with literature. Includes fiction, poetry, drama, and memoir. By employing critical reading/thinking skills and analytical and creative writing skills, students will understand literature more fully. Exposure to a range of authors representing a variety of cultural and ethnic backgrounds.				
ENGL2140 ☑	<b>Introduction to Shakespeare</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	This course provides an introduction to the times and art of William Shakespeare through the study of a selection of major plays. Focus is placed on context of his time and society, themes that speak to a modern audience, and making Shakespeare's language accessible.				
ENGL2150 ☑	<b>Introduction to Women's Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	An examination of women's writing within the contexts of history, culture, environment, and media. Through critical reading, analysis, and writing, students will more fully understand the relevance of women's perspectives to literature and society.				
ENGL2160 ☑	<b>Children's Literature</b> <i>(Cross-listed as EDUC2160) Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Survey of the various genres of children's literature with an emphasis on methods of critically evaluating, analyzing, and sharing both traditional and recent selections.				
ENGL2165 ☑	<b>Young Adult Literature</b> <i>(Cross-listed as EDUC2165) Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Survey of the various genres of adolescent literature. Emphasis on evaluation of quality, thematic study and the inter/cross-disciplinary uses of young adult literature.				
ENGL2440 ☑	<b>African American Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	This course provides an introduction to African American poetry, short fiction, essays and autobiographical writings. With an emphasis on historical and social contexts, the course focuses on literature as a means for reseeing the past and, consequently, understanding the present.				
ENGL2450 ☑	<b>Native American Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Introduction to the study of Native American prose, poetry, literature, oral-tradition, and culture through reading, discussions, journals, writing.				
ENGL2460 ☑	<b>Latino/a &amp; Latin American Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	A study of the relationships and parallel aspects between Latin American and Latino literature in the United States. The course provides a general chronological, and thematic introduction to verse, fiction, travels and memoirs written by Latin American writers and U.S. citizens of Latin American descent and their contribution to U.S. literature. Social, historical, and political backgrounds that have given rise to the literature are also emphasized along with an analysis of the literary techniques and motifs that authors employ in their aesthetic productions.				

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
ENGL2470 ☑	<b>Asian American Literature</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Introduction to literature by major Asian American authors studied in its historical and cultural context.				
ENGL2520 ☑	<b>Fiction Writing</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Designed to teach the fundamentals of writing fiction, both theory and application.				
ENGL2530 ☑	<b>Poetry Writing</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L	45	-	4.5
	Designed to teach the fundamentals of writing poetry, both theory and application.				
ENGL2560 ☑	<b>Technical Writing</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010, or ENGL1015, equivalent, or permission of instructor.</i>	B/L	45	-	4.5
	Introduction to design principles, style, and strategies for technical writing. Communication formats and styles for various audiences, purposes, and situations are practiced.				
ENGL2980 ☑	<b>Special Topics in Literature</b> <i>Prerequisite: Grade of "C" or higher in ENGL1010, ENGL1015 or permission of instructor.</i>	B/L/M	45	-	4.5
	Topics vary each term. The purpose of this class is to explore a specific topic or period of literature.				

## ENGR • ENGINEERING

ENGR1010 ☑	<b>Introduction to Engineering Design</b> <i>Prerequisite: Grade of "C" or higher in MATH1150.</i>	B/L	45	-	3
	Introduction to the engineering profession, engineering problem solving and engineering design with an emphasis on current topics. Course material will be presented using projects and group learning activities.				
ENGR1020 ☑	<b>MATLAB Programming and Problem Solving</b> <i>Prerequisite: Grade of "C" or higher in MATH1150.</i>	B/L	45	-	4.5
	This course is a 4.5 quarter hour, (three semester credit hour) computer programming course that teaches structured programming and problem solving using computers. The course consists of a sequence of programming assignments requiring students to write MATLAB problems to solve engineering problems.				
ENGR2010 ☑	<b>Introduction to Circuits and Electronics</b> <i>Prerequisite: Grade of "C" or higher in MATH1700 and PHYS2110.</i>	B/L	30	-	6
	This course is a 4.5 quarter hour course, (three semester credit hour) course in the basic analysis of passive and electronic circuits.				
ENGR2020 ☑	<b>Engineering Statics</b> <i>Prerequisite: Grade of "C" or higher in MATH1700 and PHYS2110.</i>	B/L	45	-	4.5
	This course is a 4.5 quarter hour course, (three semester credit hour) in basic engineering statics and is based on the existing UNL course ENGM 233 Engineering Statics.				

## ENTR • ENTREPRENEURSHIP

ENTR1050 ☑	<b>Introduction to Entrepreneurship</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L/M	45	-	4.5
	The student will evaluate the business skills and commitment necessary to successfully operate an entrepreneurial venture and review the challenges and rewards of entrepreneurship. The student will understand the role of entrepreneurial businesses in the United States and the impact on our national and global economy.				
ENTR2040 ☑	<b>Entrepreneurship Feasibility Study</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L/M	45	-	4.5
	Students will assess the viability of a new venture business idea to determine if the concept is feasible for business start up and long term growth based on strengths and skills, personal, professional and financial goals. Students will identify and analyze through basic research the present climate for their business idea by completing an industry, target market and competitive analysis. Students will assess the financial needs for startup as well as their own skills, strengths and talents to launch a successful business idea.				
ENTR2050 ☑	<b>Marketing for the Entrepreneur</b> <i>Prerequisite: A grade of "C" or higher in ENGL1010 or ENGL1015 or permission of instructor.</i>	B/L/M	45	-	4.5
	In the course, the student will gain insights essential for marketing their entrepreneurial venture utilizing innovative and financially responsible marketing strategies. Students will develop an understanding of traditional and non-traditional entrepreneurial marketing strategies. Prepare marketing strategies with associated tactics to launch and sustain an entrepreneurial venture.				
ENTR2060 ☑	<b>Entrepreneurship Legal Issues</b> <i>Prerequisite(s): Business Law I recommended</i>	B/L/M	45	-	4.5
	The student will explore legal issues related to business entities including sole proprietorship, general partnerships, limited partnerships and corporations. Students will review contract law, articles of incorporations and the filing process, employment law (including FEPA, ADA, FMLA), personnel policies and procedures, the hiring process, job descriptions, disciplinary actions, and business insurance.				

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
ENTR2070	Entrepreneurship Financial Topics ☐ <i>Prerequisite(s): OFFT1310 or ACCT1200 recommended</i>	B/L/M	45	-	4.5
This is a comprehensive course covering financial situations for business. Financial topics will include employee benefits, retirement planning, budgeting, creation of financial statements, and learning how to work with an accounting professional. Other topics will include income tax, sales and use tax, payroll tax, and unemployment tax.					

ENTR2090	Entrepreneurship Business Plan ☐ <i>Prerequisites: ENTR1050 &amp; ENTR2040.</i>	B/L/M	45	-	4.5
The student will evaluate a business concept and write a sound business plan. Students will assess the strengths and weaknesses of a business concept; collect, analyze and organize market research data into a marketing plan; and prepare the financial projections for their business concept. Students will identify and evaluate various resources available for funding small businesses.					

## ESLX • ENGLISH AS A SECOND LANGUAGE

ESLX0810	Introduction to College Writing I ☐ <i>Prerequisite: Successful completion of ESL Level 8, ESLX2443 or COMPASS ESL Test.</i>	L	60	-	6
A developmental ESL course which helps students build on their foundation of grammar structures, sentence patterns and vocabulary while developing basic reading and writing skills.					

ESLX0830	Introduction to College Writing II ☐ <i>Prerequisites: Successful completion of ESLX0810 or COMPASS ESL Test.</i>	L	60	-	6
A developmental ESL course which helps students develop more complex sentence structures and vocabulary. Further develops basic reading and writing skills.					

## EVOM • EVENT-VENUE OPERATIONS MANAGEMENT

EVOM1060	Customers and the Event Experience ☐ This course will engage students in all aspects of an event, allowing them to understand the motivations and servicing of visitors to leisure, tourist and event destinations, venues and attractions. The course will focus on the retail elements of events such as ticketing and hospitality, the motivation behind purchases, and the importance of service delivery.	B/L/M	45	-	4.5
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EVOM1150	Venue Operations Management ☐ This course will examine and explore health, safety, security, risk assessment, and emergency planning for events and venues, as well as their practical implementation. Students will gain technical industry knowledge needed to prepare them to work at venues where licensable activities occur.	B/L/M	45	-	4.5
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EVOM2900	Event-Venue Internship ☐ <i>Prerequisites: EVOM1060 &amp; EVOM1150</i>	B/L/M	-	45	4.5
Students are assigned to work 16 hours per week at an event facility, providing experience in planning, organizing, marketing, sales and event production. Individual objectives will be established for each student.					

## FINA • FINANCIAL INVESTING

FINA1130	Fundamentals of Investing ☐ <i>Prerequisite: Math Competency met</i>	L	45	-	4.5
Focuses on the basic concepts of investing to include: securities markets, securities regulations, securities transactions, investment research, risk/return trade-off, time-value-of-money, portfolio strategies, derivatives, futures.					

## FIRE • FIRE PROTECTION TECHNOLOGY

FIRE1100	Principles of Emergency Services ☐ Provides an overview to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government; laws and regulations affecting the fire service; fire service nomenclature; specific fire protection functions; basic fire chemistry and physics; introduction to fire strategy and tactics.	L	45	-	4.5
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FIRE1211	Structural Firefighter IA ☐ <i>Prerequisites: ENGL0980 or equivalent placement score; MATH0950 or equivalent placement score; and FIRE1100 or program chair approval.</i>	L	45	45	6
First of two courses preparing students to perform basic fire fighting functions. Includes safety, fire behavior, portable extinguishers, building construction, protective clothing, SCBA, search and rescue, ropes and knots, forcible entry and ventilation. Addresses requirements of NFPA 1001 Standard for Fire Fighter Professional Qualifications Firefighter I.					

FIRE1212	Structural Firefighter IB ☐ <i>Prerequisite or Corequisite: FIRE 1211</i>	L	45	45	6
Second of two courses preparing students to perform basic fire fighting functions. Includes ground ladders, water supply, fire streams, fire hose, sprinkler systems, salvage and overhaul, preserving evidence, communications, fire prevention, public education and live fire fighting. Addresses requirements of NFPA 1001 Standard for Fire Fighter Professional Qualifications Firefighter I. Upon successful completion of FIRE1212 and FIRE1312, students are eligible to apply for Firefighter I certification through the Nebraska State Fire Marshal.					

FIRE1220	Structural Firefighter II ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification.</i>	L	35	45	5
Prepares students to perform advanced fire fighting functions. Addresses the requirements of NFPA 1001 Standard for Fire Fighter Professional Qualifications Firefighter II. Upon successful completion students are eligible to apply for Firefighter II certification through the Nebraska State Fire Marshal.					

FIRE1230	Structural Firefighting Operations ☐ <i>Prerequisites: FIRE1220 or FIRE1249 or Firefighter II certification</i>	L	25	60	4.5
Applies Firefighter I and II skills to fireground company operations. Includes flammable gas fire fighting, vehicle fire fighting, interior and exterior structural fire fighting, flat roof ventilation, pitched roof ventilation, hose lays, search and rescue operations, and self-rescue techniques.					

FIRE1240	Interior Firefighting Survival ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	30	30	4
Provides awareness of firefighter safety and survival during interior firefighting operations. Enables students to conduct self-rescue and work as a member of a rapid intervention team. Topics include firefighter survival needs, fire ground planning and coordination, SCBA emergencies, entanglement hazards, emergency escape maneuvers and rapid intervention team operations.					

FIRE1311	Hazardous Materials Operations I ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	25	15	3
First of two courses preparing students as hazardous materials first responders. Includes recognition and identification of hazardous materials. Addresses requirements of NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents and the United States Department of Occupational Safety and Health Administration for Operations Level Responder.					

FIRE1312	Hazardous Materials Operations II ☐ <i>Prerequisite or Corequisite: FIRE1311</i>	L	25	15	3
Second of two courses preparing students as hazardous materials first responders. Includes analysis, planning, implementing and evaluating the response to a hazardous materials incident. Addresses requirements of NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents and the United States Department of Occupational Safety and Health Administration for Operations Level Responder. Upon successful completion students are eligible to apply for Hazardous Materials First Responder Operations certification through the Nebraska State Fire Marshal.					

FIRE2110	Fire Behavior and Combustion ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	45	-	4.5
Explores the theories and fundamentals of how and why fires start, spread and are controlled. Addresses physical and chemical properties of fire and thermal dynamics. Explains characteristics of water and other fire extinguishing agents.					

FIRE2120	Building Construction for Fire Protection ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	45	-	4.5
Explores how features of building construction influence fire behavior and how fire impacts the integrity of structural components. Explains how building design and construction are related to firefighter and life safety, building/fire codes and firefighting tactics.					

FIRE2130	Fire Prevention ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	45	-	4.5
Provides an overview of fire prevention and protection. Describes the interrelationship of fire codes, plans review, fire safety inspections, fire and life safety education and fire investigation. Explores the role of fire prevention in control of the national fire problem.					

FIRE2140	Fire Protection Systems ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	45	-	4.5
Provides information relating to the features of design and operation of building fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers. Addresses requirements of automatic sprinkler systems, standpipe systems and fire pumps.					

FIRE2150	Fire and Emergency Services Safety and Survival ☐ <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i>	L	45	-	4.5
Introduces students to the national firefighter life safety initiatives. Based upon the "Everyone Goes Home" initiative of the National Fallen Firefighters Foundation. Includes the 16 Firefighter Life Safety Initiatives, the "Courage to be Safe" program and the "Leadership, Accountability, Culture and Knowledge" concept.					

FIRE2220	Fire Protection Hydraulics and Water Supply ☐ <i>Prerequisite: MATH1090 or MATH1100</i>	L	65	15	7
Introduces the principles of hydraulics related to water supply systems, fire pumps and conduits. Applies hydraulic principles to firefighting hoses, appliances and nozzles. Prepares students to analyze and solve fire protection water supply problems.					

FIRE2230	Fire Investigation I ☐ <i>Prerequisites: FIRE1100, FIRE2110 and FIRE2120</i>	L	45	-	4.5
Provides the fundamentals and techniques for initial fire scene investigation. Includes fire scene interpretation, identification of point of origin, fire cause determination, detection and preservation of evidence, scene security, and motives of fire setters.					

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FIRE2250	<b>Structural Firefighting Strategy and Tactics</b> <i>Prerequisite: FIRE 1220 or FIRE1249 or Firefighter II certification or program chair approval</i> Explains the development and implementation of an initial action plan for structure fires. Provides an in-depth analysis of the principles of fire control through utilization of personnel, equipment, and extinguishing agents on the fire ground. Includes decision making and actions necessary to achieve life safety, incident stabilization and property conservation goals in a safe and effective manner.	L	45	-	4.5
FIRE2310	<b>Hazardous Materials Technician</b> <i>Prerequisite: FIRE1312 or Hazardous Materials Operations certification</i> Presents knowledge and skills required for leak and spill control at a hazardous materials emergency. Includes incident analysis, response planning, response implementation, evaluation of progress and incident termination. Addresses requirements of NFPA 472 Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents and the United States Department of Occupational Safety and Health Administration for Hazardous Materials Technician.	L	50	30	6
FIRE2410	<b>Fire Apparatus Driver Operator - Pumper</b> <i>Prerequisites: FIRE1311 or FIRE2220 and FIRE 1212, FIRE 1247 or Firefighter I Certification</i> Introduces driving and operating fire department pumping apparatus. Includes pumping apparatus inspection, preventative maintenance, routine driving and emergency response driving. Includes hands-on pumping to provide effective water supply for hand lines, master streams, foam appliances, standpipes and automatic fire sprinkler systems. Addresses requirements of NFPA 1002 Standard for Fire Apparatus Driver/Operator Professional Qualifications for apparatus equipped with a fire pump.	L	30	45	4.5
FIRE2510	<b>Fire Inspector I</b> <i>Prerequisites: FIRE2120, FIRE2130 and FIRE2140</i> Prepares students to conduct fire and life safety inspections based upon NFPA 101 Life Safety Code and the International Fire Code. Includes methods of determining occupancy and occupant load, identification of types of construction, inspection of fire protection systems, identification of hazardous conditions and code enforcement. Addresses requirements of NFPA 1031 Standard for Professional Qualifications for Fire Inspector and Plan Examiner at the Fire Inspector I level.	L	45	-	4.5
FIRE2520	<b>Fire and Life Safety Educator</b> <i>Prerequisite: FIRE2130</i> Introduction to the coordination and delivery of public fire and life safety education presentations. Includes planning, preparation, presentation and evaluation of public education activities. Addresses requirements of NFPA 1035 Standard for Professional Qualifications for Fire and Life Safety Educator.	L	45	-	4.5
FIRE2700	<b>Fire and Emergency Services Instructor I</b> <i>Prerequisites: FIRE 1212 or FIRE 1247 or Firefighter I Certification</i> Prepares students to deliver fire and emergency services instruction. Includes planning for instruction, student preparation, lesson delivery, reinforcement through application, student evaluation and summarizing a lesson. Addresses the requirements of NFPA 1041 Standard for Fire Service Instructor Professional Qualifications for Fire Service Instructor I. Upon successful completion students are eligible to apply for Fire Instructor I certification through the Nebraska State Fire Marshal.	L	45	-	4.5
FIRE2711	<b>Fire Company Officer IA</b> <i>Prerequisite: FIRE1113 or FIRE2700 or Fire Instructor I Certification; and FIRE 1220 or FIRE1249 or Firefighter II Certification</i> First of two-part delivery to prepare senior firefighters for promotion to company officer. Includes human resource management, administrative duties, and health and safety considerations. Addresses requirements of NFPA 1021 Standard for Fire Officer Professional Qualifications for Fire Officer I.	L	30	-	3
FIRE2712	<b>Fire Company Officer IB</b> <i>Prerequisite: FIRE1116 or FIRE2711</i> Second of two-part delivery to prepare senior firefighters for promotion to company officer. Includes community and governmental relations, inspection and investigation responsibilities, and emergency service delivery. Addresses requirements of NFPA 1021 Standard for Fire Officer Professional Qualifications for Fire Officer I.	L	30	-	3
FIRE2720	<b>Fire Company Officer II</b> <i>Prerequisite: FIRE1118 or FIRE2712</i> Prepares company officers for promotion to second level management and supervision responsible for multiple companies. Includes evaluation of company officers, creation of professional development plans, development of a policy or procedure, development of a budget, preparation of reports, conducting a post-incident analysis and analysis of an employee injury incident. Addresses requirements of NFPA 1021 Standard for Fire Officer Professional Qualifications for Fire Officer II.	L	40	-	4
FIRE2750	<b>Fire and Emergency Services Administration</b> <i>Prerequisites: FIRE1100</i> Explores the organization and management of a fire and emergency services organization. Discusses the relationship of government agencies to emergency and fire protection services. Emphasis on ethics and leadership from the perspective of the company officer.	L	45	-	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FIRE2900	<b>Fire Protection Internship</b> <i>Prerequisite: Program chair approval</i> Structured temporary work-related (on-the-job training) experience. Provides an understanding of employee expectations within an emergency medical, fire protection or public safety agency or organization.	L	-	200	5
FIRE2999	<b>Individual Special Projects</b> <i>Prerequisite: Program chair approval.</i> Study of selected topic in fire protection technology by doing additional research and development in an area of interest.	L	-	90	3
<b>FSDT • FOOD SERVICE/HOSPITALITY</b>					
FSDT1100	<b>Introduction to the Food Service/Hospitality Industry</b> <i>Corequisites: FSDT1104 and 1105.</i> Career options, mission statements and the professional organizations associated with the industry. Guest speakers will share their experiences. Course will include work simplification techniques, history of the industry, social issues, other career related topics and portfolio development.	L	15	-	1.5
FSDT1102	<b>Sanitation &amp; Safety</b> <i>Corequisites: FSDT1104 and 1105.</i> Lecture will focus on sanitation as it relates to the food service industry. Covers microbiology of foodborne illnesses, their causes and preventative measure; personal hygiene in food service; establishing a food safety system, such as HACCP; creating a clean and sanitary facility; safety practices; and overall sanitation management. Students will complete projects/assignments relating to foodborne illnesses, HACCP, cleanliness, sanitation of equipment, and developing an inservice of a sanitation topic.	L	30	45	4.5
FSDT1104	<b>Quantity Food Preparation I</b> Basic food service/preparation food science. Standardized recipes, terminology, weights and measures, identification of small utensils and preparation. Science of foods: stocks, sauces, soups, meats, poultry and fish.	L	20	-	2
FSDT1105	<b>Quantity Food Preparation I Lab</b> <i>Corequisites: FSDT1102 and FSDT1104 or with special permission.</i> Learning knife skills, basic cooking skills and techniques, stocks, soups, sauces, meat, poultry and fish cookery, making food for basic food preparation techniques and prepare products in quantity to sell as take-home products to customers.	L	-	60	2
FSDT1108	<b>Food Service Concepts</b> Introduction to different types of food service operations and employment opportunities. Field trips.	L	15	-	1.5
FSDT1110	<b>Quantity Food Preparation II</b> <i>Prerequisite: FSDT1102.</i> Science of foods: vegetables, eggs and breakfast, starches, fruits, hors d'oeuvres, salads, baking techniques, quick breads, pastry, cakes, cookies and yeast breads.	L	20	-	2
FSDT1111	<b>Quantity Food Preparation II Lab</b> <i>Prerequisites: FSDT1102, FSDT1104 and FSDT1105. Corequisite: FSDT1110 or with special permission.</i> Learn basic cooking skills and techniques for vegetables, eggs and breakfast, starches, fruits, hors d'oeuvres, salads, baking techniques, quick breads, pastry, cakes, cookies and yeast breads. Bakery items will be made in quantity to sell. Increased application of work-improvement techniques.	L	-	60	2
FSDT1114	<b>Meal Service I</b> A study of the server's job, types of establishments, and different types of service, including French, Russian, English, American, Banquet, Family-Style, Buffets, and more. Current issues such as embracing diversity, preventing harassment and maintaining a good work place environment, taking reservation, preparing the dining room, greeting and serving the guests to presentation of the check and how to troubleshoot potential problems.	L	15	-	1.5
FSDT1115	<b>Meal Service I Lab</b> Serving dinners/luncheons for Food Production II, catering events, and utilizing public relation skills.	L	-	15	.5
FSDT1118	<b>Food Purchasing</b> <i>Prerequisites: FSDT1104, FSDT1110 or related work experience. Corequisite: FSDT1119.</i> Study of the principles of purchasing and quantity purchasing of fresh fruits and vegetables, dairy products, cereal products, fish, poultry, meat, convenience foods, beverages. Pricing of all food products and recipes.	L	40	-	4
FSDT1119	<b>Food Purchasing Practices</b> <i>Prerequisites: FSDT1104, FSDT1110 or related work experience. Taken simultaneously with FSDT1118.</i> Awareness of quantity food purchasing including field trips to various purveyors and speakers.	L	15	-	1.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FSDT1122	<b>Beverage Selection &amp; Management</b> Instruction given in responsible alcohol service techniques and to enhance the knowledge of liquor laws. Discussion on how to taste or drink wine, food with wine, proper maintenance of wine, different varieties, production of wine, beer and spirits, maintenance of alcohol inventories, cost control and profitability.	L	20	-	2
FSDT1126	<b>Food Production I</b> <i>Prerequisites: FSDT1104, FSDT1105, FSDT1110, FSDT1111, FSDT1118 and FSDT1119.</i> Course work in menu planning, menu descriptions, recipe writing, waste studies, portion and production controls, forecasting, and pricing. Preparation for Food Production II.	L	30	-	3
FSDT1127	<b>Food Production I Lab</b> <i>Prerequisites: FSDT1102, FSDT1104, FSDT1105, FSDT1110, FSDT1111, FSDT1118 and FSDT1119. Corequisite: FSDT1126.</i> Applying principles of management function, including menu planning, inventory, purchasing, forecasting, pricing, marketing, cashiering, and food sales for the cafeteria production.	L	-	60	2
FSDT1130	<b>Food Service Strategies</b> Application of management principles to food service operations, regulations governing the operation of a food service establishment and role and function of a leader in food service.	L	30	-	3
FSDT1131	<b>Food Service Strategies Lab</b> <i>Corequisite: FSDT1130.</i> Application of management techniques including orientation, job descriptions and schedules, evaluations, marketing techniques and other management related principles.	L	-	45	1.5
FSDT1138	<b>Food Cost Control</b> Application of accounting and record keeping. Teaches the necessity of controlling costs in all facets of an operation. Overview of food, beverage and labor control. Detailed look at food costs, controlling operation and sales. Operation costs and sales, discussion of labor cost control.	L	40	-	4
FSDT1150	<b>Selection of Meat Products</b> Coursework in identification, selection and cooking techniques of primal and retail cuts of meat, poultry, and fish.	L	30	-	3
FSDT1204	<b>Artistry for Baker</b> <i>Prerequisite: FSDT1105. Corequisite: FSDT1111.</i> Cake decorating using basic techniques, butter-cream frosting and royal icing.	L	10	20	1.5
FSDT1208	<b>Advanced Food Preparation I</b> <i>Prerequisite: FSDT1104.</i> Knife skills, sharpening techniques, French terminology, herb and spice identification, garnish, fabrication of poultry, game, seafood, cheese classification, and origins, leading sauces, soups, tableside cooking.	L	20	-	2
FSDT1209	<b>Advanced Food Preparation I Lab</b> <i>Prerequisite: FSDT1104. Corequisite: FSDT1208.</i> Practice in preparation of specialty food products related to topics discussed in FSDT1208.	L	-	30	1
FSDT1214	<b>Advanced Food Preparation II</b> <i>Prerequisites: FSDT1104, and FSDT1208 or related work experience.</i> Beef identification, moist/dry heat and combination cooking. Derivative sauces, pan sauces, vegetables, starch and grains, liquors origins and flavors, braising and stewing, mystery baskets, ice carving.	L	20	-	2
FSDT1215	<b>Advanced Food Preparation II Lab</b> <i>Prerequisites: FSDT1104, FSDT1110, and FSDT1208. Corequisite: FSDT1214.</i> Advanced practicum preparation of specialty food products related to topics discussed in FSDT1214.	L	-	30	1
FSDT1304	<b>Diet Therapy I</b> Introduction to medical nutrition therapy and its importance. Includes working with a healthcare team, nutrition screening and education, continuous quality improvement and menu planning.	L	15	-	1.5
FSDT1305	<b>Diet Therapy I Practicum</b> Introduction of basic principles of diet therapy, nutrition screening, community-based food and nutrition, menu modification skills, developing and modifying menus.	L	-	15	.5
FSDT1308	<b>Nutrition II</b> <i>Prerequisite: FSDT1350.</i> Study of the chemistry of carbohydrate, protein, fat, vitamins and minerals, their digestion and absorption, and the relationship of food to development and maintenance of health; nutrition in pregnancy, infancy, preschool age, adolescence, elderly, and school lunch nutrition.	L	30	-	3
FSDT1309	<b>Nutrition II Practicum</b> <i>Prerequisite: FSDT1350. Corequisite: FSDT1308 or special permission.</i> Application of nutrition to normal, healthy individuals of various age groups. Conduct screening of nutritional status of community groups and become aware of community services. Hands-on practicum at local school food service sites, including elementary and secondary schools.	L	-	30	1
FSDT1312	<b>Diet Therapy II</b> <i>Prerequisites: FSDT1350, FSDT1304, FSDT1308.</i> Continuation of Diet Therapy I emphasizing therapeutic nutrition, techniques of the patient interview and diet history, nutrition screening, enteral and parenteral nutrition, and dietary concerns related to obesity, diabetes, surgery, trauma and burns.	L	20	-	2

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FSDT1313	<b>Diet Therapy II Practicum</b> <i>Prerequisite: FSDT1304 and FSDT1308. Co-requisite: FSDT1312.</i> Patient interview, diet history, nutrition screening, meal-intake recording, medical records interpretation, team approach to medical nutrition therapy, enteral and parenteral feedings. Emphasis on long-term care facilities.	L	-	30	1
FSDT1350	<b>Basic Nutrition</b> The study of nutrients, digestion, absorption, metabolism, fitness, consumer concerns, food safety, nutrition throughout the life cycle, including cultural influences on food selection. The relation of nutrition in relation to disease and world hunger is explored.	B/L	45	-	4.5
FSDT1360	<b>Lifetime Fitness</b> Study of lifetime physical fitness and wellness relating to fitness components, nutrition, physical conditioning, stress management and behavior modification. Pre-assessment to determine entrance level of student.	L	20	-	2
FSDT1404	<b>Lodging and the Hospitality Industry</b> Principles and fundamentals of the lodging industry: characteristics and management of hotel/motel/resort properties including industry accounting, housekeeping, engineering, front desk and guest services.	L	45	-	4.5
FSDT1406	<b>Tourism and the Hospitality Industry</b> Historical, behavioral, societal, and business aspects/career opportunities in restaurant, lodging, tourism and recreation management.	L	45	-	4.5
FSDT1851	<b>FIM Co-op I</b> <i>Corequisites: FSDT1100 &amp; 1104.</i> This course explores the food service industry. This includes mission statements and organization, customer satisfaction, food delivery systems, standardized recipes, food quality, ergonomics and production schedules. Students will complete tasks mandated by the Dietary Managers Association. The instructor will be a certified manager or registered dietitian and will act as preceptor.	L	-	20	.5
FSDT1852	<b>FIM Co-op II</b> <i>Corequisites: FSDT1100 &amp; 1104.</i> Study of sanitation as it relates to the food service industry including: foodborne illness identification, personal hygiene, food safety systems such as HACCP, facility sanitation, sanitation regulations, crisis management, independent study projects, food science and production, and baking techniques. Students will complete tasks mandated by the Dietary Managers association. The instructor will be a certified manager or registered dietitians and will act as preceptor.	L	-	40	1
FSDT1853	<b>FIM Co-op III</b> <i>Corequisite: FSDT1350.</i> Understand the concepts of nutrients, digestion and nutrition through the lifecycle. Includes cultural influences on food selection. Alternative therapies and menu planning will be explored. Students will complete tasks mandated by the Dietary Managers association. The instructor will be a certified manager or registered dietitian and will act as preceptor.	L	-	40	1
FSDT1854	<b>FIM Co-op IV</b> <i>Prerequisites: FSDT1304 &amp; 1890.</i> Covers a variety of management responsibilities including employment laws, staffing concerns, budgets, recipe costing, unions, managing change and diversity, communication, staff development and personal professionalism. Diet therapy and its importance, including and introduction to communication in counseling, role of diet histories, basic therapeutic diets, supplemental nutrition, and nutritional screening will be included. Student will complete preceptor tasks mandated by the Dietary Managers Association. The instructor, a Registered Dietitian, will act as the preceptor.	L	-	60	1.5
FSDT1887	<b>School Food Service</b> Describes the planning of meals to meet the requirements of USDA school meal patterns, and the involvement of food service personnel in nutritional education.	L	10	-	1
FSDT1890	<b>Food Service Management Skills</b> Covers management responsibilities including: state and federal employment laws, staffing needs, performance standards, employee scheduling, performance reviews, maintaining department budget, recipe cost, change and diversity, recruitment, interviewing, employee unions, communication, manager's role, staff development, and personal professionalism.	L	40	-	4
FSDT2140	<b>Food Production II</b> <i>Prerequisites: FSDT1126 and FSDT1127.</i> This class is a culmination of all classes the students have had until now. Menu research and development, planning a menu systematically, in correct menu form, descriptive copy. The student uses managerial skills they have learned to produce and manage the kitchen and dining room staff for a fine dining experience that is open to the public. Other production areas include positions as Sous Chef, Patisserie Chef, Garde Manger and working the dishroom.	L	15	105	5
FSDT2142	<b>Meal Service II</b> Merchandising, customer relations, menu planning, menu mechanics and a profile of the industry. Development of a restaurant menu.	L	20	-	2
FSDT2146	<b>Equipment &amp; Layout</b> Covers planning a food service operation from ground up. An overview of the planning and design process, along with layout principles and facility and equipment maintenance. Students design a food-service kitchen for a given situation.	L	30	-	3

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FSDT2154	<b>Food Service Hospitality Seminar I</b> <i>Corequisite: FSDT2160 or FSDT2180 or special permission.</i> Presentation and discussion of current food industry topics, goals, job seeking skills and discussion of student's practicum and cooperative work experience.	L	10	-	1
FSDT2156	<b>Food Service Seminar II</b> <i>Corequisite: FSDT2160 or FSDT2180 or special permission.</i> Presentation and discussion of current food industry topics, job seeking skills, and discussion of student's practicum and cooperative work experience.	L	10	-	1
FSDT2218	<b>Professional Baking</b> <i>Prerequisites: FSDT1104, FSDT1110, FSDT1208, and FSDT1214.</i> American, European and Artesian Breads, laminate doughs, quick breads, yeast and cake doughnuts, pies, cake making and assembling, fancy cookies.	L	10	30	2
FSDT2220	<b>Buffet Decorating &amp; Catering</b> <i>Prerequisites: FSDT1208 and FSDT1214.</i> Students will research, plan and prepare menus, and foods made in class for three buffets which are open to the public. Students will prepare rolled-fondant and bread-dough art sculptures.	L	10	-	1
FSDT2221	<b>Buffet Decorating &amp; Catering Lab</b> <i>Corequisite: FSDT2220.</i> Preparation of foods in buffet decorating and catering.	L	-	30	1
FSDT2222	<b>International Cuisine</b> <i>Prerequisites: FSDT1104 and FSDT1105</i> Exploration of foods from countries and regions world wide. History and makeup of these foods and their origins.	L	20	30	3
FSDT2224	<b>Restaurant Fundamentals</b> <i>Prerequisite: FSDT1208 and FSDT1209.</i> Running a restaurant. Work in all capacities in a working restaurant. Job DESCRIPTIONS include kitchen manager, dining room manager, host/hostess, wait staff, cook, garde manager, pastry chef, dishwasher, cashier.	L	20	30	3
FSDT2226	<b>Culinary Nutrition</b> <i>Prerequisites: FSDT1350 and FSDT1110.</i> The marriage of gourmet cooking and nutrition. Adopting recipes to meet nutritional modifications. Preparing and evaluating menu items in lab.	L	20	-	2
FSDT2228	<b>Garde Manger</b> <i>Prerequisite: FSDT1208 and FSDT1214.</i> Students will make cheese, sausages, smoked meats, forcemeats, galantines, terrines, pate and pate en croute, chocolate tempering, banquet platters.	L	10	30	2
FSDT2230	<b>Advanced Pastries</b> <i>Prerequisites: FSDT1208, FSDT1214.</i> Students will prepare poached-fruits, vacherins, pavlova, ice cream, parfaits, iced-soufflés, baked-custards, brulee, Bavarians, sorbets, ganache, custard-creams, choux pastry, tuiles, tarts, dessert sauces, and isomalt.	L	10	30	2
FSDT2240	<b>Industry Proficiency</b> <i>Prerequisites: FSDT1126, FSDT1127.</i> Comprehensive written and hands on exam designed to reflect industry standards to prove our students are skilled and prepared to enter the work force.	L	.5	.5	1
FSDT2318	<b>Diet Therapy III</b> <i>Prerequisites: FSDT1304, FSDT1350, FSDT1208, FSDT1214, FSDT1308, FSDT1312.</i> Continuation of Diet Therapy II with emphasis on the anatomy and physiology of diet and nutrition in relation to cancer, HIV/AIDS, cardiovascular, renal, gastrointestinal, and liver and metabolic disorders.	L	20	-	2
FSDT2319	<b>Diet Therapy III Practicum</b> <i>Prerequisites: FSDT1304, FSDT1350, FSDT1308 and FSDT1312. Co-requisite: FSDT2318.</i> Develop skills in counseling patients, continuation of chart interpretation, nutrition screening, case study completion, emphasis on hospital settings.	L	-	30	1
FSDT2324	<b>Dietetic Technician Practicum</b> <i>Prerequisites: FSDT2318 and FSDT2319.</i> Gaining additional clinical experience as a member of a health care team, patient counseling, enteral and parenteral feedings, charting of patient progress, dietary records and procedures, ordering, scheduling, supervision, and special diet preparation.	L	-	165	5.5
FSDT2326	<b>Dietetic Technician Seminar</b> <i>Prerequisite: Taken simultaneously with FSDT2324.</i> Comprehensive view of the role of the dietetic technician as a member of the health care team with emphasis on legal implications, professional organizations and medical ethics. Presentations of clinical case studies and charting.	L	20	-	2
FSDT2330	<b>Nutrition III</b> <i>Prerequisites: FSDT1350, FSDT1308, FSDT1304, FSDT1312 and FSDT2318.</i> Study of the nutritional needs and health problems associated with adults and aging. Study of wellness and behavior modification, including consumer related nutrition concerns.	L	30	-	3

