

ACCOUNTING

ACC 121 Fundamentals of Accounting I

4 Quarter Hours

Introduces students to the concepts of financial accounting, including the completion of the accounting cycle, preparation of the financial statements, and detailed coverage of cash, receivables, inventory, fixed assets and liabilities.

Prerequisite(s): MTH 091 or satisfies developmental math or placement exam. Corequisite(s): INF 113.

ACC 122 Fundamentals of Accounting II

4 Quarter Hours

Introduces students to the concepts of managerial accounting, including financial statement analysis, job order costing, budgeting, cost-volume-profit analysis, and use of other managerial decision-making tools.

Prerequisite(s): ACC 121, INF 113.

ACC 231 Computerized Accounting

4 Quarter Hours

Studies the beneficial role technology plays in processing accounting information. Emphasis is placed on hands-on application utilizing QuickBooks. Specific topics studied include setting up company information, maintenance of accounts and records, journalizing and posting transactions, closing the books and creating financial statements, payroll reports, cost accounting, and inventory management.

Prerequisite(s): ACC 241, INF 113.

ACC 241 Accounting Concepts

4 Quarter Hours

Completes the study of financial and managerial accounting fundamentals. Coverage includes a detail review of the accounting cycle, financial statement preparation, statement of cash flows, and detailed coverage of long-term liabilities and equity. Also, managerial topics of standard costing and activity-based costing are covered.

Prerequisite(s): ACC 122.

ACC 251 Payroll Accounting

4 Quarter Hours

Studies all aspects of payroll operations, including personnel and payroll records, computations of wages and salaries, relevant laws and acts pertaining to payroll, preparation of payroll registers, recording of accounting entries, and preparation of payroll tax returns.

Prerequisite(s): ACC 241.

ACC 301 Intermediate Accounting I

4 Quarter Hours

Begins an in-depth study of the theory and conceptual issues relevant to presentation of financial information for use in external decision-making processes. Emphasis is placed on reporting and disclosure requirements for a complex, classified balance sheet. Other topics include a review of the accounting cycle, preparation of financial statements, the conceptual framework, GAAP, and account reconciliation.

Prerequisite(s): ACC 241 or ACC 291.

ACC 302 Intermediate Accounting II

4 Quarter Hours

Continues the in-depth study of the theory and conceptual issues begun in Intermediate Accounting I. Emphasis is placed on reporting and disclosure requirements for multi-step income statement. Other topics include reinforcement of the accounting cycle and the interrelatedness of the financial statements and how various accounts affect them.

Prerequisite(s): ACC 301.

ACC 303 Intermediate Accounting III

4 Quarter Hours

Continues the Intermediate series, this course expands on competencies gained through previous study while addressing the reporting and disclosure requirements for the Statement of Cash Flows. In addition, pensions and other unique transactions, events, and disclosures will be addressed.

Prerequisite(s): ACC 302.

ACC 312B Business Entities Taxation

4 Quarter Hours

Provides in-depth coverage of fundamentals of federal taxation related to business entities, including C and S corporations and partnerships. Emphasis is placed on the application of tax laws to

the preparation of federal tax and informational return for these entities.

Prerequisite(s): ACC 121.

ACC 331A Cost Accounting

4 Quarter Hours

Analyzes costs for decision making, capital investment decisions, quantitative models for planning and control, and performance evaluation. Strategic control systems, using accounting data for internal decision making, and cost control are also emphasized.

Prerequisite(s): ACC 241.

ACC 341B Individual Taxation

4 Quarter Hours

Provides in-depth coverage of the fundamentals of federal and state taxation related to individuals. Students will examine the federal tax system; research and apply tax law; and calculate gross income, deductions, and future tax liability. Tax planning for the individual will also be addressed.

Prerequisite(s): ACC 121.

ACC 351R Accounting and Financial Management

6 Quarter Hours

Provides an introduction to the application of fundamental concepts of accounting and finance to managerial decision making. Emphasis is placed on the interpretation and use of accounting information and its use in planning and control of organizational assets and operations. This course is exclusive to accelerated Bachelor of Business Leadership.

Prerequisite(s): MTH 312R, WRI 312R.

ACC 416 Auditing, Systems, and Controls I

4 Quarter Hours

Introduces students to the discipline of auditing, accounting systems, and internal controls in public and private sectors, as well as the auditing profession and the audit process. Topics covered will include audit reports, professional ethics, legal liability, responsibilities, audit evidence, and planning. Internal controls and risks are also introduced.

Prerequisite(s): ACC 303.

ACC 417 Auditing, Systems, and Controls II

4 Quarter Hours

Applies the audit process to various transaction cycles. This course introduces the systems of controls and related analytic flow charting for each of the transaction cycles, as well as the test of controls and the substantive tests for each cycle. This course is a continuation of Auditing, Systems, and Controls I.

Prerequisite(s): ACC 416.

ACC 431B Governmental and Non-Profit Accounting

4 Quarter Hours

Addresses the fundamental principles of accounting for governmental units, colleges, hospitals, voluntary health and welfare organizations, and other non-profit organizations. Students will compare and contrast non-profit accounting processes with those of for-profit enterprises by evaluating the differing regulations for recording transactions, financial reporting, and revenue recognition as well as funding options and budgeting.

Prerequisite(s): ACC 302.

ACC 441 Advanced Accounting

4 Quarter Hours

Provides students with the knowledge and skills necessary to perform accounting functions related to the acquisition of a business, consolidated financial statements, and disclosure requirements for industry segments.

Prerequisite(s): ACC 303.

ADMINISTRATIVE PROFESSIONAL

ADP 101 Workplace Technology I

4 Quarter Hours

Explores advanced aspects of Microsoft Word. Students will become proficient in various Microsoft Word tools, including: insert features, page layout, references and reports, and mailings.

Prerequisite(s): INF 112.

ADP 102 Workplace Technology II

4 Quarter Hours

Explores how to increase productivity by using various Microsoft office tools to support administrative professional work. Students will become proficient in advanced aspects of Microsoft Word, Excel,

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PowerPoint, and Publisher. Introduces cloud-based storage and tools for communicating virtually.

Prerequisite(s): ADP 101, INF 113, INF 141A.

ADP 141 Workplace Professionalism

4 Quarter Hours

Addresses professional standards of communication and conduct in the workplace. Students will be required to join a professional organization, and will practice working in teams and interacting with board members and superiors. Explores managing and marketing oneself in the virtual environment.

Corequisite(s): ENG 101.

ADP 151 Workplace Management I

4 Quarter Hours

Introduces the skills necessary to manage multiple projects in the work setting, with a focus on time management, trouble-shooting, and teamwork. Students will practice using calendar and organizational tools and will practice budgeting meetings and events. This course will also explore project management in the virtual environment.

Prerequisite(s): ADP 101, MTH 108. Corequisite(s): ACC 121.

ADP 203 Workplace Technology III

4 Quarter Hours

Explores various forms of hardware, software, applications, and cloud-based communication and storage pertinent to administrative professional work. Students will practice using various technologies and tools to become more efficient in the workplace. Learn how to use these tools to excel in a virtual environment.

Prerequisite(s): ADP 102.

ADP 221 Business Communication

4 Quarter Hours

Explores how to communicate more effectively in an office environment. Emphasis is placed on communication in ethical and customer service related situations. Students will become proficient in business writing and in using various forms of communication. Explores how and when to use communication tools and technology.

Corequisite(s): ENG 101.

ADP 252 Workplace Management II

4 Quarter Hours

Explores the steps to plan, execute, and reflect on a meeting or workplace event. Students will practice planning meetings and events and will explore how to do so virtually. Students will become proficient in budgeting and records management.

Prerequisite(s): ADP 151. Corequisite(s): ACC 122.

ADULT INSTRUCTOR AND TRAINER

AIT 311 Teaching and Learning

4 Quarter Hours

Helps participants become more reflective and effective teachers.

AIT 321 The Adult Learner

4 Quarter Hours

Helps participants develop a better understanding of learning in adulthood.

AIT 411 Instructional Strategies and Delivery

4 Quarter Hours

Emphasizes theory of instruction, methods, and materials/resources necessary in the subject area.

AIT 421 Classroom/Instructional Management

4 Quarter Hours

Focuses on techniques that lead to development of a positive, democratic learning environment.

AIT 431 Assessment for Student Learning

4 Quarter Hours

Compares different types of assessments and analyzes assessment results for the purpose of improving student learning. Students will compare classroom assessment techniques to program assessments and incorporate results into program evaluation and accreditation. The instruction in the course will emphasize creating valid assessments and using assessment data for decision making.

AIT 491 Adult Instructor and Trainer Practicum

4 Quarter Hours

Provides hands-on capstone experience in teaching or training setting. Students will practice teaching and will reflect on the teaching-learning process. Continuous improvement of instructional

skills will be emphasized, while incorporating adult learning theory, classroom management, curriculum and assessment.

AGRICULTURAL INDUSTRY

AG 101 Introduction to Agricultural Industry

4 Quarter Hours

Provides an overview of the agricultural industry, including current trends in technology; plant, soil, weed and insect science; global and local agribusiness markets; conservation and sustainable agriculture trends. This course sets the stage for all subsequent classes.

AG 111 Agribusiness I

4 Quarter Hours

Focuses on the business operations of independent farms. Coursework will cover financial fundamentals relative to tracking liquidity and solvency of farm operations. Students also will learn about farm finance and how to calculate both short-term and long-term profit/loss in agricultural businesses.

Corequisite(s): AG 101.

AG 112 Agribusiness II

4 Quarter Hours

Addresses the economics of the agriculture business, from the impact of weather and climate to the study of farm futures, agriculture markets in both local and global economies, and the fundamentals of agriculture debt management in both small and large agribusinesses. Also covered will be food marketing and how associated consumer demands impact agribusiness.

Prerequisite(s): AG 101, AG 111.

AG 113 Agribusiness III

4 Quarter Hours

Delves into the role of government in agriculture. Included will be examination of government regulatory and financial services agencies and the development of farm policies and bills at all levels of government -- federal, state, and local. The course also will review the role public farm policy and funding has on the development of sustainable regional and local food systems.

Prerequisite(s): AG 112.

AG 121 Partners in Agriculture

4 Quarter Hours

Explores the services, networking, and assistance available to all areas of the agriculture industry. Special topics include co-ops, crop consulting, seed companies, and other services. Exposes students to the highly interactive environment between industry and consumer in the agriculture market.

AG 131 Soil Science

4 Quarter Hours

Studies the relationships of soils to plant health and growth, land use, conservation, and environmental quality. The course will include laboratory work in soil description, analysis, and assessment.

AG 141 Plant Science and Agronomy

4 Quarter Hours

Covers the science of plant life and how this science relates to agronomy, which is the science of soil management and crop production. Students will develop basic knowledge of the fundamental structures and processes of plants including physiology, heredity, and environmental influences on plants. Also covered will be the science and social and economic impacts of genetic plant modifications and other advanced plant engineering practices.

Prerequisite(s): AG 131.

AG 151 Weed Disease and Insect Management

4 Quarter Hours

Reviews the science of pest and disease management in agriculture. Focus will include definition of common diseases and pests and learning the essential science of conventional chemical and pesticide applications and the necessary certifications required in these areas. Also explored will be alternative and organic sciences and technologies for weed and insect management.

Prerequisite(s): AG 141.

AG 161 Computers in Agriculture

5 Quarter Hours

Explores the impacts of technology on agriculture, including industry-specific software packages and common software systems used in the agriculture field. Provides a basic understanding of the

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operation and use of computers for farm business management. Stresses the practical applications of word processing, spreadsheets, and database management systems to agricultural production and financial management decisions. 40 hours of lecture and 20 hours of lab are required for this course.

AG 181 Introduction to Agricultural Systems Internship 2 Quarter Hours

Provides students with an opportunity to observe agricultural careers, spanning a wide variety of applications in Michigan from operating high-technology auto-steer tractors and GPS systems to managing large dairy farms or growing and distributing produce and fruit in an increasingly vibrant and entrepreneurial local food system. Students will select areas of interest for introductory hands-on summer internship experiences on farms throughout Michigan.

AG 201 Principles of Sustainable Agriculture 4 Quarter Hours

Provides an overview of sustainable agriculture which involves development of food systems, renewable energy technologies, and financially viable business practices to maintain, sustain, and preserve the environment and the earth's resources. The course will examine trends in the sustainable and organic food industries, environmentally sustainable farming practices, local and regional food systems, and the development of alternative and renewable energies such as biofuels, anaerobic digestion systems, and wind farms in agricultural settings.

Prerequisite(s): AG 113.

AG 221 Agriculture Equipment and Tooling 4 Quarter Hours

Introduces the maintenance of gas and diesel engines, field machinery, tractor and power units, and shop equipment to include the fundamentals of gas and arc welding. Students will be exposed to the common implements and equipment used in the agriculture industry. 20 hours of lecture and 40 hours of lab are required for this course.

Prerequisite(s): AG 113, MTH 108.

AG 231A Introduction to Precision Agriculture 4 Quarter Hours

Exposes students to the application of GPS systems in the agricultural environment. The course includes both new and retrofit installations of GPS equipment onto agricultural equipment. Concepts covered include GPS mapping, software loading, auto-steering systems, and precision agriculture.

AG 232A Advanced Precision Agriculture 4 Quarter Hours

Explores methods for incorporating field research data in a GIS project. GPS applications in natural-resource inventories, ecological studies, and atmospheric and hydrologic process studies are discussed.

Methods in using precision agriculture to improve agriculture processes are the focus of this class. 20 hours of lecture and 40 hours of lab are required for this course.

Prerequisite(s): AG 231A, DSL 116.

AG 241 Viticulture and the Fruit Industry 4 Quarter Hours

Provides a detailed overview of the cultivation of grapes, the role climate plays on fruit crops in the Great lakes region, the history and production of both wine and fruit including cherries and other consumer crops and the science and technology of orchard and vineyard cultivation, pruning, harvesting, distilling, and distribution. Fruit and wine production represent a vibrant and growing portion of Michigan's economy. In addition to evaluating the economic and financial impacts of this industry.

Prerequisite(s): AG 141.

AG 251 Animal Science 4 Quarter Hours

Provides an introduction to the genetics, nutrition, and management of dairy, beef, and other livestock raised in Michigan. Coursework will include learning about the management of animals based on behavioral science and healthcare management systems. Also explored will be the science and contrasting economics of confined large-scale farm operations producing for worldwide markets and small farms utilizing rotational grazing and other management practices geared toward producing for local food systems.

AG 256 Veterinary Science 5 Quarter Hours

Introduces students to the veterinary technology profession, providing a broad overview of regulatory and ethical issues, handling and restraint of animals, sanitation, breed identification, and

laboratory issues. 40 hours of lecture and 20 hours of lab are required for this course.

Corequisite(s): AG 251.

AG 261 Animal Husbandry 5 Quarter Hours

Introduces students to the science of large and small animal husbandry, caring for animals from breeding through gestation and into production. Students will acquire the essential knowledge required to manage animal reproduction and lactation and overall herd health and management. 40 hours of lecture and 20 hours of lab are required for this course.

Prerequisite(s): AG 251, AG 256.

AG 291 Agriculture Capstone and Future Trends 4 Quarter Hours

Explores current and future trends in agriculture with the concerns and critical issues impacting the field. Contemporary agricultural issues will also be explored.

Prerequisite(s): AG 201, AG 221. Corequisite(s): WRKTC201 or WRK 277.