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
FSDT2350	<b>Sports Nutrition</b> <i>Prerequisite: Basic Nutrition FSDT1350</i> The study of nutrition and how it relates to sports performance. The relationship between nutrient timing and recovery and restoration for exercise and training. Fueling strategies to enhance sport performance of various sports is discussed. Ergogenic aids and sports supplements are also explored.	L	45	-	4.5
FSDT2402	<b>Fundamentals of Event Planning</b> <i>Prerequisites: FSDT1208 and FSDT1214.</i> Principles of event management (event design, planning coordination, promotion, budgeting, and evaluation) which support client needs and event success. Hands-on experience with event planning.	L	30	45	4.5
FSDT2900	<b>Food Service Internship</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to work 16 hours per week at a food service facility providing experience in planning, organizing and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	220	5.5
FSDT2902	<b>Food Service Internship</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to work 16 hours per week at a food service facility providing experience in planning, organizing and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	180	4.5
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	220	5.5
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	80	2
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	120	3
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	160	4
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	240	6
FSDT2901	<b>Cooperative Experience</b> <i>Prerequisite: Special permission of program supervisor.</i> Students are assigned to a food service facility at a pay scale agreed to by both student and food service facility. Experience in planning, organizing, preparing, and managing the production and service of quality food in quantity. Individual objectives are established for each student.	L	-	480	12
FSDT2999	<b>Special Project</b> <i>Prerequisite: Permission of program chair and instructor.</i> Selected educational experiences beyond those included in the regular curriculum. Experiences may include—but are not limited to—advanced study in special areas of interest, workshops, menu courses, conventions, lectures, etc.	L	-	-	.5-4

## GEOG • GEOGRAPHY

GEOG1400	<b>Introduction to Human Geography</b> Basic understanding of the way people live on and leave their impact upon the earth's surface. Geographic viewpoint (emphasizing spatial organization, ecology, and the character of place) provides a perspective for understanding many of the crucial problems facing humanity today and in the future.	B/L	45	-	4.5
GEOG1420	<b>World Regional Geography</b> Study of the major regions of the world. Landforms; climate; economic, cultural and political systems.	B/L	45	-	4.5
GEOG1500	<b>Physical Geography</b> Systematic examination of the basic elements of the physical environment. Study of the atmosphere, including the processes for weather and climate. The oceans, their characteristics and impact, a study of land forms, their creation and change, comprise a major portion of the course. The effect of people on the environment is a constant point of study. Map study. Lincoln class includes lab.	B/L	45	-	4.5

## GEOLOG • GEOLOGY

GEOLOG1010	<b>Physical Geology</b> Introductory course in geology with lab. Introduction to minerals, rocks and ores; surface features and internal character of the earth and the forces that are constantly changing. Maps and aerial photographs for local interpretation.	B/L	45	30	6
GEOLOG1060	<b>Environmental Geology</b> The processes of physical geology have a direct bearing on the environmental conditions that exist on Earth. In this course we will examine how geologic events impact the natural environment, and how anthropogenic events impact both the processes of geology and the world wide environment. Topics to be considered include an introduction to the geologic structure and processes of the Earth, soil, air, and water pollution and remediation, and global climate change.	L	45	-	4.5

## GERM • GERMAN

GERM1010	<b>Elementary German I</b> <i>Prerequisite: German Placement test and interview with instructor.</i> Study of grammar, punctuation, dictation, reading and writing of German.	L	75	30	7.5
GERM1020	<b>Beginning German II</b> <i>Prerequisite: GERM1010 or equivalent as demonstrated by German placement test and interview with instructor.</i> Continuation of GERM1010. Readings on contemporary cultural and social issues in German.	L	75	30	7.5

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
GERM2010	Second Year German I	L	45	-	4.5

*Prerequisite: GERM1020 or equivalent as demonstrated by German placement test and interview with instructor.*  
Intensive and extensive reading of moderately difficult German prose, review of grammar and conversation.

GERM2020	Second Year German II	L	45	-	4.5
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*Prerequisite: GERM2010 or equivalent as demonstrated by German placement test and interview with instructor.*  
Reading of more difficult texts. Class discussion and reports on supplementary reading.

## GLST • GLOBAL STUDIES

GLST2980	Global Studies	L	45	-	4.5
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This Study-Abroad course will consist of interdisciplinary lecture topics designed to address areas of cultural, historical, and major political concepts and controversies that have developed in the target country (ies). The course is under the guidance of the global studies coordinator. Students will read literature, and original documents from the target country and will visit actual sites of historical and cultural significance. Students will be exposed to national, comparative, and international culture and politics.

## HIMS • HEALTH INFORMATION MANAGEMENT SYSTEMS

HIMS1102	CPT Coding	L	45	-	4.5
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*Prerequisites: BIOS1000, MEDA1101 and MEDA1201. (or permission)*  
Study and application of coding systems and their uses in various reimbursement schemes. Practical application of coding principles provided throughout by use of exercises and patient records.

HIMS1103	HIMS ICD-9 Coding	L	60	-	6
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*Prerequisites: BIOS1000, MEDA1101 and MEDA1201. (or permission)*  
Student will study and apply more advanced and specialized coding principles. Overview of the prospective payment system and the coder's role in that system included. Practical experience provided through the use of exercises and patient records.

HIMS1104	Clinical Education	L	-	135	4.5
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*Prerequisites: HIMS1102 and HIMS1103. (or permission)*  
Practical experience under supervision in hospital setting, physician's office, or clinic.

## HIST • HISTORY

HIST1000	Western Tradition I	B/L	45	-	4.5
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Development of Western civilizations from the origins of the human race to the Renaissance, and the discovery of America, including examination of the political, social, economic, cultural, and religious components.

HIST1010	Western Tradition II	B/L	45	-	4.5
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Development of Western civilizations from the Reformation to the present, including examination of the political, social, economic, cultural, and religious components.

HIST1810	Survey of Russian History	B/L	45	-	4.5
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Study of the four major periods of Russian history — the Kievan era, the rise of Moscow, the Romanov period and Soviet Russia. Emphasis on political, social, cultural and economic characteristics.

HIST1820	Survey of Asian History	B/L	45	-	4.5
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Survey of Asian history. Political, social, cultural and economic development of China, Japan and Southeast Asia from ancient to modern times.

HIST2010	American History I (Early America)	B/L	45	-	4.5
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Survey of American history from the age of discovery through the Civil War. Emphasis on political, economic, and social problems in the growth of the American nation.

HIST2020	American History II (Late America)	B/L	45	-	4.5
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Survey of major political, social, cultural and economic developments since 1877. Industrialization and urbanization, the rise of the United States as a world power, the New Deal and World War II, the postwar years, civil rights struggles, the Vietnam era and contemporary America.

HIST2100	World History to 1500 CE	B/L	45	-	4.5
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Survey of the major political, social, cultural and economic developments of African, American, Asian, European, and Middle Eastern societies from the origins of civilization to the Early-Modern era (1500). Emphasis is placed on the comparison, interaction, and diversity of the world's major regions.

HIST2110	World History since 1500 CE	B/L	45	-	4.5
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Survey of the major political, social, cultural and economic developments of African, American, Asian, European, and Middle Eastern societies from the Early-Modern era to the present. Emphasis is placed on the comparison, interaction, and diversity of the world's major regions.

HIST2799	Special Topics in History	B/L	45	-	4.5
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Topics vary each term. The purpose of this class is to explore a specific topic or period in history in greater detail, to provide students with a deeper understanding and appreciation of historical events.

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HIST2960	Survey of African American History	L	45	-	4.5

Overview of the major political, social, cultural, and economic themes in the African American experience from the origins of the Atlantic Slave Trade into the late twentieth century.

## HLTH • HEALTH

HLTH1010	Introduction to Health	B	45	-	4.5
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Survey of major health problems, diseases and their prevention; drug and alcohol abuse; family planning and birth control; mental health; consumer protection and physical fitness. Issues of individual health choices.

## HMRS • HUMAN SERVICES

HMRS1101	Human Services Concepts	L	45	-	4.5
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Introduction to the Human Services field including definitions, team planning, community resources, worker roles, and social role valorization.

HMRS1102	Counseling Theories & Techniques	L	35	30	4.5
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Study of functional theories, principles, and techniques of counseling: active listening and problem-solving. Practice in techniques and theories.

HMRS1105	Critical Thinking in Human Services	L	45	-	4.5
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Study of critical thinking in verbal and non-verbal problems, using photographs, cartoons, descriptive assignments, report assignments, analyses, and arguments. Course will use reading and writing assignments to connect critical thinking concepts to everyday problems. A practical application of materials will be presented.

HMRS1109	Pre-Clinical Education	L	20	75	4.5
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*Prerequisites: HMRS1102 and HMRS1105. Screening course for entry into clinical education.*  
Methods of approaching clients, basic communication, and employee values and skills. Seminars will be held every two weeks. Students and faculty will discuss the application of theory to practice, share resources, and discuss trends in the field. Graded pass/no-pass only.

HMRS1110	Clinical Education and Seminar 1	L	-	135	4.5
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*Prerequisites: Current AHA Healthcare Provider CPR, First Aid, HMRS1109 and permission.*  
Clinical education scheduled throughout the program. Under supervision, work with selected clients and application of acquired skills and principles studied in the classroom. A required seminar meets five time per quarter.

HMRS1201	Health Foundations	L	45	-	4.5
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Health concerns of the Human Services profession. Body systems, functional aids, activities of daily living, seizure management and medications.

HMRS1202	Behavior Therapy	L	45	-	4.5
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Behavioral techniques in the Human Services field. Skills needed for developing, implementing, and monitoring behavioral programs.

HMRS1210	Clinical Education and Seminar 2	L	-	135	4.5
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*Prerequisites: HMRS1110 and permission or Credit by Waiver.*  
For course description, refer to HMRS1110 Clinical Education and Seminar 1.

HMRS1302	Crisis Intervention	L	45	-	4.5
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*Prerequisite: HMRS1102.*  
Models for understanding people and their problems including crisis counseling.

HMRS1310	Clinical Education and Seminar 3	L	-	135	4.5
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*Prerequisites: HMRS1110 and permission or Credit by Waiver.*  
For course description, refer to HMRS1110 Clinical Education and Seminar 1.

HMRS1311	Clinical Education A & D and Seminar 1	L	-	150	5
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*Prerequisites: HMRS1110, HMRS1210 and permission.*  
Intensive counseling experience in the field of alcoholism/drug abuse. Under supervision of a certified Alcohol and Drug Abuse counselor, students perform all twelve core functions required for State of Nebraska certification. Seminars will be held every two weeks. Students and faculty will discuss the application of theory to practice, share resources, and discuss trends in the field.

HMRS1320	Multicultural Competency	L	45	-	4.5
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*Prerequisite: HMRS1105*  
Understanding of self in viewing culture, including dominant and non-dominant culture, power, and privilege. Overview of various culture and groups.

HMRS1355	Strategies for Relaxation	L	45	-	4.5
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Methods used to increase relaxation, reduce muscular tension, and alleviate stress. Techniques are adaptable to personal or client use. Includes progressive relaxation, imagery, visualization, meditation, rational emotive and self hypnosis strategies.

HMRS1357	Multicultural Counseling	L	35	30	4.5
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*Prerequisites: HMRS1102 and 1320.*  
Understanding of cultural sameness and differences, and effect on human experience. Historical, political, social, and economic influences. Special counseling techniques applicable to minority groups and variations from traditional counseling.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HMRS1402	<b>Group Theory &amp; Process</b> <i>Prerequisite: HMRS1102 or basic counseling skills.</i> Small group process dynamics and theory in an effort to better understand the workings of small groups.	L	45	-	4.5
HMRS1403	<b>Assessment, Case Planning/Management &amp; Professional Ethics for A &amp; D</b> Case work skills of assessment, interview techniques, treatment decisions, case presentation, and referral and follow-up for those in alcohol and drug fields. Use of computers in record keeping. Professional ethics and issues.	L	45	-	4.5
HMRS1404	<b>Introduction to Social Work</b> Introduction to field of professional social work, including roles, philosophy, ethics, values, and competencies. Career expectations and diversity issues.	L	45	-	4.5
HMRS1405	<b>Case Management &amp; Ethics for Human Services</b> Case work skills of assessment, interviewing, case presentation, referral, and follow-up. Use of computers in record keeping. Professional ethics and issues. For general Human Services field.	L	45	-	4.5
HMRS1410	<b>Clinical Education and Seminar 4</b> <i>Prerequisites: HMRS1110 and permission.</i> For course description refer to HMRS1110 Clinical Education and Seminar 1.	L	-	135	4.5
HMRS1411	<b>Clinical Education A &amp; D and Seminar 2</b> <i>Prerequisites: HMRS1110, HMRS1210 and permission.</i> For course description refer to HMRS1311, Clinical Education A & D and Seminar 1.	L	-	150	5
HMRS2360	<b>Women's Issues in Human Services</b> Needs and expectations of women as clients and service providers in Human Services agencies. Philosophy, socialization, self image, equity, child care, alcohol and drug, and other addictive disorders, minority women, and health and legal issues.	L	45	-	4.5
HMRS2361	<b>Domestic Abuse</b> Recognition of signs of domestic abuse (physical, emotional or sexual), the cycle of violence, and community interventions.	L	45	-	4.5
HMRS2362	<b>Child Abuse</b> Definitions of child maltreatment (emotional, physical, sexual), cultural factors, recognition of abuse/neglect, family dynamics, reporting obligations, treatment interventions and community resources.	L	45	-	4.5
HMRS2363	<b>Death, Dying, Grieving &amp; Loss</b> Process of loss and grief from the perspective of the Human Service provider/client relationship. Recognizing loss, stages of grieving, support groups, and letting go and going on.	L	45	-	4.5
HMRS2364	<b>Adult Survivors of Childhood Sexual Abuse</b> Working effectively with adult survivors of childhood abuse. Issues of sexuality and intimacy. Counselor roles in diagnosis and treatment.	L	45	-	4.5
HMRS2365	<b>Mental Illness &amp; Family Issues</b> Scope and magnitude of mental illness, specifically schizophrenia, major depressive disorder, and bipolar disorder. Historical review of mental illness, cultural issues, stigma, and discrimination. Specific focus on the symptoms, interventions and treatment as well as effects on the sense of self and the family.	L	45	-	4.5
HMRS2501	<b>Developmental Disabilities</b> Nature, causes, and factors which influence the delivery of services for a select group of developmental disabilities (cerebral palsy, autism and learning disabilities). Nature, causes, and factors which influence the delivery of services for a select group of developmental disabilities: attention deficit hyperactive disorder, cerebral palsy, autism, learning disabilities, oppositional defiant disorder, conduct disorder, and Tourette's Syndrome.	L	45	-	4.5
HMRS2502	<b>Activities &amp; Recreation in Human Services</b> Selecting and developing recreational and educational activities with clients. Includes computer use.	L	45	-	4.5
HMRS2504	<b>Intellectual Disabilities</b> Study of the nature, causes, and factors which influence the delivery of services to people who have intellectual disabilities (mental retardation).	L	45	-	4.5
HMRS2510	<b>Clinical Education and Seminar 5</b> <i>Prerequisites: HMRS1110 and permission.</i> For course description, refer to HMRS1110 Clinical Education and Seminar 1.	L	-	135	4.5
HMRS2511	<b>Clinical Education A &amp; D and Seminar 3</b> <i>Prerequisites: HMRS1110, HMRS1210 and permission.</i> For course description refer to HMRS1311, Clinical Education A & D and Seminar 1.	L	-	150	5
HMRS2516	<b>Family Systems</b> A look at family dynamics including co-dependency, family strategies, models of family functioning and family developmental stages. Evaluation and assessment, treatment, and self-help groups will be discussed.	L	45	-	4.5

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HMRS2517	<b>Medical &amp; Psychosocial Aspects of Alcohol/Drug Use, Abuse &amp; Addiction</b> Study of physiological and sociological aspects of alcohol/drug use and abuse. Classification and basic pharmacology of drugs and their effects. Assessment and drug testing. Etiological, behavioral, cultural, demographic, and spiritual aspects and belief systems concerning alcohol/drug use. Processes of dependence and addiction. Signs, symptoms, and behavioral patterns.	L	45	-	4.5
HMRS2518	<b>Clinical Treatment Issues in Chemical Dependency</b> Study of treatment issues specific to alcohol/drug abuse. Diagnosis, adult children of alcoholics, denial, family disease concepts, cultural dimensions. Treatment issues with adolescents, women, elderly, gay/lesbian/bisexual clients. Treatment modalities, strengths, and weaknesses. Selection of appropriate modality.	L	45	-	4.5
HMRS2521	<b>Applied Behavior Analysis</b> Review of Behavior Therapy application includes exposure therapy, modeling and skills training, cognitive restructuring, behavioral medicine, and psychological disorders.	L	45	-	4.5
HMRS2523	<b>Human Sexuality</b> Introduction to human sexuality and sexual function/dysfunction. Attitudes and values about sexuality.	L	45	-	4.5
HMRS2524	<b>Advanced Counseling</b> <i>Prerequisite: HMRS1102.</i> Integration of theories and techniques which will help students develop a personal style of counseling. Course will provide an overview of some of the major approaches to counseling. A practical application of the material will be presented.	L	45	-	4.5
HMRS2610	<b>Clinical Education and Seminar 6</b> <i>Prerequisites: HMRS1110 and permission.</i> For course description refer to HMRS1110 Clinical Education and Seminar 1.	L	-	135	4.5
HMRS2611	<b>Clinical Education A &amp; D and Seminar 4</b> <i>Prerequisites: HMRS1110, HMRS1210 and permission.</i> For course description refer to HMRS1311, Clinical Education A & D and Seminar 1.	L	-	150	5

## HORT • HORTICULTURE

HORT1130	<b>Introduction to Horticulture</b> Introductory course designed to feature basic aspects and techniques of the horticulture industry. Emphasis will be placed on making the student aware of the different fields with the industry and the proper growing environment for indoor and outdoor horticulture crops.	B	45	-	4.5
HORT1132	<b>Horticulture Plant Identification &amp; Selection</b> Study and identification of a variety of horticulture plants used in landscape design, greenhouses, and nurseries in the Midwest.	B	45	-	4.5
HORT1136	<b>Plant Propagation</b> Introductory study of plant propagation and reproduction. Areas of focus include vegetative reproduction, cross pollination and grafting procedures.	B	21	27	3
HORT1154	<b>Greenhouse Management</b> Study of greenhouse operations including ventilation, lighting, and temperature control. Focuses on economic considerations of operating and maintaining a greenhouse.	B	21	27	3
HORT1155	<b>Basic Landscaping</b> <i>Prerequisite: HORT1132.</i> Introduction to landscape design and construction using techniques that combine color, plant species, and symmetrical and asymmetrical balance.	B	45	-	4.5
HORT1190	<b>Management of Turfgrass Pests</b> Study of chemical, biological, and cultural methods of managing weeds, diseases, and insect pests of turfgrass plants.	B	45	-	4.5
HORT1239	<b>Arboriculture</b> Introduction to the biology of trees, and their selection and placement in a landscaping design. Includes general tree maintenance including planting, pruning, fertilizing and damage repair.	B	21	27	3
HORT1242	<b>Turfgrass Management</b> Basic study of turfgrass species and varieties and the procedures for establishment and maintenance of a turfgrass lawn. Emphasis on fertility, pest control, irrigation requirements and proper mowing procedures.	B	45	-	4.5
HORT2214	<b>Horticulture Equipment Maintenance</b> Basic study of proper maintenance and repair of horticultural equipment including blade sharpening, small engine repair, and scheduled maintenance.	B	6	90	3

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HORT2265	<b>Irrigation &amp; Water Management</b> Principles of irrigation, soil, water and plant relationships, and operation of irrigation equipment. Irrigation scheduling, chemigation, and management of water to prevent erosion and maintain surface and groundwater quality.	B	42	54	6
HORT2286	<b>Advanced Landscaping</b> <i>Prerequisite: HORT1155.</i> Detailed study of advanced techniques including retaining walls, constructed structures and various color schemes.	B	45	-	4.5
HORT2288	<b>Golf Course Management</b> <i>Prerequisite: HORT1242, AGR12219; Co-requisite: HORT2265.</i> Study of golf course management practices as they pertain to bunker, green, tee, and fairway construction, and maintenance and upkeep including mowing, fertilization, irrigation, pest management and equipment maintenance and operation.	B	44	52	6
HORT2292	<b>Landscape Maintenance</b> General understanding of procedures for reviving and maintaining existing landscapes, using annual and perennial plant species.	B	21	27	3
HORT2295	<b>Advanced Golf Course Management</b> Detailed and hands on study of golf course management practices as they pertain to course renovation and maintenance. Including irrigation scheduling, facility maintenance, and reclaimed water usage.	B	20	180	8
HORT2999	<b>Individual Special Project</b> Selected educational experiences that provide intensive study in a topic area above and beyond the regular curriculum. Credit hours will vary. Must have permission of instructor and program chair.	B	-	-	5-4.5

## HUMS • HUMANITIES

HUMS1100	<b>Introduction to the Humanities</b> ☐ <i>Prerequisite: Eligible for ENGL1010 or instructor's approval.</i> Survey course focusing on art, music, theatre, film, dance, architecture, and philosophy which examines the unfolding of the humanistic traditions of the West through the landmarks of Western cultural traditions in order to reawaken our sense of wonder and curiosity about the meaning of life. Criteria to evaluate our own times and situation and in addition enriches our historical perspectives. Shows how the various arts intersect, influence and are influenced by their times.	B/L	45	-	4.5
HUMS1200	<b>Contemporary Arts &amp; Ideas</b> ☐ <i>Prerequisite: Eligible for ENGL1010 or instructor's approval.</i> Global and multicultural survey of the fine arts of architecture, drama, music, painting, and sculpture through the 21st century. Emphasis on the effect of revolutionary artistic styles on society. Includes attendance at live performances and art galleries.	B/L	45	-	4.5

## HVAC • HEATING, VENTILATION, AIR CONDITIONING & REFRIGERATION TECHNOLOGY

HVAC1109	<b>Electrical Fundamentals</b> Study of basic electricity for use in the HVAC/R trades, including DC fundamentals, focusing on AC electrical theory, understanding AC electrical circuits, interpreting AC electrical wiring schematics, and usage of test instruments.	M	42	8	4
HVAC1131	<b>Refrigeration Theory I</b> Basic refrigeration fundamentals with emphasis on heat energy, heat transfer, temperature, pressure, refrigerants, refrigerant oils, stratospheric ozone, greenhouse effect, and EPA guidelines.	M	50	-	5
HVAC1132	<b>Piping Practices</b> Study of materials and methods used in the installation and service of refrigeration, air conditioning and plumbing equipment. Copper and steel pipe soldering, brazing, copper-tube bending, and installation procedures performed by students. Industrial safety, hazard communications, HVACR standards, and material safety data sheets are studied.	M	-	100	3
HVAC1133	<b>Plumbing Theory/Print Reading</b> Introduction to blueprint reading, plumbing tools, materials, and practices for residential applications.	M	50	-	5
HVAC1226	<b>Refrigeration Laboratory I</b> <i>Prerequisite: HVAC1109, HVAC1131 AND HVAC1132.</i> Basic refrigeration service fundamentals with emphasis on physically constructing, leak checking, evacuating, electrical wiring, start up and performing system checks on a basic refrigeration system. Assembly of an electrical lab trainer also offered.	M	40	60	6

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HVAC1230	<b>Electrical Principles &amp; Practices</b> Study of controls and their application. This includes series and parallel circuits, electrical symbols and electrical schematics, ohms law, Kirchoff's voltage and current laws, and control transformers as applied to residential and light commercial air conditioning.	M	10	40	2
HVAC1234	<b>Plumbing Code</b> <i>Prerequisite: HVAC1133.</i> Study of uniform plumbing code. Piping practices, pipe fittings and plumbing fixtures. Drains waste and vent systems are designed and applied to residential structures.	M	50	-	5
HVAC1237	<b>Refrigeration Theory II</b> <i>Prerequisites: HVAC1109 and HVAC1131.</i> Study of basic mechanical components used in the operation of basic refrigeration systems.	M	50	-	5
HVAC1251	<b>Hydronic Theory</b> Study of the classifications and descriptions of hydronics systems and the component parts which make up a hydronic heating system including a description of each part, its function and how it is rated.	M	35	15	4
HVAC1330	<b>Residential HVAC Systems &amp; Controls I</b> <i>Prerequisite: HVAC1230.</i> Emphasis on control circuits and electrical schematics, HVAC sensors, furnace components and central air conditioning components. Basic HVAC system installation, maintenance and operating sequences are discussed. Safety rules for HVAC technicians are also presented.	M	40	10	4
HVAC1331	<b>Manual J/Manual D</b> Calculations of heat loss and heat gain for residential structures. Procedures in accordance with ACCA Manual J. Design of heating and air conditioning systems, types of systems, equipment selection and air distribution. Systems designed using ACCA Manual D.	M	40	60	6
HVAC1336	<b>Sheet Metal Lab</b> Introduction to pattern development and fabrication of fittings used in the heating/air conditioning industry. Layout techniques include radial line development and triangulation.	M	-	100	3
HVAC1343	<b>Refrigeration Theory III</b> <i>Prerequisites: HVAC1226, 1230, &amp; 1237.</i> Emphasis on commercial refrigeration controls, electrical wiring schematic, theory application of different refrigeration systems, methods of defrost, basic operation of cuber and flaker ice machines.	M	35	15	4
HVAC1363	<b>Heat Pump Principles</b> <i>Prerequisite: HVAC1230.</i> The study of components, controls, system design, installation, troubleshooting, start-up, standard service procedures, wiring diagrams and annual operating costs.	M	50	-	5
HVAC1434	<b>Refrigeration Laboratory II</b> <i>Prerequisite: HVAC1343.</i> Laboratory application of commercial refrigeration theory. Exposure to the electrical and mechanical operation of refrigeration systems associated with walk-in coolers and freezers, open freezer case, ice machines, reach-in freezers and coolers, computer diagnostic programs, and electrical wiring panels.	M	-	100	3
HVAC1440	<b>Mechanical Code</b> Study of the Mechanical Code and its application to the installation and maintenance of heating, air conditioning and ventilation systems.	M	20	-	2
HVAC1447	<b>Commercial HVAC Fundamentals &amp; Practices I</b> <i>Prerequisite: HVAC1330.</i> Basic commercial/industrial air conditioning control applications. electrical-mechanical, electronic-mechanical, and pneumatic (air) actuated control components. Building operation supervisory systems are briefly discussed.	M	50	-	5
HVAC1450	<b>EPA Refrigerant Certification</b> Study of the EPA HVAC/R requirements and procedures for Type I, II, III, and Universal Certification. Upon completion, each student will be required to pass to Type I and Type II of an EPA approved test. Type III is optional.	M	20	-	2
HVAC1452	<b>Residential Install Lab</b> <i>Prerequisites: HVAC1234 and 1336.</i> Application of theory and technical courses to practical situations including installation of plumbing, heating and air conditioning equipment. Primary project is a residence constructed on the College campus.	M	-	70	2
HVAC1461	<b>Residential HVAC Systems &amp; Controls II</b> <i>Prerequisite: HVAC1330.</i> Study of high efficiency, condensing gas fired furnaces. Includes special control applications and different mechanical devices such as humidifiers, electronic air cleaners, and programmable thermostats. Firing rates, efficiency measuring, venting and installation procedures studied. Solid state controls discussed to the extent practical.	M	50	-	5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
HVAC2600	HVAC/R Lab <i>Prerequisite: HVAC1461.</i> Lab setting employing the use of residential and light commercial equipment, training panels and interactive computer programs to acquire experience with wiring, function, operation and troubleshooting of heating, ventilation, air conditioning and refrigeration equipment.	M	-	100	3
HVAC2610	Troubleshooting Techniques Lab <i>Prerequisite: HVAC1461.</i> Application of servicing and troubleshooting residential and light commercial HVAC/R equipment, both mechanically and electrically. Emphasis is placed on the "hands-on" use of service instruments from the Carrier Corporation Manual, HVAC Servicing Procedures. Additionally, creating electrical ladder (schematics) and wiring training panels and troubleshooting fault simulators will be emphasized. Troubleshooting actual units brought into the shop and service calls off campus will be included as practical.	M	-	50	1.5
HVAC2649	Commercial HVAC Fundamentals & Practices II <i>Prerequisite: HVAC1447.</i> Theory and practices of commercial air conditioning system operation. An in-depth study of human comfort, psychometrics and the engineering principles that apply to heating, ventilating and air conditioning (HVAC). The eight basic processes of HVAC are studied via the psychrometric chart.	M	50	-	5
HVAC2650	Troubleshooting Techniques <i>Prerequisite: HVAC1461.</i> Theory and application of servicing and troubleshooting as specifically applied to air conditioning and refrigeration systems, both mechanically and electrically.	M	35	15	4
HVAC2900	Internship <i>Prerequisites: HVAC1434 and HVAC1452.</i> On-the-job experience doing heating, air conditioning, refrigeration, sheet metal, heat pumps or plumbing with employers. Application of skills and knowledge acquired in previous quarters. This work experience is a non-paid employment situation. Meeting with supervising instructor two times throughout the quarter. Students will return to campus at the end of the quarter to evaluate the on-the-job training and prepare for full-time employment. Classroom oral presentation and written report of the experience.	M	20	400	12
HVAC2901	Cooperative Experience <i>Prerequisites: HVAC1434 and HVAC1452.</i> On-the-job experience doing heating, air conditioning, refrigeration, sheet metal, heat pumps or plumbing with employers. Application of skills and knowledge acquired in previous quarters. This work experience is paid employment. Meeting with supervising instructor two times throughout the quarter. Students will return to campus at the end of the quarter to evaluate the on-the-job training and prepare for full-time employment. Classroom oral presentation and written report of the experience.	M	20	400	12

## INFO • COMPUTER INFORMATION TECHNOLOGY

AND

## COMPUTER PROGRAMMING TECHNOLOGY

INFO1000	Computer Essentials Students will learn how to login to the computer labs and use Windows. Features of Microsoft Windows and the Microsoft Word - processing program are the main focus. Students will learn the basics of the personal computer. Students will learn to create, edit, and print documents in Microsoft Word.	M	10	-	1
INFO1005	Microsoft Office Applications No prerequisite. Basic skills in Microsoft Word, Excel, Access, and PowerPoint designed for transfer to UNL College of Business Administration, Class does not count for SCC General Education requirements or for the Computer Information Technology program. Pass/No Pass only.	L	-	60	2
INFO1010	Computer Literacy No prerequisite. Introduces computer hardware concepts related to system unit, input/output, storage, and communications devices. Additional topics include the Windows Operating System for desktop and file management, use of productivity software, and use of a Web browser for research and e-mail. Course does not count toward Computer Information Technology program course requirements.	L	40	15	4.5
INFO1111	Logic and Design An introduction to programming logic and structured program design using object-oriented principles.	M	50	-	5
INFO1117	Microsoft Windows and Office Suite Self-paced, hands-on lab format used to introduce students to Windows, word processing software, presentation software, spreadsheet software, and database software.	M	5	45	2
INFO1121	Microsoft Word & PowerPoint <i>Prerequisite: Prior computer coursework or experience.</i> Introduction to Word and PowerPoint. Basic word processing skills to create, edit, format, and print documents. Create, organize, and view presentations with text and graphics.	L	10	15	1.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
INFO1131	Microsoft Excel <i>Prerequisite: Prior computer coursework or experience.</i> Practical experience using Excel spreadsheet. Learn basic and intermediate commands to create and format spreadsheet data.	L	10	15	1.5
INFO1151	Computer Fundamentals <i>Prerequisite: Declared Computer Information Technology or Computer Programming program students only. Prior computer coursework or experience.</i> Fundamentals of computer concepts and terminology. Topics include hardware components, software overview, business and social aspects of computers, and computer Internet researching.	L/M	45	-	4.5
INFO1161	Windows Operating Systems <i>Prerequisite: Declared Computer Information Technology or Electronics Systems Technology program students only. Prior computer coursework or experience.</i> Introduction to features and capabilities of Microsoft Windows, including disk organization, file management, accessory applications, system customization, and maintenance. MS-DOS commands for file management and batch file creation.	L	40	15	4.5
INFO1211	Microsoft Access <i>Prerequisite: Prior computer coursework or experience.</i> Introduction to database creation and manipulation using Microsoft Access. Topics include tables, relationships, forms, reports, and queries.	L	15	15	2
INFO1214	Program Design and Problem Solving <i>Prerequisites: INFO1151, INFO1161, and MATH1040 or higher.</i> Fundamental concepts of structured programming techniques. Topics include top-down design, hierarchy charts, flow charts, pseudocode.	L	40	15	4.5
INFO1217	Database Management Introduction to database management systems. Basics of database design and manipulation covered. Topics include relationships, database normalization, integrity constraints, and Microsoft Access DBMS software.	M	50	-	5
INFO1221	Introduction to the MVS Environment <i>Prerequisite: INFO1111 or INFO1214.</i> This course will address the MVS mainframe environment to include the TSO/ISPF facilities for program development, basic JCL statements, IDCAMS and sort utility programs.	M	20	10	2
INFO1311	Database Concepts <i>Prerequisites: INFO1151, INFO1161 and INFO1211.</i> Introduction to database management concepts. Topics include database terminology, manipulation, organization, and relationships.	L	30	-	3
INFO1314	Java <i>Prerequisite: INFO1111 or INFO1214.</i> Introduction to programming using Java.	L/M	30	45	4.5
INFO1325	Internet Scripting <i>Prerequisites: INFO1214 or INFO1111, and INFO1431.</i> Introduction to the use of Javascript in web page development.	L/M	20	30	3
INFO1337	Introduction to IBMi <i>Prerequisite: INFO1111 or INFO1214.</i> Introduction to the IBMi operating system and Control Language commands. Physical and logical files are illustrated, using SEU, PDM, and DFU. CLP and SDA are also discussed.	M	30	20	3.5
INFO1371	Hardware Installation & Maintenance <i>Prerequisites: INFO1151, INFO1161, and MATH1040 or higher for CIT or INFO1161 and ELEC1317 for Electronics.</i> Overview of computer system components. Fundamental concepts of installation, interfacing, and preventive maintenance.	L	20	30	3
INFO1381	Data Communications & Networking <i>Prerequisites: INFO1151 and INFO1161.</i> Introduction to data communications and network terminology. Concepts related to network services, data transmission, and protocols.	L	40	15	4.5
INFO1391	TCP/IP <i>Prerequisite: INFO1381.</i> An in-depth coverage of all the salient models, protocols, services, and standards that govern TCP/IP.	L	30	-	3
INFO1414	Advanced Java <i>Prerequisite: INFO1314.</i> Object-oriented programming covering advanced Java topics.	L/M	30	45	4.5
INFO1428	COBOL <i>Prerequisite: INFO1221.</i> An in-depth study of the American National Standard COBOL language, ANS COBOL '85 and structured standards. Practice in coding basic business applications and business reporting functions in the related lab assignments.	M	50	100	8