ARCHITECTURAL TECHNOLOGY

AT 301 Fundamentals of Design 4 Quarter Hours

Introduces students to the basic elements and principles of design, design technology, concepts of space, form, color, texture, and visual techniques necessary for design conceptualization creation and presentation. Fundamental aspects of architecture design methodology and techniques for conceptualization and presentation will also be introduced.

Prerequisite(s): ACT 207.

AT 311A Architectural History I 4 Quarter Hours

Studies the history and philosophy of architecture in a context of related arts, crafts, and design settings, in significant periods of the western worlds - from Prehistoric and Ancient times, through the Middle Ages (including Byzantine and Islamic extension), up to the Gothic era.

AT 312 Architectural History II 4 Quarter Hours

Studies the history and philosophy of architecture in a context of related arts, crafts, and design settings, in significant periods of the western worlds - from Renaissance and Baroque eras, through the 18th century and into the modern world.

AT 321 Structural Design I 4 Quarter Hours

Studies the fundamental concepts/principles of mechanics and strength of materials in dealing with the state of rest of bodies under the action of forces. Applies the equilibrium conditions to the analysis of concrete structures formed by connected members, including reinforced beams, columns, floors, walls, and footings. The design process is studied in depth, utilizing AISC and ACI Standards. A brief review of trigonometry and algebra is to be included.

Prerequisite(s): ACT 201.

AT 322 Structural Design II 4 Quarter Hours

Continues the study of material strength, basic design, and calculations of structural systems utilizing lumber and structural steel. Includes the strength, stiffness, and stability of various materials. Discusses the stresses caused by bending moments, shear forces, vertical and horizontal loadings, and how to size load supporting structural members under those influences. The design process is studied in depth, utilizing AISC and AF and PA.

Prerequisite(s): AT 321.

AT 401 Architectural Design I 4 Quarter Hours

Begins the development of architectural design principles, theories, and processes, emphasizing the programming phase of project development and preliminary design creation. Students will learn the techniques and skills to research, develop, and create a simple project, including: plot plan, floor plan, main building sections, and elevations with enough detail to generate a conceptual estimate.

Prerequisite(s): AT 301.

AT 402 Architectural Design II

4 Quarter Hours

Continues the development of architectural design principles, theories and processes, emphasizing the programming phase of project development and preliminary design creation. Students will learn the techniques and skills to research, develop, and create a moderate size project, including: plot plan, floor plan, main building sections, and elevations with enough detail to generate a conceptual estimate.

Prerequisite(s): AT 401.

AT 403 Architectural Design III

4 Quarter Hours

Continues the development of architectural design principles, theories, and processes, emphasizing the programming phase of project development, leading to the creation of design development phase. Students will learn the techniques and skills to research, develop, and create a multiple floor project, including: plot plan, floor plan, main building sections, elevations, interior design, and MEP with enough detail to generate a preliminary estimate.

Prerequisite(s): AT 402.

AT 404 Architectural Design IV

6 Quarter Hours

Continues the development of architectural design principles, theories, and processes, emphasizing the programming phase of project development, in conjunction with site planning principles and construction documents. Critical construction details and CSI format based specification for the architectural portion will be developed to perform a detailed cost estimate in the next term. Performance based MEP drawing and specifications will also be required. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): AT 403.

AT 405 Architectural Design V

6 Quarter Hours

Continues the development of proficiency in construction document execution to complete the project started in Architectural Design IV. This is a capstone course to complete a portfolio of a project as a tool to gain employment in a professional office. The portfolio will demonstrate skills, knowledge, and competency of students having a thorough understanding of architectural project development and documentation. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): AT 404.

AT 411 Advanced Code Analysis

4 Quarter Hours

Studies the International Building Code (IBC) to have in-depth knowledge of its required design intent, as well as the utilization of its application to specific buildings in terms of building planning, accessibility, fire protection, and life safety.

Prerequisite(s): IND 301.

AT 421 Building Systems (MEP)

4 Quarter Hours

Studies the various HVAC, plumbing, fire protection, electrical power, lighting, auxiliary, and building operation systems and design coordination issues among themselves as they relate to the preparation of construction documents of a light commercial building. Study includes: lighting, power distribution, HVAC, ventilation systems, controls, fire protection, plumbing, sewage systems, etc. Develops the in-depth knowledge of initial systems' costs and life-cycle consideration.

Prerequisite(s): ACT 202.

AT 431 Site Planning and Development

4 Quarter Hours

Provides students with a clear understanding of land utilization to best accommodate a building design. Students will learn the processes, theories, and methodology of fundamental civil engineering.

Prerequisite(s): ACT 207.

AT 441 Professional Office Practice

4 Quarter Hours

Develops a general awareness of project development and knowledge of professional practice, combined with exploring career alternatives, and the processes required to register as an architect. Students will learn professional ethics, proposal and contract development, permit approval processes, and interdisciplinary professional relationships.

Prerequisite(s): AT 403, AT 411, AT 421.

ARCHITECTURAL/CONSTRUCTION TECHNOLOGY

ACT 099 Fundamentals of Drafting

4 Quarter Hours

Surveys the use of drafting instruments and focuses on the basic concepts of lettering, geometric construction, sketching, multiview projection, dimensioning, and sectional view. This course is a prerequisite. Credit earned does not count toward any degree.

ACT 101 Architectural Drafting I

4 Quarter Hours

Introduces the basic concepts of architectural residential drafting and design in addition to basic freehand sketching, perspectives, rendering, lettering, linework and dimensioning. Students will be exposed to preliminary design considerations and construction techniques related to residential architecture. The focus of the drawings will be on conceptual layouts, floor plans, foundation plans, roof-framing plans, and site plans.

Prerequisite(s): ACT 099 or IND 121 or 1 year high school drafting.

ACT 102 Architectural Drafting II

4 Quarter Hours

Introduces the students to the residential mechanical (HVAC, plumbing, and electrical) roofing, and siding systems, as well as additional refinement in the lettering, linework, and dimensioning techniques. The drawings created will be the continuation of the residential plans started in ACT101. The focus of the drawings will be on door and window schedules, exterior elevations, plumbing plans, electrical plans, climate control plans and site plans.

Prerequisite(s): ACT 101 or IND 221.

ACT 103 Computer Aided Architectural Drawing I

4 Quarter Hours

Introduces students to the use of the computer to draw plans for a single-family residence. A series of drawings will be required.

Prerequisite(s): ACT 101 or ACT 192A or IND 221.

ACT 104 Building Materials and Construction

4 Quarter Hours

Acquaints students with building materials as well as construction methods utilized in residential construction.

ACT 105A Surveying

2 Quarter Hours

Emphasizes the basic concepts in surveying by measuring distances and angles of objects on or near the surface of the earth. Students will use traditional methods and new technology to execute applications of surveying including land property, building stakeout, topographic, and traverse and circular curve surveys.

Prerequisite(s): MTH 124.

ACT 191A Blueprint Reading for Architecture

2 Quarter Hours

Covers print layout of information, tolerance block, revision block, do not scale block, notes, bill of material, and product detail layout. Students sketch drawings of simple detail from selected architectural drawings to include dimensioning and notes as related to the understanding of reading a floor plan, elevation, and detailed blueprint.

ACT 192A Construction Documents Analysis

2 Quarter Hours

Provides print reading experience in commercial construction drawings including architectural, civil, mechanical, electrical, plumbing, structural, and finish construction drawings. CSI standard format for construction specifications will be covered. Students will practice visualizing the three dimensional building from two dimensional drawings. Sketching techniques will be practiced to prepare field drawings/as-builts.

ACT 201 Structural Analysis

4 Quarter Hours

Studies the structural properties of basic framing material (wood, steel, and concrete). Bending, deflection, shear, and moment diagrams will be developed by students as a method of study.

Prerequisite(s): C or better in MTH 124.

ACT 202 Mechanical Systems

4 Quarter Hours

Studies the basics of mechanical (HVAC, plumbing, fire protection), electrical (power, lighting, telephone, fire alarm, security, sound, etc.), and building operation (transportation, processing,

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automation) systems as they are related to the overall planning of a building. Emphasis will be on heating, cooling, ventilation, plumbing, fire protection, electrical, and operation requirements for space planning for various building types.

ACT 203 Construction Cost/Estimating

4 Quarter Hours

Focuses on the preparation of bid proposals, quantity take-offs, crew sites, daily outputs, and bid packages for general and subcontracted work.

Prerequisite(s): ACT 104, INF 113, ACT 192A or ACT 206.

ACT 204B Builder License/Laws

3 Quarter Hours

Focuses on the study of the two parts of the residential builder examination and the laws pertaining to it. This course concludes coverage of the State of Michigan pre-licensure education requirements for the Residential Builder Applicants such that at the completion of the Architectural/Construction Technology Associates Degree Program, the student is eligible to take the Residential Builders Examination.

Prerequisite(s): ACT 102 or ACT 191A.

ACT 205 Computer Aided Architectural Drawing II

4 Quarter Hours

Explores wood frame structures as they relate to multi-family, low-rise, office, or small commercial structures. Drawing projects will focus on completion of a set of working drawings.

Prerequisite(s): Architectural majors: ACT 103. Interior Design majors: IND 215.

ACT 206 Commercial Architectural Drawing I

4 Quarter Hours

Explores low-rise frame commercial structures - featuring steel, masonry and concrete construction. Drawings will focus on one of the following: small office building, small retail store, restaurant, or school-institutional building. Students will complete a set of working drawings and material take-offs.

Prerequisite(s): Architectural majors: ACT 103. Interior Design majors: IND 215. Corequisite(s): ACT 205.

ACT 207 Commercial Architectural Drawing II

4 Quarter Hours

Continues exploring low-rise reinforced concrete structures - featuring steel, masonry, and concrete construction. Drawings will focus on one of the following: small office building, small retail store, restaurant, or school-institutional building. Students will complete a set of working drawings, material take-offs, and specifications.

Prerequisite(s): ACT 206.

ACT 211A Architectural Design, Presentation and Portfolio

6 Quarter Hours

Presents an opportunity to create a residential/commercial capstone building design project emphasizing the design process, project phasing, building technologies, and documentation, culminating in a formal presentation for program assessment. Students will amass, critically review, enhance, and organize representations of previous program course work into digital format, working toward creating physical hardcopy, digital and Web-based portfolios for professional jury presentation and assessment.

Prerequisite(s): ACT 207.

AUTOBODY TECHNICIAN

ABT 101 Painting and Refinishing I

6 Quarter Hours

Introduces students to the basics for all automotive refinishing work. Safety precautions, surface preparations, spray gun and related equipment operation, paint mixing and application are covered. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Corequisite(s): ABT 106.

ABT 102 Painting and Refinishing II

6 Quarter Hours

Advances the skills taught in ABT 101. In addition it covers paint matching, paint defects - causes and cures, spot repairs, contemporary color coat materials, and final detail. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): C or better in ABT 101, ABT 106.

ABT 103 Painting and Refinishing Practicum Lab

6 Quarter Hours

Provides student with the opportunity to put their skills to work on complete full vehicles. The vehicles will be taken from body prep to final painting and detailing. 120 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): C or better in ABT 102.

ABT 106 Introduction to Autobody

4 Quarter Hours

Introduces students to the Baker College Autobody Technology environment. Students will receive comprehensive instruction on laboratory procedures, policies, shop safety, and proper tool usage. Students are also introduced to the autobody repair processes, computer usage, the autobody industry, and State and industry certifications. 20 hours of lecture and 40 hours of lab are required.

ABT 111 Non-Structural Damage Repair I

6 Quarter Hours

Introduces students to the basics for all automotive non-structural damage repair. Safety precautions, vehicle preparation, elementary repairs, outer body panel repairs, replacements, and adjustments are covered. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Corequisite(s): ABT 106.

ABT 112 Non-Structural Damage Repair II

6 Quarter Hours

Advances the skills taught in ABT 111. In addition it covers metal finishing and body filling, movable glass and hardware repair, plastics and adhesives. Students will develop specific marketable repair skills. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): ABT 106, C or better in ABT 111, C or better in ABT 151.

ABT 113 Non-Structural Damage Repair Practicum Lab

6 Quarter Hours

Enables students to put their skills to work on complete full vehicles. The vehicles will be taken from start to final prep for painting. 120 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): C or better in ABT 112.

ABT 121 Mechanical and Electrical I

6 Quarter Hours

Covers basic electrical repairs that apply to body repair work. Topics include but are not limited to: wiring diagnosis and repair, battery starter, charging diagnosis and repair, lighting diagnosis and repair, electrical component diagnosis and repair, restraint system diagnosis and repair. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Corequisite(s): ABT 106.

ABT 122 Mechanical and Electrical II

6 Quarter Hours

Covers basic mechanical repairs that apply to body repair work in the areas of suspension/steering and drive train. Topics covered but not limited to: diagnosis and repair of all steering components for front and rear wheel drive, chassis springs, struts, shock absorbers, and alignment, diagnosis, repair, and alignment of drive train components, cables, mounts, brake system, disc and drum, anti-lock, mechanical and hydraulic diagnosis and repair. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): ABT 106.

ABT 151 MIG Welding

5 Quarter Hours

Covers the safety precautions in welding and cutting. Besides MIG welding, TIG, oxyacetylene, resistance spot welding, and plasma cutting are included. Students learn the processes used in body repair. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Corequisite(s): ABT 106.

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ABT 211 Structural Damage Repair I

6 Quarter Hours

Introduces students to the basics for all automotive structural damage repairs. Safety precautions, frame inspection, measurements, and repair are covered. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): C or better in ABT 112, C or better in ABT 151.

ABT 212 Structural Damage Repair II

6 Quarter Hours

Advances the skills taught in Structural Damage Repair I. Students will develop specific marketable repair skills. Additional topics include fixed glass repair, welding, and cutting. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Autobody Technician.

Prerequisite(s): C or better in ABT 211.

AUTOMATED MANUFACTURING TECHNOLOGY

AMT 191 Blueprint Reading for Industry

4 Quarter Hours

Provides understanding and interpretation of modern industrial blueprints.

Corequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam.

AMT 299 Advanced Manufacturing Capstone Project

4 Quarter Hours

Focuses on the completion of a term-long project that will follow all phases of the manufacturing process. Material, processes, machining, CNC programming, cost and teamwork will factor into the final product.

Prerequisite(s): CAD 121, CAD 131, CAD 201, CAD 236A, CNC 201.

AUTOMOTIVE RESTORATION TECHNOLOGY

ARST 201 Introduction to Restoration

4 Quarter Hours

Introduces students to research, documentation, and planning for restoration projects. Historical significance of the automobile will be studied. Project management including budgeting and PERT charting will also be emphasized.

ARST 211 Engine Theory/Performance

4 Quarter Hours

Introduces students to engine rebuilding and reconditioning. This course will include diagnosis and engine troubleshooting. Emphasis is placed on vintage and carbureted engines. All aspects of engine rebuilding will be covered.

ARST 221 Transmissions, Drive Trains and Axles

6 Quarter Hours

Focuses on theory of the automatic and manual transmission and its components. Students will cover disassembly, rebuilding and troubleshooting. This course also teaches students the theory of axles and drive line component restoration. Instruction includes suspension operational theory, disassembly and cleaning procedures, sealing and reassembly processes and differential rebuilding procedures.

ARST 231 Chassis Restoration

5 Quarter Hours

Teaches students the basics of automotive chassis restoration and theory. Students will cover disassembly and reconditioning of the frame, suspension and brakes.

ARST 241 Machining Technology

5 Quarter Hours

Teaches students precision measurement, the operation of machine tools, layout techniques and blue print reading.

ARST 251 Sheet Metal Fabrication

6 Quarter Hours

Introduces students to the processes used to cut, bend and assemble metal structures. Precision measurement will be taught in conjunction with the use of building from blue prints. Manual and powered

variants for cutting will be taught, torching techniques using oxy-fuel or plasma torches. The use of pneumatic hammers such as a planishing hammer will be used to develop the students' skills in fabrication. Assembly techniques will also be taught including welding, adhesives, riveting and the use of threaded fasteners.

ARST 261 Interior Repair I

4 Quarter Hours

Introduces student to automotive interior repair and upholstery restoration. Students will learn disassembly and assembly of seats, interior components and instrument panels. Sewing and interior design will be introduced.

ARST 262 Interior Repair II

4 Quarter Hours

Builds on the concepts introduced in Interior Repair I. This course includes sewing techniques, seat reconditioning, interior panels and convertible tops.

ARST 271 Auto Paint Restoration

6 Quarter Hours

Teaches students automotive paint restoration. This course also covers advanced painting techniques, panel preparation and concourse correct appearance.

ARST 281 Custom Paint and Graphics

5 Quarter Hours

Teaches the basics of custom painting. Topics include air brushing, pin striping and taping graphics.

AUTOMOTIVE SERVICES TECHNOLOGY

AST 102 Engine Performance I

6 Quarter Hours

Focuses on an introduction to engine fault diagnosis and adjustment or repair. Computerized engine controls are reviewed as are ignition systems, fuel/air systems, and exhaust systems. 20 hours of lecture and 90 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A, C or better in AST 121.

AST 103 Engine Performance II

6 Quarter Hours

Continues the examination of engine fault diagnosis and adjustment or repair. Emission controls, effects of ignition timing, analysis of exhaust gases, and advanced engine services are studied. 20 hours of lecture and 90 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 102.

AST 106 Introduction to Automotive Service

4 Quarter Hours

Orients students to the Baker College Automotive Service Technology environment. Students will receive comprehensive instruction on laboratory procedures, policies, shop safety, and proper tool usage. Students are also introduced to the major automotive systems, computer usage, the automotive service industry, and state and industry certifications. 30 hours of lecture and 20 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

AST 111A Introduction to Automotive Electrical

5 Quarter Hours

Focuses on the introduction to automotive electrical/electronic systems which includes basic theories, electrical/electronic components, wiring and circuit diagrams, circuit protection, switches, relays solenoids and automotive battery fundamentals. This course also focuses on the use of test equipment such as digital multimeters, test lights, jumper wires and logic probes used to diagnose basic electrical/electronic faults. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Corequisite(s): AST 106.

AST 112B Electrical/Electronic Systems I

5 Quarter Hours

Continues the study of electrical systems in the automobile. Topics include, but are not limited to, the fundamentals, diagnostics, and service of the following areas: conventional automotive batteries,

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advanced battery design, starting systems, starter motors, charging systems, and lighting circuits, as well as, the proper tools and equipment used to perform diagnostics and service. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.
Prerequisite(s): C or better in AST 106, C or better in AST 111A.

AST 113 Electrical/Electronic Systems II

5 Quarter Hours

Continues the study of the electrical systems of the automobile. Topics include, but are not limited to, the fundamentals, diagnostics, and service of the following areas: body computers, computer inputs, communication networks, advanced lighting circuits, instrumentation and warning lamps, accessories, passive restraints, and alternative power sources, as well as, the proper tools, equipment, and safety procedures required to diagnose and service these areas. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 112B.

AST 121 Engine Repair I

4 Quarter Hours

Reviews the procedures for failure analysis of the internal combustion engine. Disassembly and assembly, part inspection, use of manuals, and repair/replacement procedures will be applied to upper and lower engine components. 20 hours of lecture and 40 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Corequisite(s): AST 106.

AST 122 Engine Repair II

4 Quarter Hours

Continues coverage of engine failure analysis with a focus on diagnostic procedures. 20 hours of lecture and 40 hours of labs are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 121.

AST 211 Introduction to Hybrid Vehicles

4 Quarter Hours

Presents an overview of basic Hybrid theory and applications within an automobile. Topics covered but not limited to, introduction to Hybrid vehicles, Hybrid safety, Hybrid battery design and application, battery operated electric vehicles, mild and assist Hybrid technologies, full Hybrid applications and alternative fuel overview. 30 hours of lecture and 20 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 112B. Corequisite(s): AST 113.

AST 221A Automotive Brake Service

6 Quarter Hours

Focuses on the design and operation of automotive brake systems. Topics include diagnosis and repair, to manufacturer specifications, of traditional and Anti Lock Brake Systems (ABS) as well as Traction Control Systems (TCS). Lab demonstrations and on-car repair provide a working knowledge of hydraulic systems, disc/drum machining, rebuilding, and power assist, as well as scan tool usage to repair ABS/TCS systems. 20 hours of lecture and 85 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

AST 231A Automotive Suspension/Steering

6 Quarter Hours

Focuses on steering mechanisms and suspension components for McPherson strut, parallelogram and additional industry standard designs. Proper methods of inspection, diagnosis, repair and alignment of steering and suspension components will be covered. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Auto Services Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

AST 241A Heating/Air Conditioning

6 Quarter Hours

Covers automotive heating and air conditioning system theories, troubleshooting, and servicing. Proper refrigerant recovery, recycling, storage, and use of recharging equipment will also be covered. Students will be made aware of recent environmental concerns relevant to coolant and refrigeration. In addition, basic shop safety and safe use of recycling equipment will be discussed. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

AST 251 Automatic Transmission and Transaxle

8 Quarter Hours

Focuses on the front-wheel drive transaxle and components. Transaxle fundamentals and operation will be reviewed as well as common faults and servicing procedures. 40 hours of lecture and 85 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

AST 261 Manual Drive Train and Axles

6 Quarter Hours

Investigates the manual drive train and major components. Transmissions, drive shafts, differentials, and drive axles are examined. Diagnosis and troubleshooting are discussed. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

ASTM 103 MOPAR Engine Performance II

6 Quarter Hours

Continues the examination of engine fault diagnosis and adjustment or repair. Emission controls, effects of ignition timing, analysis of exhaust gases, and advanced engine services are studied. 20 hours of lecture and 90 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 102.

ASTM 113 MOPAR Electrical/Electronic Systems II

5 Quarter Hours

Continues the study of the electrical systems of the automobile. Topics include, but are not limited to, the fundamentals, diagnostics, and service of the following areas: body computers, computer inputs, communication networks, advanced lighting circuits, instrumentation and warning lamps, accessories, passive restraints, and alternative power sources, as well as, the proper tools, equipment, and safety procedures required to diagnose and service these areas. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 112B.

ASTM 241 MOPAR Automotive HVAC Systems

6 Quarter Hours

Covers automotive heating and air conditioning system theories, troubleshooting, and servicing. Proper refrigerant recovery, recycling, storage, and use of recharging equipment will also be covered. Students will be made aware of recent environmental concerns relevant to coolant and refrigeration. In addition, basic shop safety and safe use of recycling equipment will be discussed. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A.

ASTM 251 MOPAR Automatic Transmission

8 Quarter Hours

Focuses on the front-wheel drive transaxle and components. Transaxle fundamentals and operation will be reviewed as well as common faults and servicing procedures. 40 hours of lecture and 85 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in Automotive Service Technology.

Prerequisite(s): C or better in AST 106, C or better in AST 111A, C or better in AST 121.

ASTM 261 MOPAR Manual Drive Train

6 Quarter Hours

Investigates the manual drive train and major components. Transmissions, drive shafts, differentials, and drive axles are examined. Diagnosis and troubleshooting are discussed. 20 hours of

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lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Automotive Service Technology.
Prerequisite(s): C or better in AST 112B, C or better in AST 121.

AVIATION

AVT 111 Private Pilot Ground School

4 Quarter Hours
Prepares students for the FAA written test. Covers all test areas including aerodynamics, engines, weight and balance, performance charts, weather, weather reports, FAR's, E6-B computer, radio navigation, sectional charts, medical factors, and cross country flying.

AVT 112 Instrument Ground School

4 Quarter Hours
Covers all school topics to pass the FAA written test for instrument pilots.

AVT 113 Commercial Ground School

2 Quarter Hours
Provides training in ground school to become a competent commercial pilot. All areas will be covered.
Prerequisite(s): AVT 112 or passing score on instrument test.

AVT 131A Private Pilot Flight

5 Quarter Hours
Provides students with all the flight time, and tasks as set forth in FAA FAR Part 141 Appendix B to include beginning flight training through solo, cross country, night flying, etc. Required tasks must be consistently and repeatedly performed in accordance with the Practical Test Standards as set forth in FAA-S-8081-14A. Flight fees and the Baker College Flight Training Policy apply.
Corequisite(s): AVT 111.

AVT 132A Instrument Flight

5 Quarter Hours
Provides students with the flight time, PCATD time and tasks required by the FAA as set forth in FAR Part 141 Appendix C to include attitude instrument flight, instrument failures, holding procedures, instrument approaches, etc. Required tasks must be consistently and repeatedly completed in accordance with the Practical Test Standards for the instrument rating as set forth in FAA-S-8081-4E. Flight fees and the Baker College Flight Training Policy apply.
Prerequisite(s): AVT 131A. Corequisite(s): AVT 112.

AVT 133 Commercial Flight

6 Quarter Hours
Provides students with the flight time and tasks as set forth in FAA FAR Part 141 Appendix D to include chandelles, lazy and pylon 8's, complex aircraft flight, etc. Required tasks must be consistently and repeatedly performed in accordance with the Practical Test Standards for the commercial rating as set forth in FAA-S-8081-12b. Flight fees and the Baker College Flight Training Policy apply.
Prerequisite(s): AVT 112 and Private pilot license with instrument privileges. Corequisite(s): AVT 113.

AVT 201A Beginning Commercial Flight

4 Quarter Hours
Provides students with the flight time and tasks as set forth in FAA FAR Part 141 Appendix D to include chandelles, lazy and pylon 8's, complex aircraft flight, etc. Required tasks must be consistently and repeatedly performed in accordance with the Practical Test Standards for the commercial rating as set forth in FAA-S-8081-12b. Flight fees and the Baker College Flight Training Policy apply.

AVT 203A Commercial Flight Completion

4 Quarter Hours
Continues from AVT201A with flight time and tasks as set forth in FAA FAR Part 141 Appendix D to include chandelles, lazy and pylon 8's, complex aircraft flight, etc. Required tasks must be consistently and repeatedly performed in accordance with the Practical Test Standards for the commercial rating as set forth in FAA-S-8081-12b. Flight fees and the Baker College Flight Training Policy apply.
Prerequisite(s): AVT 201A.

AVT 216 Aviation Safety and Human Factors

2 Quarter Hours
Explores concepts of man-machine interface, human error in accidents, aviation physiology, aeronautical decision making, and safety management systems.
Prerequisite(s): AVT 111, AVT 112, AVT 131A.

AVT 221A Crew Resource Management

2 Quarter Hours
Covers the methods of making optimum use of the capability of the individuals and the systems in an aircraft to achieve the safest and most efficient completion of a flight. The pilot in command will be taught how to involve crew members in the decisions made during in-flight emergencies or hazardous situations.
Prerequisite(s): AVT 112. Corequisite(s): AVT 113.

AVT 241 Aviation Meteorology

4 Quarter Hours
Covers aspects of meteorology that apply to flying, including obtaining weather briefings, thunderstorm development, wind shears, jet streams, world weather patterns, climate, and much more.
Prerequisite(s): AVT 111, GEO 101B.

AVT 251A Aircraft Systems

4 Quarter Hours
Covers three aspects of aircraft mechanics: what the pilot is legally allowed to do him/herself; a thorough understanding of what the AirFrame and Powerplant mechanic must do, including the paperwork and recordkeeping needed to keep a plane legal under the various sections of the FAR's. Includes hands-on experience on aircraft components as well as classroom training and field trips.
Prerequisite(s): AVT 111.

AVT 261 Flight Instructor Ground

4 Quarter Hours
Focuses on the applicable areas of knowledge required to pass the written and practical test for the Flight Instructor rating. This will include all areas of the Fundamentals of Instructing written as well.
Prerequisite(s): Commercial pilot license with instrument privileges. Corequisite(s): AVT 262.

AVT 262 Flight Instructor Flight

4 Quarter Hours
Provides students with the flight time and tasks required by the FAA as set forth in FAR Part 141 Appendix F to include flight from the right seat, instruction of the private pilot and commercial pilot courses, etc. Required tasks must be consistently and repeatedly completed in accordance with the Practical Test Standards for the instrument rating as set forth in FAA-S-8081-6B with Change 1. Flight fees and the Baker College Flight Training Policy apply.
Prerequisite(s): Commercial pilot license with instrument privileges. Corequisite(s): AVT 261.

AVT 271 Instrument Flight Instructor Ground

2 Quarter Hours
Provides the knowledge to pass the Flight Instructor Instrument written and practical tests. All knowledge tasks as set forth in FAA-S-8081-9b will be covered. Test fee applies.
Prerequisite(s): Certified Flight Instructor rating. Corequisite(s): AVT 272.

AVT 272 Instrument Flight Instructor Flight

2 Quarter Hours
Provides students with the flight time and tasks required by the FAA as set forth in FAR Part 141 Appendix G to include all the tasks of AVT132 from the right seat and all instructional requirements. Required tasks must be consistently and repeatedly completed in accordance with the Practical Test Standards for the Instrument Instructor rating as set forth in FAA-S-8081-9B with Change 1. Flight fees and the Baker College Flight Training Policy apply.
Prerequisite(s): Commercial pilot license with instrument privileges. Corequisite(s): AVT 271.

AVT 281 Aviation Law

2 Quarter Hours
Examines the laws that govern aviation, U.S. interaction with international regulatory agencies, accidents, insurance and liability, and labor law. Focuses on the process by which the Code of Federal Regulations is developed.
Prerequisite(s): AVT 113. Corequisite(s): LAW 211.

AVT 381 Multi-Engine Flight

2 Quarter Hours
Provides the training in multi-engine aircraft needed for the multi-engine add-on to the student's commercial license.
Prerequisite(s): AVT 203A.

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AVT 382 Multi-Engine Flight Instructor

2 Quarter Hours

Covers all the required areas set forth in FAA-S-8081-6b section 2 to include teaching engine and system failures safely.

Prerequisite(s): AVT 261, AVT 262, AVT 271, AVT 272.

Corequisite(s): AVT 381.

AVT 421 Aviation Management

4 Quarter Hours

Gives students an understanding of various types of aviation management: airports, corporation flying programs, charter flight, and other business aspects. Papers, speakers, and field trips are included in this course.

BAKING AND PASTRY ARTS

BPA 111 Baking Techniques I

6 Quarter Hours

Introduces students to the basic principles of baking. Through hands-on experience students learn the identification of bakery tools and equipment, proper weighing and scaling of ingredients, and basic mixing methods. Students will learn to prepare basic breads, doughs, and starters along with choux products and pies. This course lays a foundation for the more advanced techniques presented in later coursework.

Prerequisite(s): C or better in CUL 101, C or better in CUL 131B.

BPA 112 Baking Techniques II

6 Quarter Hours

Continues from BPA 111 and focuses on the production and theory of baked goods such as flat breads, hard crusted breads, laminated doughs, puff pastry and specialty breads in a lab and lecture format. This course continues a foundation for the more advanced techniques presented in later coursework.

Corequisite(s): BPA 111.