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
INFO1431 ☐	<b>Web Page Fundamentals</b> <i>Prerequisites: INFO1151 and INFO1161 for CIT or INFO1117 for CP.</i> Overview of basic web page design. Create and edit web pages including text, images, Hyperlinks, tables, forms, cascading style sheets.	L/M	20	30	3
INFO1441 ☐	<b>Advanced Windows Operating System</b> <i>Prerequisite: INFO1381 for CIT or ELEC2760 for Electronics.</i> Implement and use Windows advanced features to connect, manage, and troubleshoot Windows systems in a workgroup and domain environment.	L	20	30	3
INFO1443 ☐	<b>Help Desk Concepts</b> <i>Prerequisites: ENGL1010 or ENGL1015, and the following: INFO1121, INFO1151, INFO1161, and INFO1211.</i> Terminology, structure, and tools related to help desk operations.	L	20	-	2
INFO1458 ☐	<b>RPG IV</b> <i>Prerequisite: INFO1337.</i> Programming of the IBMi computer using RPG IV (Report Program Generator) language. Applications used in RPG IV illustrate basic input/output, calculations, comparisons, control breaks, tables, arrays, and data base file I/O - using DB2/400. Subfile processing is used for on-line applications.	M	50	50	6
INFO1463 ☐	<b>Advanced Hardware Troubleshooting</b> <i>Prerequisite: INFO1371.</i> Diagnose and correct computer hardware problems. Assemble a PC system unit.	L	20	30	3
INFO1491 ☐	<b>Network Security Fundamentals</b> <i>Prerequisites: INFO1391 and INFO1441.</i> Examination of information security basics focusing on the threats, trends, and ramifications related to the security practices and procedures on an Enterprise network.	L	30	-	3
INFO1493 ☐	<b>Advanced Microsoft Access</b> <i>Prerequisite: INFO1211.</i> Advanced database techniques using Access.	L	-	60	2
INFO1501 ☐	<b>Integrated Applications</b> <i>Prerequisites: INFO1121, INFO1131, and INFO1211 for CIT students. INFO1010 and INFO1211 for VPub students.</i> Project based course covering advanced topics and integration of word processing, spreadsheet, database, and presentation software.	L	-	90	3
INFO1511 ☐	<b>Advanced Database Concepts</b> <i>Prerequisite: INFO1311.</i> Advanced topics in database management. Topics include database relationships, SQL, and additional work with DBMS software.	L	20	30	3
INFO1515 ☐	<b>Database Administration</b> <i>Prerequisite: INFO1311.</i> Introduction to the database administration concepts using Microsoft SQL Server. Topics include creating and managing databases, tables, indexes, views, stored procedures, triggers, and user-defined functions. Additional topics include installation issues and management tools.	L	20	30	3
INFO1521 ☐	<b>Web Graphics</b> <i>Prerequisite: INFO1431.</i> Techniques for adding graphical information onto a web page using Photoshop.	L	15	15	2
INFO1522 ☐	<b>Web Layout</b> <i>Prerequisite: INFO1431.</i> Introduction to Dreamweaver for web page development.	L	-	60	2
INFO1525 ☐	<b>Web Server Scripting</b> <i>Prerequisites: INFO1314, INFO1511, INFO1522, and INFO2564.</i> Server-side scripting techniques for web database access.	L	30	45	4.5
INFO1541 ☐	<b>Social &amp; Ethical Issues in Information Technology</b> <i>Prerequisites: ENGL1010 or ENGL1015 and the following: INFO1121, INFO1151.</i> Study of ethical and social implications of computer technology.	L	20	-	2
INFO1585 ☐	<b>Virtualization Management</b> <i>Prerequisites: INFO1371, INFO1391, and INFO1441.</i> Setup and manage virtualization software. Create, setup, and manage virtual hardware.	L	10	30	2
INFO2513 ☐	<b>Troubleshooting Techniques</b> <i>Prerequisite: INFO2543.</i> Instructor supervised simulation requiring students to troubleshoot computer-related problems.	L	20	30	3
INFO2514 ☐	<b>Java Server Programming</b> <i>Prerequisites: INFO1414 and INFO1431.</i> Skills needed to develop and implement web-based database applications using Java servlets, Java server pages, and JDBC database techniques.	L/M	30	45	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
INFO2528 ☐	<b>Advanced COBOL</b> <i>Prerequisites: INFO1428 and INFO2678.</i> An advanced study of the American National Standard COBOL language, (ANS COBOL /85). Programming techniques include multiple level table and variable length record processing, alternate index processing and embedded SQL, VSAM file processing, COBOL internal sort, and subprograms. Programming experience to apply the advanced techniques in the related lab assignments.	M	50	75	7.5
INFO2531 ☐	<b>Linux Operating System</b> <i>Prerequisites: INFO1151 and INFO1161.</i> Fundamental concepts and use of the Linux operating system.	L	15	15	2
INFO2543 ☐	<b>Workplace Communication Skills</b> <i>Prerequisites: ENGL1010 or ENGL1015 and the following: INFO1131, INFO1214, INFO1311, INFO1381, INFO1431.</i> Skills and techniques necessary in an IT work environment including communications, teaming, customer service, and conflict management.	L	15	15	2
INFO2548 ☐	<b>Customer Information Control System Programming</b> <i>Prerequisites: INFO1325, INFO1428, INFO2678.</i> Study of primary Command Level CICS concepts and applications programming instructions. Lab experience will allow student to write a common business on-line application using CICS, VSAM & DB2/SQL.	M	50	100	8
INFO2554 ☐	<b>Programming with C++</b> <i>Prerequisite: INFO1314.</i> Object-oriented programming using C++ in a Linux environment.	L	30	45	4.5
INFO2558 ☐	<b>Systems Analysis &amp; Design</b> <i>Prerequisites: INFO1428 and INFO1325.</i> System concepts and terms, program definition, interviewing techniques, and specific requirements for a computer system. Project groups will design systems for the INFO2638 Applied Business Solutions course.	M	50	-	5
INFO2564 ☐	<b>Visual Basic</b> <i>Prerequisite: INFO1214.</i> Program coding in Visual Basic.NET using a graphical interface.	L	30	45	4.5
INFO2565 ☐	<b>Visual Basic</b> <i>Co-requisites: INFO1111, INFO1117, &amp; INFO1217.</i> Program coding in Visual Basic.NET using a graphical interface.	M	30	45	4.5
INFO2574 ☐	<b>Visual C#</b> <i>Prerequisite: INFO1314 or INFO2564.</i> Fast-paced course in object-oriented Microsoft Visual C# programming.	L	30	45	4.5
INFO2585 ☐	<b>Windows Server Administration</b> <i>Prerequisites: INFO1371, INFO1391, and INFO1441.</i> Skills needed for managing a Windows network including configuring, administering, and troubleshooting user accounts, groups, and network security. Students create, configure, and manage network printing and file and web services in an Active Directory environment.	L	40	15	4.5
INFO2591 ☐	<b>Advanced Network Security</b> <i>Prerequisite: INFO1491.</i> Comprehensive examination of the security defenses and countermeasures employed on networks and information systems with a hands-on approach to security and penetration testing using ethical hacking tools and techniques.	L	40	15	4.5
INFO2594 ☐	<b>Team Program Design</b> <i>Prerequisites: INFO1414, INFO1525 and INFO2664.</i> Use proper techniques to develop and document the design of a complete system project.	L	10	15	1.5
INFO2611 ☐	<b>CIT Practicum</b> <i>Prerequisite: Permission of Program Chair.</i> Students spend 90 hours at a work site applying computer knowledge and skills in career interest area. Exact nature of work varies. Individual objectives established for each student.	L	-	90	3
INFO2620 ☐	<b>Networking and Operating System Concepts</b> <i>Prerequisite: INFO1151.</i> Introduction to network and operating system concepts and terminology as it relates to the various types of networks, protocols, topologies and security issues.	M	25	25	3
INFO2631 ☐	<b>Linux Network Administration</b> <i>Prerequisites: INFO1371, INFO1391, and INFO2531.</i> Skills needed for managing a Linux based network, including installation, using resources, security and setting up users.	L	40	15	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
INFO2638	<b>Applied Business Solutions</b> <i>Prerequisites: INFO2528, INFO2548 and INFO2558.</i> This is a capstone course to apply programming languages and system design in the creation of the total application of an Information System. Student groups have, in a previous course, conducted interviews with industry to gather information that is used in the design of their own information system. In the A.B.S. course, students are responsible for creating their own test data, coding and testing the programming operations, creating system and program documentation, and generating time management outputs. A formal presentation on the completed system is required.	M	-	200	6.5
INFO2664	<b>Advanced Visual Basic</b> <i>Prerequisites: INFO1311 and INFO2564 for CIT or INFO1217 and INFO2565 for CP.</i> Advanced programming in Visual Basic.NET stressing object-oriented programming techniques.	L/M	30	45	4.5
INFO2670	<b>Desktop Support</b> <i>Prerequisites: INFO1463, INFO2543, and INFO2585.</i> Skills and knowledge to support end users in a Microsoft Windows environment.	L	40	15	4.5
INFO2674	<b>ASP.NET Using Visual Basic</b> <i>Prerequisite: INFO2664.</i> Object-oriented programming in Visual Basic.NET.	L	30	45	4.5
INFO2678	<b>DB2 Database Application &amp; SQL</b> <i>Prerequisite: INFO1217. Co-requisite: INFO1428.</i> Introductory course of IBM's DB2 Database Management System accessed with SQL (Structured Query Language).	M	30	20	3.5
INFO2680	<b>XML Web Services with Java</b> <i>Prerequisite: INFO2514 Java Server Programming</i> Use Java to develop, deploy and monitor Web services and Web service clients using service-oriented architecture (SOA).	M	30	20	3.5
INFO2682	<b>Developing Mobile Applications with Java</b> <i>Prerequisite: INFO1414 Advanced Java. Co-requisite: INFO2680 XML Web Services with Java.</i> Develop mobile applications using XML and Java.	M	30	20	3.5
INFO2694	<b>Team Program Implementation</b> <i>Prerequisite: INFO2594.</i> Develop projects applying system design and programming languages in the creation of a total computer application.	L	10	60	3
INFO2695	<b>Advanced Windows Server</b> <i>Prerequisite: INFO2585.</i> In-depth coverage of planning, implementing, configuring, maintaining, and troubleshooting an Active Directory infrastructure using Windows Server.	L	20	30	3
INFO2697	<b>Networking Capstone</b> <i>Prerequisites: INFO2631 and INFO2695.</i> Project-based course implementing and maintaining network infrastructures.	L	15	45	3
INFO2698	<b>Programmer Portfolio Development</b> <i>Prerequisite: INFO2594.</i> Using previous course training, students develop a capstone portfolio of programs to present to potential employers. Students will be expected to document and defend their portfolio content.	L	-	30	1
INFO2800	<b>Advanced Technologies</b> <i>Prerequisite: Permission of Program Chair.</i> Study of advanced technology topics in computers.	L	-	60	2

## INSU • INSURANCE

INSU1100	<b>Fundamentals of Insurance I</b> <i>Prerequisite: INFO2585.</i> Focuses on the basic concepts in risk management and insurance to include: legal principles in risk and insurance, life and health risks, property and liability insurance and financial.	L	45	-	4.5
INSU1120	<b>Principles of Underwriting and Claims</b> <i>Prerequisite: INSU1100</i> This course is designed to provide a knowledge foundation about property and casualty underwriting and about claims adjudication. Students will learn to evaluate information for usefulness and profitability of risk and to select proper underwriting techniques for implementing, monitoring, and correcting decisions. Students will learn the claims investigation process and dispute resolution techniques.	L	45	-	4.5
INSU1140	<b>Principles of Financial Services and Products</b> Introduces the structure of the Financial Services Industry and basic concepts relative to that industry. Describes various cash management products and services; identifies the primary types of insurance, annuities, health insurance, property and liability insurance, securities and tax-advantaged saving plans.	L	45	-	4.5
INSU1150	<b>Fundamentals of Insurance II</b> <i>Prerequisite: INSU1100</i> Focuses on the advance concepts in risk management and insurance to include: employee group life, health and retirement plans and commercial property and liability insurance.	L	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
JDAT1140	<b>John Deere Fundamentals &amp; Safety</b> The proper use and care of power and hand tools. Encompasses micrometers, dial indicators, torque wrenches, twist drills, tap, dies, screw extractors, thread restoration, tube fittings, and fasteners. Safety, product labels and material safety data sheets, and handling of hazardous materials will be explained. Safe forklift operation will be covered.	M	45	30	5.5
JDAT1142	<b>John Deere Orientation</b> This course provides an introduction to the John Deere product line, manuals, time management, engine classifications, and serial numbers. Warranty, shop tickets, and John Deere service department policy and procedures are explained as well as an introduction to John Deere Service ADVISOR.	M	30	45	4.5
JDAT1146	<b>John Deere Electrical/Electronics I</b> Basic electrical principles and applications of magnetism, electromagnetism, and the safe utilization of electrical test meters are covered. The design, construction, and safe operation and testing of lead acid batteries is part of this class. Principles of operation, testing, and repair of ignition systems, cranking systems, and charging systems are included.	M	84	36	9
JDAT1242	<b>John Deere Engine Repair</b> <i>Prerequisites: JDAT1140 through JDAT1146.</i> This course deals with basic physical principles, operation and construction of two- and four-stroke cycle engines. It includes ignition timing of four-stroke cycle engines to factory specifications. Basic diagnostic engine test procedures will be practiced on spark and compression ignition engines. This course also covers the types of internal combustion engine cooling systems, lubrication systems, air intake systems, and exhaust systems. Also covered is the basic theory, construction and operation of the engine valve train and the cylinder head, including valve timing and adjustments of actual John Deere engines. Basic repair procedures and operation of valve and seal reconditioning will be performed on actual cylinder heads. Also included are design, construction, operation, and service methods for the following engine components: crankshafts, connecting rods, piston assemblies, cylinder liners, bearings, and related engine accessories. Lab activities include disassembly, inspection, measurements, reassembly, and adjustments performed on John Deere engines. Shop safety is stressed during lab activities.	M	90	132	13
JDAT1244	<b>John Deere Fuel Systems</b> <i>Prerequisites: JDAT1140 through JDAT1146.</i> Operation, theory, testing, and repair methods for spark ignition engine fuel system along with normal and abnormal combustion theory. Fuel production, testing, storage, and handling are also covered. The theory of diesel fuel injection system includes injection pump and nozzle components, fuel flow, and fuel filtering systems. Maintenance procedures including proper removal, installation, and timing of fuel injection pumps is also covered.	M	30	18	3.5
JDAT1246	<b>John Deere Tractor Performance</b> <i>Prerequisites: JDAT1140 through JDAT1146.</i> This course deals with proper performance of John Deere agricultural tractors. Techniques and procedures for determining percentage of tractor slippage and ballast are covered. Engine performance test equipment, procedures, results, and corrections will be covered.	M	20	10	2
JDAT1440	<b>John Deere Heating/Air Conditioning</b> <i>Prerequisites: JDAT1140 through JDAT1370.</i> Theory, operation, and repair of John Deere air conditioning, heating, and ventilation systems including operation of recovery/recycling equipment. Retrofit procedures for converting equipment from R-12 to R134A refrigerant is also covered. Operation and repair of Climate Control Systems as used on John Deere Agricultural Equipment is included.	M	30	30	4
JDAT1442	<b>John Deere Electrical/Electronics II</b> <i>Prerequisites: JDAT1140 through JDAT1370.</i> Review of electrical fundamentals and safe operation of meters is included. An introduction to combine and tractor electrical systems are included as well as troubleshooting techniques for circuit diagnosis using electrical schematics. Testing electrical circuits with meters is part of the lab exercises. Basic CAN BUS and AMS components are included.	M	60	30	7
JDAT1446	<b>John Deere Hydraulics I</b> <i>Prerequisites: JDAT1140 through JDAT1370.</i> Introduction to basic hydraulic concepts, principles, symbols, and safety. Theory and construction of open-center and closed-center systems, pumps, valves, cylinders, motors, accumulators, and testing equipment as used on Waterloo built row-crop tractors.	M	60	15	6.5
JDAT1448	<b>John Deere Power Trains I</b> <i>Prerequisites: JDAT1140 through JDAT1370.</i> Theory, function, and operation of gears, chains, clutches, planetary gears, drive lines, differentials, and transmissions. Design, construction, operation, and service methods of bearings, seals, and shafts.	M	60	15	6.5
JDAT1901	<b>Dealer Cooperative Experience</b> <i>Prerequisites: JDAT1140 through JDAT1246.</i> On-the-job experience in a John Deere agricultural dealership. Application of skills and concepts learned in previous quarters. Supervised by Southeast Community College-Milford Campus John Deere Tech Instructors.	M	-	480	12
JDAT2540	<b>John Deere Hydraulics II</b> <i>Prerequisites: JDAT1140 through JDAT1448.</i> John Deere row-crop tractor theories of operation of low pressure, high pressure, and control systems. Theory and function of load sense systems, cooling lube circuits, and pilot oil. Diagnostic testing and repair of hydraulic components and systems.	M	130	20	13.5

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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**JDAT2542 John Deere Power Trains II** M 110 40 12  
*Prerequisites: JDAT1140 through JDAT1448.*  
 Theory of power transmission from engine to traction wheels. Complete disassembly, inspection, and reassembly of John Deere clutches, 2-speed planetary, differentials, final drives, mechanical front-wheel drive, power takeoffs, and transmissions as used in Waterloo built row-crop tractors. Syncro-range, quad-range, and powershift transmission, repair, adjustment, and diagnostics.

**JDAT2740 John Deere Hydraulics III** M 21 15 2.5  
*Prerequisites: JDAT1140 through JDAT2670.*  
 Principles, function, and application of low and high pressure systems as used in four wheel drive, 6000, and 7000 series John Deere tractors. Construction, fluid flow and testing of hydraulic components and systems.

**JDAT2742 John Deere Power Trains III** M 21 15 2.5  
*Prerequisites: JDAT1140 through JDAT2670.*  
 Theory of function and operation of power trains as applied to the four wheel drive, 6000, and 7000 series tractors. Two speed planetary, quad-range, and power dividers. Function, repair, and adjustment of the 12 and 24 speed mechanical transmissions, auto-quad, power-quad, and the 12 speed, 18 speed, and 19 speed powershifts.

**JDAT2744 John Deere Tillage and Seeding Equipment** M 20 10 2  
*Prerequisites: JDAT1140 through JDAT2670.*  
 This course covers the theory, design, principles of operation and adjustment, troubleshooting and repair of tillage equipment and planting equipment. Primary, secondary, and row crop tillage tools will be covered as well as row crop planters and grain drills.

**JDAT2746 John Deere Harvesting Equipment** M 60 30 7  
*Prerequisites: JDAT1140 through JDAT2670.*  
 This course covers the theory, design, principles of operation and adjustment, and troubleshooting of harvesting equipment. Emphasis will be placed in inspection and repair of all combine operational systems as well as the header systems.

**JDAT2748 John Deere Electrical/Electronics III** M 30 30 4  
*Prerequisites: JDAT1140 through JDAT2670.*  
 Review of electrical fundamentals and introduction to basic electronics, plus the procedures and use of a digital multimeter in testing electrical circuits is covered. Troubleshooting techniques for circuit diagnosis using electrical schematics is included. The function, operation, and testing of semiconductors and transistors is covered along with microprocessor operation, including inputs and outputs. Testing of tractor circuits including lighting, accessory, safety, instrumentation and gauges is a part of the lab exercises. Electronic monitoring systems used on planting and harvesting equipment is also covered.

**JDAT2750 John Deere Advanced Technologies** M 30 18 3.5  
*Prerequisites: JDAT1140 through JDAT2670.*  
 Operation, theory, testing, and repairs of precision farming tools to include Global Positioning Systems as used for Ag Management Solutions. Included are parallel tracking (guidance systems), yield mapping/monitoring, field documentation (acre counters, fuel consumption, periodical maintenance of machine, etc.), map-based seeding, Accu-depth (tillage machines), and Crop Verifeye (tracing crop from planting to harvest).

**JDAT2901 Dealer Cooperative Experience** M - 480 12  
*Prerequisites: JDAT1140 through JDAT2542.*  
 On-the-job experience in a John Deere agricultural dealership. Application of skills and concepts learned in previous quarters. Supervised by Southeast Community College-Milford Campus John Deere Tech Instructors.

## JDCE • DEERE CONSTRUCTION & FORESTRY EQUIPMENT TECH

**JDCE1130 Deere Orientation** M 30 45 5.5  
 This course provides an introduction to the John Deere product line, manuals, time management, engine classifications, and serial numbers. Warranty, shop tickets, and John Deere service department policy and procedures are explained as well as an introduction to John Deere Service ADVISOR and Parts Pro.

**JDCE1131 Deere Fundamentals** M 45 30 4.5  
 The proper use and care of power and hand tools. Encompasses micrometers, dial indicators, torque wrenches, twist drills, taps, dies, screw extractors, thread restoration, tube fittings, and fasteners. Safety, product labels, and material safety data sheets, and handling of hazardous materials will be explained. Safe forklift operation will be covered.

**JDCE1133 Deere HVAC** M 40 50 5.5  
 Theory, operation, and repair of Deere heating, ventilation, and air-conditioning systems. Includes proper operation of recovery/recycling equipment and leak detection equipment. Retrofit procedures for converting a system from R-12 to R-134A refrigerant. Operation and repair of Climate Control as used on Deere Construction and Forestry Equipment is included. Safety is stressed in this course.

**JDCE1134 Deere Electrical/Electronics I** M 84 36 9  
 Basic electrical principles and applications of magnetism, electromagnetism, and the safe utilization of electrical test meters are covered. The design, construction, and safe operation and testing of lead acid batteries is part of this class. Principles of operation, testing, and repair of ignition systems, cranking systems, and charging systems are included. Safety is stressed in this course.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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**JDCE1340 Deere Theory of Engine Operation** M 60 30 7  
 Study of basic physical principles, operation and construction of two- and four-stroke cycle engines. Ignition timing of four-stroke cycle engines to factory specifications. Basic diagnostic engine test procedures will be practiced on spark and compression ignition engines. This course also covers the types of internal combustion engine cooling systems, lubrication systems, air intake systems, and exhaust systems. This course also deals with the performance of Deere engines. Engine performance test equipment, procedures, results, and corrections will be covered. Safety is stressed.

**JDCE1341 Deere Fuel Systems** M 30 18 3.5  
 Operation, theory, testing, and repair methods for spark ignition engine fuel systems along with normal and abnormal combustion theory. Fuel production, testing, storage, and handling are also covered. The theory of diesel fuel injection system includes the injection pump, and nozzle components, fuel flow, and fuel filtering systems. Maintenance procedures including proper removal, installation, and timing of fuel injection pumps is also covered. Safety is stressed.

**JDCE1342 Deere Engine Repair** M 50 112 8.5  
 Basic theory, construction, and operation of engine valve train and cylinder head. Valve timing and adjustments of Deere engines. Design, construction, operation, and service methods for the following engine components: crankshafts, connecting rods, piston assemblies, cylinder liners, bearings, and related engine accessories. Crankshaft lubricants, lubrication systems, and oil filtration systems. Disassembly, inspection, measurements, reassembly, and adjustments performed on Deere diesel engines. Safety is included.

**JDCE1343 Deere Electrical/Electronics II** M 50 60 7  
 Review of electrical fundamentals including cranking motors, alternators, and ignition systems. An introduction to basic electronics is part of this course along with procedures and use of a digital multi-meter in electrical circuits. Techniques of circuit diagnosis using electrical schematics. Function, operation and testing of semiconductors and transistors. Microprocessor operation, including inputs and outputs. Testing of machine circuits including lighting, accessory, instrumentation, and gauges. Lab projects include the repair procedures and testing of cranking motors and alternators. Safety is stressed in this course.

**JDCE1441 Deere Advanced Fuel Systems & Engine Diagnostics** M 40 60 6  
 Review of Deere fuel injection systems including the theory, operation, fuel flow, diagnostics, repair procedures and adjustments of the common rail fuel system. Correct procedures for the diagnosis of engine malfunctions are discussed in the classroom. Lab projects are utilized to allow the student to experience engine problems and make the necessary repairs and/or adjustments to correct these malfunctions. Safety training is included.

**JDCE1901 Dealer Cooperative Experience** M - 480 12  
 On the job experience in a Deere construction equipment dealership. Application of skills and concepts learned in previous terms. Supervised by Southeast Community College - Milford Campus Deere Construction Equipment instructor. Safety rules/procedures are included in this course.

**JDCE2550 Deere Mechanical Power Trains** M 60 40 7  
 Theory of power transmission from engine to traction wheels. Function and operation of gears, clutches, planetary gears, drive lines, differentials, and transmissions. Lab exercises will include disassembly, inspection, adjustment, and reassembly of clutches, differentials, final drives, mechanical front-wheel drive, power takeoffs, mechanical, and power shift transmissions. Safety training will be included.

**JDCE2551 Deere Hydraulics** M 50 30 6  
 Principles and application of theory, construction, fluid flow, operation, testing, disassembly, inspection, repair, reassembly, and testing of hydraulic components and systems as used in Deere construction equipment. Safety is stressed.

**JDCE2552 Deere Hydrostatic Drives** M 50 40 6  
 Principles and application of theory, construction, fluid flow, operation, testing, disassembly, inspection, repair, reassembly, and testing of hydrostatic components and systems as used in Deere construction equipment. Safety is stressed.

**JDCE2760 Deere Back Hoes/Landscape Loaders** M 30 16 3.5  
 Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere Back Hoes/Landscape Loaders utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety is stressed.

**JDCE2761 Deere Excavators** M 30 16 3.5  
 Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere Excavators utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety training will be included.

**JDCE2762 Deere Crawler Dozers/Loaders** M 30 16 3.5  
 Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere crawler dozers/loaders utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety is stressed.

**JDCE2763 Deere Motor Graders** M 25 16 3  
 Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere motor graders utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety is stressed.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
JDCE2764	Deere Four Wheel Drive Loaders	M	30	16	3.5
Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere four wheel drive loaders utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety training will be included.					
JDCE2765	Deere Skid Steer Loaders	M	10	5	1
Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere skid steer loaders utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety is stressed.					
JDCE2766	Deere 4WD Tractors/Articulated Trucks	M	30	15	3.5
Theory, design, uses, principles of operation, adjustments, troubleshooting, and repair of Deere 4WD tractors and articulated trucks utilizing Service ADVISOR. Students will experience actual operation of equipment as available. Safety training will be included.					
JDCE2901	Dealer Cooperative Experience	M	-	480	12
<i>Prerequisites: JDCE1130 through JDCE2553.</i> On the job experience in a Deere construction equipment dealership. Application of skills and concepts learned in previous quarters. Supervised by the Southeast Community College-Milford Campus Deere Construction Equipment instructor.					

## JOUR • JOURNALISM

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
JOUR1810	Introduction to Mass Media	B	45	-	4.5
<i>Prerequisite: Eligible for ENGL1010 or ENGL1015.</i> Survey of new media, their roles, organization, personnel and procedures. Introduction to news writing style and technique and new media news production. Writing assignments for campus media outlet.					
JOUR1820	Media Writing	B	45	-	4.5
<i>Prerequisite: Eligible for ENGL1010 or ENGL1015.</i> Study of basic techniques of news gathering and news writing in a multimedia environment with an emphasis on publishing in campus and other media outlets.					
JOUR1840	Advanced Reporting	B	45	-	4.5
<i>Prerequisite: Grade of C or higher in JOUR1820.</i> Study of advanced techniques of news gathering and news writing in a new media environment with an emphasis on investigative reporting to be published in the campus news source and/or other publications as assigned. Emphasis is on publishable work. Includes assigned work in news writing, photography, audio production, video production, and page design and makeup.					
JOUR1880	Multimedia Reporting	B	45	-	4.5
<i>Prerequisite: Grade of C or higher in JOUR1840 or instructor permission.</i> Study of audio-visual technology used by contemporary journalists with an emphasis on audio and video production and editing and page composition to be published in the campus news source and/or other publications as assigned. Emphasis is on publishable work. Includes assigned work in news writing, photography, audio production, video production and page design and makeup.					
JOUR2780	Public Relations, Strategies & Techniques	B	45	-	4.5
Study of strategies, problems, and procedures in public relations. Practice in solving public relations problems. Preparation of public relations material for new media dissemination.					
JOUR2880	Media Editing	B	45	-	4.5
<i>Prerequisite: Grade of C or higher in JOUR 1880.</i> Advanced study of news writing, photography, and print and online page composition to be published in the campus news source and/or other new media publications as assigned. Intended to be a capstone course for journalism students. Includes assigned work in news writing, photography, audio production, video production and print and online page design. Emphasis is on publishable work. May be taken more than once for credit.					
JOUR2900	New Media/Journalism Internship	B	-	135	4.5
<i>Prerequisites: Permission of instructor.</i> Internship in new media field or location where new media knowledge and skills are the primary requirements. Guidance from professional staff in employment simulation.					
JOUR2980	New Media/Journalism Special Topics	B	45	-	4.5
Topics vary. The purpose of this course is to explore a specific topic in new media/journalism. Examples might include advanced photojournalism techniques, community journalism, and social media marketing.					

## LBST • LABORATORY SCIENCE TECHNOLOGY

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LBST1100	Laboratory Science Orientation	L	10	-	1
Overview of Laboratory Science Technology for new or prospective students. Employment expectations, content of courses, curriculum chronology and other items of concern to new students. Tours of local employment facilities.					
LBST1101	Applied Chemistry I	L	33	-	3
Introductory course in chemistry. Basic chemical concepts. Atomic structure, periodic table, chemical bonding, organic chemistry.					
LBST1102	Applied Chemistry II	L	33	-	3
<i>Prerequisite: LBST1101 and LBST1111 or equivalent.</i> Continuation of introductory chemistry. Measurement, stoichiometry, gas laws, solution preparation, chemical equilibrium and acid/base concepts.					
LBST1111	Applied Chemistry I Laboratory	L	-	33	1.5
<i>Laboratory course to accompany LBST1101.</i> Emphasizes qualitative analysis.					
LBST1112	Applied Chemistry II Laboratory	L	-	33	1.5
<i>Laboratory course to accompany LBST1102.</i> Practice of concepts learned in LBST1102.					
LBST1121	Analytical Chemistry for Technicians I	L	33	-	3
<i>Prerequisites: LBST1102 and LBST1112 or equivalent.</i> Introduction to classical quantitative chemical analysis emphasizing gravimetric and titrimetric analysis. Sampling and sample preparation, statistical data analysis, chemical equilibrium, acid/base and complex ion chemistry, and oxidation-reduction.					
LBST1131	Analytical Chemistry I Laboratory	L	-	44	1.5
<i>Laboratory course to accompany LBST1121.</i> Practice of concepts learned in LBST1121.					
LBST1161	Organic Chemistry	L	33	-	3
<i>Prerequisites: LBST1102 and LBST1112 or equivalent.</i> Organic chemistry emphasizing nomenclature, physical properties, reactions and structure including elementary infrared spectroscopy.					
LBST1171	Organic Chemistry Laboratory	L	-	33	1
<i>Laboratory course to accompany LBST1161.</i> Practice of concepts learned in LBST1161.					
LBST1201	Structure & Function of Organisms	L	33	-	3
Introductory biology course stressing basic biological principles, taxonomy, anatomy, physiology and embryology. Fulfills biology Elective requirements.					
LBST1205	Introductory Biology	L	33	-	3
Basic biology course emphasizing cellular and molecular biology. Cell structure and function, the nature of heredity and metabolism.					
LBST1208	Ecology	L	33	-	3
Basic biology course concerned with the interrelationships among organisms and their environments. Emphasis on the roles of microorganisms. Fulfills biology Elective requirements.					
LBST1211	Structure & Function of Organisms Laboratory	L	-	33	1.5
<i>Laboratory course to accompany LBST1201.</i> Practice of concepts learned in LBST1201.					
LBST1215	Introductory Biology Laboratory	L	-	33	1.5
<i>Laboratory course to accompany LBST1205.</i> Practice of concepts learned LBST1205.					
LBST1221	Introduction to Microbiology	L	22	-	2
<i>Prerequisites: LBST1205 and LBST1215 or equivalent.</i> Survey course introducing students to various types of microorganisms. Cell structure, history, and growth of microorganisms. Microscopic examination and handling of cultures.					
LBST1231	Introduction to Microbiology Laboratory	L	-	44	1.5
<i>Laboratory course to accompany LBST1221.</i> Practice of concepts learned in LBST1221.					
LBST1301	Water Quality	L	33	-	3
Introduction to natural aquatic environment. Physical, biological and chemical characteristics of freshwater in ponds, lakes, reservoir, and rivers. Addresses water quality issues for water and wastewater treatment. Identification of what constitutes pollution of natural water systems.					
LBST1401	Introduction to Biotechnology	L	10	10	1.5
<i>Prerequisite: Declared Agriculture Business &amp; Management Technology or Laboratory Science Technology Students.</i> Explanation of biotechnology, introductory lab exercises and career information.					