BPA 151 Pastry Techniques I

6 Quarter Hours

Introduces students to the basic techniques used in pastry production. Through extensive hands-on labs, students will focus on the preparations involved with cake batters, foams, mousses, fillings, meringues, buttercreams, and Bavarian creams. Students will also focus on assembly and decoration of European cakes, basic glazing and icing techniques, syrup preparation and shortdough applications.

Prerequisite(s): BPA 112, C or better in CUL 115A.

BPA 152 Pastry Techniques II

6 Quarter Hours

Provides a focused, hands-on, comprehensive study of the techniques used in the production of International pastries, contemporary cakes, and restaurant cakes. Students will also utilize techniques in the design and layout of Charlottes and preparation of entremets and bombes.

Corequisite(s): BPA 151.

BPA 153 Pastry Techniques III

6 Quarter Hours

Expands on the concepts and skills from Pastry Techniques II, with a continuation of techniques used for further applications. Students will focus on the design and assembly of wedding cakes, showpiece cakes and special occasion cakes as well as the building methods and techniques used for showpiece cakes. Students will be introduced to the advanced skills used in sugar work, rolled, colored and formed gum paste, fondant and modeling chocolate pastes.

Prerequisite(s): BPA 152.

BPA 221 Advanced Confectionary Arts I

6 Quarter Hours

Provides an in-depth introduction into the production of various pastries. Students focus on the skills and knowledge needed to produce tarts, petit fours, tea pastries, mignardise, molded mousses, napoleons, cream horns, Baklava and other pastries for sweet tables.

Prerequisite(s): BPA 251 or BPA 251A.

BPA 222 Advanced Confectionary Arts II

6 Quarter Hours

Provides students the hands-on experience in the production and preparation of jellies, candies, cordials, crystallized fruits, sugared nuts, ganaches and other confectionary fillings for bonbons and truffles. Students will learn proper chocolate tempering techniques, confectionary mold preparation, cocoa butter painting and spraying.

Prerequisite(s): BPA 221.

BPA 223 Advanced Confectionary Arts III

6 Quarter Hours

Examines advanced confectionary production skills in the design and building of chocolate showpieces. Students will also utilize the techniques used in blown, pulled, and poured sugar showpieces and decorations, packed sugar and pastillage decor. The culmination of student knowledge will be exhibited with the design, fabrication and assembly of competition chocolate and sugar centerpieces.

Prerequisite(s): BPA 222.

BPA 251A Cafe and Restaurant Production

6 Quarter Hours

Emphasizes preparing students in a working production environment. Students will focus on plated desserts for restaurant and banquet work, hot and cold desserts, tris, deconstructed desserts, samplers and ice creams. Students will develop proper plating and service selections, color, texture, height and focal point balance. Plate presentations of simple and complex desserts will be examined.

Prerequisite(s): BPA 151, BPA 152.

BUSINESS

BUS 211 Business Analytics

4 Quarter Hours

Introduces the data analysis process and the role of business decision making. Explores qualitative and quantitative data, data vs. information, data research, relevance, validity, business intelligence tools, ethical and legal implications of data analysis, data integrity, primary and secondary data, MAIP (Measurement Analysis, Interpretation Presentation) and ethical and legal implications of data analysis.

Prerequisite(s): Bachelor of Digital Media Technology majors: ENG 101, MKT 111B, MTH 111. Bachelor of Information Systems majors: ENG 101, MGT 101, MTH 108. All other majors: ENG 101, MGT 101, MKT 111B, MTH 108.

BUS 301 Accelerated Program Workshop

1 Quarter Hour

Exposes students to the requirements of the accelerated business programs. Through this course, students will also be introduced to portfolio requirements, establish a template for their Integrated Portfolio Project (IPP) papers, and begin exploration of their "umbrella" topic as well as individual IPP paper topics.

Prerequisite(s): acceptance in the program.

BUS 311 Accounting for Managers

6 Quarter Hours

Focuses on basic accounting concepts and the interpretation and utilization of accounting information. Emphasis is placed on analysis of financial statements and their use in managerial decision making. This course is exclusive to the Accelerated Bachelor of Business Administration degree program.

Prerequisite(s): MTH 312R, WRI 312R.

BUS 371 Financial Analysis and Applications

6 Quarter Hours

Examines the fundamentals of corporate financial management through the use of accounting information. Specific topics include: financial statement analysis, valuation of and discounted cash flows involving the time value of money, valuation and structure of debt and equity capital both long- and short-term, working capital management, capital budgeting, and the risk-return relationship. All topics covered include the application and ethical implication on the decision-making role of financial managers in business organizations. This course is exclusive to the Accelerated Bachelor of Business Administration degree program.

Prerequisite(s): BUS 311.

BUS 401 International Business

6 Quarter Hours

Analyzes the firm as it expands globally. Emphasis is placed on the understanding and utilization of diversity and ethics in the development, operation and international expansion of the firm. Multicultural work environments, employment and labor issues, domestic and international law, global marketing, trade and finance will be examined. This course is exclusive to the Accelerated Bachelor of Business Administration degree programs.

Prerequisite(s): MTH 312R, WRI 312R.

BUS 421 Marketing Management

6 Quarter Hours

Covers the role of the marketing function in organizational operations with an emphasis on product/service promotion, placement, and pricing. Various marketing strategies will be evaluated. This

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course is exclusive to the Accelerated Bachelor of Business Administration degree program.

Prerequisite(s): MTH 312R, WRI 312R.

BUS 431 Management Strategy 6 Quarter Hours

Focuses on the strategy function of senior management and the establishment of the organizational mission, strategy, goals, objectives and plan of implementation and evaluation. This course is exclusive to the Accelerated Bachelor of Business Administration degree program.

Prerequisite(s): BUS 371, BUS 401, ECN 301R, PSY 231R, SOC 321R.

BUS 499A Integration Portfolio 2 Quarter Hours

Integrates and demonstrates the student's professional and personal growth during his/her baccalaureate study. The culminating activity for this course is the completion of a major faculty-guided written project encompassing an area of theory and practical application in the field of business, developed over the duration of the BBA program of study, which demonstrates the student's knowledge of applied business research. This course is exclusive to Accelerated Bachelor of Business Administration and Accelerated Bachelor of Business Leadership degree programs.

Corequisite(s): BUS 431 or HRM 425 or MGT 414R.

CARDIAC SONOGRAPHY

CAS 105 EKG Technology 4 Quarter Hours

Provides an overview of EKG technology including the use of the EKG machine and patient hook-up. This course focuses on understanding and interpreting basic cardiac arrhythmias including sinus, atrial, junctional, and ventricular. An introduction to infarction and the 12-lead EKG is also covered.

Corequisite(s): MED 103.

CAS 121 Introduction to Echocardiography 3 Quarter Hours

Focuses on an introduction to cardiac ultrasound, including m-mode, 2D and cardiac Doppler, basic machine controls, image acquisition, and some basic physics principles. These items will be discussed and demonstrated.

Prerequisite(s): B- or better in CAS 105, B- or better in MED 103.

CAS 141 Cardiovascular Procedures 2 Quarter Hours

Focuses on various cardiovascular non-invasive and invasive testing, and the physical and interpretive skills required. Introduction to testing equipment and the situations in which testing is performed.

Prerequisite(s): Acceptance in the program, Student background check.

CAS 201 Fundamentals of Sonography 4 Quarter Hours

Provides an overview of the field of diagnostic cardiac sonography with a focus on basic cardiac diseases. Students will be introduced to basic sonographic techniques, including normal physiological processes and imaging planes, and an introduction to echo modes.

Prerequisite(s): Acceptance in the program. Corequisite(s): CAS 220, CAS 202.

CAS 202 Cross-Sectional Sonography 4 Quarter Hours

Presents information to students relative to both the normal body structure and the pathologic changes seen in the cardiac ultrasound imaging planes. This class will utilize textbook material, slides, scan planes, and various echo modes specific to the echocardiographic exam.

Prerequisite(s): Acceptance in the program. Corequisite(s): CAS 201, CAS 220.

CAS 210 Advanced Sonography - Valve Disease 4 Quarter Hours

Provides an in-depth study of human anatomy and physiology as it relates to cardiovascular disease in this lecture course. The first pathology course will focus on valvular disease.

Prerequisite(s): B- or better in CAS 201, B- or better in CAS 202. Corequisite(s): CAS 211, CAS 221.

CAS 211 Advanced Sonography - Ventricular Disease 4 Quarter Hours

Provides an in-depth study of human physiology as it relates to cardiovascular disease in this lecture course. This second pathology course will focus on pericardial and ventricular disease.

Prerequisite(s): B- or better in CAS 201, B- or better in CAS 202.

CAS 212 Advanced Sonography - Advanced Disease 4 Quarter Hours

Provides further understanding of normal and abnormal cardiac and circulatory physiology in more advanced disease states.

Prerequisite(s): B- or better in CAS 210, B- or better in CAS 211. Corequisite(s): CAS 231.

CAS 220 Cardiovascular Clinical 5 Quarter Hours

Provides on-site clinical observation in testing procedures covered in ECT105 and 141. Students will observe testing practices and obtain hands-on practice whenever possible. 120 clinical hours and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): CAS 201, CAS 202.

CAS 221 Cardiac Sonography Clinical Affiliation I 7 Quarter Hours

Provides an opportunity for learning basic skills and the application of previous coursework within the cardiac echo setting. Requires students to observe and practice while under supervision. Additional class time is required for students to share clinical experiences and perform hands-on skills with other students. This is the second of three structured clinical rotations and the first echo rotation. 180 hours of clinical and 20 hours of lab are required.

Prerequisite(s): B- or better in CAS 201, B- or better in CAS 202, B- or better in CAS 220. Corequisite(s): CAS 210, CAS 211.

CAS 231 Cardiac Sonography Clinical Affiliation II 7 Quarter Hours

Provides a continued opportunity to enhance basic skills and application of ongoing coursework within the cardiac echo setting. Requires students to observe and practice while under supervision. Additional class time is required for students to share clinical experiences and perform hands-on skills with other students. This is the third of three structured clinical rotations and the second echo rotation. This second echo rotation will focus on advanced skills and performing complete echo studies. 180 hours of clinical and 20 hours of lab are required.

Prerequisite(s): B- or better in CAS 210, B- or better in CAS 211, B- or better in CAS 221. Corequisite(s): CAS 212.

CAS 260 Advanced Echocardiographic Procedures 4 Quarter Hours

Focuses on advanced cardiac ultrasound procedures, Doppler calculations, and provides an introduction to new technologies in the profession, including 3D echo and tissue Doppler advancements.

Prerequisite(s): B- or better in CAS 210.

CERTIFIED CODING SPECIALIST

CCP 101 Introduction to the Coding Profession 2 Quarter Hours

Introduces students to the coding profession. Students will engage in career exploration and learn about the certification opportunity. Students will also become acquainted with ethical issues in the field, and with the content and structure of the healthcare data they will be working with while completing this program.

Prerequisite(s): B- or better in MTH 108, B- or better in SCI 102C, B- or better in PSY 101 or B- or better in PSY 111. Corequisite(s): HSC 206, INF 113, SCI 211.

CCP 111 CPT-4 Coding 4 Quarter Hours

Prepares students to assign codes using CPT-4 classification systems.

Prerequisite(s): B- or better in CCP 101, B- or better in HSC 206, B- or better in INF 113, B- or better in SCI 211. Corequisite(s): CCP 131, SPK 201.

CCP 131 ICD-10-CM Coding 4 Quarter Hours

Prepares students to assign codes using ICD-10-CM and procedures using ICD-10-CPS classification systems.

Prerequisite(s): B- or better in CCP 101, B- or better in HSC 206, B- or better in INF 113, B- or better in SCI 211, acceptance in the program. Corequisite(s): CCP 111, SPK 201.

CCP 201 Coding and Claims Processing 8 Quarter Hours

Prepares students to understand and apply the insurance claims cycle.

Prerequisite(s): B- or better in CCP 111, B- or better in CCP 131, B- or better in SPK 201. Corequisite(s): CCP 211, HSC 102.

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CCP 211 Healthcare Reimbursement

4 Quarter Hours

Give students an understanding of healthcare history and politics, healthcare reform initiatives, an overview of programs, and differentiate between government, private insurance, and managed care. *Prerequisite(s): B- or better in CCP 111, B- or better in CCP 131, B- or better in SPK 201. Corequisite(s): CCP 201, HSC 102.*

CCP 261A Coding Capstone

4 Quarter Hours

Provides a comprehensive review for students applying to AHIMA in preparation for their coding credentials. The review will include ICD-9-CM/ICD-10-CM coding, CPT-4 Coding, HCPCS, reimbursement, anatomy and physiology, and medical terminology. *Prerequisite(s): B- or better in CCP 201, B- or better in CCP 211, Pass grade in HSC 102, and student background check. Corequisite(s): CCP 271, WRK 291B.*

CCP 271 Coding Externship

4 Quarter Hours

Provides students opportunity to apply learned material to the professional work environment, through a minimum 120 hour fieldwork experience in a healthcare setting. *Prerequisite(s): B- or better in CCP 201, B- or better in CCP 211, Pass grade in HSC 102, and student background check. Corequisite(s): CCP 261A, WRK 291B.*

CISCO CERTIFIED NETWORK ASSOCIATE

CSC 121B Introduction to Networks

4 Quarter Hours

Introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation. By the end of this course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. *Prerequisite(s): NET 102.*

CSC 221B Routing and Switching Essentials

8 Quarter Hours

Describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks. *Prerequisite(s): CSC 121B.*

CSC 222 Cisco Wireless Networking

4 Quarter Hours

Prepares students to sit for the Cisco Wireless LAN Support Specialist exam (Cisco #642-582 WLANFE). After completing this Cisco Academy course students will be able to design, configure and maintain enterprise-class WLANs and building-to-building wireless bridges. This course focuses on a comprehensive overview of WLAN radio technologies (802.11a,b and g) and topologies, products and solutions, site surveys, resilient WLAN design, and WLAN Security (802.1x, EAP, LEAP, WEP, SSID). Labs focus on wireless access point configuration and bridging applications. *Prerequisite(s): CSC 221B.*

CSC 223 Cisco Voice Networking

4 Quarter Hours

Prepares students to sit for the Cisco Voice Over IP exam (Cisco #642-432 CVOICE). This course examines technologies that carry voice communications over an IP network, including digitization and packetization of voice and fax streams over packet and cell-based networks (FR and ATM). VoIP standards and protocols such as SIP and H.323 are addressed. QoS, traffic aggregation issues, bandwidth management and network assessment are also investigated. The major challenges of VoIP development, implementation, and major VoIP product development trends will be addressed. *Prerequisite(s): CSC 222.*

CSC 231B Scaling Networks

8 Quarter Hours

Describes the architecture, components, and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality. By the end

of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, STP, and VTP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement DHCP and DNS operations in a network. *Prerequisite(s): CSC 221B.*

CSC 241A Connecting Networks

8 Quarter Hours

Discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network. *Prerequisite(s): CSC 231B.*

CSC 301 Cisco Healthcare IT

4 Quarter Hours

Provides technology focused curriculum and is designed for networking and internetworking students pursuing opportunities in the health IT field. This course is designed for Cisco Networking Academy (R) students who are looking for career-oriented, entry-level healthcare focused specialist skills. The curriculum should be used as a specialty (healthcare) supplement for the CCNA certification. *Prerequisite(s): CSC 231B.*

CSC 331 CCNA Security

6 Quarter Hours

Emphasizes core security technologies, the installation, troubleshooting and monitoring of network devices to maintain integrity, confidentiality, and availability of data and devices, and competency in the technologies that Cisco uses in its security structure. 40 hours of lecture and 40 hours of lab are required. *Prerequisite(s): CSC 241A.*

CSC 421 CCNP Route

6 Quarter Hours

Prepares students to implement, monitor, and maintain routing services in an enterprise network. Students will learn how to plan, configure, and verify the implementation of complex enterprise LAN and WAN routing solutions, using a range of routing protocols in IPv4 and IPv6 environments. The course also covers the configuration of secure routing solutions to support branch offices and mobile workers. Comprehensive hands-on learning and practice reinforce configuration skills. 40 hours of lecture and 40 hours of lab are required. *Prerequisite(s): CSC 331.*

CSC 431 CCNP Switch

6 Quarter Hours

Prepares students to implement, monitor, and maintain switching in converged enterprise campus networks. Students will learn how to plan, configure, and verify the implementation of complex enterprise switching solutions. The course also covers the secure integration of VLANs, WLANs, voice, and video into campus networks. Comprehensive hands-on learning and practice reinforce configuration skills. 40 hours of lecture and 40 hours of lab are required. *Prerequisite(s): CSC 421.*

CSC 441 CCNP Tshoot

6 Quarter Hours

Prepares students to monitor and maintain complex, enterprise routed and switched IP networks. Skills learned include the planning and execution of regular network maintenance, as well as support and troubleshooting using technology-based processes and best practices, in a systematic and industry recognized approaches. 40 hours of lecture and 40 hours of lab are required. *Prerequisite(s): CSC 431.*

CIVIL ENGINEERING

CE 201 Surveying

4 Quarter Hours

Introduces students to the plane surveying theory of measurements; use of surveying equipment; field and office work for boundary surveys and topographic mapping. 30 hours of lecture and 20 hours of lab are required. *Prerequisite(s): MTH 124.*

DESCRIPTIONS OF UNDERGRADUATE COURSES

CE 311 Structural Analysis I

4 Quarter Hours

Presents the analysis of statically determinate structures including beams, frames, trusses, and arches for the effects of dead, live, moving, and wind loads.

Prerequisite(s): ME 211.

CE 312 Structural Analysis II

4 Quarter Hours

Continues discussion of structural analysis topics with the analysis of statically indeterminate structures; methods of consistent deformations, elastic energy, virtual work, slope deflection, moment distribution, and matrix formulations.

Prerequisite(s): CE 311.

CE 321 Design of Bridges

4 Quarter Hours

Covers design of concrete and steel bridges in accordance with the latest AASHTO specifications; understanding of theoretical background behind the codes such as risk and reliability concepts; load rating of bridges, and hands-on bridge design using computer software and hand calculations.

Prerequisite(s): CE 312.

CE 325 Geometric Design of Highways and Airports

4 Quarter Hours

Describes principles of design and practice for rural and urban highway facilities and airport installations; design criteria and controls, capacity analysis, cross-section selection, design of horizontal and vertical alignment, intersections, interchanges and computer applications to design problems.

Prerequisite(s): CE 312.

CE 341 Fluid Mechanics

4 Quarter Hours

Introduces students to the mechanics of fluids. This course includes fluid properties, kinematics, fluid statics, Bernoulli equation, control volume and differential forms of the fundamental laws, dimensional analysis, similitude, and fluid/flow phenomena.

Prerequisite(s): ME 321, MTH 251.

CE 345 Soils Mechanics

4 Quarter Hours

Introduces students to properties and engineering behavior of soil as a native earth material, an engineering material, and an environmental medium subject to flux and transport of liquids, gases, and contaminants; understanding of elementary physical, chemical, and biological phenomena as such phenomena influence the engineering behavior of soils. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): ME 211.

CE 351 Pre-Stressed Concrete Design

4 Quarter Hours

Covers the analysis and design of pre-stressed concrete structural elements; full and partial pre-stressing; service ability and strength requirements; code criteria for bridges, buildings, and other structures.

Prerequisite(s): CE 312.

CE 355 Structural Timber Design

4 Quarter Hours

Discusses basic principles of mechanics, elasticity, and failure as applied to wood; design methods and specifications governing the design of sawn lumber, plywood, and glulam timber structures and structural components.

Prerequisite(s): CE 312.

CE 358 Pavement Design

4 Quarter Hours

Covers flexible and rigid pavement design procedures; subgrade, base, and surfacing characteristics; loads; stresses in pavement systems; material characterization; pavement response models; pavement performance models; structural design systems; effects of natural forces; and construction practices. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): CE 312.

CE 361 Introduction to Environmental Engineering

4 Quarter Hours

Introduces students to environmental systems focusing on soil, water and air; analysis of environmental issues including various pollution sources and contaminants and their health risks; development of engineering solutions to environmental problems; government legislation and regulations for water and air quality control.

Prerequisite(s): CE 341, MTH 401, SCI 451.

CE 371 Geotechnical Engineering

4 Quarter Hours

Presents fundamentals of geotechnics applied to design and analysis of shallow foundations, excavations, retaining structures, and slopes; selected topics on soil improvement and vibration; emphasis on computer utilization.

Prerequisite(s): CE 312.

CE 381 Traffic Engineering

4 Quarter Hours

Describes basic traffic characteristics; highway capacity analysis; geometric design of highways; route location, traffic operations, and signalized intersection design.

Prerequisite(s): EGR 105, MTH 401.

CE 385 Transportation Engineering

4 Quarter Hours

Covers history, economics, and traffic characteristics of transportation systems; planning, design, construction, maintenance, and operation of air, highway, pipeline, rail, and water transportation facilities-vehicles, guide-ways, and terminals.

Prerequisite(s): CE 312.

CE 411 Water Resources Engineering

4 Quarter Hours

Discusses collection and management of water as a natural resource; atmospheric processes; watershed hydrology and streamflow; subsurface water; ground water engineering; storm water management; river basin management; environmental regulation and protection.

Prerequisite(s): CE 341.

CE 415 Hydrology

4 Quarter Hours

Discusses water movement from arrival on land surface until it reaches the sea overland; concept of frequency, maximum probable runoff of rainfall, mass curves, and other statistical methods of hydrologic engineering.

Prerequisite(s): CE 341.

CE 421 Hydraulics

4 Quarter Hours

Presents steady and unsteady flow in pipelines and pipe networks; analysis of fluid flow in open channel systems; design of pipelines, drainage facilities, and water supply networks.

Prerequisite(s): CE 341.

CE 431 Water Treatment Principles

4 Quarter Hours

Discusses water quality criteria, water treatment processes: physical, chemical, and biological treatment processes, sludge processing.

Prerequisite(s): CE 361.

CE 435 Wastewater Collection Systems

4 Quarter Hours

Presents water processing and distribution, wastewater collection systems - management, operation and maintenance, advanced wastewater treatment processes, water reuse, design of sanitary sewers.

Prerequisite(s): CE 361.

CE 438 Solid Waste Principles

4 Quarter Hours

Discusses environmental laws and regulations; solid waste sources, composition and characteristics; properties of municipal solid waste, processing technologies, storage, transportation and disposal, management of landfills, materials recovery and recycling.

Prerequisite(s): CE 361.

CE 451 Steel Design

4 Quarter Hours

Presents analysis and design of elements of steel structures, elastic and plastic design, critical comparison of specifications with theory.

Prerequisite(s): CE 312.

CE 455 Reinforced Concrete Design

4 Quarter Hours

Presents working stress and ultimate strength theories as applied to concrete beams (reinforced and pre-stressed), columns, slabs, and footings; experimental data and current design specifications. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): CE 312.

CE 481 Professional Practice

2 Quarter Hours
Discusses professional practice aspects for civil and environmental engineers including design consequences, engineering ethics, legal considerations, professional licensure, government regulations, consulting work requirements, leadership and management issues.
Corequisite(s): CE 498.

CE 491 Engineering Project Management

4 Quarter Hours
Emphasizes project management strategies for planning and assignment of work, estimating hours for project completion, and tracking for progress and change in job requirements. This course includes critical path scheduling, resource allocation, and client/customer interface.
Prerequisite(s): CE 312, CE 341, EGR 321.

CE 498 Senior Design Project I

2 Quarter Hours
Continues the topics in CE491 Engineering Project Management and utilizes concepts from civil engineering courses to complete a design project and prepare an engineering report on the design. This is a capstone course where students work in teams.
Prerequisite(s): CE 491.

CE 499 Senior Design Project II

2 Quarter Hours
Continues the topics in CE498 Senior Design Project I. This is the second course in the capstone design sequence where students work in teams.
Prerequisite(s): CE 498.

COLLEGE EXPERIENCE

BC 101 Baker College 101

Provides students with a smooth and helpful transition to college life. Students will become familiar with campus life, academic requirements, student expectations, learning environments, and the many services and resources available to them. It is also an important time for forming relationships and connections with fellow students, program advisors, and other members of the Baker College community.

COL 112 College Success Online

Provides online students with the technology skills required to succeed in the online format of Baker College courses. Students learn how to access support services of the College, how to access and learn the policies related to online students, and practice the procedures which will be essential in all of the online course offerings. The application of best practices for time management and goal setting related to the Blackboard format and tools that are used to provide online courses and the use of Blackboard structure to organize goal setting for success in online courses are major focuses. (This course is required for all online students enrolled in a certificate or degree program. Transfer students, guest students, and students enrolled in on-ground courses who take an occasional online course are required to complete a version of COL112.)

COL 301A Life and Learning

2 Quarter Hours
Provides assistance to students in the preparation of the portfolio, which documents and verifies prior learning skills. The portfolio is assessed by appropriate Baker College professionals. Following evaluation, the portfolio will be returned to the student and can be used for future employment, promotions, transfers, or entering new job markets.

COL 491 General Studies Capstone Portfolio

2 Quarter Hours
Provides assistance to students in the preparation of a final portfolio which demonstrates professional and personal growth during students' academic careers. Students provide documentation from courses and work experience to develop a portfolio demonstrating how they have met the criteria for each institutional student learning outcome. This is the capstone course for the Bachelor of General Studies for the Online campus only. The final portfolio will be assessed by Baker College professionals to evaluate if the student has proven competency in the institutional student learning outcomes.
Prerequisite(s): Senior status, Program Director/Dean approval.

COMPUTER AIDED DESIGN (CAD)

CAD 111 Computer Aided Drafting I (CAD I)

4 Quarter Hours
Introduces students to the use of the computer in the creation of drawings in place of traditional drafting methods. Students will create and edit drawings using CAD software.
Prerequisite(s): EGR 101, INF 091 or computer fundamentals.

CAD 112 Computer Aided Drafting II (CAD II)

4 Quarter Hours
Continues CAD I and expands on the applications of CAD software. Advanced dimensioning and tolerancing techniques are covered as well as creating symbols for multiple use. Isometric drawing will introduce students to the 3D aspects of CAD.
Prerequisite(s): CAD 111.

CAD 121 3-D CAD I

4 Quarter Hours
Continues the computer based drawing experience and introduces students to 3D modeling through the use of solid modeling software. Students will develop parts in 3D. Advanced editing and dimensioning techniques will be covered.
Prerequisite(s): EGR 101, INF 091 or basic computer skills.

CAD 122 3-D CAD II

4 Quarter Hours
Builds on 3D CAD concepts introduced in CAD121 and further develops the student's ability to work with 3D drawings.
Prerequisite(s): CAD 121.

CAD 131 Introduction to Manufacturing

4 Quarter Hours
Introduces students to manufacturing equipment, processes, and related topics.

CAD 141 Industrial Materials and Processes

4 Quarter Hours
Surveys the chemical, physical and mechanical properties of metals, plastics, and ceramics as well as processes commonly used by the manufacturing industry.

CAD 151 Application of Engineering Handbooks

4 Quarter Hours
Provides students with an introduction to industrial/manufacturing handbooks used as references in manufacturing settings. Addresses the basic concepts of geometric dimensioning and tolerancing as prescribed in the ASME Y14.5M-1994 standard, including symbols, terminology, and rules.
Prerequisite(s): MTH 111.

CAD 201 Geometric Dimensioning and Tolerancing

4 Quarter Hours
Applies standards of ANSI Y14.5M to the design function to assure clear and accurate dimensioning and tolerancing of form and position through related calculations and symbology.
Prerequisite(s): EGR 101 or MST 211 or QI 221.

CAD 215 Statics and Strength of Materials

4 Quarter Hours
Introduces the concepts of vectors; moments and couples; equilibrium of rigid bodies; and free body diagrams. Bending, deflection, shear, and moment diagrams will be developed by students.
Prerequisite(s): MTH 124.

CAD 221A Catia

8 Quarter Hours
Introduces students to Catia 3D modeling software.
Prerequisite(s): CAD 111.

CAD 223 Catia-Intermediate

4 Quarter Hours
Addresses additional topics in the use of Catia.
Prerequisite(s): CAD 221A.

CAD 224 Catia-Advanced

4 Quarter Hours
Addresses advanced topics in the use of Catia.
Prerequisite(s): CAD 223.

DESCRIPTIONS OF UNDERGRADUATE COURSES

CAD 226A Unigraphics

8 Quarter Hours

Introduces students to Unigraphics 3D modeling software.

Prerequisite(s): CAD 111.

CAD 228 Unigraphics-Intermediate

4 Quarter Hours

Addresses additional topics in the use of Unigraphics.

Prerequisite(s): CAD 226A.

CAD 229 Unigraphics-Advanced

4 Quarter Hours

Addresses advanced topics in the use of Unigraphics.

Prerequisite(s): CAD 228.

CAD 231A Pro/ENGINEER

8 Quarter Hours

Introduces students to Pro/ENGINEER 3D modeling software.

Prerequisite(s): CAD 111.

CAD 233 Pro/ENGINEER-Intermediate

4 Quarter Hours

Addresses additional topics in the use of Pro/ENGINEER.

Prerequisite(s): CAD 231A.

CAD 234 Pro/ENGINEER-Advanced

4 Quarter Hours

Addresses advanced topics in the use of Pro/ENGINEER.

Prerequisite(s): CAD 233.

CAD 236A SolidWorks

8 Quarter Hours

Introduces students to SolidWorks 3D modeling software.

Prerequisite(s): CAD 111.

CAD 238 Solidworks-Intermediate

4 Quarter Hours

Addresses additional topics in the use of Solidworks.

Prerequisite(s): CAD 236A.

CAD 239 Solidworks-Advanced

4 Quarter Hours

Addresses advanced topics in the use of Solidworks. These topics include Advance Surface creation, importing/exporting IGES, STEP, ACIS Files and advance technologies in Simulation and Animation.

Prerequisite(s): CAD 238.

CAD 241 Tool Design

4 Quarter Hours

Introduces tool design and tool making, covering tool-making practices and materials, design methods, and the design of jigs, fixtures, and other production tools. Design problems will be approached utilizing manufacturers' symbol libraries and/or standard component templates.

Prerequisite(s): CAD 112.

CAD 242 Product Design

4 Quarter Hours

Introduces topics in product design and development. Fundamentals in design of simple products including design constraints, material selection, strength, failure mode analysis, ergonomics, and cost analysis are explored. Designing for assembly, cost, maintenance, and other DFX topics are explored. Creative design and matrix selection are reviewed.

Prerequisite(s): CAD 112.

CAD 243 Equipment Design

4 Quarter Hours

Introduces design topics related to machine tool and equipment design. Included topics are inventive design for functionality, safety, reliability, cost, maintainability and manufacturability. Human-machine interface considerations are also explored.

Prerequisite(s): CAD 112.