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LBST1411	<b>Survey of Biology and Microbiology</b> <i>Prerequisite: LBST1401. Co-requisite: LBST1412.</i> A survey course in basic biology and microbiology. Includes an introduction to biomolecules, proteins, nucleic acids, lipids, and carbohydrates, cell structure and function, basic metabolism, and growth and reproduction of microorganisms.	L	30	-	3
LBST1412	<b>Survey of Biology and Microbiology Laboratory</b> <i>Prerequisite: LBST1401. Co-requisite: LBST1411.</i> Basic laboratory exercises in biology and microbiology including microscopy, handling bacterial cultures, and metabolic testing.	L	-	30	1.5
LBST1421	<b>Survey of Chemistry</b> <i>Co-requisite: LBST1422.</i> A survey course in basic chemistry principles. Topics include properties and structure of matter, names and formulas of inorganic compounds, significant figures and the metric system, moles and equations, solutions, chemical equilibrium, acids and bases, and organic chemistry.	L	33	-	3.0
LBST1422	<b>Survey of Chemistry Laboratory</b> <i>Co-requisite: LBST1421. Laboratory course to accompany LBST1421.</i> Practice of concepts learned in LBST1421.	L	-	33	1.5
LBST1431	<b>Biotechnology I</b> <i>Prerequisites: LBST1401, 1411, 1412, 1421, 1422. Co-requisite: LBST1432.</i> Overview of biotechnology with a focus on general biochemistry, the structure and function of biomolecules, and a review of applicable principles of organic chemistry.	L	30	-	3
LBST1432	<b>Biotechnology I Laboratory</b> <i>Prerequisites: LBST1401, 1411, 1412, 1421, 1422. Co-requisite: LBST1431.</i> Laboratory exercises in biotechnology, protein analysis, and elementary nucleic acid analysis.	L	-	30	1.5
LBST1441	<b>Water/Wastewater Chemistry and Microbiology</b> <i>Co-requisite: LBST1442.</i> Survey class dealing with the chemistry, microbiology, and treatment of water and wastewater. Includes water quality parameters and the chemical processes involved in the treatment of water-to-drinking-water quality. Covers the biological and chemical treatment processes involved in wastewater discharged into public waterways. Water quality issues including standards, sampling, and analysis of water and wastewater.	L	30	-	3
LBST1442	<b>Water/Wastewater Chemistry and Microbiology Laboratory</b> <i>Co-requisite: LBST1441.</i> Practice of concepts learned in LBST1441.	L	-	30	1.5
LBST2122	<b>Analytical Chemistry for Technicians II</b> <i>Prerequisites: LBST1121 and LBST1131.</i> Introduction to instrumental analytical chemistry emphasizing molecular and atomic spectroscopy, UV/visible absorption and emission, IR and FTIR, NMR, and mass spectrometry, flame atomic absorption and emission, and graphite furnace, and ICP techniques. Computerized data acquisition and analysis.	L	33	-	3
LBST2124	<b>Analytical Chemistry for Technicians III</b> <i>Prerequisites or Equivalents: LBST2122 and LBST2132. Prerequisites: LBST1421 and LBST1422.</i> Continuation of the study of instrumental analysis chemistry emphasizing analytical separations and electroanalytical chemistry. Extraction, chromatography, gas chromatography, high performance liquid chromatography, potentiometry and voltammetry. Computerized data handling methods.	L	33	-	3
LBST2125	<b>Instrumental Analytical Chemistry</b> <i>Prerequisites: LBST1121 and LBST1131.</i> Introduction to instrumental analytical chemistry emphasizing molecular spectroscopy, atomic spectroscopy, gas chromatography, high performance liquid chromatography and potentiometry. Fulfills requirement of Medical Laboratory Technician program only.	L	33	-	3
LBST2132	<b>Analytical Chemistry II Laboratory</b> <i>Laboratory course to accompany LBST2122.</i> Practice of concepts learned in LBST2122.	L	-	33	1
LBST2134	<b>Analytical Chemistry III Laboratory</b> <i>Laboratory course to accompany LBST2124.</i> Practice of concepts learned in LBST2124.	L	-	33	1
LBST2135	<b>Instrumental Analytical Chemistry Laboratory</b> <i>Laboratory course to accompany LBST2125.</i> Practice of concepts learned in LBST2125.	L	-	33	1
LBST2162	<b>Biochemistry I</b> <i>Prerequisites: LBST1205 or equivalent.</i> Examination of the chemistry of life with special emphasis on structure and function of biomolecules such as proteins. Review of organic chemistry. Basic techniques used to isolate and study biomolecules.	L	33	-	3
LBST2163	<b>Biochemistry II</b> <i>Prerequisites: LBST2162 and LBST2172 or equivalent.</i> Continuation of Biochemistry I with emphasis on biotechnology, metabolism and chromatographic, spectroscopic and electrophoretic laboratory methods.	L	22	-	2

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LBST2172	<b>Biochemistry I Laboratory</b> <i>Laboratory course to accompany LBST2162.</i> Practice of concepts learned in LBST2162.	L	-	33	1
LBST2173	<b>Biochemistry II Laboratory</b> <i>Laboratory course to accompany LBST2163.</i> Practice of concepts learned in LBST2163.	L	-	44	1.5
LBST2261	<b>Sanitation</b> <i>Prerequisites: LBST1221 and LBST1231 or equivalent.</i> Study of cleaning and sanitizing procedures related to industrial settings. Microbial spoilage, food poisoning and other topics related to food microbiology.	L	15	15	2
LBST2265	<b>Applied Microbiology</b> <i>Prerequisites: LBST1221 and LBST1231 or equivalent.</i> Study of man's interaction with microorganisms. Immunology, the nature of infectious diseases, resistance to diseases.	L	22	-	2
LBST2275	<b>Applied Microbiology Laboratory</b> <i>Laboratory course to accompany LBST2265.</i> Practice of concepts in microbiology, including media preparation, culture techniques, media selection and identification of pathogens.	L	-	66	2
LBST2302	<b>Water &amp; Wastewater Technology</b> <i>Prerequisite: LBST1301 or permission.</i> Study of development, design and operation of public water supply systems and pollution control facilities. Wells, water treatment plants, distribution systems, wastewater collection systems, design and operation of wastewater treatment plants. Basic types of pumps, motors and valves are included as part of the preparation for the state water certification exam.	L	33	-	3
LBST2303	<b>Water-Wastewater Analysis</b> <i>Prerequisite: LBST2302 or permission.</i> Standard techniques for water/wastewater analysis. Basic laboratory procedures and techniques. Environmental sample collection and preservation, precision, records and interpretation of results from analysis.	L	22	-	2
LBST2313	<b>Water-Wastewater Analysis Laboratory</b> <i>Laboratory course to accompany LBST2303.</i> Practice of concepts learned in LBST2303.	L	-	44	1.5
LBST2321	<b>Hazardous Materials</b> Introduction to the nature, handling, storage and disposition of hazardous materials. Protection in a laboratory setting. Descriptions of hazardous materials, protective equipment, reading an MSDS, disposal, health effects and transportation of hazardous materials. Review of various legislation governing hazardous materials including Right to Know, SARA, RCRA, CERCLA – and others.	L	33	-	3
LBST2400	<b>Laboratory Skills Competency</b> <i>Prerequisite: Must be in final quarter of enrollment.</i> Practical examinations by instructors in the Laboratory Science Technology program. Students tested individually on lab skills: solution preparation, pipetting, titrations, microbiological culture media preparation, sterile technique, instrumentation and safety.	L	10	-	.5
LBST2406	<b>Quality in the Analytical Laboratory</b> <i>Pre- or Co-requisite: LBST2124.</i> Overview of quality assurance practices for laboratory technicians. Topics include elementary statistics, control charts, and good laboratory practices (GLP).	L	10	-	1
LBST2407	<b>Water and Wastewater Mathematics</b> <i>Prerequisite: LBST2302.</i> Introduction of the mathematics used for process control of water treatment, water delivery and wastewater treatment. To understand the application of this mathematics, student must take LBST2302 first.	L	10	-	1
LBST2431	<b>Biotechnology II</b> <i>Prerequisites: LBST1431, LBST1432. Co-requisite: LBST2432.</i> Special emphasis on industrial-nucleic acid, chemistry, metabolism, and nutrition as it related to biotechnology.	L	20	-	2
LBST2432	<b>Biotechnology II Laboratory</b> <i>Prerequisites: LBST1431, LBST1432. Co-requisite: LBST2431.</i> Emphasizing nucleic acid chemistry and industrial laboratory techniques in biotechnology.	L	-	30	1
LBST2441	<b>Chemistry of Environmental Toxins</b> <i>Prerequisites: LBST1421, 1422, 1441, 1442, and 2321. Co-requisite: LBST2442.</i> Detailed examination of toxins in soil and water, including pesticides and fertilizers, with special emphasis on methods of analysis.	L	20	-	2
LBST2442	<b>Chemistry of Environmental Toxins Laboratory</b> <i>Co-requisite: LBST2441.</i> Laboratory techniques for extracting and analyzing environmental toxins.	L	-	30	1
LBST2451	<b>Bioanalysis</b> <i>Prerequisite: LBST1421, 1422, 1431, 1432. Co-requisite: LBST2452.</i> Instrumental analysis of a variety of biologically significant molecules. Laboratory instrumental techniques such as capillary electrophoresis, high performance liquid chromatography (HPLC), gas chromatography (GC), and atomic absorption spectroscopy (AA) will be covered.	L	20	-	2

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LBST2452	Bioanalysis Laboratory <i>Prerequisite: LBST1421, 1422, 1431, 1432. Co-requisite: LBST2451.</i> Emphasis on preparation of samples for instrumental analysis.	L	-	30	1
LBST2501/2502	Practicum Laboratory Methods I & II <i>Prerequisite: Permission of the program chair.</i> Practical, hands-on experience in a local industrial or governmental laboratory. Differentiated from LBST2522 in that student receives no pay but receives three credits for 90 clock hours spent in the laboratory. Credits in LBST2522 may be substituted for credits in this course.	L	-	90	3
LBST2901	Cooperative Experience <i>Prerequisite: Permission of the program chair.</i> Part-time employment experience in a laboratory or other appropriate setting. Clock hours, pay and exact nature of work are determined by the employer. Credits in this course can be substituted in full or in part for LBST2501/LBST2502.	L	-	200	5

## LIBR • LIBRARY SCIENCE

LIBR courses are offered in partnership with Central Community College, please see the Academic Transfer program for articulated samples and for contact information.

## LPNS • PRACTICAL NURSING

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
LPNS1155	Transition to Practical Nursing <i>Prerequisites: Admission to the Practical Nursing program.</i> Introduction to the role of the Practical Nurse as a member of the healthcare team. The nursing process is used to provide safe health care according to legal, ethical, and holistic principles across the lifespan. Concepts of communication, medical asepsis, physical assessment, medical calculations and basic medication administration are introduced.	B/L	60	60	8
LPNS1158	Growth and Development Introduction to human development from conception to death. Explores theories of human development including several major theorists. The physical, psychosocial, cognitive, and moral aspects of development and health promotion are explored throughout the lifespan.	B/L	30	-	3
LPNS1159	Fundamentals of Practical Nursing The focus of this course is on basic principles and procedures within the scope of practice for practical nursing. Students will learn concepts about effects of immobility, thermoregulation, gerontological care, death and dying, parenteral medication administration and parenteral calculations, introduction to perioperative care, wound care, surgical asepsis, urinary needs, basic fluids and electrolytes and IV therapy.	B/L	55	105	9
LPNS1176	Pharmacology <i>Prerequisite: BIOS1000 or BIOS1140 &amp; BIOS2130 or BIOS1210 &amp; BIOS1220.</i> Provides an introductory discussion of Pharmacology, drug and patient information, legal standards, drug development, drug actions and classifications across the lifespan.	B/L	30	-	3
LPNS1178	Practical Nursing Across the Lifespan I The study of patient needs along the wellness/illness continuum incorporating concepts in maternal/child health and medical/surgical nursing within the scope of practice for the practical nurse. Principles of health prevention, promotion, and maintenance are emphasized.	B/L	55	105	9
LPNS1179	Practical Nursing Across the Lifespan II A continuation of the study of patient needs along the wellness/illness continuum incorporating concepts in maternal/child health, medical/surgical nursing within the scope of practice for the practical nurse. Principles of health prevention, promotion, and maintenance are emphasized.	B/L	55	105	9
LPNS1180	Practical Nursing Across the Lifespan III A continuation of the study of patient needs along the wellness/illness continuum incorporating concepts in more complex medical/surgical nursing within the scope of practice for the practical nurse. Principles of health prevention, promotion, and maintenance are emphasized.	B/L	55	105	9
LPNS1181	Practical Nursing Across the Lifespan IV A continuation of the study of patient needs along the wellness/illness continuum incorporating concepts in more complex medical/surgical nursing within the scope of practice for the practical nurse. Principles of health prevention, promotion, and maintenance are emphasized.	B/L	55	105	9

## LSCE • LAND SURVEYING/CIVIL ENGINEERING TECHNOLOGY

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
LSCE1110	Land Surveyors Math This is a course to review basic mathematics and learn algebraic, geometric and trigonometric concepts as they apply in the land surveying field. Topics covered include: 1) geometric definitions and calculations of perimeter, area, and volumes of various basic and composite figures, 2) solving linear equations and systems of equations, 3) graphing linear and quadratic equations, 4) right triangle trigonometry and solving oblique triangles using Law of Sines and Cosines.	M	50	-	5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LSCE1120	Plane Surveying Study of the use of surveying instruments and equipment. Includes units on measurement, beginning instrument use, field notes, and taping procedures. Care of surveying instruments and surveying safety. Applications of trigonometry. Calculations of lengths of boundaries and elevation changes.	M	60	90	9
LSCE1126	Basic Civil CAD This course introduces computer aided drafting (CAD) and examines the hardware that makes up a CAD workstation. It also covers the operating system (Microsoft Windows) that enables the equipment to function as a unit. The course shows how to use AutoCAD to set up drawings and construct lines, circles, arcs, other shapes, geometric constructions, and text. Students will use display and editing techniques as well to obtain information about their drawings and work with drawing files. This course also introduces recommended drafting standards for students to use for properly preparing drawings with AutoCAD. This course also covers basic hand-lettering skills, drawing media, and the use of a civil engineering scale.	M	60	40	7
LSCE1220	Engineering Surveying <i>Prerequisites: LSCE1120, BSAD1010 or INFO1010, and LSCE1110.</i> Studies related to surveying as carried out in traversing, traverse computations, area and volume. Measuring horizontal and vertical angles using a variety of different instruments and readouts. Solving practical surveying problems using basic trigonometry. Field note forms. Safety practices. Continuation of study and application of surveying mathematics.	M	40	60	6
LSCE1226	Civil CAD II <i>Prerequisites: LSCE1126, BSAD1010 or INFO1010 &amp; LSCE1110.</i> This course examines dimensioning, blocks, attributes, section views, external references, multiview layouts, command aliases, scripts, and object linking and embedding. Students will learn how to use AutoCAD to dimension drawings, create section lines and graphic patterns, design symbols and attributes for multiple use, and create sheet sets. Student drawings will be plotted or printed. This course also covers recommended drafting standards and practices for students to use for properly preparing drawings with AutoCAD. This course also introduces the students into the basic use of the Survey Pro RECON data collector software.	M	50	50	6.5
LSCE1230	Earthwork Inspection <i>Prerequisite: LSCE1110, and BSAD1010 or INFO1010.</i> Study of properties of soils affecting the ability to support structures such as bridges, highways, and building sites. Inspector's duties are studied regarding his/her function to ensure that a quality foundation or embankment is constructed. Areas of study include compaction, soil types, basic geology, and density and moisture of soils used in construction.	M	20	30	3
LSCE1232	Highway Plan Reading <i>Prerequisites: LSCE1110, and BSAD1010 or INFO1010.</i> Programmed study that teaches the fundamentals of reading and interpreting a complete set of highway plans.	M	15	35	2.5
LSCE1320	Route & Construction Surveying <i>Prerequisites: LSCE1220, LSCE1232, and MATH1080 or higher.</i> Field work for topographic details using total station equipment and electronic data collected. Study of circular and vertical curves as employed in construction projects. Lab work includes setting out circular curves and learning safety practices. Unit of study also covers sanitary sewer networks and principles of hydraulics.	M	30	70	5
LSCE1324	Concrete Inspection <i>Prerequisite: LSCE1230 and MATH1080 or higher.</i> Study based on the fundamental principles of cement and concrete. Understanding of cement, concrete, and concrete products as applied to the job. Reasons behind the "why" of cement and concrete. Study of ingredients, placement, and other factors which affect the quality of pavement and structures. Role of the inspector in maintaining quality control of concrete construction projects. Includes Concrete Field Testing Technician Grade I certification through the American Concrete Institute.	M	35	15	4
LSCE1326	Civil CAD III <i>Prerequisite: LSCE1226 and MATH1080 or higher.</i> This course introduces Land Desktop software, drawings of subdivision plats and computer aided drafting projects. This course provides the applications of design and layout of a basic plan set. Using Land Desktop surface information, design cross section templates and apply to road design. Determine cut and fill projections. Applying and interviewing for placement, basic preparation for the on-the-job experience, and the explanation of the process used for school supervision and evaluation of the cooperative experience. Unit in basic first aid and CPR training along with certification.	M	50	100	8
LSCE1900	Internship <i>Prerequisites: LSCE1320, LSCE1324, LSCE1326, and ENGL1010.</i> On-the-job experience doing surveying, drafting, or materials testing/inspection with employers. Application of skills and knowledge acquired in previous quarters.	M	-	480	12
LSCE1901	Cooperative Experience <i>Prerequisites: LSCE1320, LSCE1324, LSCE1326, and ENGL1010.</i> On-the-job experience doing surveying, drafting, or materials testing/inspection with employers. Application of skills and knowledge acquired in previous quarters.	M	-	480	12

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
LSCE2520	<b>Geodetic Surveying</b> <i>Prerequisites: LSCE1320.</i> Study of control surveys, state plane coordinates, Photogrammetry, and Global Positioning Systems. Application of field work using GPS for construction staking. Applications of trigonometry are used to solve surveying problems. Continuation of study and application of surveying mathematics.	M	90	60	11

LSCE2526	<b>Principles of Land Development</b> <i>Prerequisite: LSCE1326.</i> Principles of land use and development with application to the fields of surveying and civil engineering. Theory and calculations cover transportation, the environment, utility projects, plans and specifications. Includes a study of bridge plan reading.	M	20	30	3
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LSCE2546	<b>Civil CAD IV</b> <i>Prerequisite: LSCE1326.</i> Study and application of AutoDESK Land Development Desktop engineering software including Civil Drafting Design, Land Desktop, Survey, and Map workspaces. Includes a full cycle of field surveying to finish drawing projects. Study and application of ArcGIS desktop software.	M	40	60	6
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LSCE2620	<b>Boundary Control &amp; Legal Principles</b> <i>Prerequisite: LSCE2520 and SPCH1090, 1110 or 2810.</i> Study of the advanced methods and equipment for making surveying measurements. Using a property description, students conduct a record history search. Field search for locating survey points and field-to-field survey, processing data and drawing is completed.	M	40	40	5
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LSCE2626	<b>Civil CAD V</b> <i>Prerequisites: LSCE2546, LSCE2526, and SPCH1090, 1110 or 2810.</i> Using Land Desktop software, complete drawings using survey field notes, legal descriptions, and city plat drawings. Draw up a mortgage survey. Continuation in the use of the Survey Pro RECON software. Continuation of hand-lettering projects.	M	20	30	3
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LSCE2646	<b>Advanced Land Development Desktop</b> <i>Prerequisite: LSCE2546 and SPCH1090, 1110 or 2810.</i> Study of advanced computer aided design. Use of engineering software, Autodesk Land Desktop Civil Design, survey map, and Land Desktop work space settings. Surveying field projects in electronic data collection are downloaded into the computer using LDT.	M	25	75	5
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LSCE2667	<b>Land Survey Systems</b> <i>Prerequisite: LSCE2520 and SPCH1090, 1110 or 2810.</i> Study of the Public Land system of division and the legal descriptions of plots of land, and methods for describing boundaries and locating property. Using a property description, students conduct a record history search at the courthouse. Field search for locating surveying points is completed.	M	40	30	5
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## LTCA • LONG TERM CARE ADMINISTRATION

LTCA1000	<b>Introduction to Long Term Care</b> □ This course is the study of individuals who benefit from an integrated continuum of long term care. It is the study of the functions of a long term care facility and its organizational management. The history of long term care also will be examined.		45	-	4.5
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LTCA1010	<b>Diverse Relationships and Communications</b> □ This course will teach students how to work with diverse ethnic groups, cultures and religions. They will learn communication styles, assertiveness and active listening skills.		45	-	4.5
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LTCA1020	<b>Death, Dying, Grieving, Loss and Hospice</b> □ This is the study of the process of loss and grief from the perspective of long term care. Recognizing loss, stages of grieving, dying, hospice and death will be examined.		45	-	4.5
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LTCA1030	<b>Dietary Management</b> □ This course covers dietary management, staff hygiene and kitchen sanitation, menus and nutritional values, food and food preparation, therapeutic diets, food needs of the elderly, nutrition, assistive devices, enhanced diets, and supplements. The dining experience, frequency of meal service, food safety, inventory, and sanitary conditions also will be discussed.		20	-	2
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LTCA1040	<b>Introduction to Assisted Living</b> □ This course is an introduction to the profession of assisted living provider. It includes an overview of the role of assisted living in long term care, services provided, social service needs, financial management, administration requirements, gerontology, and the rules, regulations and standards of practice. This course meets the basic education regulatory requirement for assisted living administrators in Nebraska (contact LTCA advisor to see if this meets your state's requirements).		45	-	4.5
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LTCA1050	<b>Administration for Long Term Care Facilities</b> □ This course explores the roles and responsibilities of a long term care administrator. Emphasis will be on human resources, labor laws, risk management, physical environment compliance, and design.		45	-	4.5
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LTCA1060	<b>Social Services for Long Term Care Facilities</b> □ This is the study of people in the final life cycle, pre-retirement to death. Psychological, social and economic needs, as well as feelings, attitudes and theories of the elderly will be examined.		45	-	4.5
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LTCA1070	<b>Patient Care &amp; Services for Long Term Care Facilities</b> □ Physical, psychological and social aspects of disability, motor and sensory losses, and diseases of the aged will be examined.		45	-	4.5
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LTCA2010	<b>Foundations of Leadership</b> □ This course studies leadership vs. management, leading individuals, groups, and facility. Different leadership styles will be examined, as well as how to be a successful leader.		45	-	4.5
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LTCA2020	<b>Marketing and Public Relations for Long Term Care</b> □ This course provides strategies on how to market a long term care facility through marketing principles and public relations within the community.		45	-	4.5
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LTCA2030	<b>Care Management &amp; Ethics</b> □ This course will cover the skills of assessment, interviewing, presentation, documentation, referral and follow up. The use of computers in record keeping also will be covered. Professional ethics, issues and case studies will be studied.		45	-	4.5
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LTCA2040	<b>Financial Management for Long Term Care Facilities</b> □ This course is designed to provide knowledge of accounting principles for long term care facilities, including payroll, accounts payable, accounts receivable, budgeting, resident trust funds, operation planning, financial planning, and related regulations.		45	-	4.5
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LTCA2050	<b>Rules, Regulations, &amp; Standards Relating to the Operation of a Health Care Facility</b> □ This course is an overview of the legislation process, including Medicaid and Medicare, the long term care survey and enforcement process, state regulations, laws governing a long term care administrator, and HIPAA regulations.		45	-	4.5
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LTCA2070	<b>Seminar</b> Review of course material to prepare for National Board Exam.		45	-	4.5
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## MAAP • MAJOR APPLIANCE PROFESSIONAL TECHNOLOGY

MAAP1110	<b>Electricity for Major Appliances</b> Overview of magnetism, electricity and electronic fundamentals for the appliance technician including the application of Ohm's Law in both DC and AC electrical circuits. Interpretation of electrical symbols found in home appliance diagrams, and the use of digital and analog multimeters in troubleshooting problems in series and parallel electrical circuits.	M	50	80	7.5
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MAAP1112	<b>In Home Customer Relations</b> Understanding the concepts of in-home customer service from both the customer's viewpoint as well as the service company's viewpoint including standards for the treatment of customers, appliances, the area surrounding the appliance and equipment in the home. Interpersonal skills with regard to customers and co-workers are practiced.	M	30	-	3
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MAAP1114	<b>Electrical Dryer Technology</b> The theory and operating principles involved with different brands of residential electric dryers. Advanced troubleshooting techniques of both electrical and mechanical systems will be practiced.	M	30	30	4
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MAAP1118	<b>Gas Dryer Technology</b> <i>Prerequisite: MAAP1110.</i> The theory and operating principles involved with different brands of residential gas dryers. Advanced troubleshooting techniques of electrical, mechanical and gas burner systems will be practiced.	M	20	30	3
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MAAP1120	<b>Dishwasher Technology</b> <i>Prerequisite: MAAP1110.</i> Theory and operating principles of the electrical, mechanical, soap and water systems involved with different brands of dishwashers, disposers & compactors. Diagnosis and repair of residential dishwashers.	M	40	30	5
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MAAP1124	<b>Top-Loading Washing Machine Technology</b> <i>Prerequisite: MAAP1110.</i> Washability, soaps, water temperatures, types of clothing, washer designs and water systems. Effective diagnosis and repair of electrical, mechanical and water systems on top-loading machines.	M	40	57	5.5
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MAAP1126	<b>Front-Loading Washing Machine Technology</b> <i>Prerequisite: MAAP1110.</i> Washability, soaps, water temperatures, types of clothing, washer designs and water systems. Effective diagnosis and repair of electrical, mechanical and water systems on front loading machines.	M	47	71	6.5
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Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MAAP1128	<b>Electric Range Technology</b> <i>Prerequisite: MAAP1110.</i> Basics of heat cycles, their effect on food items and microwave theory and applications. Diagnosis and repair of conventional residential electric ranges and microwaves.	M	40	45	5.5
MAAP1132	<b>Gas Range Technology</b> <i>Prerequisite: MAAP1110.</i> Operation and servicing of gas ovens and cooktops including both LP and natural gas systems. Venting and ventilation and the measurement for carbon monoxide. Burners, control valves and flame ignition systems.	M	30	45	4.5
MAAP1136	<b>Domestic Refrigerator Technology</b> <i>Prerequisite: MAAP1110.</i> Residential refrigerator theory of design and operation as applied to top-mount, side-by-side and built-in household refrigerators. Also covering freestanding ice machines, window air conditioners and portable dehumidifiers for residential households and light commercial applications.	M	15	-	1.5
MAAP1137	<b>Domestic Refrigerator Mechanical Systems</b> <i>Prerequisite: MAAP1110.</i> Class covers design and service of all control, air circulation, defrost systems, dispensers, doors, and compact icemakers. Class also will cover the access, installation and proper handling of refrigeration units.	M	60	73	8
MAAP1138	<b>Domestic Refrigerator Sealed Systems</b> <i>Prerequisite: MAAP1110.</i> Residential refrigerator sealed system class covering diagnostics, refrigeration cycles, components evaluations and replacements. Also covering proper evacuation and charging procedures during sealed system servicing. This class also includes completion of EPA 608 certification exam.	M	71	48	8.5
MAAP1150	<b>Introduction to Major Appliance Technology</b> Study of the major appliance service field which may include activities such as the completion of classroom or on-line service training provided by major appliance manufacturers and service van ride-a-longs with experienced technicians.	M	30	-	3

## MACH • MACHINE TOOL TECHNOLOGY

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MACH1110	<b>Orientation</b> Orientation to the College philosophy, goals, objectives and rules in the machine tool area.	L/M	5	-	.5
MACH1121	<b>Manufacturing Processes</b> Theory and safe operation of machine and hand tools. Covers metrology, five basic machining techniques (drilling, turning, boring, milling, and grinding), tool geometry, speeds, feeds, and cutting fluids.	L/M	50	-	5
MACH1156	<b>Blueprint Reading &amp; Drawing</b> Basic theory and laboratory work in blueprint reading, drafting, equipment utilization, lettering, and geometric constructions. Shape and size description, section views and freehand sketching.	L/M	20	30	3
MACH1172	<b>Machine Tool Lab I</b> <i>Prerequisite: MACH1110 and MACH1121.</i> Basic operation of the lathe, milling machine, and grinder. Laboratory experience with hand tools, metrology, metal sawing, drilling and tapping.	L/M	25	120	6.5
MACH1222	<b>Machine Tool Lab II</b> <i>Prerequisites: MACH1110, MACH1121 and MACH1172.</i> Practice using machine tools. Drill press, lathe, milling machine, surface grinder and cylindrical grinder.	L/M	10	190	7
MACH1225	<b>Materials of Industry</b> Introduction to materials (steel, irons, etc.) used in industry. Properties, uses, specifications, availability, heat treatment and tool steel.	L/M	50	-	5
MACH1241	<b>Machinery's Handbook</b> Introduction to technical area handbooks and problems of design. Use of Machinery's Handbook for measurement, circle, geometry, allowance and tolerance, keys and keyseats, gearing problems, cutting speeds, and threads and bearing problems.	L/M	50	-	5
MACH1250	<b>Computer Aided Drafting (CAD)</b> Fundamentals of Computer Aided Drafting using AutoCAD computer operating system, AutoCAD menus, AutoCAD settings and drawing setup, draw and edit commands, AutoCAD coordinate system, practice drawings, symbols, prototype drawings and plotting.	L/M	20	30	3
MACH1324	<b>Machine Tool Lab III</b> <i>Prerequisite: MACH1222.</i> Practice using machine tools. Lathe, milling machine, surface grinder, cylindrical, and cutter grinder. Projects for lab work. Introduction to die and mold construction.	L/M	10	190	7

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MACH1349	<b>Basic CNC</b> Basic theory and laboratory work in basic programming, operation and maintenance of CNC machines. Operation and maintenance of Coordinate Measuring Machines (C.M.M.).	L/M	65	35	7.5
MACH1370	<b>Applied Trigonometry</b> <i>Prerequisite: MATH1050 or MATH1040.</i> Use of trigonometry for design and shop problems. Electronic calculator is used for most assigned problems.	L/M	45	-	4.5
MACH1428	<b>Machine Tool Lab IV</b> <i>Prerequisite: MACH1324.</i> Advanced projects to improve proficiency on machine tools.	L/M	10	140	5.5
MACH1451	<b>Advanced CNC</b> <i>Prerequisites: MACH1250, MACH1349, and MACH1370.</i> Advanced programming, operation, and setup of CNC machines.	L/M	40	20	4.5
MACH1453	<b>CNC Lathe</b> <i>Prerequisites: MACH1250, MACH1349, and MACH1370.</i> Fundamentals of manual and conversational programming, operation, and maintenance of the CNC Lathe.	L/M	30	15	3.5
MACH1454	<b>CAM</b> <i>Prerequisite: MACH1250.</i> Introduction to the fundamentals of Computer Aided Manufacturing. Various functions and methods of 3D AND 2D CAM programming will be covered.	L/M	40	10	4
MACH1800	<b>Basic Milling Machine I</b> <i>Prerequisite: MACH1110.</i> Basic milling machine course. Practice in using and identifying the many different kinds of milling machines used today. Selection of proper milling cutters, spindle speeds and table feeds, and work-holding devices. Practice in alignment, location of part edge finding and proper use of various milling processes.	L	10	20	1.5
MACH1801	<b>Basic Milling Machine II</b> <i>Prerequisite: MACH1800.</i> Continuation of Basic Milling Machine I. See course description for MACH1800.	L	10	20	1.5
MACH1810	<b>Basic Engine Lathe I</b> <i>Prerequisite: MACH1110.</i> Basic engine lathe use. Identification of types of engine lathes in use today. Exercises in turning, facing, drilling, boring, taper turning and external threads. Proper speeds and feeds, proper tool bit geometry, and correct setup procedures.	L	10	20	1.5
MACH1811	<b>Basic Engine Lathe II</b> <i>Prerequisite: MACH1810.</i> Continuation of Basic Engine Lathe I. See course description for MACH1810.	L	10	20	1.5
MACH2245	<b>Introduction to Molding</b> <i>Prerequisites: MACH2256.</i> Basic construction components and operation of plastic molds to include injection molds, transfer molds compression molds. Die casting and molds for rubber are also included.	L	30	-	3
MACH2246	<b>Jigs and Fixtures</b> <i>Prerequisite: MACH1110 through MACH1454.</i> Introduction to design and construction principles and requirements for manufacturing. Clamping, loading, unloading, location, and materials to be used along with commercially available components. Construction of a jig or fixture.	L	30	90	6
MACH2256	<b>Die Construction</b> <i>Prerequisite: MACH1110 through MACH1454.</i> Introduction to principles of operation, use and design of dies for manufacturing sheet metal parts. Types of dies in use today and associated equipment in metal working industries. A progressive die will be constructed using blueprint provided.	L	30	130	7
MACH2258	<b>Quality Control</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Inspection procedures used to determine product quality. Application of shop methods to produce parts in accordance with blueprint specifications using a variety of measuring instruments. Statistical Process Control (SPC) will be introduced.	L	30	-	3
MACH2266	<b>Advanced Die Construction</b> <i>Prerequisite: MACH2256.</i> Continuation of MACH2256. Utilizing laboratory equipment to design and make a progressive die and produce 100 pieces to specifications.	L	20	175	7.5
MACH2530	<b>Die Design I</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Study of the design of piercing and blanking dies. Laboratory work in developing and preparing working drawings for a die which the student will construct during the fifth quarter.	L/M	10	40	2