CAD 244 Vehicle Design

4 Quarter Hours

Introduces methods and practices used in the design of vehicles. Topics include: body design, interiors, powertrain, and other systems related to automobiles and other vehicles. Additional topics such as related regulatory standards QS9000, EMC, and design methodologies (i. e. C3P) will also be included.

Prerequisite(s): CAD 112.

CAD 299 Design Capstone

4 Quarter Hours

Integrates all aspects of the design process. Students will use the principles of design as learned in CAD, materials, processes, teamwork, problem-solving and communication courses.

Prerequisite(s): CAD 221A or CAD 226A or CAD 231A or CAD 236A.

COMPUTER ANIMATION

CAP 101 Concept and Character Development

4 Quarter Hours

Presents the development of Story and character concepts into finished images, working traditionally and on the computer. Concentrates on the development of these skills through the exploration of different topics and projects relevant to professional animation. Emphasis will be placed on storyboarding, elements of drawing, character development, functional body-mechanics, personality traits and other subjects related to story development and illusion of life.

CAP 111 History of Animation

2 Quarter Hours

Presents the history of animation from novelty to entertainment art form including its use in education, advertising, video games, online media, and corporate communications. Examines how animators and studios such as Winsor McCay, Bray Studio, Fleischer Brothers, Walt Disney, Warner Brothers, Hanna Barbera, Pixar, and Dreamworks evolved and influenced the art form. Students will be introduced to the many different forms of animation including hand drawn keyframe, clay animation, and digital.

CAP 151 Introduction to Computer Animation

4 Quarter Hours

Introduces students to the basic concepts and terminology of computer graphics as it is used in film, visual effects, games, and animation. Students will have a better understanding of the different disciplines that collectively make up computer graphics production. Students will explore 2D animation production and compositing using Adobe Photoshop, After Effects and Premiere Pro.

CAP 161 Digital Imaging for Animation

4 Quarter Hours

Provides an advanced study in Texture Theory and Material creation building upon the skills acquired from previous coursework. Exploration into color and lighting, preparing images to be exported for interactive design, 3D gaming, material mapping, motion graphics and animation will be the focal point. This course will also introduce the student to the world of 3D modeling using 3Ds Max. Students will be required to import textures and materials into the Material Editor within 3Ds Max and learn how to manipulate them for object wrapping, lighting techniques, and bump maps.

Prerequisite(s): CAP 151, DMD 131.

CAP 201A Computer Animation I

6 Quarter Hours

Provides the basics of 3D computer graphics and animation. This foundation course helps students understand 3D animation terminology and the role of the 3ds Max platform in providing artists with the ability to model, animate, and to render using an integrated workspace. Students will be able to create, animate and render 3D scenes using 3ds Max software. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): CAP 161.

CAP 202 Computer Animation II

4 Quarter Hours

Provides students the opportunity to expand upon the basics of 3D computer animation and the 3ds Max interface. In this second course, students will focus on refining their 3D modeling and texture mapping skills and be introduced to particles and advanced animation concepts and techniques. Students will model and texture 3D objects and create animated sequences.

Prerequisite(s): CAP 201A.

CAP 203 Computer Animation III

4 Quarter Hours

Continues the opportunity to expand upon the basics of animation and keyframes. Students will focus on understanding the basics of lighting, animate materials and synchronize animation to a sound track.

Prerequisite(s): CAP 202.

DESCRIPTIONS OF UNDERGRADUATE COURSES

CAP 211 Interactive Design and Game Development

4 Quarter Hours

Covers game and level design for computer games and other interactive media projects. This course emphasizes theory of game development, use of an interactive design process, and non-digital prototyping. The student is instructed in the creation of game levels using digital tools. Each student will develop a game concept and design a game level using a 3D game engine.

Prerequisite(s): CAP 201A. Corequisite(s): CAP 202.

CAP 221 Computer Animation Portfolio Preparation

2 Quarter Hours

Challenges students to apply a critical eye toward the body of work created during the first year. This will present an opportunity for assessment toward what projects could be included in the Final Reel the students will produce during the CAP271 Digital Portfolio Project course. It will also offer time to revisit work that needs to be cleaned up for professional presentation, thus giving time to continue working with applications and concepts presented in the first year.

Prerequisite(s): CAP 161. Corequisite(s): CAP 201A.

CAP 271 Computer Animation Portfolio Project

4 Quarter Hours

Requires students to compile and evaluate the body of work from the Computer Animation program into a portfolio on DVD format. By applying skills in the use of several leading software applications in the Adobe Production Suite (Photoshop, Premiere, After Effects and Encore DVD), the portfolio will include projects from the Graphics, Web, and Animation classes. Students will refine their projects based upon industry standards and produce a demo reel of the body of work of their choice which best highlights the skills they have acquired during the program to present to prospective employers.

Prerequisite(s): CAP 202. Corequisite(s): CAP 203.

COMPUTER INFORMATION SYSTEMS

CIS 106B Computer Operating Systems and Maintenance I

4 Quarter Hours

Provides an introduction to computer operating systems and maintenance concepts. Students will study the Microsoft Windows family of operating systems and will receive a brief introduction to Linux. This course will assist students in their preparation for the CompTIA A+ Essentials Exam.

Prerequisite(s): ENG 098B or satisfies developmental reading or placement exam, INF 121 or NET 101.

CIS 107B Computer Operating Systems and Maintenance II

4 Quarter Hours

Provides a continuation of the study of computer operating systems and maintenance concepts with a focus on practical application and troubleshooting. This course will assist students in their preparation for the CompTIA A+ Practical Application exam.

Prerequisite(s): CIS 106B.

CIS 114 Database Fundamentals

2 Quarter Hours

Introduces students to the underlying principles of information and database structure in electronic database management systems. Students will be introduced to types of information, table structure, features of a relational database, basic concepts of database design and normalization, and basic overviews of the roles of database administrators and professionals. Students will also be introduced to introductory SQL commands using a command line and existing databases.

CIS 119A iSeries CL and File Design

4 Quarter Hours

Introduces students to the fundamentals of computer operations, control language, and file design in the iSeries environment.

Prerequisite(s): CS 101 or INF 114A or NET 101.

CIS 132A RPG IV

4 Quarter Hours

Introduces program design and development using the RPG IV language. Students will analyze business problems and prepare program definitions as a basis for computerized solutions to those problems. Students interested in accounting applications are encouraged to choose this language option.

Prerequisite(s): CIS 119A.

CIS 211 Information Technology Customer Service and Support

4 Quarter Hours

Examines the elements of establishing superior information technology service and support. Focus is on interdepartmental cooperation. Customer contact skills including listening, courtesy, conflict management, problem solving, decision making, ethics, follow-up, communications, and user training are covered to enhance the image of the business with internal and external customers.

Prerequisite(s): ITS 211, MNP 201.

CIS 233A Advanced RPG IV

4 Quarter Hours

Focuses on advanced language features using the RPG IV language. Students are also introduced to the RPG II and RPG III languages.

Prerequisite(s): CIS 132A.

CIS 251 Systems Development Methods

4 Quarter Hours

Presents traditional methodologies of system analysis, design, and implementation along with recent developments in the field providing a total approach to information systems development. This course focuses on how to develop information systems in an engineered, disciplined manner utilizing real-world situations and applications.

Prerequisite(s): One level of a programming language or Junior status.

CIS 302A Intermediate Database Management

4 Quarter Hours

Provides an intermediate level of study of personal and/or business database applications including relational database structure and theory, the structure and maintenance of tables, queries, forms, and reports, and an introduction to macros and switchboards.

Prerequisite(s): INF 114A.

CIS 303A Computer Architecture

4 Quarter Hours

Provides coverage of computer hardware in relation to the system: mechanical implementation, electrical implementation, and optical implementation; system capabilities regarding processor function, storage functions, and communications functions; and computer system design factors. Data representation is covered in depth, including integer data, floating point notation, character data as well as data structures. Processor technology and architecture will be covered, as will system integration and performance through logical and physical I/O, device controllers, I/O processing, data and network communication technologies, networks and distributed systems, network architecture, and OSI network layers.

Prerequisite(s): CS 111, CS 231, MTH 111.

CIS 310 Visual BASIC

4 Quarter Hours

Introduces object-oriented programming design using Visual BASIC.NET for Windows. Students will learn the tools and methods used to analyze real-life problems and develop programs that address those problems. BASIC language has been a long-standing standard for learning programming. Visual BASIC.NET builds on this tradition plus introduces students to the powerful tools of object-oriented programming that have fast become a standard in most Windows programming languages.

Prerequisite(s): CS 111.

CIS 311 Advanced Visual BASIC

4 Quarter Hours

Continues the study of advanced methods of writing Object-Oriented/Event-Driven (OOED) applications using Visual BASIC.NET. Using realistic case studies, students will exhibit their ability to write code for variables, selection structure, repetition, sequential access files, dialog boxes, error trapping, viewing and manipulating databases, and two-dimensional arrays. Students will also demonstrate their ability to work with a team to design, create, test, debug, document, and present an advanced, multi-form Visual Basic application that incorporates concepts learned in CIS310 and CIS311.

Prerequisite(s): CIS 310.

CIS 313A Intermediate Spreadsheets

4 Quarter Hours

Explores further the features of spreadsheets. Topics include a more in-depth study of spreadsheet functions, database techniques, graphing, and an introduction to macros.

Prerequisite(s): INF 113.

DESCRIPTIONS OF UNDERGRADUATE COURSES

CIS 314 Advanced Software Solutions

4 Quarter Hours

Focuses on application development in a Windows environment. This course covers advanced uses of database and spreadsheet packages, sharing of data between programs, and macros development to solve problems. Students also use presentation software, learned in the course, to present their solutions to case-study problems.

Prerequisite(s): CIS 302A, CIS 313A, INF 112.

CIS 331 Database Management Using SQL

4 Quarter Hours

Expands on the concepts learned in the introductory course in database creation by introducing students to higher levels of database development and computer science concepts. Students learn SQL in order to study the manipulation of a relational database. This course also includes a survey of database platforms.

Prerequisite(s): CIS 114 or CS 101 or INF 114A or NET 101.

CIS 351 System Modeling and Design

4 Quarter Hours

Helps students gain the knowledge and skills required to design databases and information systems for the Web. Includes the development of data models including how to organize the modeling task, manage compromises, design for flexibility, achieve basic and advanced normalization, and develop and use generic models. Explains how to model a problem domain by abstracting objects, attributes, and relationships. Describes object-oriented approaches to model the dynamic behavior of a system in terms of state and process models. Students will construct data and object models using Entity-Relationship (ER), Unified Modeling Language (UML), and other techniques.

Prerequisite(s): CIS 331.

CIS 371 Introduction to Healthcare Informatics

4 Quarter Hours

Explores the integration of healthcare practice with computer technology and information science. Students will identify, gather, process, and manage information obtained and accessed via advanced information technology. Issues related to the protection of privacy, confidentiality, ethics, and security of information in the healthcare environment will be evaluated.

Prerequisite(s): Acceptance in the program.

CIS 403 Systems Development Project

4 Quarter Hours

Builds upon the theoretical concepts of the Development Cycle learned in the Systems Development Methods. The technical knowledge gained from programming, word processing, spreadsheet, and database applications will also be put to use for the tasks of this course. Students will use the appropriate systems development methodologies, in a team approach, and follow the life cycle methodology and/or the information center techniques learned previously to achieve a demonstrable working solution to a particular Systems Development problem.

Prerequisite(s): CIS 251.

CIS 404 Advanced Computer Architecture

4 Quarter Hours

Continues the study of processor function and system design. Students will evaluate the performance of a given microprocessor using common benchmarks, analyze instruction sets in HLL, RISC, and CISC architectures, and expand their understanding of binary operations and related impact on ALU design. Students will research and compare performance and design factors in parallel, pipelined, and multiprocessor designs; analyze branch prediction impact on program design; and evaluate the effectiveness of hierarchical memory designs. Throughout this course students will engage in periodic research on various topics and will also complete an independent, comprehensive, in-depth analysis of an instructor-approved topic in high performance computer architecture.

Prerequisite(s): MTH 340, CIS 303A or EET 226A.

CIS 421B Database Administration I

4 Quarter Hours

Exposes students to database administration and the duties of a database administrator (DBA) to include database monitoring, backup and recovery, troubleshooting, and tuning for reliability and performance. Students will install, configure, and maintain an RDBMS including security, backup and recovery operations, and performance tuning.

Prerequisite(s): CIS 331.

CIS 422 Database Administration II

4 Quarter Hours

Continues the database administration tasks introduced in CIS 421B with a focus on backup and recovery tools and techniques, archiving, loading and transporting data, network administration, and server-side and client-side configuration.

Prerequisite(s): CIS 421B.

CIS 431 Enterprise Architecture

4 Quarter Hours

Addresses the alignment between business and technology with an emphasis on the use of technology by different organizational units. Decision support systems, enterprise systems, business process reengineering, and knowledge management will be discussed. The advantages and challenges of each system will be evaluated along with system development and implementation strategies.

Prerequisite(s): CIS 351, MGT 321.

CIS 441 IS Strategy, Management and Acquisition

4 Quarter Hours

Addresses the strategic function of an enterprise and the role information systems plays in it. It develops the ability to analyze situations and develop appropriate technology solutions to deal with a variety of business situations. It examines how technology and telecommunications systems enable businesses to succeed in a global marketplace.

Prerequisite(s): CIS 431.

CIS 451 Advanced Healthcare Informatics

4 Quarter Hours

Addresses the approval, design, implementation, and maintenance of healthcare information systems and examines the application of healthcare practices in the information systems field. Students will complete a research project where an information system solution will be developed for a sample healthcare organization. The project will focus on privacy, security, confidentiality, and usability.

Prerequisite(s): CIS 371, HSC 312, MED 171.

CIS 495 Special Topics in Information Systems

4 Quarter Hours

Focuses on selected topics of current interest in information systems. Recent development in systems, initiatives and technology related to the information systems field will be discussed.

Prerequisite(s): Senior status and acceptance in the program.

CIS 499 Senior Project in Information Systems

4 Quarter Hours

Examines the systems development process as a whole for the Information Systems field. As part of this course, students will complete a capstone project that examines the use and application of an information system for an organization.

Prerequisite(s): CIS 441.

COMPUTER NUMERICAL CONTROL

CNC 111 Basic Gauges and Measurements

4 Quarter Hours

Provides students with an introduction to measurement instruments used in manufacturing settings. Addresses Scales, Calipers, Micrometers, Johansson Blocks, Gauges, and Angular Measurement.

Corequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam, AMT 191.

CNC 121A Machining Theory and Methods

4 Quarter Hours

Provides students with an introduction CNC theory and practice in manufacturing settings. Addresses basic machining theory and introduction to the use of common tools and techniques in manufacturing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): CNC 111, MTH 091 or satisfies developmental essential math concepts or placement exam.

CNC 131 Precision Machining Methods

4 Quarter Hours

Provides students with an introduction to industrial used as references in manufacturing settings. Addresses geometric dimensioning and tolerancing as prescribed standard, including symbols, terminology, and rules. 30 hours of lecture and 20 hours of lab are required.

Corequisite(s): CNC 121A.

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CNC 141 CNC Theory and Operation

4 Quarter Hours

Provides students with an introduction to CNC Theory and Operation in manufacturing settings. Addresses feeds, speeds, tools, inserts programming, and sub programs for CNC machining. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): CNC 131.

CNC 151 CNC Programming

4 Quarter Hours

Prepares students to identify and interpret G-codes and M-codes and develop basic programs for CNC operation. Students learn to produce parts and assemblies using CNC machining and to apply troubleshooting techniques to improve or modify CNC programs. 30 hours of lecture and 20 hours of lab are required.