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MACH2532	<b>Die Making Lab I</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Practical experience in construction of metal dies. Two types of dies are built, one from the student's own blueprint designed in Die Design I. Use of form ground and wire EDM (electric discharge machine) construction methods.	M	10	190	7
MACH2535	<b>Mold Theory</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Fundamental processes and basic construction of plastic molds (compression, transfer, and injection), molds for die casting (pressure molding of nonferrous alloys) and rubber molds.	M	50	-	5
MACH2537	<b>Injection Mold Design I</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Basic principles and design of injection molds, gating methods, and runner systems. Study of mold making materials and standard mold bases and components. Use of basic principles and designs in developing plans for a single cavity mold that will be constructed as a laboratory project.	M	10	40	2
MACH2538	<b>Mold Making Lab I</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Construction of plastic injection molds, one from the student's prints designed in the injection mold design class. Construction of two other molds to pre-designed specifications. Construction of some components using CNC lathe and mills.	M	10	190	7
MACH2547	<b>Die Theory</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Study of the design and construction of shearing, blanking, piercing, cutoff, bending, and forming. Punch presses and die sets.	M	50	-	5
MACH2634	<b>Die Design II</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Laboratory experience in basic designs and preparing working drawings for a compound die which the student will construct during the sixth quarter.	M	10	40	2
MACH2636	<b>Die Making Lab II</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Practical experience in construction of two dies. Construction of one die following blueprints developed in Die Design II. Electrical discharge machine EDM die construction methods. Electrode is made on CNC mill.	M	10	190	7
MACH2640	<b>Injection Mold Design II</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Design of a single cavity injection mold. Laboratory work in developing and preparing working drawings for a mold to be constructed during the sixth quarter.	M	10	40	2
MACH2642	<b>Mold Making Lab II</b> <i>Prerequisites: MACH1110 through MACH1454.</i> Practical experience in constructing two molds. Construction of one injection mold from blueprints developed in the Injection Mold Design II class. Use of wire feed and ram type electrical discharge machining and engraving. Completed projects are set up and run to evaluate the quality of the finished molds.	M	10	190	7
MACH2650	<b>Special Machining Applications</b> <i>Prerequisite: Program Chair Permission</i> Course requirements and objectives arranged by the program chair.	L/M	10	60	3

## MATH • MATHEMATICS

MATH0860	<b>Math Review &amp; Tune-up</b> A developmental course to upgrade students math skills and prepare for MATH1050 and MATH0950. Includes computer aided instruction and personal tutoring. Instructional time is arranged to accommodate students' class and work schedules. Excellent for nontraditional students needing to review math rules and techniques. Should be taken before attempting the above listed courses as test scores indicate.	B/M	15	-	1.5
MATH0900	<b>Math Fundamentals</b> Covers basic computational skills for review or initial mastery. Topics include fractions and decimals; ratios, proportion, and percent; operations with numbers; problem solving and estimation; basic study skills for mathematics.	B/L/M	45	-	4.5
MATH0945	<b>Accelerated Math Brush-Up for MATH0950</b> <i>Prerequisites: Appropriate placement score and advisor recommendation.</i> This is a self-paced, computer-assisted, independent study course designed for students whose placement scores in mathematics are high but still indicate the need for improvement of algebra skills in order to be best prepared for MATH0950 Beginning Algebra. Students may register for this course at any time, and have until the end of the term during which they register to reach the reading benchmark established by the College. Graded Pass/No Pass.	B/L/M	20	-	2
MATH0950	<b>Beginning Algebra</b> <i>Prerequisite: Grade of "C" or higher in MATH0900 or appropriate score on the math placement test.</i> Study of operations with integers, solve linear equations and inequalities, solve linear absolute value equations and inequalities, write equations and graphing lines and linear inequalities, solve systems of equations, the Laws of Exponents, and operations with polynomials.	B/L/M	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MATH0965	<b>Accelerated Math Brush-Up for MATH1100</b> <i>Prerequisites: Appropriate placement score and advisor recommendation.</i> This is a self-paced, computer-assisted, independent study course designed for students whose placement scores in mathematics are high but still indicate the need for improvement of algebra skills in order to be best prepared for MATH1100 Intermediate Algebra, MATH1080 Algebra & Trigonometry, MATH1040 Business Mathematics, MATH1050 Thinking Mathematically, or PHYS1150 Descriptive Physics. Students may register for this course at any time, and have until the end of the term during which they register to reach the reading benchmark established by the College. Graded Pass/No Pass.	B/L/M	20	-	2
MATH0980	<b>Geometry</b> <i>Prerequisite: Grade of "C" or higher in MATH0950 or equivalent.</i> Development of spatial awareness and critical thinking skills. Through use of contraction, labs and proofs, discovery of properties of lines, angles, polygons, circles. With the use of Cartesian, coordination of the relationship between algebra and geometry.	B/L	45	-	4.5
MATH0985	<b>Accelerated Math Brush-Up for MATH1150</b> <i>Prerequisites: Appropriate placement score and advisor recommendation.</i> This is a self-paced, computer-assisted, independent study course designed for students whose placement scores in mathematics are high but still indicate the need for improvement of algebra skills in order to be best prepared for MATH1150 College Algebra or MATH1180 Elementary Statistics. Students may register for this course at any time, and have until the end of the term during which they register to reach the reading benchmark established by the College. Graded Pass/No Pass.	B/L/M	20	-	2
MATH1040	<b>Business Math</b> <i>Prerequisite: Grade of "C" or higher in MATH0950 or appropriate score on the math placement test.</i> This course is for the student who needs specific math skills to address financial problems and/or applications. Students will learn mathematics as it relates to retail, payroll, financial analysis, interest earned, and money management. Students may use a calculator and computer to solve a variety of applications.	B/L/M	45	-	4.5
MATH1050	<b>Thinking Mathematically</b> <i>Prerequisite: Grade of "C" or higher in MATH0950 or appropriate score on math placement test.</i> This course is designed to help student think mathematically. It will cover various topics including critical thinking, logic, geometry, advanced algebra skills, basic trigonometry, statistics and other contemporary topics.	B/L/M	45	-	4.5
MATH1080	<b>Algebra &amp; Trigonometry</b> <i>Prerequisite: Grade of "C" or higher in MATH0950 or appropriate score on the math placement test.</i> This course will cover a variety of algebra and trigonometry skills. Topics will include: order of operations; powers, exponents, engineering and scientific notation, polynomials, metric prefixes, and logarithms; factoring, quadratic equation; solving absolute value equations, solving two equations/two unknowns; transposing formulas; solving complex fractional equations; word problems involving direct and inverse variation; and formulas from geometry involving perimeter, area, volume, Pythagorean Theorem, and right triangle trigonometry including special triangles; oblique triangle formulas and graphing equations of lines. Various relevant applications will be discussed.	L/M	45	-	4.5
MATH1100	<b>Intermediate Algebra</b> <i>Prerequisite: Grade of "C" or higher in MATH0950 or appropriate score on the math placement test.</i> Study of 2nd year algebra at a college level with emphasis on: Techniques for simplifying algebraic expressions, and solving algebraic equations and inequalities, functions their properties and graphs, complex numbers, graphs of quadratic functions, and systems of equations. May not fulfill the math requirement for associate degrees - check with transfer institution.	B/L	45	-	4.5
MATH1150	<b>College Algebra</b> <i>Prerequisites: A grade of "C" or higher in MATH1100 or appropriate score on the math placement test.</i> A study of college algebra with emphasis on functions in preparation for advanced math and science coursework. Topics include solving equations and inequalities, graphing and modeling using polynomial, rational, exponential, and logarithmic functions; systems of equations, and analytic geometry. A graphing calculator may be required.	B/L	45	-	4.5
MATH1180	<b>Elementary Statistics</b> <i>Prerequisite: "C" or higher in MATH1100 or appropriate score on the math placement test.</i> Study of descriptive statistics, collection of data, correlation and regression, probability and probability distributions and statistical control. Topics from inferential statistics such as estimates, sampling, hypothesis testing and inferences. Contingency tables. Use of some statistical software packages.	B/L/M	45	-	4.5
MATH1200	<b>Trigonometry</b> <i>Prerequisite: "C" or higher in MATH1150 or appropriate score on the math placement test.</i> A study of trigonometry in preparation for advanced math and science coursework. Use definitions of trigonometric functions to establish properties, create graphs, establish identities and formulae, and define inverse trigonometric functions. Use trigonometric functions and their inverses to solve trigonometric equations, and applications. Graphing in polar coordinates, and vector arithmetic.	B/L	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MATH1300 ☐	<b>Precalculus</b> <i>Prerequisites: "C" or higher in MATH1100 or appropriate placement exam score and one year high school geometry, and two years high school algebra.</i> Intensive review of college algebra and trigonometry. Study of the concept of a function and its graph. Study of certain specific functions: polynomial, rational, exponential, logarithmic and trigonometric functions. Covers analytic trigonometry, some applications of trigonometry, conic sections, and systems of equations. Most study uses three points of view: algebraic, graphical, and numerical. Graphical and numerical approaches using a graphing calculator. A graphing calculator is required for the course.	B/L	75	-	7.5
MATH1400 ☐	<b>Applied Calculus</b> <i>Prerequisite: "C" or higher in MATH1150 or appropriate score on the math placement test.</i> Fundamentals of differential and integral calculus with emphasis on applications from business, economics and the life sciences. Not open to pre-engineering or pre-architectural majors.	B/L	45	-	4.5
MATH1600 ☐	<b>Calculus &amp; Analytic Geometry I</b> <i>Prerequisites: A grade of "C" or higher in MATH1150 and MATH1200 or equivalent, or appropriate score on the math placement test.</i> Review of functions, introduction to limits, differentiation of algebraic and trigonometric functions, applications, anti-differentiation and the definite integral. A graphing calculator is required.	B/L	75	-	7.5
MATH1700 ☐	<b>Calculus &amp; Analytic Geometry II</b> <i>Prerequisite: A grade of "C" or higher in MATH1600 or equivalent.</i> Continuation of MATH1600. Study of antiderivatives, methods of integration; numerical methods, coordinates and conics, differential equations, Taylor series, and an introduction to differentiation and integration of vector valued functions. A graphing calculator or use of mathematical software may be required.	B/L	75	-	7.5
MATH2030 ☐	<b>Contemporary Mathematics</b> <i>Prerequisites: A grade of "C" or higher in MATH1100 and one year of geometry and appropriate score on math placement test.</i> Applications of quantitative reasoning and methods to problems and decision making in the areas of management, statistics, social choice, and size and growth. Topics include networks, critical paths, sampling, central tendency, inference, voting methods, power indices, fair division, growth and form, symmetry and patterns, and tiling.	B/L	45	-	4.5
MATH2080 ☐	<b>Calculus &amp; Analytical Geometry III</b> <i>Prerequisite: MATH1700.</i> Study of calculus and analytic geometry for functions of two or more variables. Coordinates, three-dimensional vectors, three-dimensional analytic geometry, differentiation and integration of functions of many variables, and integration in vector fields. Use of some mathematical software may be required.	B/L	60	-	6
MATH2200 ☐	<b>Differential Equations</b> <i>Prerequisite: MATH2080.</i> Introduction to the theory and applications of differential equations using differential equations to model physical problems and techniques to solve linear differential equations, elementary existence theorems, solving systems of linear differential equations, and using Laplace transforms to solve initial value problems.	B/L	45	-	4.5

## MEDA • MEDICAL ASSISTING

MEDA1101 ☐	<b>Medical Terminology I</b> Introduction to medical terminology pertaining to body systems. Will describe directional terms, quadrants, cavities, define, spell and pronounce medical terms and abbreviations used in health care.	L	20	-	2
MEDA1102 ☐	<b>Administrative Medical Assisting</b> <i>Prerequisites: Admission to Medical Assisting program and appropriate assessment score.</i> Introduction to medical assisting. Provides general knowledge needed for administrative duties. Required for first quarter students who are accepted into Medical Assisting program.	L	20	-	2
MEDA1201 ☐	<b>Medical Terminology II</b> <i>Prerequisite: MEDA1101.</i> A continuation of MEDA 1101. Terminology relating to body systems and disorders. Intended to increase medical vocabulary. A continuing system for building a medical vocabulary with emphasis on anatomy, physiology and diseases. Will continue to define, spell and pronounce medical terms and abbreviations used in health care.	L	30	-	3
MEDA1202 ☐	<b>Communication in Allied Health</b> <i>Prerequisites: For Medical Assisting students and Pharmacy Technician students. MEDA1102 or permission.</i> For students in the healthcare field to identify effective communication skills, including verbal and nonverbal communication, threats and barriers to communication, and effective communication with health care peers and professionals. Communication differences related to multicultural differences, life stage development and life altering illness will be explored.	L	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MEDA1203 ☐	<b>Medical Law, Ethics &amp; Bioethics for the Medical Office Employee</b> <i>Prerequisite: ENGL1010. Acceptance into Medical Assisting program or Office Technology program, or permission.</i> Study of medical law, ethics and bioethics for the medical office employee. Business management and general liability for the medical office included.	L	30	-	3
MEDA1204 ☐	<b>First Aid</b> First aid and emergency care developed by the American Academy of Orthopedic Surgeons (AAOS) and the American College of Emergency Physicians (ACEP).	L	20	-	2
MEDA1205 ☐	<b>Exam Room I</b> <i>Prerequisites: MEDA1101, MEDA1102, BIOS1000 or BIOS1140 or BIOS1220.</i> Introduction to the laboratory procedures performed in a physician's office. Includes laboratory tests and their acronyms, medical asepsis, and venipuncture techniques.	L	20	15	2.5
MEDA1301 ☐	<b>Exam Room II</b> <i>Prerequisites: MEDA1102, MEDA1201, MEDA1202, MEDA1203, MEDA1204, MEDA1205, MEDA1406, MEDA1407 and OFFT1710. Concurrent with MEDT1171, MEDT1161, MEDT1181, and MEDT1191.</i> Provides the knowledge and skills for assisting the physician in the office. Skills included are vital signs, EKG, medication administration, pulmonary function testing and handling of instruments for minor surgery. Introduction to physical therapy and radiology.	L	55	60	7.5
MEDA1401 ☐	<b>Clinical Education</b> <i>Prerequisites: BSAD1010, ENGL1010, MEDA1301, MEDT1181, MEDT 1171, MEDT1161, MEDT 1191, OFFT 2650 AND OFFT2440.</i> Practical experience under supervision in physician's office or clinic.	L	-	240	8
MEDA1402 ☐	<b>Senior Clinical Seminar</b> <i>Prerequisite: Concurrent with MEDA1401.</i> An informal course which includes: reviewing and critiquing clinical procedures with correlation of classroom theory, a review of the certification exam course content, completion of the CMA (AAMA) exam, preparation of a cover letter, résumé, teaching brochure and participation in a mock job interview. Includes integration of pharmacological principles, basic nutrition, and safety and emergency practices to the medical office setting.	L	30	-	3
MEDA1404 ☐	<b>Medical Diseases</b> <i>Prerequisites: MEDA1101 and BIOS1000, or BIOS1140, or BIOS1220 or instructor approval.</i> Introduction to etiology, signs and symptoms, diagnosis and treatments of disease as related to the body systems. Includes introduction to immunity, infectious diseases, neoplasm, heredity and nutrition as they relate to the disease process.	L	45	-	4.5
MEDA1405 ☐	<b>Insurance for the Medical Office</b> <i>Prerequisites: MEDA1101 and BIOS1000, or BIOS1140, or BIOS1220/BIOS1210 or BIOS1230 or instructor approval.</i> Apply third party guidelines and managed care policies and procedures. Demonstrate basic knowledge of national diagnosis and procedure coding systems. Demonstrate accurate completion of insurance claim forms.	L	30	-	3
MEDA1406 ☐	<b>Basic Pharmacology</b> <i>Prerequisite: BIOS1000 or, BIOS1210, or BIOS1140.</i> An introduction to legal aspects, state and federal regulations, medication resource material, abbreviations and measurements, classifications of medications including desired effects, side effects and adverse reactions, including the relationship between body systems and medications used for treatment in each system.	L	20	-	2
MEDA1407 ☐	<b>Medical Calculations</b> <i>Prerequisites: Appropriate score on the math placement, and advisor approval.</i> Medical dosage calculations with metric, apothecary and household systems, conversions between systems and dosage preparation.	L	10	-	1

## MEDT • MEDICAL LABORATORY TECHNOLOGY

MEDT1100 ☐	<b>Procedures in Phlebotomy</b> Introduction to the principles and skills needed to safely perform venipuncture and capillary blood collection techniques and special collection procedures. Quality assurance procedures pertaining to collection and transport of specimens, laboratory safety, ethical and legal issues pertaining to phlebotomy, and anatomy and physiology of cardiovascular system included. Supervised instruction and experience in collection techniques in lab.	L	20	10	2.5
MEDT1101 ☐	<b>Clinical Laboratory Procedures</b> <i>Prerequisite: Admission to the Medical Laboratory Technology Program.</i> Introduction to clinical laboratory procedures. Basic laboratory techniques and skills required in the field of medical laboratory technology. Laboratory safety, equipment, quality control, and basic techniques.	L	15	30	2.5

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MEDT1161	<b>Basic Urinalysis &amp; Microbiology for the Office Laboratory</b> <i>Prerequisite: Concurrent with MEDA1301.</i> Study of routine medical office procedures: urine and throat cultures, wet preps, and complete UA with microscopic and serology tests. Specimen collection, handling, quality control methods, and laboratory safety.	L	10	-	1
MEDT1171	<b>Basic Urinalysis &amp; Microbiology Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1161.</i> Demonstration and practice of basic skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	30	1
MEDT1181	<b>Basic Hematology for the Office Laboratory</b> <i>Prerequisite: Concurrent with MEDA1301.</i> Study of hematology tests required in medical offices: automated cell counts, hematocrit, hemoglobin, PT/INR, ESR, and basic chemistry tests. Theoretical background for procedures. Blood collection techniques, specimen collection and handling, quality control, and laboratory safety.	L	10	-	1
MEDT1191	<b>Basic Hematology Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1181.</i> Demonstration and practice of basic skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	30	1
MEDT1201	<b>Medical Laboratory Measurements</b> <i>Prerequisite: MATH1150 and MEDT1101.</i> Mathematical applications used in the medical laboratory. Use of the Metric system and S.I. units. Laboratory calculations and use of statistical data.	L	20	-	2
MEDT1301	<b>Clinical Microbiology I</b> <i>Prerequisites: LBST1221, LBST1231, MEDT1101. Concurrent with MEDT1321 and MEDT1311.</i> Study of routine procedures in clinical microbiology emphasizing the isolation and identification of common pathogenic bacteria.	L	20	-	2
MEDT1311	<b>Clinical Microbiology I Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1301.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT1321	<b>Hematology I</b> <i>Prerequisites: MEDT1101 or permission. Concurrent with MEDT1301 and MEDT1331.</i> Study of routine laboratory procedures of the hematology laboratory. Identification of normal cellular constituents of the blood.	L	20	-	2
MEDT1331	<b>Hematology I Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1321.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT1401	<b>Clinical Microbiology II</b> <i>Prerequisites: MEDT1301 and MEDT1311.</i> Advanced study of clinical microbiology theory and procedures. Culturing, isolating, and identifying microorganisms from human specimens, utilizing microscopic, biochemical and serological techniques. Antibiotic susceptibility testing of pathogenic bacteria.	L	20	-	2
MEDT1411	<b>Clinical Microbiology II Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1401.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT1421	<b>Hematology II</b> <i>Prerequisites: MEDT1321 and MEDT1331.</i> Study of advanced hematology procedures, disease states, and the identification of abnormal cellular constituents of the blood.	L	20	-	2
MEDT1431	<b>Hematology II Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT1421.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT2501	<b>Urinalysis</b> <i>Prerequisites: MEDT1421 and MEDT1431.</i> Study of normal and abnormal chemical and cellular constituents of urine.	L	10	-	1
MEDT2511	<b>Urinalysis Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2501.</i> Skills and laboratory techniques corresponding to the theoretical information presented in the lecture listed above.	L	-	30	1
MEDT2521	<b>Immunohematology I</b> <i>Prerequisites: MEDT1421 and MEDT1431.</i> Study of the theories and procedures of routine blood bank testing. Blood grouping and antibody detection and identification, the genetics of the clinically important blood groups, and functions of the immune system.	L	10	-	1
MEDT2531	<b>Immunohematology I Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2521.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	30	1

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MEDT2541	<b>Clinical Chemistry I</b> <i>Prerequisites: LBST2125, LBST2135, and MEDT1201.</i> Study of theory and application of clinical chemistry procedures. Manual and automated testing, disease states and quality control.	L	25	-	2.5
MEDT2551	<b>Clinical Chemistry I Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2541.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT2561	<b>Immunology</b> <i>Prerequisites: MEDT1401 and MEDT1411 or program permission.</i> Introduction to Immunology. Immune system, antigens, antibodies, complement, and reactions of antigens and antibodies. Relationships to diseases that are immunologically involved.	L	20	-	2
MEDT2581	<b>Hemostasis</b> <i>Prerequisites: MEDT1421 and MEDT1431.</i> Principles of blood coagulation and basic coagulation procedures.	L	10	-	1
MEDT2582	<b>Immunology/Hemostasis Laboratory</b> <i>Must be taken concurrently with the lectures. Laboratory which accompanies MEDT2561 and MEDT2581.</i> Skills and laboratory techniques corresponding to the theoretical information presented in the lectures.	L	10	30	2
MEDT2601	<b>Parasitology</b> <i>Prerequisites: MEDT2561 and MEDT2571.</i> Procedures for proper specimen collection and preparation. Identification of common human parasites and their life cycles.	L	10	-	1
MEDT2611	<b>Parasitology Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2601.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	30	1
MEDT2621	<b>Immunohematology II</b> <i>Prerequisites: MEDT2521 and MEDT2531.</i> Continuation of immunohematology, including theory and application of blood banking practices and procedures. Compatibility testing, transfusion reactions, and special testing procedures.	L	10	-	1
MEDT2631	<b>Immunohematology II Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2621.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	30	1
MEDT2641	<b>Clinical Chemistry II</b> <i>Prerequisites: MEDT2541 and MEDT2551.</i> Advanced study in the theory and application of clinical chemistry procedures. Manual and automated testing, disease states and quality control.	L	25	-	2.5
MEDT2651	<b>Clinical Chemistry II Laboratory</b> <i>Must be taken concurrently with the lecture. Laboratory which accompanies MEDT2641.</i> Skills and laboratory techniques corresponding to theoretical information presented in the lecture.	L	-	60	2
MEDT2681	<b>Clinical Education Orientation I</b> <i>Prerequisite: 6th quarter standing.</i> Introduction to the hospital and clinic laboratories where the students might receive their clinical experiences. Professional ethics, patient confidentiality, laboratory safety, and phlebotomy skills reviewed.	L	25	-	2.5
MEDT2690	<b>Clinical Education I</b> <i>Co-requisite: MEDT2681.</i> Phlebotomy experience and additional learning opportunities within a clinic and/or hospital laboratory. Application of theory and skills acquired in classroom and laboratory courses. Experience with LIS (Laboratory Information Systems).	L	-	60	2
MEDT2701	<b>Clinical Education II</b> <i>Prerequisite: MEDT2690.</i> Continuation of laboratory experience and training opportunities within a hospital and clinic laboratory. Rotation throughout departments of the clinical laboratory. Application of theory and skills acquired in classroom and laboratory courses.	L	-	300	10
MEDT2702	<b>Clinical Seminar I</b> <i>Must be taken concurrently with MEDT2701.</i> Group interaction, participation, and presentation relating to various aspects of the clinical laboratory.	L	20	-	2
MEDT2703	<b>Clinical Education Orientation II</b> <i>Concurrent with MEDT2701.</i> Review of clinical laboratory theory and technical skills for Clinical Education II and III. Requirements and clinical rotation schedules are presented.	L	35	15	4
MEDT2801	<b>Clinical Education III</b> <i>Prerequisite: MEDT2701.</i> Continuation of laboratory experience and training opportunities within a hospital and clinic laboratory. Rotation throughout clinical laboratory. Application of theory and skills acquired in classroom and laboratory courses.	L	-	300	10
MEDT2802	<b>Clinical Seminar II</b> <i>Must be taken concurrently with MEDT2801.</i> Group interaction, participation, and presentation relating to various aspects of the clinical laboratory.	L	20	-	2

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## MFGT • MANUFACTURING ENGINEERING TECHNOLOGY

**MFGT1125 Materials of Industry** M 50 - 5  
Introduction to materials (steel, irons, etc.) used in industry. Properties, uses, specifications, availability, and heat treatment. Special attention given to tool steel.

**MFGT1144 Industrial Drafting I** M 20 130 6  
Basic industrial drafting; Drawing instruments, lettering, geometric construction, orthographic projections, dimensioning and sectioning, auxiliary views, detail and assembly drawings.

**MFGT1250 Industrial Drafting II** M 20 55 3.5  
*Prerequisite: MFGT1144, MFGT1350*  
Continuation of MFGT1144 covering precision dimensioning, an introduction to geometric dimensioning and tolerancing, pictorial drafting, sheet metal layout, threads and fastening devices, welding symbols and drawings, and a team approach to product design.

**MFGT1333 Fluid Power for Manufacturing** M 40 10 4.5  
*Prerequisite: MATH1050, MFGT1250, MFGT1450.*  
Theory and operation of automation components, and automation design. Electro-mechanical items such as relays, solenoids, and actuators and many of the fluid power and mechanical devices that are common to automated equipment will be explored. Schematics for fluid power systems will be studied and how to design, build, and control an automated device.

**MFGT1350 AutoCAD for Manufacturing** M 20 30 3  
Fundamentals of the proper use of the AutoCAD software using current American Society Mechanical Engineers (ASME) standards; AutoCAD menus, AutoCAD settings and drawing setup, draw and edit commands, AutoCAD coordinate system, practice drawings, symbols, prototype drawings and plotting. Students will learn to use the AutoCAD software to explore, document and validate their designs before they are built.

**MFGT1354 Elementary Tool Design** M 50 50 6.5  
*Prerequisites: MFGT1250, MFGT1450.*  
Design of shearing, blanking, piercing, cutoff, bending, and forming dies. Study of the parts and components used in these dies. Punch presses and die sets are also covered.

**MFGT1362 Plant Layout & Materials Handling** M 30 20 3.5  
*Prerequisites: MFGT1250, MFGT1450.*  
Study of manufacturing flow, material handling, J.I.T., use of available facilities and equipment, packaging, shipping, receiving, and employee protective equipment.

**MFGT1413 Electrical Fundamentals** M 50 - 5  
*Prerequisite: MATH1050.*  
Fundamental concepts of electricity. Energy, basic electrical fundamentals, and circuits and devices. Application of Ohm's Law, power and efficiency formulas to problems involving basic circuits. Sources and effects of electric current, magnetism, electromagnetism, generators, and motors.

**MFGT1421 Manufacturing Processes I** M 50 - 5  
The theory and safe operation of machine and hand tools. Covers metrology, five basic machining techniques (drilling, turning, boring, milling, and grinding), tool geometry, speeds, feeds, and cutting fluids.

**MFGT1429 CNC Machines** M 20 45 3.5  
*Prerequisites: MFGT1250, MFGT1450.*  
Basic programming of Computer Numerical Control Machines is studied. Manual programming and programming with Mastercam X are covered.

**MFGT1450 Advanced AutoCAD for Manufacturing** M 10 15 1.5  
Course devoted to the needs of the intermediate AutoCAD user. AutoCAD Mechanical software power tools are unveiled to the AutoCAD users. Attention is given to the use of dynamic three-dimensional construction, solid modeling, paper space, model space, and customizing of the AutoCAD environment.

**MFGT1456 Manufacturing Processes II** M 20 80 4.5  
Basic operation of the lathe, milling machine and grinder. Laboratory experience with hand tools, metrology, metal sawing, drilling and tapping.

**MFGT1458 Electrical Drafting** M 10 25 1.5  
*Prerequisites: MFGT1250, MFGT1450.*  
Study of graphical methods of describing industrial electrical controls and control circuits. Elementary or schematic diagrams, connection and block diagrams, and printed circuit drawings using computer aided drafting techniques. Use of American Standard Association and National Electrical Component Association Standards.

**MFGT2549 Quality Assurance & SPC** M 50 - 5  
*Prerequisite: MATH1050.*  
Study of statistical techniques used in the control of the quality requirements of manufactured articles. Sampling, inspection techniques, S.P.C., and the use of inspection tools and instruments.

**MFGT2551 Time & Motion Study** M 50 - 5  
Study of systematic, practical, and scientifically correct treatment of present-day motion and time study along with application of economics and productivity as applicable to the manufacturing field.

Course# □ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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**MFGT2559 Advanced Geometric Dimensioning & Tolerancing** M 50 - 5  
*Prerequisite: MFGT1250.*  
Study and application of current methods, symbols, and principles of geometric dimensioning and tolerancing as per ASMEY14.5-2009.

**MFGT2566 Tool & Product Design** M 10 90 4  
*Prerequisites: PHYS1017 or PHYS1150, MACH1370, MFGT1250, MFGT1450.*  
Design and development steps of one or more of the following using computer aided drafting techniques: various dies, plastic and metal molds, patterns, drill jigs, welding fixtures, machining fixtures, and the piece part products of these various tools.

**MFGT2620 Programmable Logic Controllers in Work Cell Design** M 50 - 5.0  
*Prerequisite: MFGT1413*  
An introduction to logic functions, the programmable logic controller (PLC) and their uses in machine control.

**MFGT2635 Plastics: Design & Engineering** M 50 - 5  
Study of the physical, chemical, and mechanical properties of plastics. Study of molding techniques and processes. Product design considerations and guidelines.

**MFGT2643 Strength of Materials** M 50 - 5  
*Prerequisites: PHYS1017 or PHYS1150, MACH1370.*  
The study of resultant and equilibrant of forces, moments, simple stresses, properties of materials, bolted, riveted and welded joints, centroids, and moment of inertia.

**MFGT2668 Design & Production Problems** M 5 95 3.5  
*Prerequisites: PHYS1017 or PHYS1150, MFGT1250, MFGT1450, MFGT2670.*  
Analysis of practical design and production problems. Development of manufacturing and inspection procedures and the necessary equipment needed to manufacture specific products or components. Previously learned skills and concepts applied in the development of economical designs.

**MFGT2670 Autodesk® Inventor** M 35 65 5.5  
*Prerequisite: BSAD1010, MFGT1250, MFGT1450.*

Course devoted to the needs of the experienced AutoCAD user. Autodesk Inventor software is used extensively for the creation of adaptive parametric solid model parts and assemblies. Students will become familiar with creating parametric detail and assembly drawings with parts lists, simulating assembly motion for analysis, using Finite Element Analysis to solve stress analysis and using Inventor Studio for photo realistic images.

**MFGT2672 Mechanisms** M 50 - 5  
*Prerequisites: MATH1050, MFGT1250, MFGT1450, MACH1370.*  
Theory and application of cams and gears, analysis of mechanisms and determination of positions, displacements, velocities, and accelerations of parts. Use of graphical solutions. Mechanisms such as couplings, universal joints, clutches, drive trains, four bar, slider crank, quick return, toggle, straight line, parallel, and intermittent motion devices.

**MFGT2680 Solid Works** M 10 15 1.5  
*Prerequisite: MFGT2670.*  
This course introduces the advances user to SolidWorks® software. SolidWorks® software is used extensively for the creation of adaptive parametric solid model parts, assemblies, and drawings to industrial standards.

## MSTT • MOTORCYCLE, ATV, AND PERSONAL WATERCRAFT TECHNOLOGY

**MSTT1000 Shop Procedures & Hand Tools** L 45 30 5.5  
Effective use of parts and service information resources. Proper use and care of hand and power tools. Safety practices and procedures. Use of precision measuring instruments.

**MSTT1112 Basic Engine Theory** L 35 65 5.5  
*Prerequisite: PHYS1150.*  
Introduction to basic engine design and components in two-cycle and four-cycle engine operation. Hands-on experience in rebuilding two-cycle and four-cycle engines.

**MSTT1113 Metric Measure** L 33 - 3  
Introduction to metric system (SI). Practice in measurements of area, volume, weight and capacity. Proper use of metric precision measuring equipment.

**MSTT1120 Wheels & Tires** L 25 35 3  
*Prerequisite: MSTT1000.*  
Theory and maintenance of stamped steel, spoked and magnesium wheels. Inspection, service, repair and balance of various tire designs.

**MSTT1122 Frames, Suspensions, & Brakes** L 15 60 3.5  
*Prerequisite: PHYS1150.*  
Theory of frame geometry and function of the suspensions units. Proper procedures for maintaining and rebuilding of various types of steering heads, forks, shocks, swing arms and suspension components on motorcycles and ATV's. Theory and operation and proper service procedures of drum and disk brakes.

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MSTT1125	<b>Electrical Concepts</b> Basic electrical and electronic principles, Ohm's law, magnetism and electromagnetism as applied to the motorcycle, ATV, and personal watercraft are covered. The proper and effective use of analog and digital meters.	L	55	15	6
MSTT1131	<b>Electrical Circuits</b> <i>Prerequisite MSTT1125.</i> Theory of electrical circuits and ignition systems for motorcycles, ATVs and personal watercraft. Troubleshooting and repair of electrical circuits.	L	90	30	10
MSTT1132	<b>Fuel &amp; Ignition Systems</b> <i>Prerequisite MSTT1125.</i> Introduction to carburetion and fuel injection systems used on motorcycles, ATVs, and personal watercraft.	L	40	30	5
MSTT1133	<b>Periodic Maintenance and Emission Controls</b> <i>Prerequisite MSTT1122.</i> Proper procedures for completion of scheduled maintenance and minor engine and chassis service. This course also includes the diagnosis and troubleshooting of engine performance problems and emission control systems.	L	40	110	7.5
MSTT1138	<b>Personal Watercraft</b> <i>Prerequisite MSTT1125.</i> Proper repair and maintenance of various types of personal watercraft with special attention to steering, cooling systems, fuel delivery, and propulsion operation and repair.	L	22	18	3
MSTT1140	<b>Transmission and Final Drives</b> <i>Prerequisite MSTT1112.</i> Theory of clutches, gear ratios, drive trains for constant mesh and automatic transmissions as used on motorcycles and ATVs.	L	30	20	3.5
MSTT1141	<b>Engine Rebuild and Overhaul</b> <i>Prerequisite MSTT1112.</i> Disassembly and reassemble procedures of two-cycle and four-cycle motorcycle, ATV, and personal watercraft engines.	L	20	60	4
MSTT1145	<b>Engine Machine Operations</b> <i>Prerequisite MSTT1000-MSTT1112.</i> Study and application of machining operations used in the repair and maintenance of two-cycle and four-cycle engines. Boring and honing cylinders, rebuilding crankshafts, grinding valves and valve seats.	L	20	30	3
MSTT1146	<b>Rideability and Electrical Update</b> <i>Prerequisite MSTT1132.</i> Advanced electrical update and review covering all systems and diagnosis relating to engine performance and emissions.	L	40	60	6
MSTT1901	<b>Rideability and Electrical Update with Coop</b> <i>Prerequisite MSTT1132.</i> Advanced electrical update and review of all systems and diagnosis relating to engine performance and emission. Lab time is split approximately 50% Coop work experience at a local repair facility.	L	40	90	6

## MUSC • MUSIC

MUSC1010	<b>Introduction to Music</b> ☐ An introduction of musical forms, styles, and composers within a historical perspective. Includes an introduction to music elements as well as a range of music literature.	B/L	45	-	4.5
MUSC1015/1020, 2010/2020, 2030/2040	<b>Individual Instruction in Voice</b> A study and performance of standard literature in various styles; includes a combination of private and small group instruction. Lab hours consist of required individual practice time. At the instructor's discretion, students may perform in both informal and formal recital settings.	B	15	-	1.5
MUSC1260	<b>Class Piano I</b> Beginning fundamentals of piano performance. Scales, fingering, sight-reading and transposing included. Assumes no prior knowledge of music.	B	-	30	1.5
MUSC1261	<b>Guitar I</b> Beginning fundamentals of guitar playing. Playing solo and ensemble, harmonizing, scales, tablature, picking and strumming patterns, and composing included. Music of classical and popular style. Assumes no prior knowledge of music.	B	-	30	1.5
MUSC1270	<b>Class Piano II</b> <i>Prerequisite: MUSC1260 or permission of instructor.</i> Continuation of MUSC1260 Class Piano I. Increasing technical facility and functional skills, playing by ear, and adding improvisation and harmonization skills.	B	-	30	1.5
MUSC1271	<b>Guitar II</b> Continuation of MUSC1261 Guitar I. Increasing technical facility and functional skills, playing by ear and adding improvisation and harmonization skills. Learn to play ensemble pieces, note reading skills beyond first position, and the development of arpeggio style playing.	B	-	30	1.5
MUSC1410/1420, 2390/2400, 2410/2420	<b>College Choir</b> Study and performance of standard choral literature for mixed voices. At the director's discretion, students sing in formal and informal performance settings.	B/L	-	30	1.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
MUSC1430, 1440, 2430, 2440	<b>Vocal Ensemble: After the Storm</b> <i>Participation by audition only. Co-requisite: MUSC1410</i> A select vocal group with a performance emphasis. Participants sing in a variety of styles and participate in required performances both on and off campus.	B	-	30	1.5
MUSC1610	<b>Music Theory I</b> Introduction to the fundamentals of music, notation, rhythm, meter, scales, keys, intervals, triads, seventh chords, inversion and figured bass. Sight singing, dictation and keyboard.	B/L	45	30	6
MUSC1620	<b>Music Theory II</b> <i>Prerequisite: MUSC1610 or permission of instructor.</i> Study of basic harmonic techniques of the baroque, classical and romantic periods including chord progressions, cadences, harmonization, completion and composition. Elements of form, such as phrase, period and phrase group. Continued work in sight singing, dictation and keyboarding.	B/L	45	30	6
MUSC1630	<b>Music Theory III</b> <i>Prerequisite: MUSC1620 or permission of instructor.</i> Subjects covered will be modulation; secondary dominants; diminished sevenths; Neapolitan and augmented sixths; and chords of the ninth, eleventh, and thirteenth. Continued work with sight singing and dictation.	B/L	45	30	6
MUSC1640	<b>Music Theory IV</b> <i>Prerequisite: MUSC1630 or permission of instructor.</i> Theoretical thinking and aural comprehension covering chromatic harmony and voice leading. Increased chromaticism developed in 19th- and 20th-century popular music. Continued work with sight singing and dictation.	B/L	45	30	6
MUSC2260	<b>Class Piano III</b> <i>Prerequisite: MUSC1270 or permission of instructor.</i> Preparation of repertoire for performance. Continue working on piano fundamentals, and playing by ear. Additional chords and scales presented.	B	-	30	1.5
MUSC2270	<b>Class Piano IV</b> <i>Prerequisite: MUSC2260 or permission of instructor.</i> Preparation of solo repertoire as well as accompaniments from vocal/instrumental literature. Improvisation, harmonizing, sight-reading and transposition stressed. Review of scales and chords.	B	-	30	1.5
MUSC2520/2530, 2540/2550, 2580/2590	<b>Individual Instruction in Piano</b> Study and performance of standard literature in various styles; includes a combination of private and small group instruction. Lab hours consist of required individual practice time. At the instructor's discretion, students may perform in both informal and formal recital settings.	B	15	-	1.5
MUSC2521/2531, 2541/2551, 2581/2591	<b>Individual Instruction in Guitar</b> Study and performance of standard literature in various styles; includes a combination of private and small group instruction. Lab hours consist of required individual practice time. At the instructor's discretion, students may perform in both informal and formal recital settings.	B	15	-	1.5
MUSC2720	<b>Music History &amp; Literature I</b> Tracing the historical development of music from Middle Ages through end of Baroque. Comprehensive survey with emphasis on styles and characteristics of Gregorian Chant, early polyphony, and music of the Renaissance and Baroque periods.	B/L	45	-	4.5
MUSC2730	<b>Music History &amp; Literature II</b> Tracing the historical development of music from Classical period to present day. Survey presentation with emphasis on styles and characteristics of the classical, romantic, impressionistic and modern schools.	B/L	45	-	4.5
MUSC2750	<b>Introduction to American Music</b> ☐ Survey of the various types of American music including jazz, popular, folk and musical theatre. Discussion centers on the relationship between the music and its historical and cultural context. Includes music of Americans of European, African, Asian, Hispanic and American Indian descent.	B/L	45	-	4.5
MUSC2800	<b>Introduction to World Music</b> ☐ Survey various world cultures through a study of their musical systems. Discussion centers on the relationship between the music and its social and cultural context. Content includes music of India, the Middle East, Japan, China, Indonesia, Sub-Saharan Africa, Latin America, and Native America.	B/L	45	-	4.5

## NDTT • NONDESTRUCTIVE TESTING TECHNOLOGY

NDTT1121	<b>Visual Inspection Method</b> Concepts and applications of visual inspection as it relates to other NDT methods. Use of optical devices, precision measurement tools and gauges. Use of various tools in laboratory and field situations.	M	30	45	4.5
NDTT1133	<b>Manufacturing Processes</b> Study of metal forming casting and forging processes, metals production, plastic, and other material types. Materials joining processes and nontraditional machining methods along with allied cutting processes.	M	100	-	10

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
NDTT1164	<b>Blueprint Reading &amp; CAD</b> Study of industrial graphics language for shape description, size description, instrument drawing, blueprint reading, pictorial drawing (isometric and oblique drawing) and CAD.	M	40	35	5
NDTT1236	<b>Electrical &amp; Electronic Fundamentals</b> <i>Prerequisite: MATH1050.</i> Introduction to electrical and electronic fundamentals. Sources and effects of electric current, magnetism, and electromagnetism. Formulas for problem solving in basic circuitry. Instrumentation used in NDT. System concepts and basic troubleshooting.	M	50	-	5
NDTT1255	<b>NDT Methods</b> <i>Prerequisites: MATH1050, NDTT1121, NDTT1133 and NDTT1138.</i> Introduction to the UT, RT, PT, MT, and ET methods of nondestructive testing. Fundamental operating principles and traditional applications. Laboratory work on instrument and equipment familiarization, instrument calibration, inspection, procedures, and reporting of inspection results.	M	75	75	10
NDTT1263	<b>Metallurgy</b> <i>Prerequisites: MATH1050, NDTT1133 and NDTT1138.</i> Study of the nature of metals, methods of metallurgical examination, mechanical testing, chemistry, and production of metals.	M	50	50	6.5
NDTT1356	<b>Liquid Penetrant</b> <i>Prerequisites: NDTT1121 and NDTT1255.</i> Study of proper penetrant testing techniques and applications. Process control for the solvent removable, post emulsifiable, and water wash penetrant techniques. Study of codes, standards, inspection procedures, and job specifications for liquid penetrant inspection.	M	20	30	3
NDTT1360	<b>Ultrasonics I</b> <i>Prerequisites: MATH1050 and NDTT1255.</i> Applications and ultrasonic inspection techniques. Technique requirements specified in selected codes, standards, and job specifications. Examination and reporting consistency. Introduction to ultrasonic system configuration and computers.	M	40	110	7.5
NDTT1450	<b>Eddy Current I</b> <i>Prerequisites: NDTT1236, NDTT1255, and NDTT2040.</i> Study of electromagnetic theory as it applies to eddy current inspection. Applications and limitations of various test systems, operation of single frequency phase and amplitude analysis instrumentation.	M	20	20	2.5
NDTT1458	<b>Magnetic Particle</b> <i>Prerequisites: NDTT1236, NDTT1255, and NDTT2040.</i> Study of proper MT testing techniques and applications. Control of inspection variables in all forms of magnetic particle inspection. Study of codes, standards, inspection procedures, and job specifications as they relate to magnetic particle inspection.	M	30	30	4
NDTT1464	<b>Radiography I</b> <i>Prerequisites: NDTT1255 and NDTT2040.</i> Applications and radiographic inspection techniques. Technique requirements specified in selected codes, standards, and job specifications. Examination and reporting consistency. Methods for developing RT techniques in situations where limited information is available about a test object or where codes and standards do not exist.	M	60	90	9
NDTT1470	<b>Radiation Safety &amp; Administration</b> <i>Prerequisites: NDTT1255 and NDTT2040.</i> Study of operational and functional radiation safety programs. Exercise of personal responsibilities related to safety in industrial radiography. Practical aspects of x-ray and radioisotope operations. Program administrative responsibilities and radiation physics.	M	50	-	5
NDTT2040	<b>NDTT Mathematics</b> Introduction to advanced math skills. Common and natural logarithms, industrial application, angles and triangles. Angular measurement, right triangle and oblique triangle trigonometry and vectors. Polar and rectangular coordinates. Capabilities, functions and use of scientific calculators.	M	45	-	4.5
NDTT2569	<b>Radiography II &amp; Film Interpretation</b> <i>Prerequisites: NDTT1464 and NDTT1470.</i> Study of industrial radiography with major emphasis on developing skills in technique and procedure development. Code requirements, film interpretation, control of film processing, film reviews and audits, radiation safety administration, and special radiographic techniques. Including lab projects related to interpreting and evaluating radiography of welds, castings, forgings, electrical components and composite materials.	M	50	100	8
NDTT2570	<b>Eddy Current II</b> <i>Prerequisite: NDTT1450.</i> Continued study of electromagnetic testing. Advanced theory and operation of single and multifrequency, and multiparameter data acquisition systems. Multifrequency data collection and evaluation. System calibration and standardization methods related to phase analysis instrumentation. Data analysis concepts and computer based analysis and reporting systems. Introduction to Remote Field Testing (RFT) theory, instrumentation, calibration or equipment and data acquisition.	M	75	75	10
NDTT2652	<b>Ultrasonics II</b> <i>Prerequisite: NDTT1360. Corequisites: NDTT2675 and NDTT2679.</i> Continued study of ultrasonic testing. Developing testing techniques and procedures. Instrumentation, calibration methods, code requirements, evaluation procedures. Computer assisted motion control and data acquisition systems.	M	50	100	8

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
NDTT2675	<b>Computer Applications in NDT</b> <i>Prerequisites: BSAD1010 and NDTT1360. Corequisites: NDTT2652 and NDTT2679.</i> Study of computer assisted NDT. Motion control and data acquisition techniques. Assigned projects for practical adaptation of a computer to an inspection situation.	M	30	45	4.5
NDTT2679	<b>Code Interpretation &amp; Procedure Development</b> <i>Corequisites: NDTT2652 and NDTT2675.</i> Development of technical skills for writing qualifiable test procedures. Audit and surveillance procedures and implementation. Quality assurance functions.	M	35	40	4.5

## NURA • NURSING ASSISTANT

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
NURA1401	<b>Nursing Assistant</b> Completion of the class meets the Nebraska Department of Health requirements for employment as a Nursing Assistant. The course includes classroom, nursing lab, and clinical experience in a health care facility.	B/L	50	50	6.5

## NURS • ASSOCIATE DEGREE NURSING

*All prerequisite courses and NURS courses must be passed with a "C+" or higher.*

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
NURS1206	<b>Introduction to Professional Nursing</b> <i>Prerequisites: BIOS1140, BIOS1110, SOCI1010, BIOS2130, MATH1150, and CHEM1050.</i> Overviews the current nursing organizations, development of the nursing profession, and the health care system. An overall introduction to the philosophy, objectives, and curriculum framework of the associate degree program is presented. Caring is introduced as an integral concept of nursing. Discussions of the concepts of health/illness continuum, health care delivery, basic human needs, professional behavior, communication, legal/ethical issues, and multicultural diversity.	L	20	-	2
NURS1207	<b>Introduction to Nursing Pharmacology</b> <i>Prerequisites: BIOS1140, BIOS1110, MATH1150, BIOS2130, CHEM1050.</i> Students are introduced to pharmacology and math concepts required to provide safe and effective care for individual clients with common disease conditions along the health/illness continuum. Nursing process is applied to pharmacotherapy. Legal aspects, state and federal regulations of drugs are introduced. Pharmacokinetics, pharmacotherapy, pharmacodynamics and drugs as they affect various body systems are discussed.	L	20	-	2
NURS1304	<b>Transition to Associate Degree Nursing</b> <i>Prerequisites: BIOS1110, BIOS1140, BIOS2130, CHEM1050, ENGL1010 or ENGL1015, FSDT1350, MATH1150, MEDA1407, PSYC2960, SOCI1010.</i> Required for the licensed practical nurse (licensed in Nebraska) requesting advanced placement into the Associate Degree Nursing program. Oriented toward developing associate degree level nursing skills for new role of student nurse. An overall introduction to the philosophy, objectives and curriculum framework of the Associate Degree Nursing program is presented. Includes the nursing process and the roles and functions of the associate degree nurse.	L	10	-	1
NURS1305	<b>Basic Nursing Concepts I</b> <i>Prerequisites: MEDA1406/1407, NURS1206, NURS1207, PSYC2960, ENGL1010 or ENGL1015, and FSDT1350.</i> The nursing process as a method of problem solving is discussed and related to a nursing care plan framework. Emphasis is placed on technical skills and identification of basic human needs as it relates to the nursing process. Nursing techniques taught in the program lab are correlated with scientific principles and applied in the clinical setting. Basic pharmacological principles and drug classification are included when administration is introduced. Clinical experiences are provided to apply nursing techniques, apply nursing process to patient care, and introduce the nurse and client role in a variety of health care settings.	L	30	90	6
NURS1306	<b>Pathophysiology</b> <i>Prerequisites: BIOS1140, BIOS2130, CHEM1050, and BIOS1110.</i> This course is designed for students pursuing a career in nursing or other health related fields. Students are introduced to common disease conditions, terminology such as etiology, prognosis, and signs and symptoms. Concepts such as inflammation, immunity, allergy, and neoplasia are explained. General diagnostic and treatment procedures for each system are included. Physiological adaptation, diagnostic tests and treatment procedures for each body system are explained.	L	45	-	4.5
NURS1307	<b>Nursing Concepts II</b> <i>Prerequisite/co-requisite NURS1305 and NURS1306 or NURS1308.</i> Students are introduced to the principles and skills needed to care for individual clients with common disease conditions along the health/illness continuum. Pathophysiology, diet therapy, diagnostic tests and pharmacology are correlated with the nursing process when identifying common health problems and planning care. Clinical experiences are correlated with theory in a variety of health care settings.	L	5	75	3

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
NURS1308	<b>Pathophysiology through the Lifespan</b> <i>Prerequisites: BIOS1140, BIOS2130, CHEM1050, BIOS1110.</i> This course is designed for students pursuing a career in nursing or other health related fields. Students are introduced to concepts related to mechanisms of the disease process. Foundational concepts of inflammation, immunity, infection and neoplastic alterations are applied to each body system. The relationship of signs and symptoms to specific diseases are discussed. Students will become familiar with terminology directly associated with disease process, i.e. etiology, diagnosis, prognosis, etc. Disease concepts will include specific applications throughout the lifespan, including developmental and genetic alterations. Effects of aging are explained. Students will identify common diagnostic and treatment modalities.	L	60	-	6
NURS2400	<b>Nursing Assessment</b> <i>Prerequisite: NURS1304 or NURS1305. Co-requisites: NURS2403/2404.</i> Focuses on the acquisition of skills used in the comprehensive health assessment of children and adults in the nursing process. Emphasis on well clients with the identification of some deviations from the normal. Introduction to communication skills and the assessment of the person in his/her physical, developmental, psychological and sociocultural and multicultural diversity.	L	30	45	4.5
NURS2403	<b>Gerontological Nursing Concepts</b> <i>Prerequisite: NURS1305. Co-requisite: NURS2400.</i> Focuses on the nursing process as a problem solving tool in assisting older clients' adaptation to stress related to chronic and terminal illness. Gerontological principles and rehabilitative aspects of nursing are examined. Pathophysiological concepts, therapeutic nutrition and pharmacology are integrated.	L	20	45	3.5
NURS2404	<b>Nursing Concepts III</b> <i>Prerequisite: NURS1305/1306/1307. Co-requisites: NURS2400/2403.</i> Focus on the nursing process applied to clients' adaptive responses to stressors, including hospitalization and the disease process. Perioperative nursing principles are included. Related pathophysiology, therapeutic nutrition and pharmacology are integrated. Clinical experiences are provided to develop and refine nursing techniques appropriate for clients being cared for in a variety of health care settings. Understanding of concepts basic to positive adaptation to life-threatening physiologic stress are examined.	L	30	90	6
NURS2501	<b>Nursing Concepts Related to the Childbearing Family</b> <i>Prerequisite: NURS2404.</i> Normal psychological and physiological changes/adaptations that occur during the maternity cycle are examined along with pre-, post- and perinatal stressors/adaptations of the maternity client/childbearing family. The student explores family structures, stressors, and subsequent adaptation of the family and gynecological client. Concepts of cultural differences on childbearing and self-care abilities are considered. Nursing experiences are provided in postpartum, labor and delivery, normal newborn nursery, and selected hospital/community observational experiences.	L	30	90	6
NURS2502	<b>Nursing Concepts Related to Child Rearing Family</b> <i>Prerequisite: NURS2404.</i> The course utilizes the nursing process based on the knowledge of childhood variations to specific pediatric problems while reinforcing normal growth and developmental processes. Concepts of nutrition, pharmacology and pathophysiology are integrated in the course. The student gains insight within the secondary care setting by helping the pediatric client/child rearing family cope with the stress of illness and by promoting family health.	L	30	90	6
NURS2503	<b>Nursing Pharmacology</b> <i>Prerequisite: NURS2404</i> Students are introduced to pharmacology and mathematical concepts needed to provide safe and effective care for individual clients with complex disease conditions along the health/illness continuum. Nursing process is utilized when planning the pharmacological care of these clients.	L	10	-	1
NURS2602	<b>Mental Health Nursing Concepts</b> <i>Prerequisite: NURS2501 or NURS2502, and NURS2503. Co-requisite: NURS2603.</i> A study of behavioral reactions to social, physical and emotional stress as seen in clients receiving psychotherapeutic care is studied. Introduces nursing interventions in dysfunctional behavior in secondary care settings. Further development of the nurse-client relationship, techniques and therapeutic communication skills are emphasized. Overview of the modes of therapy (including psychopharmacology) and intervention in recurring maturational and situational crises. Pathophysiology and diet therapy are integrated. Clinical experiences are provided in a variety of health care settings.	L	30	90	6
NURS2603	<b>Nursing Concepts IV</b> <i>Prerequisite: NURS2501 and 2502 and 2503. Co-requisite: NURS2602.</i> Introduction to more complex cognitive and psychomotor skills needed to care for individuals with more complex disease conditions along the wellness/illness continuum. The clinical course emphasizes setting priorities of needs with emphasis on the distinction between normal and abnormal adaptation to multiple stressors affecting the client systems. Crisis theory interventions are introduced. Pathophysiology, diet therapy and pharmacology are integrated. Principles of nursing management are introduced. Clinical experience to correlate with theory is provided in a variety of acute health care settings. The clinical portion of this course allows the student to practice decision-making skills for groups of clients in selected health care settings and to further develop communicative and technical skills. Content includes legal/ethical issues in nursing and health care, nursing roles, trends in nursing and transition into a professional role.	L	30	105	6.5

## OFFT • OFFICE PROFESSIONAL

All prerequisite courses must be passed with a "C" or higher.

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
OFFT1010	<b>Keyboarding I</b> <i>Suitable for beginning students or for review using touch method. Introduces keyboarding techniques using the touch method; uses practice drills and strategies to develop excellent rhythmic keyboarding skills. A minimum of 20 gross words a minute (GWAM) with three or fewer errors on three-minute timings must be achieved to pass.</i>	B/L	30	-	3
OFFT1020	<b>Keyboarding II</b> <i>Prerequisite: OFFT1010 or equivalent, 20 GWAM minimum.</i> Reinforces keyboarding techniques using the touch method; uses practice drills and strategies to develop excellent rhythmic keyboarding skills. A minimum of 30 gross words a minute (GWAM) with three or fewer errors on three-minute timings must be achieved to pass.	B/L	30	-	3
OFFT1110	<b>Business Communications</b> <i>Prerequisite: Eligible for ENGL1010 or ENGL1015. Recommend BSAD1010 or INFO1121.</i> Study of principles and techniques of writing business letters, electronic and written messages, and reports. Principles of grammar, punctuation, and correct word usage that have practical application in writing for business purposes.	B/L/M	45	-	4.5
OFFT1120	<b>Medical Terminology</b> Study of medical vocabulary for practitioners in the field of medicine. Much of the course is auto-instructional with extra drill and practice during class sessions.	B	45	-	4.5
OFFT1160	<b>Keyboarding III</b> <i>Prerequisite: OFFT1020 or equivalent, 30 GWAM minimum.</i> Uses a comprehensive diagnostic approach to build speed while maintaining a high degree of accuracy. A speed of 40 GWAM is a C, and 50 GWAM is an A on five-minute timings with five or fewer errors. Introduction to the electronic calculator and proficiency development in operating the 10-key pad by touch. Uses appropriate practice exercises and timed writings to produce a minimum speed of 100 key strokes per minute with at least 95% accuracy.	B/L	45	-	4.5
OFFT1170	<b>Keyboarding IV</b> <i>Prerequisite: OFFT1160 or equivalent, 40 GWAM minimum.</i> Uses lessons designed to develop both speed and accuracy while encouraging students to reach high goals on an individual basis. A speed of 50 GWAM is a C, and 60 GWAM is an A on five-minute timings with five or fewer errors. Introduction to the electronic calculator and proficiency development in operating the 10-key pad by touch. Uses appropriate practice exercises and timed writings to produce a minimum speed of 100 key strokes per minute with at least 95% accuracy.	B/L	30	-	3
OFFT1310	<b>Office Accounting</b> <i>Introduction to basic principles of accounting for a personal service enterprise. Analyzing, sorting, classifying, journalizing, and posting business transactions; taking a trial balance; preparing a work sheet; adjusting and closing the books; preparing an income statement, a statement of owner's equity, and a balance sheet; and working with payroll records.</i>	B/L	45	-	4.5
OFFT1680	<b>Web Page Support</b> <i>Prerequisite: BSAD1010</i> Design and preparation of Web pages, documents, and communication for electronic delivery. E-forms, e-mail etiquette, pdf file creation, online publishing, and file transfer included.	B/L	45	-	4.5
OFFT1710	<b>Word Applications I</b> <i>Prerequisites: BSAD1010 and OFFT1020.</i> Create, format, and edit basic business office documents such as letters, memos, reports, and tables using Microsoft Word. Emphasis on usable/mailable copy.	B/L	45	-	4.5
OFFT1720	<b>Word Applications II</b> <i>Prerequisite: OFFT1710.</i> Create, format, and edit advanced office documents such as tables, letters with special parts, two-page memos, long reports, and merge using Microsoft Word. Emphasis on usable/mailable copy.	B/L	45	-	4.5
OFFT1740	<b>Desktop Publishing Applications</b> <i>Prerequisite: OFFT1710</i> Apply basic layout and design concepts in newsletters and other office documents using Microsoft Office applications: Word and Publisher. Emphasize importance of usable/mailable copy.	B/L	45	-	4.5
OFFT1760	<b>Project Management Applications</b> <i>Prerequisite: BSAD1020.</i> Use critical thinking and teamwork skills to manage the tasks and resources required to complete a project. Utilize Microsoft Project software to plan and track project progress. Use electronic calendars and e-mail to communicate effectively with team members. Prepare appropriate documents and presentation materials as necessary throughout the project process.	B/L	45	-	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
OFFT2000 ■	<b>Employment Techniques</b> <i>Prerequisites: Declared students only. OFFT1110, OFFT2120, HIMS1103, VPUB1130, or VPUB1134. This class should be taken immediately before Cooperative Experience and graduation for associate degree or diploma students.</i> Development of techniques and skills necessary for students to be successful in seeking or retaining employment within career area.	B/L	45	-	4.5
OFFT2060 ■	<b>Voice Recognition/Transcription</b> <i>OFFT1710 and eligible for ENGL1010.</i> Utilizes current technology tools to effectively transcribe and produce business documents. Includes application of proper grammar and punctuation rules while both composing and editing business documents, use of speech recognition software, and use of machine transcription equipment.	B/L	45	-	4.5
OFFT2120 ■	<b>Business Communication Strategies</b> <i>Prerequisites: ENGL1010 or ENGL1015 or OFFT1110. Recommend BSAD1010 or INFO1121.</i> Study of principles of effective written and oral business communication. Communication strategies used in business disciplines.	L	45	-	4.5
OFFT2130 ■	<b>Medical Machine Transcription</b> <i>Prerequisites: MEDA1201 or OFFT1120 and OFFT2060.</i> Practice using medical abbreviations, terminology, and phrases; transcription of basic hospital cases from recorded dictation using Microsoft Word.	B/L	45	-	4.5
OFFT2210 ■	<b>Legal Processes I</b> <i>Prerequisite: OFFT1710. Recommend: OFFT2060.</i> Provides students with the basic knowledge and skills needed to work in a variety of law-related settings, such as private law firms, government agencies, corporations, and banks. Study of legal terminology and its application in various areas of the law. Preparation of legal documents, pleadings, and correspondence using Word. Topics covered include ethics, confidentiality, calendaring, billing, client relations, and specific duties for the legal office.	L	45	-	4.5
OFFT2220 ■	<b>Legal Processes II</b> <i>Prerequisite: OFFT2210.</i> Continuation of Legal Processes I. Further study of the knowledge and skills needed to work in a variety of law-related settings, such as private law firms, government agencies, corporations, and banks. Study of legal terminology and its application in various areas of the law. Preparation of legal documents, pleadings, and correspondence using Word. Topics covered include ethics, confidentiality, calendaring, billing, client relations, and specific duties for the legal office. An introduction to basic legal research and citation rules is provided.	L	45	-	4.5
OFFT2310 ■	<b>Financial Computer Applications</b> <i>Prerequisites: ACCT1200 and BSAD1020.</i> Excel spreadsheet projects from a financial perspective, accounts receivable and accounts payable with subsidiary ledgers, payroll concepts, and computerized accounting software.	B/L	45	-	4.5
OFFT2340 ■	<b>Records and Information Management</b> <i>Prerequisite: BSAD1020.</i> Introduction to records management. Rules of alphabetic, geographic, numeric, subject, and chronological methods of filing according to the Association of Records Managers and Administrators (ARMA) rules. Utilize Microsoft Access to complete database projects and integration activities.	B/L	45	-	4.5
OFFT2410 ■	<b>Administrative Procedures I</b> <i>Prerequisite: OFFT1710.</i> Comprehensive coverage of relevant skills and procedures in the performance of office duties including the role of the administrative assistant, communication skills, and reference sources. Provides the student with the opportunity to apply relevant skills for today's automated work environment.	B/L	45	-	4.5
OFFT2420 ■	<b>Administrative Procedures II</b> <i>Prerequisite: OFFT2410.</i> Continued coverage of office procedures including information processing procedures, travel and conference arrangements, mail processing procedures, organizational skills, and decision making. Provides students with a strong background in administrative skills and knowledge.	B/L	45	-	4.5
OFFT2440 ■	<b>Medical Office Procedures</b> <i>Prerequisites: MEDA1101 or OFFT1120, and OFFT1710 or by permission; OFFT2060 recommended.</i> Integration of relevant medical office skills and procedures in the performance of modern medical office duties. Simulations included.	B/L	45	-	4.5
OFFT2460 ■	<b>Office Simulation</b> <i>Prerequisites: ACCT1200 or OFFT1310, MATH1040, OFFT1110, OFFT2340, OFFT2410, and PSYC1250 or by permission. Corequisite: OFFT2420.</i> Uses previously learned office, procedures, and soft skills in an interactive work-flow environment. Students run a simulated business and work as managers, human resource specialists, accountants, order analysts, inventory specialists, and service representatives.	B/L	45	-	4.5
OFFT2650 ■	<b>Computerized Medical Management</b> <i>Prerequisites: OFFT2440 or by permission.</i> Computerized application of scheduling, records management, insurance forms, patient database, and financial reports.	L	30	-	3
OFFT2720 ■	<b>Microsoft Office Integration</b> <i>Prerequisites: BSAD1020, OFFT2310, and OFFT2340.</i> Create documents integrating Microsoft Office applications. Project-based class requires advanced technology and critical-thinking skills. Ability to work independently and in teams will be necessary as students apply skills and knowledge acquired in previous courses to initiate and complete Microsoft integration projects.	B/L	45	-	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
OFFT2900 ■	<b>Internship</b> <i>Prerequisite: OFFT2000.</i> Under the guidance of an internship coordinator, unpaid practical work experience for development of marketable skills in an office position. Open to Office Professional students only with a minimum GPA of 2.0.	B/L	-	200	5
OFFT2901 ■	<b>Cooperative Experience</b> <i>Prerequisite: OFFT2000.</i> Under the guidance of a cooperative experience coordinator, paid practical work experience for development of marketable skills in an office position. Open to Office Professional students only with a minimum GPA of 2.0.	B/L	-	200	5
OFFT2999 ■	<b>Special Projects</b> <i>Prerequisites: Completion of at least 55 credit hours; a minimum 2.5 GPA; and permission of advisor and program chair.</i> Study of a particular area in the office technology field, arranged with the student's advisor and approved by the program chair.	B/L	10	-	1
OFFT2999 ■	<b>Special Projects</b>	B/L	20	-	2
OFFT2999 ■	<b>Special Projects</b>	B/L	30	-	3

## PDSM • PARTS MARKETING & MANAGEMENT

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
PDSM1120 ■	<b>Nomenclature I</b> Function, composition, life expectancy, and nomenclature of the commonly requested parts. Identification of those parts most often in demand. Also, the principles of diesel and gas engines, electrical system components, fuel systems. Students will disassemble and reassemble these components.	M	110	30	12
PDSM1131 ■	<b>Aftermarket Catalogs &amp; Obsolescence I</b> Introduction to jobber parts catalog indexing and use. Location of parts on shelves, charging out items on counter tickets and first level return of parts, use of price sheets and classifications. The course includes the computerized parts systems.	M	30	80	5.5
PDSM1221 ■	<b>Nomenclature II</b> Continuation of commonly requested parts, their function, composition, life expectancy, and nomenclature. Also the principles of transmissions, differentials, steering, suspension, brakes, and air conditioning.	M	35	15	4
PDSM1222 ■	<b>Dealership Cataloging, &amp; Obsolescence II</b> Study and use of General Motors, Ford, and Chrysler parts cataloging and the various levels of pricing retail, wholesale, and dealer goods. There will be a continued learning of nomenclature by using these references.	M	40	60	6
PDSM1223 ■	<b>Service Writing, Warranty Policies, &amp; Tools</b> Knowledge and experience needed to become a service writer in today's dealerships. Study of warranties and how parts under warranty are returned to the supplier, time limits which apply, and what is acceptable under warranty. Basic tools and equipment used in and sold from a parts department including proper use and care.	M	20	30	3
PDSM1226 ■	<b>Counter Sales &amp; Operations</b> Introduction to inventory control, computerized systems, and other functions performed in the typical parts store, i.e., shipping and receiving inventory, counter sales, posting invoices, telephone skills, purchasing warehouse inventory, and customer relations are performed in the college parts store.	M	10	40	2
PDSM1321 ■	<b>Parts Management &amp; Advanced Counter Operations</b> <i>Prerequisites: PDSM1221 through PDSM1226.</i> Continuation of lab activities for the parts department. Positions available, knowledge required for each position, and what level each position carries within the department. Individuals will manage the college parts store and be forklift certified.	M	20	30	3
PDSM1325 ■	<b>Merchandising &amp; Advertising</b> <i>Prerequisites: PDSM1221 through PDSM1226.</i> Basic merchandising, product grouping, and special merchandising. Draw plan-o-grams of the merchandising areas with different types of merchandising techniques. Signs and special displays developed to enhance merchandising. Suggestive selling by doing merchandising. Skills used in advertising.	M	40	10	4
PDSM1327 ■	<b>Customer Sales &amp; Relations</b> <i>Prerequisites: PDSM1221 through PDSM1226.</i> Guidelines for the parts person regarding customer relations, telephone manners, development of advanced selling skills used in selling a complete line of products, grooming, good sales objectives, and courtesy. Material Safety Data sheets on hazardous materials.	M	30	20	3.5
PDSM1339 ■	<b>Agriculture/Construction Cataloging</b> <i>Prerequisites: PDSM1221 through PDSM1226.</i> In-depth training of the various parts' systems including John Deere, Agco, Case New Holland, and Caterpillar. Emphasis on basic machine systems and principles of how the systems work, parts identification and function, wear features, commonly replaced parts, and related parts sales as well as individual training in the chosen cooperative training field.	M	40	60	6
PDSM1901 ■	<b>Cooperative Experience</b> <i>Prerequisites: PDSM1221 through PDSM1339.</i> Cooperative training with a business for on-the-job experience. Application of acquired skills and principles for growth and advancement. Expectations of employees in a working environment. Work experience is supervised by the Southeast Community College Coordinator.	M	-	480	12

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## PHED • PHYSICAL EDUCATION

PHED1000	Lifetime Fitness	L	45	15	4.5
Theoretical and practical information on the relationship of life-style habits to productivity, quality of life and one's potential. Topics include life-style related risks, nutrition, physical fitness, and stress management encompassing the mind-body health perspective of wellness.					
PHED1010	Golf	B	-	30	1.5
Basic skills and fundamentals of golf. Scoring, selection and care of equipment for the beginning golfer.					
PHED1030/2030/2035/2040	Physical Fitness Activities	B/L	-	30	1.5
Study of and participation in chosen activities, such as weight training, cardiovascular conditioning, flexibility, basketball, volleyball and weight control. Planning and participating in an individualized program for development.					
PHED1050/2050	Recreational Sports	B	-	30	1.5
Participation in recreational sports for the student with a disability who is unable to participate in a regularly scheduled required program. Credit can be earned by nonathletic participation in the intercollegiate athletic program such as keeping statistics, videotaping, care and handling of equipment, and game site management. Other options include managerial involvement in school's intramural or physical education programs.					
PHED1060	Fitness Throughout Life	B	15	30	3
Study and application of theories which promote wellness throughout the life cycle. Emphasis on cardiovascular conditioning, flexibility, muscular strength, endurance, body composition, and nutrition maintenance programs.					
PHED1600	Introduction to Recreation	B	45	-	4.5
Principles, history and philosophy of recreation and leisure. Introduces recreation as a profession. Explores recreation and leisure studies throughout the life cycle.					
PHED1610	Standard First Aid	B	45	-	4.5
Principles and techniques for administration of first aid. Legal aspects of emergency care, cardiorespiratory emergencies, hemorrhage control, wound maintenance, shock control, poisoning, heat and cold injuries.					
PHED1750	Introduction to Physical Education	B	45	-	4.5
For the prospective physical education major or minor at the secondary school level. Survey of physical education, history, principles, objectives. Review of activities offered in the P.E. curriculum.					
PHED1800	Physical Education in the Elementary School	B	45	-	4.5
For the prospective elementary teacher and the physical education major. Study of curriculum and methods of teaching of physical education at the elementary level. Needs and characteristics of elementary school-age child by grade level.					
PHED2010/2020	Officiating Sports	B	30	-	3
Study and application of rules, techniques and interpretations for becoming officials or coaches in football, volleyball, soccer, basketball, softball or baseball.					