Corequisite(s): CNC 141.

CNC 201 MasterCam

4 Quarter Hours

Provides training in the use of the world's leading computer-aided manufacturing industry product design software. Students will learn how to use MasterCam to simulate the design and manufacture of virtual parts and tools. In the process, they will gain experience in calculating and applying geometric dimensions, applying predefined tool paths, and configuring precision manufacturing tools and machines.

Prerequisite(s): CNC 151.

CNC 202 GibbsCAM

4 Quarter Hours

Provides training in computer-aided manufacturing design software. Students will learn how to use GibbsCAM to simulate the design and manufacture of virtual parts and tools. In the process, they will gain experience in calculating and applying geometric dimensions, applying predefined tool paths, and configuring precision manufacturing tools and machines.

Prerequisite(s): CNC 151.

COMPUTER SCIENCE

CS 101 Principles of Computer Science

4 Quarter Hours

Provides students an overview of the computer science profession. The course will focus on topics such as history, careers, programming languages, operating systems, databases, and relationship of mathematical concepts.

CS 111 Introduction to Programming

4 Quarter Hours

Introduces students to programming concepts such as logic and flow charting as well as some basic programming techniques.

Prerequisite(s): Any INF course or CS 101 or EGR 111 or NET 101, MTH 099E or satisfies developmental pre-algebra or placement exam.

Corequisite(s): MTH 108 or MTH 111.

CS 201 Net-centric Computing

4 Quarter Hours

Examines the elements of global communication, networking, cloud computing, Internet programming, and programming for mobile devices. Students will experience working as a team to integrate technology used for networking on the Internet to support various users.

Prerequisite(s): CS 101, CS 111.

CS 217A C++ Programming

4 Quarter Hours

Introduces program design and development using C++ language. Uses Microsoft Visual C++ to provide students with experience working with the visual development tools. Students will demonstrate the ability to use C++ to design solutions to problems.

Prerequisite(s): CS 111, MTH 112A.

CS 218A Object Oriented Programming With C++

4 Quarter Hours

Continues the development of C++ programming skills. Students will practice designing and developing C++ programs, modifying and debugging existing C++ programs, and developing complex object-oriented applications. Additional exposure to the Microsoft Visual development environment will also be gained.

Prerequisite(s): CS 217A.

CS 231 Microprocessor Electronics

4 Quarter Hours

Introduces students to microprocessor/microcontroller fundamentals. The course will explore basic operating systems, binary math principles, software/hardware interaction, input/output processing, and system implementation.

Prerequisite(s): MTH 099E or placement exam, CS 101.

Corequisite(s): CS 111, MTH 111.

CS 241 Java Programming

4 Quarter Hours

Introduces students to using the JAVA programming language for developing applications. This is the first of two JAVA programming courses. The use of JAVA in Web-based client and server programming is also covered.

Prerequisite(s): CS 111 or one level of a programming language.

CS 242 Advanced Java Programming

4 Quarter Hours

Continues the use of the Java programming language for developing applications.

Prerequisite(s): CS 241.

CS 243 Applied Java Techniques

4 Quarter Hours

Advances students' understanding of the Java programming language, object-oriented programming with the Java programming language, creating graphical user interfaces (GUI), exceptions, file I/O, threads and networking. Students will use skills acquired in this class and the previous two Java classes to develop a Java application.

Prerequisite(s): CS 242.

CS 321 Data Structures and Algorithms I

4 Quarter Hours

Introduces concepts and techniques for the implementation of data structures and the design and analysis of computer algorithms. Topics include abstract data types and algorithm development using C++.

Prerequisite(s): CS 218A, MTH 340.

CS 322 Data Structures and Algorithms II

4 Quarter Hours

Expands on the concepts begun in Data Structures and Algorithms I, including stacks, queues, trees, and binary trees as fundamental conceptual structures of data. Various physical implementations for each conceptual view are examined with emphasis on the concept of abstract data types. Algorithm development continues with coverage of methods solving recurrences, divide-and-conquer algorithms, dynamic programming, greedy algorithms, and graph algorithms.

Prerequisite(s): CS 321.

CS 341 Programming for Mobile Devices

4 Quarter Hours

Provides students with opportunities and the experience of developing applications for various mobile devices (i.e. phones, tablets, other multi-media mobile devices).

Prerequisite(s): CS 242 or GSD 311, CS 231.

CS 346 Programming for Security

4 Quarter Hours

Examines issues related to security from a software developer point of view. Topics include a review of security breaches related to commercial software as well as hands-on activities focused on adding security-related features or debugging security-related problems in an application.

Prerequisite(s): CS 231.

CS 351 Introduction to Android Mobile SDK and Application Development

4 Quarter Hours

Focuses on mastering the Android SDK tools in relation to each platform being discussed, specific to application development. Engineering tools are reviewed as well as Java application.

Prerequisite(s): CS 341.

CS 352 Advanced Android Mobile Application Development

4 Quarter Hours

Focuses on engineering mobile applications within the Android environment utilizing various SDK's and available tools. This course is a continuation of the Introduction course.

Prerequisite(s): CS 351.

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CS 371 Introduction to iOS Mobile SDK and Application Development

4 Quarter Hours

Emphasizes mastering the development tools for iPhone, iPad, and iPod touch screen technology working with Xcode and the iOS SDK. Student will have access to download the complete developer toolset for building Mac, iPhone, and iPad apps, including the Xcode IDE, Instruments, and iOS Simulator.

Prerequisite(s): CS 351.

CS 372 Advanced iOS Mobile Application Development

4 Quarter Hours

Focuses on engineering mobile applications within the Apple environment utilizing Xcode and iOS SDK tools. This is a continuation of the Introduction course.

Prerequisite(s): CS 371.

CS 391 Research in Computer Science

4 Quarter Hours

Explores current and past research conducted in the field of computer science. Students will engage in a research project of personal interest.

Prerequisite(s): MTH 401, Junior status.

CS 401 Introduction to Windows Mobile SDK and Application Development

4 Quarter Hours

Focuses on mastering the Windows Software Development Kit for Windows 8 (Windows SDK) which contains headers, libraries, and a selection of tools to create apps that run on Windows 8 operating systems. You can use the Windows SDK, along with your chosen development environment, to write Windows Store apps (only on Windows 8) using web technologies.

Prerequisite(s): CS 372.

CS 402 Advanced Windows Mobile Application Development

4 Quarter Hours

Focuses on engineering mobile and desktop applications within the Windows environment utilizing. This course is a continuation of the Introduction course.

Prerequisite(s): CS 401.

CS 406 Operating System Development

4 Quarter Hours

Provides a real-world opportunity for students to build a unique basic operating system for a platform of their choice.

Prerequisite(s): CIS 404, CS 322.

CS 422A Database Programming I

4 Quarter Hours

Provides students the ability to create and maintain database objects to store, retrieve, and manipulate data. In addition, students will write queries to retrieve, summarize, and modify data using joins and subqueries. Students will learn how to create and execute stored procedures and functions. This course also introduces participants to database triggers.

Prerequisite(s): CIS 331, CS 111.

CS 423 Database Programming II

4 Quarter Hours

Continues the database programming tasks introduced in CS 422A with a focus on creating custom forms and reports, using advanced debugging techniques, and integrating database applications.

Prerequisite(s): CS 422A.

CS 451 Unit Testing and Interfaces

4 Quarter Hours

Emphasizes skills, tools, and methods related to unit testing and interface integration. Moving from unit testing to system testing is an important component of the course. Fault tolerances, validation testing, testing differences based on industry needs, safety/security, issues, and global collaboration issues will be examined.

Prerequisite(s): CIS 251, CS 321. Corequisite(s): CS 322.

CS 461 Security

4 Quarter Hours

Covers the three areas of computer security: network security, system security, and application security. Students will demonstrate the ability to develop user administration tools to tighten security in an open systems environment.

Prerequisite(s): LUX 261 or WEB 361.

CS 465 Advanced Database Topics

4 Quarter Hours

Explores advanced database topics such as data mining, data warehousing, geographical information systems, and data-related ethics. This is a capstone course in which students will do an extensive research-based project or writing exercise.

Prerequisite(s): CIS 422, CS 423.

CS 481 Trends in Computer Science

4 Quarter Hours

Examines today's computer technology and investigates future technology trends in the industry. Focus will be on various subjects such as: new technologies, new research, the importance of lifelong learning to stay current, industry frameworks, human/computer interaction, user interfacing by generations, global awareness, mobile device advancements, mobile device programming, security, and other topical issues. This course contains a lab component.

Prerequisite(s): Senior status.

CS 495 Mobile Application Development Capstone

4 Quarter Hours

Provides students with the opportunity to demonstrate engineering practices through Application Development in a selection of their choice from core courses in Android, iOS, or Windows applications.

Prerequisite(s): CS 352, CS 372. Corequisite(s): CS 402.

CONSTRUCTION MANAGEMENT

CM 301 Design-Build

4 Quarter Hours

Studies the design/build project delivery system. Emphasis is placed on comparing and contrasting construction management functions in design/build with those in more traditional forms of project delivery such as general contracting and construction management.

Prerequisite(s): Junior status.

CM 306 Advanced Surveying

4 Quarter Hours

Continues the development of surveying techniques, with strong emphasis of the technical skills in laying out sites and buildings.

Prerequisite(s): ACT 105A.

CM 311 Construction Safety

4 Quarter Hours

Studies include safety administration, safety program development, federal and governing construction industry standard for safety, such as: OSHA and MIOSHA.

Prerequisite(s): ACT 204A or ACT 204B.

CM 401 Advanced Building Technologies

4 Quarter Hours

Focuses on major innovations in building technologies for structure, enclosure and material systems. Highlights the state-of-the-art building systems.

Prerequisite(s): CM 421.

CM 406 Construction Estimating and Bidding

4 Quarter Hours

Focuses on detailed cost estimates including quantity takeoffs, labor/material pricing, and overhead/profit. Also, included are bid strategies, and factors affecting construction cost. Computer applications are explored as part of the course.

Prerequisite(s): ACT 203, CM 431, PPM 401.

CM 411 Legal Aspects of Construction

4 Quarter Hours

Introduces students to the US legal system as it applies to construction. Emphasis is placed on fundamental concepts of contract and law, claims, risk management, business formation and licensing, agency, insurance and bonding, and real property.

Prerequisite(s): ACT 204A or ACT 204B, IND 301.

CM 416 Construction Contract Administration

4 Quarter Hours

Provides an overview of construction contract administration and enforcement of contract requirements during the construction phase of the project. Computer applications are explored as part of the course.

Prerequisite(s): CM 411.

CM 421 Sustainable and Energy Efficient Design and Construction

4 Quarter Hours

Provides a thorough understanding of ecological site systems and sustainable building systems. Current aspects of sustainability will be explored including the impact of the LEED rating system,

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legislation, environmental law, corporate culture evolution, and integrated design process.

Prerequisite(s): ACT 104, ACT 202, AT 421.

CM 431 Construction Project Scheduling

4 Quarter Hours

Develops advanced construction planning and scheduling techniques, building on previous experience with the critical path method. Integrates the use of computer software as a scheduling tool throughout.

Prerequisite(s): PPM 311.

CM 491 Construction Project Management

4 Quarter Hours

Provides exploration of the roles and tasks required of a construction manager to utilize and extend their knowledge in all areas of expertise used. This is the program capstone course which integrates all aspects of the construction management process.

Prerequisite(s): Junior status, Program Director/Dean approval.

CONTINUOUS QUALITY IMPROVEMENT

CQI 301 Quality Theory

4 Quarter Hours

Gives an overview of current and new trends in continuous quality improvement. Students will examine and analyze quality methodologies such as ISO, Lean Manufacturing, Taguchi, Kaizen and other perspectives in continuous improvement, including team dynamics.

CQI 311 Statistical Process Control I

4 Quarter Hours

Develops a working knowledge and skills in basic Statistical Process Control (SPC) which includes process data collection, display, interpretation, and application to improve the overall quality of a process system. Topics include quality responsibility, quality improvement techniques; fundamentals of statistics; control charts for variables; and process capability. Students will conduct a quality improvement project that is work related which applies the SPC tools discussed in this course.

Prerequisite(s): MTH 111 or acceptance in the program.

CQI 312 Statistical Process Control II

4 Quarter Hours

Develops a working knowledge and skills in basic Statistical Process Control (SPC) which includes process data collection, display, interpretation, and application to improve the overall quality of a process system. Topics include variable control charting, capability study development, techniques for batch processes and short runs, fundamentals of probability, attribute control charting, acceptance sampling, reliability, and measurement variation. Students will conduct a quality improvement project that is work related which applies the SPC tools discussed in this course.

Prerequisite(s): CQI 311.

CQI 421 Design of Experiments

4 Quarter Hours

Develops a working knowledge and skills in Advanced Statistical Process Control (SPC), which includes hypothesis testing, statistical estimation, single factor design of experiments, multifactor design of experiments, multilevel design of experiments, orthogonal arrays, the loss of function, and the concept of analysis of variance.

Prerequisite(s): CQI 311.

CRIMINAL JUSTICE

CRJ 101 Introduction to Criminal Justice

4 Quarter Hours

Introduces the skills, tools, and methods needed for various criminal justice professions. This course explores philosophical underpinnings of crime and punishments among police, corrections, and the courts. Various ethical and duty related issues are also examined. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 106 Introduction to Corrections

4 Quarter Hours

Introduces the philosophy and history of corrections. This course also includes the development of current forms and approaches to corrections including probation, parole, security concepts, and related agencies. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 111 9-1-1 Telecommunications I

4 Quarter Hours

Provides content approved by the Michigan State 9-1-1 Committee meeting the requirements for the basic 40 hour dispatcher training program. Topics include telecommunicator roles, public safety overview, professionalism, teamwork, ethics, stress management, call classification, technology, and customer service. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 112 9-1-1 Telecommunications II

4 Quarter Hours

Provides content approved by the Michigan State 9-1-1 Committee meeting the requirements for the advanced 40 hour dispatcher training program. Topics include domestic violence, suicide intervention, 9-1-1 liability, stress management, and homeland security issues. Must complete with a C (73%) or better.

Prerequisite(s): CRJ 111, Student background check.

CRJ 121 Correctional Facilities

4 Quarter Hours

Provides a more in-depth study of corrections as part of the criminal justice system. Specific discussions include the evolution of corrections, organization and development of jails in America, alternatives to incarceration, probation, parole, and the concept of community-based corrections, management and organization of correctional institutions, custodial care, safety and security, and prisoner rights. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 131 Client Relations

4 Quarter Hours

Examines the meaning and function of culture, the impact and meaning of discrimination, minorities, attitude formation, and professional responsiveness for criminal justice professionals. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 141 Criminology

4 Quarter Hours

Examines normal versus criminal behavior, human development and criminal patterns, specific problems, and intervention strategies.

This course explores psychological, sociological, and biological theories of criminal behavior. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 151 Legal Issues in Corrections

4 Quarter Hours

Provides a thorough examination of how the law impacts corrections related decisions. This course also examines constitutional law, the court process, US courts, and prisoner rights. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 171 Defensive Tactics

4 Quarter Hours

Focuses on unarmed defensive tactics, control and movement of prisoners, control of uncooperative subjects, use of non-lethal weapons, and officer survival. Practical training is based on methods of both defensive and offensive techniques used in the control of violent subjects. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 181 Community Corrections

4 Quarter Hours

Provides students with an overview of the historical development and implementation of community-based correctional programs and the advantages, disadvantages, effectiveness, and community impact of such programs. Emphasizes supervision of individuals on probation and parole including interviewing, counseling and referral to resources, and preparing written court reports and oral presentations during pre-sentence investigations. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 211 Interpersonal Communication and Conflict Management

4 Quarter Hours

Provides students with interpersonal communication and conflict management skills that can be used to manage cooperative and uncooperative individuals in criminal justice environments.