## INTERCOLLEGIATE ATHLETICS

The following courses will allow student athletes to earn credit through participation in intercollegiate athletics. Regular attendance and participation in all squad activities required.

PHED1300/2300, 1310/2310	Intercollegiate Golf	B	-	-	1.5
PHED1320/2320, 1330/2330 (men)	Intercollegiate Basketball	B	-	-	1.5
PHED1340/2340, 1350/2350 (women)	Intercollegiate Basketball	B	-	-	1.5
PHED1360/2360, 1370/2370	Intercollegiate Volleyball	B	-	-	1.5
PHED1380/2380, 1390/2390	Intercollegiate Baseball	B	-	-	1.5
PHED1385/2385, 1395/2395	Intercollegiate Softball	B	-	-	1.5

## PHIL • PHILOSOPHY

PHIL1010	Introduction to Philosophy	B/L	45	-	4.5
<i>Prerequisite: Eligible for ENGL1010</i>					
Introduction to the components of philosophy through readings from the history of philosophy (ancient, modern, and contemporary) combined with the examination of topics such as metaphysics, logic, ethics, epistemology, aesthetics, philosophy of religion, freedom, and self-identity. Exposure to a range of ideas and readings representing a variety of cultural and ethnic backgrounds.					

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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PHIL1060	Applied Ethics	B/L	45	-	4.5
Introduction to different approaches to moral decision-making and how to tell the difference between good and bad reasoning in applied ethics. Includes some of most recent philosophical writings on a variety of issues.					
PHIL1150	Critical and Creative Thinking	B/L	45	-	4.5
<i>Prerequisite: Reading/writing skills at ENGL1010 or ENGL1015.</i>					
Designed to increase critical (convergent thinking) and creative (divergent thinking) thinking skills. Explores the use of logic and perception to analyze ideas, construct and evaluate arguments, and draw logical conclusions. Raise level of problem identification, idea-generation, solution finding and implementation. Exposure to a range of ideas and readings representing a variety of cultural and ethnic backgrounds.					
PHIL2110	Introduction to Modern Logic	B/L	45	-	4.5
Introduction to deductive logic, emphasizing symbolic logic. Arguments, language and meaning, informal fallacies, traditional logic, sentence logic and predicate logic. May be used as math credit.					
PHIL2130	Bioethics	B/L	45	-	4.5
<i>Prerequisite: ENGL1010 or ENGL1015 or equivalent.</i>					
Philosophical study of moral problems in the health care industry. Exploration of issues that include the allocation of scarce medical resources, patients' rights, biomedical research and transplants, abortion, maternal-fetal conflict, death and dying, socialized medicine, and the right to health care.					
PHIL2610/ RELS2610	Comparative Religions	B/L	45	-	4.5
<i>Prerequisite: Reading/writing skills at ENGL1010 or ENGL1015.</i>					
This course will offer a cross-cultural introduction to the world's major religious/philosophical traditions or faith systems through a comparison of historical origins, rituals, beliefs, practices, and sacred texts and sources.					

## PHOT • PHOTOGRAPHY

PHOT1750	Beginning Photography	B	30	30	4.5
Introduction to the fundamentals of black and white photography, composition and lighting. Lecture, text and laboratory with emphasis on use of 35mm camera and developing, enlarging, and printing 35mm negatives.					
PHOT1760	Digital Photography and Creative Imaging	B	30	30	4.5
Introduction to the fundamentals of digital photography. Technical aspects include image editing, layering, and manipulation using Photoshop. Exploration of creative digital processes.					
PHOT2750	Photojournalism	B	30	30	4.5
<i>Prerequisite: Grade of C or higher in PHOT1760 or instructor permission.</i>					
Study of photojournalism for mass media using digital technology. Textbook study and photography assignments for publication of news, features, sports, studio photography and photo essays. Technical aspects include screening and editing prints using Photoshop software.					

## PHRM • PHARMACY TECHNICIAN

Pharmacy courses must be taken in sequence.					
PHRM1101	Pharmacology/Pharmaceutical Products I	B	45	-	4.5
<i>Prerequisites: BIOS1000 or 1140, ENGL1010, or 1015, MEDA1101 and 1202.</i>					
The focus of this course is the study of therapeutic agents, their classification, properties, actions and effects on the human body and their role in the management of disease.					
PHRM1121	Pharmacy Calculations I	B	45	-	4.5
<i>Prerequisites: BIOS1000 or 1140, ENGL1010, or 1015, MEDA1101 and 1202.</i>					
Examination of the qualifications, operational guidelines and job duties of a pharmacy technician.					
PHRM1131	Pharmacy Operations I	B	20	60	4
<i>Prerequisites: BIOS1000 or 1140, ENGL1010, or 1015, MEDA1101 and 1202.</i>					
The focus of this course is to orient the student to the general and specific tasks, as well as responsibilities involved in the practice of pharmacy in an institution as well as community setting.					
PHRM1220	Pharmacology/Pharmaceutical Products II	B	45	-	4.5
<i>Prerequisite: PHRM1101.</i>					
The focus of this course is the study of therapeutic agents, their classification, properties, actions and effects on the human body and their role in the management of disease.					
PHRM1222	Pharmacy Calculations II	B	45	-	4.5
<i>Prerequisite: PHRM1121.</i>					
Students will study appropriate policies and procedures for recording of and preparation of bulk, unit dose, special doses of drugs. Students will gain knowledge of durable medical equipment. Patient instruction and communication will be covered.					
PHRM1232	Pharmacy Operations II	B	20	75	4.5
<i>Prerequisite: PHRM1131.</i>					
This course will continue study of pharmacy functions such as packaging and/or repackaging of pharmaceuticals, stock rotation/expiration, disposal, records and all the rules and regulations for overall pharmacy operations.					

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
PHRM1240 ☐	<b>Pharmacy Law &amp; Ethics</b> <i>Prerequisite: Permission.</i>	B	30	-	3
	This course will focus on the ethical issues within the pharmacy industry and those that arise with individual patient situations. The students will focus on laws effecting pharmacy technician's functioning according to the legal limits of delegation by the pharmacist. Students will learn the basic principles of ethical decision making and study cases/scenarios in order to apply those principles to real situations.				
PHRM1241 ☐	<b>Professional Trends &amp; Issues</b> <i>Prerequisite: PHRM1240.</i>	B	45	-	4.5
	Review and critique experiential learning with correlation of classroom theory. Students will have the opportunity to participate in discussions on topics of current interest in pharmacy practice, related to their clinical experience.				
PHRM1250 ☐	<b>Pharmacy Clinical Education</b> <i>Prerequisites: PHRM1232 and 1240</i>	B	-	240	8
	This course emphasizes the basics of pharmacy practice and exposes the student to the practical aspects of dispensing, compounding and inventory control at an "on the job" training site in an institutional, retail or alternative pharmacy practice setting.				

## PHYS • PHYSICAL SCIENCE

PHYS1017 ☐	<b>Technical Physics</b> <i>Prerequisite: MATH1050 or MATH1080 or equivalent.</i>	M	40	10	4.5
	Study of physics applied to technical trades. Measurement, mechanics, and heat. Metric system, conversion of units, material properties, forces, vectors, equilibrium, friction, straight line motion, trajectories, rotational motion, simple harmonic motion, simple machines, waves and sound, thermal expansion, and heat transfer.				
PHYS1030 ☐	<b>Astronomy</b> <i>Prerequisite: MATH0950 or permission of the instructor.</i>	L	45	30	6
	The study of the nature and motions of the night sky, planets, the sun, the stars, and their lives, galaxies, and the structure of the universe. This is an elementary course designed for non-science majors with an approach that uses minimal mathematics. Laboratory allows students to study selected topics in more detail.				
PHYS1110 ☐	<b>Survey of Physical Science</b>	B	45	30	6
	Survey course in the physical sciences with emphasis on scientific processes. Includes topics from chemistry, physics, astronomy, geology and meteorology. Includes lab.				
PHYS1150 ☐	<b>Descriptive Physics</b> <i>Prerequisite(s) and/or Co-requisite(s): MATH0950 or equivalent.</i>	B/L/M	45	30	6
	Conceptual survey of physics for the non-science major. Topics covered include motion, fluids, heat, electricity, magnetism, waves, and optics. Emphasis will be placed on using concepts to analyze physical problems. This course is taught in an interactive style that integrates lecture and laboratory into one combined session.				
PHYS1410 ☐	<b>General Physics I</b> <i>Prerequisite: High school trigonometry with "B-" or higher, or MATH1200 or equivalent.</i>	B/L	60	30	7.5
	Detailed algebra and trigonometry based study of one and two dimensional motion, including kinematics, Newton's Laws, energy, and momentum. Additional topics from the areas of rotational motion, oscillations, waves, fluids, and heat will also be covered. Emphasis will be placed on both concepts and mathematical problem solving. This course is taught in an interactive style that integrates lecture, laboratory and small-group activities into one combined session.				
PHYS1420 ☐	<b>General Physics II</b> <i>Prerequisite: PHYS1410 or equivalent.</i>	B/L	60	30	7.5
	Continuation of PHYS1410. Topics covered include electricity, magnetism, waves, optics, and modern physics. Emphasis will be placed on both concepts and mathematical problem solving. This course is taught in an interactive style that integrates lecture, laboratory and small-group activities into one combined session.				
PHYS2110 ☐	<b>College Physics I</b> <i>Prerequisites: High school physics and MATH1600, or by permission, and concurrent with MATH1600.</i>	B/L	60	30	7.5
	Detailed calculus-based study of one and two dimensional motion, including kinematics, Newton's Laws, energy, and momentum. Additional topics from the areas of rotational motion, oscillations, waves, fluids, and heat will also be covered. Emphasis will be placed on both concepts and mathematical problem solving. The course is taught in an interactive style that integrates lecture, laboratory, and small group activities into one combined session.				
PHYS2120 ☐	<b>College Physics II</b> <i>Prerequisites: PHYS2110 or equivalent.</i>	B/L	60	30	7.5
	Calculus-based continuation of PHYS2110. Topics covered include waves, sound, light, electricity, magnetism, and modern physics. Emphasis will be placed on both concepts and mathematical problem solving. The course is taught in an interactive style that integrates lecture, laboratory, and small group activities into one combined session.				

## POLS • POLITICAL SCIENCE

POLS1000 ☐	<b>American Government</b>	B/L	45	-	4.5
	Study of the functioning of the political system through an analysis and application of its underlying theories.				

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
POLS1040 ☐	<b>Comparative Politics</b>	L	45	-	4.5
	Focus on the description and analysis of modern political systems and their respective ideologies. First half of course focuses on broad structural features of government. Second half of course looks at several individual nation states. Final part of course analyses problems facing modern political systems.				
POLS1080 ☐	<b>Introduction to Political Science</b>	L	45	-	4.5
	Introduction to Political Science will address major political concepts and controversies that have developed in the world: liberty, equality, democracy, human nature, among others. The course will provide students with an overview of basic principles, approaches and methods of the discipline representing the social scientific mode of inquiry. Students will be exposed to national, comparative, and international politics as well as political thought.				
POLS1600 ☐	<b>Introduction to International Relations</b>	L	45	-	4.5
	Introductory survey of the actors, institutions, processes, and theories of international relations - including a study of contemporary global issues.				
POLS2020 ☐	<b>State &amp; Local Government</b> <i>Prerequisite: POLS1000 or permission of instructor.</i>	B/L	45	-	4.5
	Study of the structure and operation of state and local government with special attention to the direct impact on the individual citizen.				
POLS2300 ☐	<b>Political Parties</b> <i>Prerequisite: POLS1000 strongly recommended.</i>	L	45	-	4.5
	Comprehensive review of party politics and elections in the United States. Emphasis on the historical development of the American party system; political party organization in America; voting and elections; and the activity of parties in government.				
POLS2900 ☐	<b>Internship</b>	L	45	-	4.5
	Students will acquire the skills necessary to understand the interaction of legislators, political parties, interest groups, and media. Students will learn practical application of political concepts while observing a real world arena in which this interaction occurs.				

**Note: Practical Nursing — See LPNS**  
**Note: Professional Truck Driver Training — See TRUK**

## PSGT • POLYSOMNOGRAPHIC TECHNOLOGY

*Please note: Students must be a graduate from the Advanced-Level Respiratory Care Program or a graduate from an associate degree or higher nursing school to enter this program of study.*

PSGT1000 ☐	<b>Polysomnography I</b>	L	20	-	2
	This course provides entry-level didactic and laboratory training in polysomnography. Topics will include patient preparation, instrument setup and calibration, recording and monitoring techniques, pressure and oxygen therapy applications and patient to technologist interactions.				
PSGT1010 ☐	<b>Polysomnography Lab</b>	L	90	-	3
	This course provides the hands-on application of patient preparation, instrument setup and calibration, recording and monitoring techniques, pressure and oxygen therapy applications and patient to technologist interactions. Lab compliments the material presented in PSGT1000 and PSGT1020.				
PSGT1020 ☐	<b>Polysomnography Fundamentals</b>	L	40	-	4
	This course introduces the student to sleep medicine. Topics will include the history of sleep medicine, patient evaluation, Epworth sleepiness scores, diagnosis and treatment of various sleep disorders, insurance reimbursement, patient education, and the role of the technologist as a sleep advocate.				
PSGT2000 ☐	<b>Polysomnography II</b>	L	20	-	2
	This course provides advanced-level didactic training in polysomnography. Emphasis placed on the knowledge and skills necessary to obtain and evaluate high quality sleep recording including MST, MT, pediatric and infant, procedures.				
PSGT2010 ☐	<b>Polysomnography II Lab</b>	L	-	30	1
	This course provides an advanced hands-on training in polysomnography. Emphasis is on advanced equipment set-up, calibration, assessment, monitoring or sleep disorders. Lab compliments the material presented in PSGT2000.				
PSGT2020 ☐	<b>Seminar Review</b>	L	10	-	1
	This course provides an opportunity to review and prepare for the polysomnography credentialing exam. Emphasis is placed on case management and review for the Registered Polysomnographic Technologist Exam.				
PSGT2030 ☐	<b>Clinical Education</b>	L	-	150	5
	This course provides practical application of theories covered in previous PSGT courses. Emphasis is placed on polysomnography testing and procedures.				

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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## PSYC • PSYCHOLOGY

**PSYC1250 Interpersonal Relations** B/L/M 45 - 4.5  
Personal development and adjustment, self-esteem building, values clarification and decision-making, interpersonal communication skills, appreciation of diversity, development of healthy personal and professional relationships.

**PSYC1810 Introduction to Psychology** B/L/M 45 - 4.5  
☐ Introduction to the science of psychology including the study of learning theory, memory, personality, growth and development, neurological aspects, abnormal behavior therapies, intelligence, motivation, emotion, sensation, perception and theoretical perspectives.

**PSYC2799 Special Topics in Psychology** B/L/M 45 - 4.5  
*Prerequisite: Grade of "C" or higher in PSYC1810.*  
This course will allow students to develop more depth-of-understanding in specific areas of psychology, such as domestic violence, sexuality, psychology of gender, history of psychology, health psychology.

**PSYC2870 Psychology of the Personality** B/L 45 - 4.5  
*Prerequisite: PSYC1810 or permission of the instructor.*  
Systematic study of personality theories, the factors influencing personality development and the dynamics of personal adjustment.

**PSYC2880 Social Psychology** B/L 45 - 4.5  
*Prerequisite: PSYC1810 or SOCI1010 or permission of the instructor.*  
Exploration of human social behavior including development and understanding of the self as a social being; social perception; attitudes and persuasion; social influence; attraction, interactions, and relationships; prosocial and antisocial behavior; and group behavior.

**PSYC2900 Adolescent Psychology** B/L 45 - 4.5  
*Prerequisite: PSYC1810 or permission of the instructor.*  
Study of developmental approach to normal adolescence from puberty to young adulthood. Impact of social factors on psychological behavior development.

**PSYC2960 Life-span Human Development** B/L 45 - 4.5  
☐ *Prerequisites: PSYC1810 or SOCI1010.*  
Integration of the basic concepts and principles of physical, cognitive and psychosocial development at each major stage of life. Provides an essential background for students in psychology, nursing, education, social welfare and home economics; for workers in community service; and for parents and prospective parents.

**PSYC2980 Abnormal Psychology** B/L 45 - 4.5  
*Prerequisite: PSYC1810 or permission of instructor.*  
Course covers etiology, treatment and prevention of abnormal behavior, use of DSM IV as diagnostic tool, effects of labeling.

## PTAS • PHYSICAL THERAPIST ASSISTANT

*Please note: Students must be admitted into the program and have completed all prerequisites and additional required courses with a minimum grade of C+ before taking any PTAS courses. Each PTAS course must be taken in sequence and completed with a minimum grade of C+ to continue in the program. Anatomy and Physiology must be taken within five years.*

**PTAS1100 Intro to Physical Therapy** L 40 15 4.5  
This course introduces the student to the profession of physical therapy, the role of the physical therapist assistant with the healthcare team and patient observation time. Basic patient care, assistive devices and adaptive equipment, patient positioning and transfers, safety, communication and body mechanics will be discussed.

**PTAS1101 Kinesiology with Lab for PTA** L 45 45 6  
This course focuses on the movement of the musculoskeletal and nervous systems of the body including muscle origins, insertion, actions and nerve innervations. In addition, motion and the effects of forces and levers relative to the body, manual muscle testing and goniometry will be studied.

**PTAS1102 Pathophysiology for PTA** L 45 - 4.5  
*Prerequisites: PTAS1100, 1101*  
An exploration of pathogenesis, prognosis and therapeutic management of the diseases and abnormalities of structure and function and how they affect rehabilitation. Emphasis is placed on conditions most commonly encountered in physical therapy.

**PTAS1103 Physical Therapy Skills and Exercise I with Lab** L 35 30 4.5  
*Prerequisites: PTAS1100, 1101*  
This course includes instruction in the theory and clinical application of therapeutic exercise interventions (range of motion, stretching, resistance and aerobic exercise) for common impairments of the spine and upper and lower extremities, gait training strategies and basic skills of orthotic and supportive devices, adaptive and assistive equipment.

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
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**PTAS1104 Therapeutic Modalities I with Lab** L 35 30 4.5  
*Prerequisites: PTAS1100, 1101*  
Study of physical agents and therapeutic modalities including massage, cryotherapy, thermal agents, electromagnetic radiation, ultrasound and traction.

**PTAS1202 Physical Therapy Skills and Exercise II with Lab** L 35 30 4.5  
*Prerequisites: PTAS1102, 1103, 1104*  
This course covers further development of therapeutic exercise and skills related to rehabilitation and function.

**PTAS1203 Therapeutic Modalities II with Lab** L 35 30 4.5  
*Prerequisites: PTAS1102, 1103, 1104*  
A continuation of studying principles and clinical application for therapeutic modalities and physical agents including electrotherapeutic, hydrotherapy, wound care, edema and compression therapy interventions.

**PTAS1204 Documentation in Clinical Services** L 30 - 3  
*Prerequisites: PTAS1102, 1103, 1104*  
An in depth practice of documentation in addition to effective verbal communication and ethical and legal issues with documentation are practiced.

**PTAS1205 Advanced Procedures with Lab** L 35 30 4.5  
*Prerequisites: PTAS1202, 1203, 1204*  
Acquaints the student with more advanced rehabilitation techniques for complex patient diagnoses and specialty areas of physical therapy.

**PTAS1206 Health Systems and Issues** L 30 - 3  
*Prerequisites: PTAS1202, 1203, 1204*  
This course familiarizes students with the core values of the profession, communication, conflict resolution and preparation for employment.

**PTAS1207 Professional Issues** L 40 - 4.0  
*Prerequisites: PTAS1202, 1203, 1204*  
This course focuses on various topics related to the clinical practice of a physical therapist assistant including data collection and therapeutic intervention employed, equipment utilized, reimbursement considerations and members of the healthcare team.

**PTAS1301 Clinical Education I** L - 120 4  
*Prerequisites: PTAS1102, 1103, 1104*  
A three-week integrated clinical experience where the student will have the opportunity to apply classroom theory and laboratory practice learned to date to direct patient care in a selected clinical setting. The intent is for the student to provide quality patient care with a high degree of guidance, cueing and assistance from the clinical instructor.

**PTAS1302 Clinical Education II** L - 150 5  
*Prerequisite: PTAS1301*  
A four-week clinical experience where the student will have the opportunity to apply classroom theory and laboratory practice to direct patient care in a selected clinical setting. The intent is for the student to provide quality patient care with guidance, cueing and assistance from the clinical instructor. The level of guidance needed will depend on the complexity of the patient and the environment.

**PTAS1303 Clinical Education III** L - 400 13.5  
*Prerequisite: PTAS1302*  
A 10-week clinical experience where the student will have the opportunity to apply classroom theory and laboratory practice to direct patient care in a selected clinical setting. The intent is for the student to provide quality patient care consistently and efficiently for simple or complex patients with consultation from the clinical instructor (entry-level performance).

## RADT • RADIOLOGIC TECHNOLOGY

*Please note: Students must be admitted into the program and have completed all prerequisites with a minimum grade of C+ before taking any RADT courses. Each RADT course builds on previous course content and must be completed with a minimum grade of C+ before continuing.*

**RADT1100 Introduction to Diagnostic Imaging** L 20 - 2  
☐ Introduction to the Radiologic Technology Program. Orientation to the hospital and clinic settings; patient care and transfers; overview of radiology equipment and imaging procedures; radiation safety.

**RADT1111 Diagnostic Imaging Concepts** L 45 15 5  
☐ Essentials of radiographic exposure formulation. Elements contributing to radiographic quality in the areas of density, contrast, recorded detail and distortion. Basic concepts of digital imaging and patient dose.

**RADT1112 Radiographic Procedures I** L 55 10 5.5  
☐ Anatomy and positioning of the chest and abdomen. Image evaluation and critique of these procedures. Application of procedural terminology and clinical data. Application of infection control, ethics, and pharmacology in the radiography practice.

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
RADT1119 ☐	<b>Clinical Education I</b> Adaptation to the hospital environment with supervision. Correlation of classroom theory with performance of basic radiographic procedures. Active participation in radiology departments, radiographic and fluoroscopic rooms with radiation safety practices. Competency evaluation of routine chest and KUB exams.	L	-	150	5
RADT1123 ☐	<b>Radiographic Procedures II</b> Radiographic anatomy and positioning of the abdominal contents with contrast media, upper extremity, and shoulder girdle. Image evaluation / critique of these procedures.	L	45	15	5
RADT1124 ☐	<b>Diagnostic Imaging Theory</b> Continuation of the study of fundamental physical principles from mechanics to electromagnetism. Application of these principles to the construction and operation of fundamental x-ray equipment. Analysis of basic x-ray circuit. Construction and operation of tomographic, mobile and fluoro equipment. Comparison of conventional and digital radiology. Overview of PACS system.	L	40	-	4
RADT1129 ☐	<b>Clinical Education II</b> Supervised clinical practice. Rotating shifts and assignments. Competency evaluations of advanced chest and abdomen exams, upper extremity, and GI system.	L	-	225	7.5
RADT1133 ☐	<b>Radiographic Procedures III</b> Anatomy and positioning of lower extremity, pelvic girdle, urinary system, and the vertebral column. Image evaluation/critique of these procedures.	L	45	15	5
RADT1134 ☐	<b>Radiation Biology</b> Nature of x-rays. Interaction with matter. Effects of radiation exposure. History of radiology. Review of patient and personnel radiation protection. Limiting standards, units of measurement and regulatory agencies.	L	30	-	3
RADT1139 ☐	<b>Clinical Education III</b> Supervised clinical practice. Rotating shifts and assignments. Competency evaluations of advanced chest and abdomen exams, upper extremity, GI system, and lower extremity.	L	-	225	7.5
RADT1143 ☐	<b>Radiographic Procedures IV</b> Anatomy and positioning of the bony thorax, cranium, facial bones, sinuses, and other skull exams. Image evaluation/critique of these procedures. Critical thinking and imaging of trauma patients and various advanced radiographic procedures.	L	45	15	5
RADT1147 ☐	<b>Specialized Imaging</b> Overview of equipment, procedures, techniques, anatomy, and imaging protocol of specialty areas such as sonography, MRI, nuclear medicine, radiation therapy, cardiovascular/interventional, and mammography.	L	50	-	4
RADT1149 ☐	<b>Clinical Education IV</b> Supervised clinical practice. Rotating shifts and assignments. Performance of venipuncture and vital signs. Competency evaluations of advanced chest and abdomen exams, upper extremity, GI system, and lower extremity.	L	-	225	7.5
RADT2253 ☐	<b>CT Imaging</b> Study of computed tomography with emphasis on equipment, procedures, techniques, anatomy, and imaging protocol.	L	30	-	3
RADT2254 ☐	<b>Advanced Patient Care Management</b> Critical thinking and imaging of the pediatric patient. Psychological, social, and economic needs of the elderly. Overview of various cultural groups and cultural competencies.	L	15	-	1.5
RADT2259 ☐	<b>Clinical Education V</b> Clinical practice with less assistance to foster increased proficiency and responsible decision-making in a variety of situations. Introduction to new rotational sites. Advanced modality rotation. Competency evaluations of spine, bony thorax, cranial exams, surgical exams, pediatric, trauma, mobile, and advanced contrast procedures.	L	-	225	7.5
RADT2265 ☐	<b>Pathophysiology</b> Review of human anatomy and physiology. Pathologies and congenital abnormalities of all systems. Application of critical thinking and technical factors.	L	55	-	5.5
RADT2269 ☐	<b>Clinical Education VI</b> Clinical practice with less assistance to foster increased proficiency and responsible decision-making in a variety of situations. Increase proficiency at rotational sites. CT rotation. Competency evaluations of spine, bony thorax, cranial exams, surgical exams, pediatric, trauma, mobile, and advanced contrast procedures.	L	-	225	7.5
RADT2276 ☐	<b>Diagnostic Imaging Applications</b> Exploration of advanced concepts of radiographic production, radiographic processing, conservative use of equipment and quality assurance techniques. Application of critical thinking.	L	55	-	5.5

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
RADT2279 ☐	<b>Clinical Education VII</b> Clinical practice with less assistance to foster increased efficient and responsible decision-making in a variety of situations. Advanced modality rotation. Rotational sites. Competency evaluations of spine, bony thorax, cranial exams, surgical exams, pediatric, trauma, mobile, advanced contrast procedures, and CT exams.	L	-	225	7.5
RADT2288 ☐	<b>Senior Seminar</b> Review of course materials to prepare for National Board exam.	L	45	-	4.5
RADT2289 ☐	<b>Clinical Education VIII</b> Clinical practice with less assistance to foster increased efficiency and responsible decision making in a variety of situations. Overnight shifts. Competency evaluations of spine, bony thorax, cranial exams, surgical exams, pediatric, trauma, mobile, advanced contrast procedures, and CT exams. Complete all ARRT required competencies.	L	-	225	7.5

## RELS • RELIGIOUS STUDIES

Course# [online]	Title	Location	Class Hours	Lab Hours	Credit Hours
RELS2610/ PHIL2610 ☐	<b>Comparative Religions</b> <i>Prerequisite: Reading/writing skills at ENGL1010 or ENGL1015.</i> This course will offer a cross-cultural introduction to the world's major religious/philosophical traditions or faith systems through a comparison of historical origins, rituals, beliefs, practices, and sacred texts and sources.	B/L	45	-	4.5

## RESP • RESPIRATORY CARE

*Please note: Students must be admitted into the program AND have completed all program prerequisites with a GPA of 2.75; general education courses with a GPA of 2.5. Each RESP course builds on previous course content and must be completed with a minimum grade of C+ before continuing in the Respiratory Care program.*

RESP1111 ☐	<b>Respiratory Anatomy &amp; Physiology</b> An in-depth study of the cardiopulmonary system including anatomy, ventilation, diffusion of pulmonary gases, hemodynamic measurements, ventilation/perfusion relationships, oxygen and carbon dioxide transport, acid-base balance with an emphasis on clinical application.	L	50	-	5
RESP1113 ☐	<b>Respiratory Pharmacology</b> Study of drugs affecting the cardiorespiratory and autonomic nervous systems. Includes drug dosage calculation, administration, and clinical side effects.	L	45	-	4.5
RESP1114 ☐	<b>Patient Care Principles</b> Development of assessment skills in regards to patient history, physical exam and laboratory studies with emphasis on proper charting of assessment.	L	45	-	4.5
RESP1121 ☐	<b>Cardiopulmonary Pathology</b> Study of concepts and theory of basic cardiopulmonary diseases to include etiology, pathology, diagnosis, clinical manifestations, radiological and laboratory findings; prevention, prognosis and treatment.	L	45	-	4.5
RESP1122 ☐	<b>Respiratory Care Procedures II and Lab</b> Theory and practice of the fundamentals of medical gases, humidity, bland and therapeutic aerosol application, oxygen monitoring, lung volume expansion therapy, bronchial pulmonary hygiene techniques, basic and advanced airway management. Lab is concurrent with lecture. Lab complements the material presented in lecture and RESP1121 as well as material learned in previous courses.	L	60	60	8
RESP1126 ☐	<b>Respiratory Care Profession I</b> Study of moral responsibilities of health care as well as an overview of the Respiratory Care profession expectations. Role playing, case studies and critical thinking are used to address patient interaction, decision making and professionalism.	L	20	-	2
RESP1129 ☐	<b>Clinical Education II</b> An orientation to the clinical sites, infection control and record-keeping, observation of therapy, and under direct supervision, the student may complete some respiratory care procedures.	L	-	30	1
RESP1131 ☐	<b>Cardiopulmonary Diagnostics and Lab</b> Theory, application and equipment for diagnosing cardiopulmonary pathologies through the diagnostic concepts used in respiratory care. Including techniques utilized for basic pulmonary function testing, sleep studies, arterial blood gas monitoring, ECG monitoring and recording. Lab is concurrent with lecture. Lab complements the material presented in lecture.	L	30	30	4
RESP1132 ☐	<b>Mechanical Ventilation &amp; Lab</b> Study of adult mechanical ventilators, ventilation techniques with critical care monitoring and management. Lab complements the material presented in lecture. Utilizing the knowledge in a laboratory setting by practicing the set-up, application, monitoring of various adult ventilators used in the hospital setting. Lab is concurrent with lecture.	L	45	60	6.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
RESP1139 ☐	<b>Clinical Education III</b> Practice of basic respiratory care procedures to include medical gas, aerosol/humidity therapy, aerosolized drug therapy, resuscitation, airway management, lung volume expansion therapy, and bronchial hygiene therapy. Includes clinical conferences and case studies.	L	-	150	5
RESP1143 ☐	<b>Neonatal &amp; Pediatric Respiratory Care</b> Study of neonatal and pediatric physiology, pathology, clinical situation management, infant and pediatric mechanical ventilation. Includes simulated practice with procedures and equipment.	L	50	-	5
RESP1144 ☐	<b>Respiratory Rehabilitation &amp; Home Care</b> Overview of pulmonary rehabilitation, subacute care, and home care principles and practices.	L	30	-	3
RESP1147 ☐	<b>Ventilator Management II Lab</b> Extended lab study of advanced mechanical Ventilation from RESP1132 Mechanical Ventilation. Lab includes advanced patient assessment, advanced modes of ventilation, high frequency ventilation, and advanced therapies. Extensive use of case studies, patient scenarios and ventilator interaction will be utilized.	L	30	-	1
RESP1148 ☐	<b>Critical Care Management</b> Study of respiratory management of patients in critical care settings with emphasis on critical thinking skills in patient assessment and monitoring, and recommending alternative therapies. Extensive use of case studies, patient scenarios and ACLS algorithms.	L	40	-	4
RESP1149 ☐	<b>Clinical Education IV</b> Practice in adult critical care, basic pulmonary function testing, arterial bloods gases, EKGs, mechanical ventilation, and emergency airway management. Includes clinical conferences and student case study presentations.	L	-	150	5
RESP2251 ☐	<b>Cardiovascular Physiology</b> Study of the cardiovascular system with emphasis on hemodynamic monitoring of the critically ill and pharmacologic control of cardiac output.	L	40	-	4
RESP2255 ☐	<b>Respiratory Care Profession II</b> Study of the professional aspects of Respiratory Care. Includes an overview of the process of finding a job, obtaining licensure as well as the requirements for board exams.	L	30	-	3
RESP2257 ☐	<b>Cardiopulmonary Procedures Lab</b> Includes detailed examination of cardiovascular anatomy, non-invasive and invasive hemodynamic monitoring.	L	-	45	1.5
RESP2259 ☐	<b>Clinical Education V</b> Includes rotations in neonatal and adult critical care, subacute and home care, cardiac and pulmonary rehabilitation, physician rounds, invasive and non-invasive lab. Students will also present a case study.	L	-	240	8
RESP2263 ☐	<b>Patient Education</b> Study of a wide variety of physical, psychological and social factors that impact the development of and recovery from disease. Includes an awareness development of a number of patient education programs in health care agencies and the community.	L	20	-	2
RESP2267 ☐	<b>Clinical Simulations Lab</b> Practice in information gathering and decision making in a variety of selected respiratory care scenarios.	L	-	45	1.5
RESP2268 ☐	<b>Seminar Review</b> Preparatory course for the NBRC exam. Self-assessment exams for the CRT and RRT will be utilized.	L	40	-	4
RESP2269 ☐	<b>Clinical Education VI</b> A continuation of Clinical Education V.	L	-	240	8

## SIGN • SIGN LANGUAGE

SIGN1010 ☐	<b>Beginning American Sign Language I</b> Beginning course in American Sign Language (ASL). Development of vocabulary and grammatical structures of ASL. Receptive and expressive skill development. Basic ASL video literature.	L	60	20	6
SIGN1020 ☐	<b>Beginning American Sign Language II</b> <i>Prerequisite: SIGN1010 or equivalent knowledge as demonstrated with ASL placement interview with qualified instructor.</i> Continuation of beginning course in American Sign Language (ASL) Development of vocabulary and grammatical structures of ASL. Receptive and expressive skill development. Basic ASL video literature.	L	60	20	6

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
SIGN2010 ☐	<b>Second Year American Sign Language I (ASL)</b> <i>Prerequisite: SIGN1020 or equivalent knowledge as demonstrated with ASL placement interview with qualified instructor.</i> Conversational American Sign Language (ASL) Idiomatic uses of ASL for creative expression. Extensive viewing and discussion of videotaped ASL conversation and literature.	L	60	20	6
SIGN2020 ☐	<b>Second Year American Sign Language II (ASL)</b> <i>Prerequisite: SIGN2010 or equivalent knowledge as demonstrated with ASL placement interview with qualified instructor.</i> Conversational American Sign Language (ASL) Idiomatic uses of ASL for creative expression. Extensive viewing and discussion of videotaped ASL conversations and literature.	L	60	20	6

## SOCI • SOCIOLOGY

SOCI1010 ☐	<b>Introduction to Sociology</b> Introduction to the basic principles of sociology including the study of culture, socialization, social structure, social institutions, investigative behavior, deviance, inequalities, and theoretical perspectives.	B/L/M	45	-	4.5
SOCI1020 ☐	<b>Diversity in Society</b> An overview of minority groups and majority-minority relations in the United States. Topics include awareness of similarities and differences, prejudice, discrimination, and the benefits of a diverse society.	B/L	45	-	4.5
SOCI2000 ☐	<b>Women in Contemporary Society</b> <i>Prerequisite: SOCI1010 or permission of instructor.</i> Interdisciplinary examination of the contributions of women to society, gender issues, and the progress toward equality.	B/L	45	-	4.5
SOCI2010 ☐	<b>Social Problems</b> <i>Prerequisite: SOCI1010 or permission of instructor.</i> Analysis and suggested treatment of the principal problem areas in contemporary society, and the multilevel causes that perpetuate social problems.	B/L	45	-	4.5
SOCI2150 ☐	<b>Issues of Unity and Diversity</b> Increases awareness and sensitivity of commonalities and differences among people. Promotes positive exchange in our diverse and global society.	B/L	45	-	4.5
SOCI2250 ☐	<b>Marriage and the Family</b> <i>Prerequisite: SOCI1010 or permission of instructor.</i> Emphasis on diversity in the family, and examination of factors that affect families and the process of family development.	B/L	45	-	4.5
SOCI2260 ☐	<b>Parenting</b> <i>Prerequisite: PSYC2960 or permission of instructor.</i> This course will introduce the student to effective parenting skills and strategies for solving family problems. Emphasis is placed on parent-child relationships, developmental milestones of infants through adolescence, family communication, family composition and issues related to abuse and neglect. Parenting challenges such as single-parenthood, divorce, custody issues, stepfamily systems and conflict management will be explored.	B/L	45	-	4.5
SOCI2799 ☐	<b>Special Topics in Sociology</b> <i>Prerequisite: Grade of "C" or higher in SOCI1010.</i> This course will allow students to develop a more in-depth understanding in a specific area of sociology.	B/L	45	-	4.5

## SPAN • SPANISH

SPAN1010 ☐	<b>Elementary Spanish I</b> <i>Prerequisites: Spanish placement test.</i> First of a four level class that allows 21st century language learners to achieve communicative competence in Spanish and establish community connections in and out of the classroom through local and global Spanish-speaking communities. Technology is incorporated to enhance language skills. The class emphasizes an interactive, proficiency-oriented approach to learning language and culture (laboratory required).	B/L	75	30	7.5
SPAN1020 ☐	<b>Elementary Spanish II</b> <i>Prerequisites: SPAN1010 (Spanish I) or equivalent knowledge as demonstrated with Spanish placement test and interview with instructor, and eligible for ENGL1010 or ENGL1015.</i> Second class in the four level language sequence that allows 21st century language learners to further develop proficiency in Spanish while expanding community connections in and out of the classroom through local and global Spanish-speaking communities. Technology is incorporated to enhance language skills. The class emphasizes an interactive, proficiency-oriented approach to learning language and culture (laboratory required).	B/L	75	30	7.5
SPAN2010 ☐	<b>Second-year Spanish</b> <i>Prerequisites: SPAN1020 (Spanish II) or equivalent knowledge as demonstrated with Spanish placement test and interview with instructor, and eligible for ENGL1010 or ENGL1015.</i> Third level in the language sequence that builds students' language proficiency by refining receptive and productive skills while encouraging students to compare, contrast and develop an appreciation of the cultural diversity of Spanish speaking communities. Technology is incorporated in this class to enhance language skills (laboratory required).	B/L	45	-	4.5

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
SPAN2020 ☐	<b>Second-year Spanish II</b> <i>Prerequisite: SPAN2010 (Spanish II) or equivalent knowledge as demonstrated with Spanish placement test and interview with instructor, and eligible for ENGL1010 or ENGL1015.</i>	B/L	45	-	4.5
Last course of the four level language sequence. Provides ample opportunities to develop vocabulary, strengthen the four linguistic skills, and increase awareness and appreciation of contemporary Spanish-speaking local and global communities. Technology is incorporated in this class to enhance language skills. Conducted primarily in Spanish. (laboratory required.)					
SPAN2030 ☐	<b>Intensive Conversation</b> <i>Prerequisite: SPAN2020, or 2100 or equivalent knowledge as demonstrated with Spanish placement test and interview with instructor.</i>	B/L	45	15	4.5
Class designed to foster oral proficiency through active student participation. The activities elicit student ideas and opinions, engaging students to respond to each other on a variety of discussion topics. Students learn to recognize and appreciate cultural diversity as they explore behaviors and values of various local and global Spanish-speaking communities.					
SPAN2040 ☐	<b>Intensive Writing</b> <i>Prerequisite: SPAN2020, or 2100 or equivalent knowledge as demonstrated with Spanish placement test and interview with instructor.</i>	B/L	45	15	4.5
This class helps students to process information and write texts that require higher order thinking skills developed through integrated process strategies (listening, speaking, reading and writing). The writings explore cultural themes and concepts drawn from the learner's own cultural perspective. These ideas are conveyed at the intermediate linguistic level with special emphasis on thematic content, organizational skills and self-editing.					
SPAN2100 ☐	<b>Accelerated Second-year Spanish</b> <i>Prerequisite: SPAN1020 (Spanish II) or equivalent score on Spanish placement exam and departmental permission.</i>	B/L	90	-	9
An accelerated class that covers the same material as SPAN 2010 and 2020 and counts as 2010-2020 in satisfying the liberal education requirements for 21st century language learners. The class emphasizes an interactive, proficiency-oriented approach to learning language and culture (laboratory required).					

## SPCH • SPEECH

SPCH1090 ☐	<b>Fundamentals of Human Communication</b> <i>Prerequisite: Eligible for ENGL1010.</i>	B/L/M	45	-	4.5
This course provides a theoretical basis and practical experience in basic interpersonal, small group, and public communication skills. Topics include the communication process, self-concept, verbal and nonverbal communication, perception, listening, interpersonal and group communication, conflict management, interviewing, audience analysis and strategies for adapting delivery/message to audience needs during a presentation and public speaking. Students will perform at least three research-based oral presentations before an audience.					
SPCH1110 ☐	<b>Public Speaking</b> <i>Prerequisite: Eligible for ENGL1010.</i>	B/L/M	45	-	4.5
This course provides both theoretical basis and practical instruction for speaking effectively in public. Emphasis on training in basic speech skills including: development of voice, topic selection, audience analysis, speech preparation and organization, researching, strategic and creative language use, effective listening and delivery skills, strategies for adapting delivery/message to audience needs during the presentation, and common types of public presentations, while acknowledging the influence of various cultural and ethnic backgrounds. Students will perform at least three research-based oral presentations before an audience.					
SPCH2050 ☐	<b>Oral Performance of Literature</b> <i>Prerequisite: Eligible for ENGL1010.</i>	B/L	45	-	4.5
Introductory course in the art, theory, analysis and appreciation of a work of literary art. Methods and skills of communicating literature orally to an audience.					
SPCH2110 ☐	<b>Intercultural Communication</b> <i>Prerequisite: Eligible for ENGL1010.</i>	B/L	45	-	4.5
Introduction to current theories and scholarship in intercultural communication. Critical thinking skills directly applicable to cultural interactions and communication styles. Patterns of interaction and expectations based on cultural differences. Assignments and examinations for practical experience and application of intercultural concepts.					
SPCH2810 ☐	<b>Business and Professional Communication</b> <i>Prerequisite: Eligible for ENGL1010.</i>	B/L/M	45	-	4.5
The study of communication to function successfully with others in the work place. Focus on the basic processes of communications including: communication and cultural diversity, developing interpersonal relationships, interviewing techniques, working in small groups and teams, managing effective meetings, and various types of presentations (including individual and group). Students will perform at least three research-based oral presentations before an audience.					

## SURT • SURGICAL TECHNOLOGY

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
SURT1600 ☐	<b>Orientation to Surgical Technology</b> <i>Prerequisite: Admission to the Surgical Technology Program.</i>	L	20	-	2
Introduction to the surgical technology program, the health care system, effective communication, multicultural diversity, legal/ethical issues, infection control, and basic skills necessary to effectively function as a health care team member.					
SURT1601 ☐	<b>Techniques in Surgical Asepsis</b> <i>Prerequisite: Admission to the Surgical Technology Program.</i>	L	20	30	3
Introduction to preparation, packaging, sterilization, and/or disinfection of supplies, instruments and equipment. Principles of aseptic technique are applied in laboratory setting related to the sterile and unsterile roles of the Surgical Technologist.					
SURT1603 ☐	<b>Fundamentals of Surgical Technology</b> <i>Prerequisite: Admission to the Surgical Technology Program.</i>	L	40	-	4
Study of instruments, supplies, and equipment used in the perioperative process of surgery.					
SURT1604 ☐	<b>Concepts of Surgical Procedures</b> <i>Prerequisite: Admission to the Surgical Technology Program.</i>	L	20	-	2
Study of the resection concept, abdominal incisions, commonly used instruments, sutures and needles required for basic surgical procedures.					
SURT1701 ☐	<b>Clinical Orientation</b> <i>Prerequisite: SURT1601.</i>	L	25	45	4
Introduction to the specific duties of the surgical team including lab practice in prepping, draping, positioning, catheterizing, back table set-up and organization. Main course focus is aseptic techniques and critical thinking skills practiced to prepare the student for clinical rotation.					
SURT1704 ☐	<b>Surgical Procedures &amp; Techniques I</b> <i>Prerequisite: SURT1604.</i>	L	60	-	6
The introduction of surgical procedures to include; concepts, techniques, anatomy, procedural sequence, definitions, purpose, etiology, supplies and equipment relating to basic general surgery, gastrointestinal, biliary, rectal, gynecologic and orthopedic systems.					
SURT1705 ☐	<b>Principles of Surgical Technology</b> <i>Prerequisite: SURT1603.</i>	L	40	-	4
Introduction to the perioperative care of the surgical patient and the patient with special needs, perioperative pharmacology, anesthesia, special patient monitoring, hemostasis, blood loss and replacement, and surgical robotics.					
SURT1803 ☐	<b>Fundamentals of Surgical Technology II</b> <i>Prerequisite: SURT1603.</i>	L	20	-	2
Introduction to specialized modalities in surgery including endoscopy, orthopedic implants, power equipment, fixation devices for bone fractures, basic physics and electricity theories, special surgical equipment, bone fracture, bone healing and casting materials that are used in surgery to promote optimum patient care.					
SURT1804 ☐	<b>Surgical Procedures &amp; Techniques II</b> <i>Prerequisite: SURT1704.</i>	L	50	-	5
The advanced surgical procedures to include; concepts, techniques, anatomy, procedural sequence, definitions, purpose, etiology, supplies and equipment relating to otolaryngology, genitourinary, ophthalmology and plastic reconstruction and maxillofacial reconstruction systems.					
SURT1810 ☐	<b>Clinical Education I</b> <i>Prerequisite: SURT1603.</i>	L	-	210	7
Clinical practice with application of the student's basic skills, aseptic technique, and instrument knowledge to operative procedures in the hospital.					
SURT2904 ☐	<b>Surgical Procedures &amp; Techniques III</b> <i>Prerequisite: SURT1804.</i>	L	50	-	5
The continued study of specialized surgical procedures to include; concepts, techniques, anatomy, procedural sequence, definitions, purpose, etiology, supplies and equipment relating to thoracic, neurological, vascular and transplant surgery.					
SURT2907 ☐	<b>Senior Seminar</b> <i>Prerequisite: SURT1810.</i>	L	20	-	2
Preparation for employment, exposure to professional organizations, the study of ethical and legal aspects of the surgical environment, and leadership skills and concepts.					
SURT2909 ☐	<b>Correlated Patient Study</b> <i>Prerequisite: SURT1810.</i>	L	20	15	2.5
The study of obstetrics and post anesthesia care incorporating patient centered clinical experiences and all aspects of the perioperative care to the surgical patient. This is accomplished through clinical follow-through case studies. Students will also prepare and take the National Certification Exam by recitation and mock exams.					
SURT2910 ☐	<b>Clinical Education II</b> <i>Prerequisites: SURT1810.</i>	L	-	240	8
Adapting to a new hospital environment with further development in skill efficiency and consistency.					

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
SURT2920 ☑	<b>Advanced Clinical Studies</b> <i>Prerequisite: SURT2910.</i> Study of expanded roles and further development in skills relating to advanced surgical specialties.	L	30	60	5
SURT2930 ☑	<b>Clinical Education III</b> <i>Prerequisites: SURT2910.</i> The application of the student's acquired skills and aseptic technique to the operating room team and environment on a more independent basis.	L	-	140	4.5

## THEA • THEATRE

Course# ☑	Title	Location	Class Hours	Lab Hours	Credit Hours
THEA1010 ☑	<b>Introduction to Theatre</b> Introduction to the forms and functions of the dramatic arts within an historical perspective, including theatre skills, dramatic literature and analysis.	B/L	45	-	4.5
THEA1140	<b>Basic Acting</b> Introduction to the techniques and history of acting through individual and group exercises, study and discussion of text and professional example. Develops the students' appreciation of the theatre and the craft of acting. Allows students to build connections between life and acting through lecture, discussion, observation, theatre games, improvisation and scene work. Familiarizes the student with the history and development of acting theories using selected examples of its various cultural contracts.	B	45	-	4.5
THEA1850/1860/2850/2860/2880	<b>Theatre Production</b> <i>Prerequisite: By permission of play director.</i> Introduction to theory and principles of theatre production. Public performance produced. Repeat this class for additional credit.	B	30-60-90	-	1.5-3-4.5
THEA1851/1861/1871/1881, THEA2851/2861/2871/2881	<b>Theatre Practicum</b> <i>Prerequisite: Permission of instructor.</i> Practicum is a practical learning experience in selected areas of theatre production. Under a cooperative educational experience and agreement between the College and an outside theatre production, students are able to earn credit for practical theatre production experience. Experience may include but will not be limited to design, construction and promotion. Students will work a minimum of 15/30/45 hours per quarter in conjunction with community acting group and its staff. Repeat this class for additional credit.	B	30-60-90	-	1.5-4.5

## THNC • INTELLIGENT MACHINE INTEGRATION

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
THNC2100	<b>Manufacturing Windows Operating Systems</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course looks at the theory and operation of PCs and other manufacturing devices that use Microsoft Windows as an operating system. The course deals with some of the administrative elements of operating and maintaining a Windows-based PC, machine tool, or other manufacturing device.	M	45	30	5.5
THNC2120	<b>Manufacturing Networking Fundamentals</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course is the study of the theory and operation of Local Area Networks. It covers some of the administrative elements of constructing and maintaining a LAN in an environment where machine tools and other network-capable devices are present.	M	40	35	5
THNC2130	<b>Manufacturing Automation and Integration Theory</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course examines the theory and operation of automation components and automation design, including electromechanical items such as relays, solenoids and actuators. Many of the electrical and pneumatic devices common to automated equipment will be explored. Schematics for both fluid power and electricity will be explored, as well as how to design, build and control an automated device.	M	40	10	4
THNC2135	<b>Manufacturing Automation and Integration Lab</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course will apply the theory and operation of automation components and automation design. Students will take the theory-based knowledge learned from THNC2130 and apply it in a lab setting where they will be required to build a lab project that uses fluid power components. Projects are predetermined.	M	5	50	2
THNC2140	<b>Basic CNC Machining Techniques</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course examines the theory and application of basic CNC machining techniques. Standard programming options on an Okuma CNC machine tool will be explored. Time will be spent learning about G and M codes and tool-set-up parameters.	M	25	25	3

Course# ☑ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
THNC2145	<b>Advanced CNC Machining Techniques</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> This course examines the theory and application of advanced CNC machining techniques. Unique programming options on an Okuma CNC machine tool will be explored. Time will be spent learning about tool-life-parameters. Data collection from the machine tool also will be explored.	M	30	20	3.5

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
THNC2150	<b>Partners In THINC Applications</b> <i>Prerequisite: Associate of Applied Science degree in Machine Tool Technology or Manufacturing Engineering Technology.</i> Students will learn about technology from some partners in THINC, along with their applications and products. Seminar-based instruction from partners will be a large part of the class structure.	M	20	5	2

## TRUK • PROFESSIONAL TRUCK DRIVER TRAINING

Course#	Title	Location	Class Hours	Lab Hours	Credit Hours
TRUK1110	<b>Professional Truck Driver Training I</b> <i>Prerequisites: Student must meet minimum entrance requirements.</i> Intensive training course for tractor/trailer drivers. Vehicle inspection and preventative maintenance; hands-on defensive driving; skills development in coupling and uncoupling, backing, and shifting; and city and highway driving.	L	40	96	7
TRUK1120	<b>Professional Truck Driver Training II</b> <i>Prerequisites: Student must successfully complete TRUK1110 (Professional Truck Driver Training I)</i> Intensive training course for tractor/trailer drivers. Accident procedures, daily driver's log, trip planning, hazard perception speed management, extreme driving conditions, hands-on defensive driving, skills development in shifting, and city and highway driving.	L	60	164	11

## VPUB • VISUAL PUBLICATIONS

Course# ☑	Title	Location	Class Hours	Lab Hours	Credit Hours
VPUB1110 ☑	<b>Publishing Concepts</b> <i>This course is a prerequisite to all other VPUB courses.</i> This course provides students with a broad perspective on the development of visual communication and the print industry. Students will acquire hands on experience working with various methods of visual communication.	L	30	45	4.5
VPUB1111 ☑	<b>Platform Manipulation</b> <i>This course is a prerequisite to all other VPUB courses.</i> This course introduces the student to the Macintosh and PC platforms. The student will learn page-layout basics and gain fundamental skills using hardware, software and peripheral devices using Adobe Creative Suite Design.	L	30	45	4.5
VPUB1112 ☑	<b>Elements of Design</b> <i>This course is a prerequisite to all other VPUB courses.</i> Students will explore the fundamentals of visual perception, proportion, lighting, dimension, and color theory. They will have experience in 2 and 3 dimensional designs.	L	45	-	4.5
VPUB1120	<b>Design to Production</b> <i>Prerequisites: VPUB1110 and VPUB1111.</i> Students will follow the process of seeing designs from their conception through to the offset printing process. This gives the student the technical knowledge needed to design for production specifications. Hands-on experience with plates, proof making, and offset duplicators.	L	30	50	4.5
VPUB1121 ☑	<b>Photoshop I</b> <i>Prerequisites: VPUB1110, VPUB1111, &amp; VPUB1112 or permission of program chair.</i> This course will address the fundamentals of the software to include scanning and editing, master menu, and tool bar while introducing the concepts of photo manipulation including file formats, layer techniques, filters, picture taking and PDF creation.	L	40	15	4.5
VPUB1122 ☑	<b>Page Layout I</b> <i>Prerequisites: VPUB1110, VPUB1111, &amp; VPUB1112 or permission of program chair.</i> This course will explore the fundamentals of Page layout software and the options for the production of the finished page. Using class projects, each student will become skilled in the basics of page layout and document construction.	L	40	15	4.5
VPUB1125 ☑	<b>Digital Typography</b> <i>Prerequisites: VPUB1110, VPUB1111, &amp; VPUB1112 or permission of program chair.</i> This course will introduce typographic terminology, the basics of type layout and page design. Digital type management, legibility, readability, and type for multi-media will be discussed.	L	20	-	2

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
VPUB1130	<b>Pre-Production Techniques</b> <i>Prerequisites: VPUB1132 or permission of program chair.</i> Students learn to recognize problems in files prepared for printing. This course explores the many facets of electronic prepress focusing on preflight, fonts, text, and graphic requirements. Providing useful applications that will assist them in creating quality and efficient files. PDF file creation will be emphasized.	L	30	45	4.5
VPUB1131	<b>Photoshop II</b> <i>Prerequisite: VPUB1121.</i> Expands on techniques used in Photoshop I. Web graphics, color correction tools and interaction with other software will be covered.	L	45	-	4.5
VPUB1132	<b>Page Layout II</b> <i>Prerequisite: VPUB1122 or permission of program chair.</i> Building on the fundamentals introduced in Page Layout I, this course will introduce new construction elements with a focus on the essentials required for successful layout. Rules and tips for dealing with images and color. Students will preflight, print composites and color separation documents.	L	45	-	4.5
VPUB1133	<b>Creative Troubleshooting</b> <i>Prerequisites: VPUB1110, VPUB1111, &amp; VPUB1112.</i> Demonstrate creative troubleshooting strategies and problem solving skills as it relates to the printing and publishing field.	L	20	-	2
VPUB1134	<b>Web Design I</b> <i>Prerequisites: VPUB1121 and VPUB1122 or permission of program chair.</i> Introduction to basic Internet functions. How to design an effective and efficient Web page. Students learn a beginning web page layout and tools using Dreamweaver.	L	25	60	4.5
VPUB2241	<b>Photoshop III</b> <i>Prerequisite: VPUB1131 or permission of program chair.</i> Using Photoshop as a creative tool, students apply their skills to advanced projects that will serve as portfolio pieces.	L	25	60	4.5
VPUB2242	<b>Computer Illustration I</b> <i>Prerequisites: VPUB1121 or permission of program chair.</i> Introduces the student to using the computer as a creative drawing tool. Basic draw program skills are learned that generate computer effects, styles and illustrations using Adobe Illustrator.	L	35	30	4.5
VPUB2244	<b>Web Design II</b> <i>Prerequisites: VPUB1131, VPUB1134 or permission of program chair.</i> Students will build upon the foundation learned in Web Design I and expand knowledge in web page layout program. Students will save and incorporate graphics, text, and animation using Adobe Flash in conjunction with Dreamweaver.	L	35	30	4.5
VPUB2245	<b>Digital Video Production</b> <i>Prerequisites: VPUB1134 or permission of program chair.</i> Students will learn the art and techniques of digital video production including shooting, editing and distribution to CD, Web and Podcasting. The course concentrates on the creation of video for Podcasting and the Web.	L	35	30	4.5
VPUB2252	<b>Computer Illustration II</b> <i>Prerequisite: VPUB2242 or permission of program chair.</i> This course builds on the foundation achieved in Computer Illustration I. Emphasis is placed on expansion of techniques and interaction with other software programs using Adobe Illustrator.	L	35	30	4.5
VPUB2254	<b>Web Design III</b> <i>Prerequisite: VPUB2244.</i> Advanced techniques and software skills are applied to create animation, graphics, page layout, ftp, and site control. Web pages will be used to exhibit student's ability and creativity.	L	30	45	4.5
VPUB2255	<b>Portfolio Development</b> <i>Prerequisites: VPUB2244, &amp; VPUB2245.</i> Using previous course work, students will develop a complete portfolio including print, Web, and CD formats. Class and industry presentations will prepare the student for the future job market. Students will be expected to defend their portfolio choices and explore individual design philosophy.	L	30	-	3
VPUB2260	<b>Design Fieldwork</b> <i>Prerequisites: VPUB2255 or advisor permission.</i> Under the direction of an experienced instructor, students have an opportunity to apply their classroom knowledge in a real-world situation. Students may be placed in an external internship or complete projects for the College.	L	-	135	4.5
VPUB2265	<b>Media Campaign Development</b> <i>Prerequisites: VPUB1130, VPUB2241, VPUB2244, and VPUB2252; or permission of program chair.</i> Students work with Clients to create a full media campaign. The students work in groups and specialize in creating 3D files, Flash animation, print, video and web components of the campaign. Their work is then used for their portfolio.	L	30	45	4.5

Course# ■ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
<b>WELD • WELDING</b>					
WELD1100	<b>Welding Orientation</b> Orientation to the college philosophy, goals, objectives within the welding program area.	L/M	10	-	1
WELD1110	<b>SMAW Theory</b> <i>Prerequisite: WELD1100.</i> Study of Shielded Metal Arc Welding theory, safety, applications, procedures, and welding practices. Study and selection of power sources and electrodes.	L/M	20	-	2
WELD1112	<b>SMAW Lab I</b> <i>Prerequisite: WELD1110.</i> Beginning welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.	L/M	20	60	4
WELD1113	<b>SMAW Lab II</b> <i>Prerequisite: WELD1112.</i> Intermediate welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.	L/M	20	60	4
WELD1115	<b>Equipment &amp; Tools</b> <i>Prerequisite: WELD1100.</i> Explanation of safe operation and the proper use of equipment, power tools, and hand tools.	L/M	15	-	1.5
WELD1117	<b>Oxyacetylene Theory</b> <i>Prerequisite: WELD1100.</i> Study of the theory, safety, equipment and applications of the Oxyacetylene Welding process.	L/M	20	-	2
WELD1119	<b>OA Welding &amp; Cutting</b> <i>Prerequisite: WELD1117.</i> Laboratory exercises with the Oxyacetylene Welding, Braze Welding, Oxyacetylene Cutting and related processes.	L/M	10	60	3
WELD1120	<b>SMAW Lab III</b> <i>Prerequisite: WELD1113.</i> Advanced welding of carbon steel with the Shielded Metal Arc Welding process on various joint configurations and with various electrodes.	L	25	75	5
WELD1122	<b>GMAW Theory</b> <i>Prerequisite: WELD1100.</i> Study of Gas Metal Arc Welding theory, safety, applications, manipulative skills, welding principles, and procedures. Study and use of various filler wires and shielding gases and welding power source set-up.	L/M	30	-	3
WELD1124	<b>GMAW Lab I</b> <i>Prerequisite: WELD1122.</i> Beginning welding of carbon steel with the Gas Metal Arc Welding process on various joint configurations.	L/M	10	60	3
WELD1126	<b>GMAW Lab II</b> <i>Prerequisite: WELD1124.</i> Advanced welding of carbon steel with the Gas Metal Arc Welding process on various joint configurations.	L/M	10	60	3
WELD1128	<b>Blueprint Reading &amp; Weld Symbols</b> <i>Prerequisite: WELD1100.</i> Introduction to blueprint reading and drawing procedures. Interpretation and drawing of isometric, oblique, and orthographic views, welding symbols, and bill of materials.	L/M	50	-	5
WELD1129	<b>Computer Aided Drafting</b> <i>Prerequisite: WELD1128.</i> Fundamentals of computer aided drafting using AutoCAD®. Study of the AutoCAD® menus, settings and drawing setup, draw and edit commands, AutoCAD® coordinate system, symbols, practice drawings and plotting.	L/M	20	15	2.5
WELD1130	<b>Metallurgy I</b> <i>Prerequisite: WELD1100.</i> Study of the production of metals, methods of identification, properties of metals, methods of metallurgical examination, mechanical testing and chemistry of welding.	L/M	40	-	4
WELD1135	<b>Advanced OA &amp; Plasma Cutting</b> <i>Prerequisite: WELD1119.</i> Theory of the Plasma Arc Cutting process and advanced laboratory exercises to include the use of automated equipment.	L/M	10	30	2
WELD1139	<b>Welding Measurement &amp; Layout</b> <i>Prerequisite: WELD1100.</i> Explanation of layout procedures used in the welding and fabrication industry.	L/M	30	30	4

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
WELD1140	<b>Metallurgy II</b> <i>Prerequisite: WELD1130.</i> Study of the structure of metals, heat treatment and welding, and the control of stresses in welding.	L/M	30	-	3
WELD1143	<b>Pipe Welding &amp; Cutting</b> <i>Prerequisites: WELD1113, WELD1119, WELD1139.</i> Study and practical applications in pipe welding and cutting. Includes pattern making, layout, cutting, fitting, and welding.	L/M	30	30	4
WELD1144	<b>GTAW Theory</b> <i>Prerequisite: WELD1100.</i> Study of Gas Tungsten Arc Welding theory, safety, principles, applications, procedures, and welding practices. Study and use of tungsten electrodes, filler wires, shielding gases, and power source selection and set-up.	L/M	20	-	2
WELD1148	<b>GTAW (Mild Steel)</b> <i>Prerequisite: WELD1144.</i> Welding of carbon steel with the Gas Tungsten Arc Welding process in all positions and on various joint configurations.	L/M	15	75	4
WELD1149	<b>GTAW (SS &amp; AL)</b> <i>Prerequisite: WELD1144.</i> Welding of stainless steel and aluminum with the Gas Tungsten Arc Welding process in all positions and on various joint configurations.	L/M	10	60	3
WELD1174	<b>Machine Tool Welding</b> Basic welding and practice in joining metals together. Preparation for MACH1225 Materials of Industry.	L	10	23	1.5
WELD1176	<b>Automotive &amp; Motorcycle Welding</b> Introduction to basic welding skills used in the automotive and motorcycle professions. This course includes knowledge of safety in the welding shop, Oxy-Acetylene and MIG welding processes.	L	15	45	2.5
WELD1181	<b>Automotive, ASEP, ASSET, &amp; CAP Welding</b> <i>Prerequisite(s): Limited to AUTT, ASEP, ASST, CAPP Programs</i> Theory and practice of "GMAW" welding, braze welding, and oxyacetylene cutting. Equipment setup, safety, and operation is stressed.	M	10	15	1.5
WELD1182	<b>Welding Process for NDT</b> <i>Prerequisite(s): Limited to NDT Program</i> Introduction to the theory and practice of oxyacetylene hand torch cutting. SMAW practice, to include the study of variables and parameters of the equipment and operation. Safety of the welding and cutting equipment along with lab work will be stressed.	M	20	30	3
WELD1183	<b>HVAC Welding Practices</b> <i>Prerequisite(s): Limited to HVAC Program</i> Study of theory and practice of welding, cutting fundamentals including safety, oxy-fuel braze welding, flame cutting, and ARC welding.	M	10	20	1.5
WELD1184	<b>Welding for Electrical &amp; Electromechanical</b> <i>Prerequisite(s): Limited to ELEC Program</i> Fundamentals of oxyacetylene equipment, OA cutting, brazing. Arc welding theory and lab practice with emphasis on maintenance welding. Safe operation of equipment and application emphasized.	M	20	30	3
WELD1185	<b>Diesel Truck, JDAT, &amp; JDCE Welding</b> <i>Prerequisite(s): Limited to DESL-Truck, JDAT, JDCE Programs</i> The theory and practice of oxyacetylene braze welding and cutting including proper operation of equipment. Principles, safety, procedures, and application of gas metal Arc Welding (MIG).	M	10	20	1.5
WELD1186	<b>Building Construction Welding</b> <i>Prerequisite(s): Limited to CNST Program</i> Theory and practice of shield metal arc welding and oxyacetylene torch cutting. Emphasis on safety, equipment setup, and operation as it applies to the construction industry.	M	6	30	1.5
WELD1187	<b>Welding for Ag Equipment</b> <i>Prerequisite(s): Limited to Ag Equipment Program</i> Theory and practice of oxy acetylene braze welding and cutting, including proper operation of equipment. Principles and applications of SMAW (stick) in the flat, horizontal position.	M	10	30	2

Course# ☐ (online)	Title	Location	Class Hours	Lab Hours	Credit Hours
WELD1188	<b>Deere Welding II</b> <i>Prerequisite(s): Limited to JDCE Program</i> Principles and application of arc welding in the flat, horizontal, and vertical positions. Practice with air carbon arc cutting, along with the study of basic metals and metal properties as applied to Deere Construction & Forestry Equipment.	M	5	25	1
WELD1189	<b>Shielded Metal Arc Diesel Welding</b> <i>Prerequisite(s): Limited to DESL-Truck Program</i> Instruction and practice in SMAW (stick welding) to include equipment set-up and safety.	M	5	15	1
WELD1252	<b>GMAW (SS &amp; AL)</b> <i>Prerequisite: WELD1122.</i> Theory and practical exercises using the Gas Metal Arc Welding process in the welding of stainless steel and aluminum.	L	20	60	4
WELD1271	<b>Special Welding Applications</b> <i>Course requirements and objectives arranged with program chair.</i>	L	5	15	1
WELD1272	<b>Special Welding Applications</b> <i>Course requirements and objectives arranged with program chair.</i>	L	10	30	2
WELD1273	<b>Special Welding Applications</b> <i>Course requirements and objectives arranged with program chair.</i>	L	10	60	3
WELD1274	<b>Special Welding Applications</b> <i>Course requirements and objectives arranged with program chair.</i>	L	10	90	4
WELD1275	<b>Special Welding Applications</b> <i>Course requirements and objectives arranged with program chair.</i>	L	10	120	5
WELD2250	<b>FCAW</b> <i>Prerequisite: WELD1122.</i> Study of the Flux Cored Arc Welding process theory and laboratory exercises using the process in all positions and on various joint configurations.	L/M	15	75	4
WELD2254	<b>Welding Codes &amp; Standards</b> <i>Prerequisites: WELD1110, WELD1117, WELD1122, WELD1128, WELD1144.</i> Study of welding codes and standards required for the qualification and certification of welding personnel.	L/M	25	-	2.5
WELD2256	<b>Welder Pre-Qualification</b> <i>Prerequisite: WELD2254.</i> Practice of techniques and procedures within established codes and standards in preparation for taking a qualification test.	L/M	25	105	6
WELD2258	<b>Welder Qualification /Certification</b> <i>Prerequisite: WELD2256.</i> Student qualification/certification tests in structural and/or pipe welding in compliance with the code and/or standards of American Welding Society, American Society of Mechanical Engineers or recognized codes and standards of industry.	L/M	20	60	4
WELD2262	<b>Welding Fabrication &amp; Repair</b> <i>Prerequisite: WELD1113, WELD1126, WELD1128, WELD1135, WELD1139, WELD1140, WELD1148, WELD1149.</i> Design and fabrication of various projects to include the basic design and use of jigs and fixtures. Repair and maintenance of projects employing the major welding processes.	L/M	10	90	4
WELD2264	<b>Quality Control &amp; NDT Methods</b> <i>Prerequisite: WELD1100.</i> Theory of nondestructive testing methods, welding discontinuities, weld inspection and quality assurance.	L/M	60	-	6
WELD2901	<b>Cooperative Experience</b> <i>Prerequisite: 5th Quarter Standing.</i> On-the-job experience within an industrial welding/metallurgy related company. Practice of skills and knowledge acquired through previous quarters. Preparation for full-time employment.	L/M	-	420	12