Application of the skills will be practiced through the use of role play exercises in simulated situations. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

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CRJ 221 Interviewing, Investigations and Report Writing

4 Quarter Hours

Provides students the learning opportunity to conduct basic investigations, assessments, interviews, and interrogations which may be necessary in criminal justice settings. Students will practice providing oral summaries, note taking, and computer based report writing in a variety of formats, including logs, client assessments, incident reports, investigation reports, interview summaries, and other related documents. Must complete with a C (73%) or better.

Prerequisite(s): ENG 102, Student background check.

CRJ 231 Principles of Policing I

4 Quarter Hours

Examines both historical and contemporary methods of policing. An emphasis is placed on ethical behavior along with an introduction of tools, skills, and methods used for effective policing. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 232 Principles of Policing II

4 Quarter Hours

Continues to build on the concepts and methods introduced in CRJ231 and provides additional strategies, techniques, and methods for effective policing. Assesses the societal impact that policing has on the community. Must complete with a C (73%) or better.

Prerequisite(s): CRJ 231, Student background check.

CRJ 261A Security Management

4 Quarter Hours

Includes an overview of current forms of security throughout the world. This course allows students to obtain general information on risk management, legal considerations, and ethical issues in the security realm. Students are offered the opportunity to experience risk management activities, communications skills, and develop the ability to effectively seek out a security profession of their choosing.

Prerequisite(s): Student background check.

CRJ 281A Criminal Justice Work Experience I

4 Quarter Hours

Provides students an opportunity to share current experiences to the didactic components of the program. Requires students to perform a minimum of 120 hours of paid/unpaid work experience in a criminal justice agency under the supervision of appropriate personnel to allow students to develop skills and gain training in their major field. Must complete with a C (73%) or better.

Prerequisite(s): ENG 102, PSY 101 or PSY 111, C or better in CRJ 101, minimum GPA 2.50, Sophomore status, Student background check. Corequisite(s): WRK 291B.

CRJ 301 Juvenile Justice Concepts

4 Quarter Hours

Examines the history of juvenile justice models and current processing of juvenile offenders. This course will also examine how the processing of juvenile offenders differs from adult offenders and the unique problems associated with juvenile offenders. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 311 Ethical Issues in Criminal Justice

4 Quarter Hours

Focuses on foundational ethical principles and theories including the application of ethical decision making as it relates to criminal justice professionals. The societal implications of unethical behavior are also examined. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 321 Criminal Law

4 Quarter Hours

Explores the legal system using classic and contemporary case law to provide a foundation of legal knowledge. The content and impact of several milestone Supreme Court decisions are also examined. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 331 Cybercrime Investigations

4 Quarter Hours

Focuses on a range of technical solutions available to law enforcement to retrieve data as part of the investigatory process. Identify theft and various types of online fraud are also examined. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 341 Introduction to Forensic Science

4 Quarter Hours

Provides an overview of numerous forensic science tools used to investigate criminal activity and the collection of evidence ranging from finger printing to DNA. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 346 Introduction to Geographic Information Systems

4 Quarter Hours

Focuses on the recent increase in the use of digital geographic information in many fields has created the need for experts with the knowledge to use this information to society's benefit. Geographers, engineers, environmental scientists, planners, social scientists, computer scientists and many other professionals will encounter digital geographic information in some form in their future careers. This course introduces students to issues that arise in using this information in scientific and decision-making arenas. Topics include: applications of geographic information; modeling geographic reality; spatial data collection; geographic analysis; accuracy and uncertainty; visualization; and legal, economic, and ethical issues associated with the use of geographic information.

CRJ 351 Evidence Collection and Procedures

4 Quarter Hours

Instructs the appropriate methods and procedures for collection, handling, documenting, and storing evidence for later use in criminal proceedings. The consequences for mishandling evidence are also explored. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 361 Organized Crime and Youth Gangs

4 Quarter Hours

Provides historical and contemporary perspectives of organized criminal activity by the mafia and others. White collar crime and corporate corruption are examined along with the social dynamics of youth gangs, violence, prison gangs, and criminality. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 371 Criminal Courts

4 Quarter Hours

Provides an overview of the functions, roles, operations, and jurisdictional issues of various local and federal court systems addressing both criminal and civil matters. Includes an examination of various specialized courts to deal with specific societal issues ranging from truancy to substance abuse. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 421 Evidence-Based Practices

4 Quarter Hours

Examines "what works" to improve the effectiveness of policing and offender rehabilitation efforts. The course uses empirical studies to explore research methods commonly used within the social sciences to introduce and apply the concepts of evidence-based practices. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 431 Terrorism and Homeland Security

4 Quarter Hours

Provides a global perspective on terrorism and its impact on homeland security issues post-911 ranging from airport security to local emergency response preparedness. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 441 Organizational Leadership in Criminal Justice

4 Quarter Hours

Explores leadership and change theories and practices within paramilitary organizations and the courts to prepare future leaders within the criminal justice professions. Must complete with a C (73%) or better.

Prerequisite(s): Student background check.

CRJ 481A Criminal Justice Work Experience II

4 Quarter Hours

Provides students an opportunity to share current experiences to the didactic components of the program. Requires students to perform a minimum of 120 hours of paid/unpaid work experience in a criminal justice agency under the supervision of appropriate personnel to allow students to develop skills and gain training in their major field.

Prerequisite(s): C or better in CRJ 281A or C or better in WRK 281, minimum GPA 2.50, Senior status, Student background check.

CULINARY ARTS

CUL 101 Introduction to Food Service and Hospitality
2 Quarter Hours

Introduces students to the food service industry and program expectations. Students will discuss the social, historical, and cultural forces that have affected the food service industry. Responsible alcohol service will also be emphasized along with the certification testing (TIPs). Additionally, students will begin understanding the impact of sustainability measures in the food service industry. Minimum grade of 'C' or better required.

CUL 110 Product Identification
2 Quarter Hours

Introduces students, in depth, to the identification and use of vegetables, fruits, herbs, nuts, grains, dry goods, prepared goods, dairy products, and spices in various forms. Explores both fresh and prepared foods and students learn to identify, receive, store, and hold products. Students will also learn to evaluate products for taste, texture, smell, appearance, and other quality attributes.

CUL 115A Culinary Math
4 Quarter Hours

Focuses on the math skills needed to calculate percentages, ratios, the metric system, conversion factors, yield tests, recipe conversion and recipe costing as they relate to the food service industry. Students will develop projections and analyze costs in yield tests and recipe pre-costing.

CUL 131B Food Safety
2 Quarter Hours

Introduces students to food production practices governed by changing federal and state regulations. Topics to be covered include prevention of food-borne illness through proper handling of potentially hazardous foods, HACCP procedures, legal guidelines, kitchen safety, facility sanitation, and guidelines for safe food preparation, storing, and reheating. This course utilizes the National Restaurant Association ServSafe (R) materials, prepares for and culminates with the administration of the National Restaurant Association ServSafe (R) Certification examination.

CUL 141 Nutrition
2 Quarter Hours

Examines the basic concepts and principles of nutrition. In this course, students learn about basic nutrients, food labeling, nutritional principles, current issues in nutrition, and the application of nutritional principles to menu development. Students will also be involved in writing and nutritional analysis of recipes.
Prerequisite(s): C or better in BPA 111 or C or better in CUL 151.

CUL 151 Culinary Skills I
8 Quarter Hours

Gives a brief and intense introduction on kitchen safety, equipment, principles of basic food preparation and cooking techniques in lecture and lab format. Extensive hands-on training is provided for using cooking methods in the areas of dry heat cooking, moist heat cooking, tasting, kitchen equipment, knife skills, classical vegetable cuts, stock production, thickening agents, soup preparation, grand sauces, timing, station organization, palate development, and culinary French terms. The lecture for this course focuses on cooking principles, theory and the application of culinary skills in the kitchen. This course lays a foundation for the more advanced techniques presented in later coursework.
Prerequisite(s): C or better in CUL 101, C or better in CUL 131B. Corequisite(s): CUL 115A.

CUL 152 Culinary Skills II
8 Quarter Hours

Continues from CUL151 and focuses on principles of food preparation and cooking techniques in lab and lecture format. Extensive hands-on training is provided for using basic cooking methods as they apply to specific products such as red meats, poultry, pork, game meats, fish, shellfish, vegetables, pasta, sauces, and soups. Expanded concepts of time lines and multi-tasking, station organization, and culinary French terms will continue. The lecture for this course focuses on advanced cooking principles, theory and the application of culinary skills in the kitchen. This course lays a foundation for the more advanced techniques presented in later coursework.
Prerequisite(s): C or better in CUL 115A, C or better in CUL 151.

CUL 153 Culinary Skills III
8 Quarter Hours

Applies the skills and theories from CUL152 and focuses on advanced principles of food preparation and cooking techniques in lab and lecture format. Students receive extensive hands-on training focusing on advanced and combination cooking methods for red meats, poultry, pork, shellfish, fish, vegetables, and game. Breakfast cookery, salads, canapes, production cooking, hot and cold sandwiches, plate presentation, and advanced techniques for starch and vegetable preparation, will also be developed. Lecture for this course will focus on the advanced cooking principles, theories, and application of culinary skills in the kitchen.
Prerequisite(s): CUL 152.

CUL 161 Competitive Cooking
6 Quarter Hours

Provides students with the benefits of cooking under a timed regimen and enables them to learn and discover more about their abilities through instructor, self, and peer assessment. An extensive range of advanced techniques will be employed in concert with strict time management and extensive and continual evaluation. Upon completing this course students will have achieved an understanding working under pressure for practical cooking, interviews for employment, American Culinary Federation exams and other competitive cooking in a wide range of sanctioned competitions. A minimum grade of C or better is required.
Prerequisite(s): CUL 152.

CUL 201 Restaurant Techniques
8 Quarter Hours

Prepares the students for the innovation, creativity, speed, and multi-tasking abilities required in today's modern kitchen. The lab format for this class will offer students a real working kitchen environment in The Culinary Institute of Michigan's student-run, fine dining restaurant. An extensive range of advanced techniques, ingredients, and recipes illustrate the complex theories and applications. Upon completing this course, students will have achieved a high standard of quality and detail in culinary arts.
Prerequisite(s): CUL 153.

CUL 202A Bar and Beverage Service
4 Quarter Hours

Focuses on the role that wines and spirits play as quality beverages in professional foodservice operations. The course will emphasize styles of wine from around the world; the theory of matching wine with food; tasting wines, beers, and other beverages; and organizing wine service. Subjects to be explored include purchasing, storing, issuing, pricing, merchandising, and serving wines and spirits in a restaurant setting. Responsible alcohol service will also be emphasized. Mixology and the preparation of common and uncommon cocktails are covered. Students also may participate in a restaurant-based wine and food tasting plus a field trip to a local winery. This course utilizes and culminates with the administration of the TIPS Responsible Alcohol Management examination.

CUL 216 Baking for Culinary Students
6 Quarter Hours

Introduces students to the basic techniques used in general baking and plated dessert production. Through extensive hands-on labs, students will focus on the preparations involved with yeast-leavened products, quick breads, American pies, cake batters, mousses, fillings, meringues, buttercreams, and Bavarian creams. Students will also focus on assembly and decoration of European cakes, basic glazing and icing techniques, syrup preparation, and classic and contemporary plated dessert applications. Students will be introduced to recipe and formula modification to create more beneficial baked goods and desserts. The concept of baker's percentage and proper selection of equipment and utensils for specific applications will be reinforced.
Prerequisite(s): C or better in CUL 131B, C or better in CUL 153.

CUL 221 Purchasing and Cost Control
4 Quarter Hours

Examines the information and skills necessary to analyze and improve the profitability of a foodservice establishment. Topics include the flow of goods, income statements, forecasting sales, and controlling labor and food costs. Students will also analyze the complete purchasing cycle of a restaurant, beginning with product and vendor selection and ending with actual orders.
Prerequisite(s): C or better in CUL 110, C or better in CUL 115A.

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CUL 222A Table Service

8 Quarter Hours

Focuses on the applications of the principles of fine service and hospitality in an a la carte restaurant serving the public. This class, which will be held in The Culinary Institute of Michigan's restaurant. The course will emphasize customer service, wine and spirits, restaurant trends and sales, merchandising, and sales. Students study and participate in the fundamentals of reservation and point-of-sale systems, controlling inventory, merchandising products and services, managing costs, assuring high-quality service to all customers, and managing service. Students will take the Federation of Dining Room Professionals (R) certification examination for Certified Dining Room Associate.

Prerequisite(s): C or better in CUL 101 or TIPS Certification.

CUL 231A Garde Manger

6 Quarter Hours

Focuses on the three main areas of the cold kitchen: reception foods, plated appetizers, and buffet arrangements. Students learn to prepare hot and cold hors d'oeuvres, appetizers, forcemeats, galantines, pates, terrines, salads, and sausages. Curing, brining, and smoking techniques for meat, seafood, and poultry items will be practiced, along with contemporary styles of presenting food and preparing of buffets. Students will also have hands-on experience in the fabrication and aging of fresh and cured products.

Prerequisite(s): CUL 153.

DENTAL ASSISTING

DAS 101 Dental Assisting I

5 Quarter Hours

Introduces students to the dental profession and the role of the dental assistant. Topics include the history of dentistry, dental equipment and instruments, infection control, team positioning, four-handed dentistry techniques and emergency dental management. 30 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the program.

DAS 102 Dental Assisting II

5 Quarter Hours

Provides the foundation for dental charting, clinical examination, management of the medically compromised patient, assisting in restorative dentistry, management of pain and anxiety, and an introduction to clinical assisting through rotations in the Baker College dental hygiene clinic. 30 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in DAS 101.

DAS 111 Dental Anatomy, Histology and Embryology

4 Quarter Hours

Provides a study of head and neck anatomy and tooth morphology with an introduction to the development and structural anatomy of the orofacial region. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

DAS 121A Biomedical Science

4 Quarter Hours

Provides an introduction to biomedical sciences as they relate to dentistry. Course content includes microbiology, oral pathology, pharmacology, and a comprehensive study of the principles of infection control employed in the dental office.

Prerequisite(s): Acceptance in the program.

DAS 131 Dental Materials

4 Quarter Hours

Provides a study of the composition, chemical and physical properties, manipulation, and uses of dental materials. Laboratory experiences include the application and manipulation of various materials used in dentistry. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in DAS 101.

DAS 141 Dental Radiology

4 Quarter Hours

Provides a study of radiation physics, hygiene, and safety theories. Emphasis is placed on the fundamentals of oral radiographic techniques. Includes exposure of intra-oral and extra-oral radiographs, quality assurance, and patient management criteria. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in DAS 111.

DAS 151 Dental Office Management

3 Quarter Hours

Provides an introduction to business office procedures, including telephone management, appointment control, receipt of payment for dental services, completion of third-party reimbursement forms, supply inventory maintenance, data entry for charges and payments, management recall systems, basic dental computer software, and operation of basic business equipment.

Prerequisite(s): C or better in DAS 102.

DAS 161 Nutrition and Preventative Dentistry

2 Quarter Hours

Provides a study of the prevention of the dental disease, oral hygiene instruction, fluoride, community dental health, and nutrition. Students will participate in a community preventive dental health project.

Prerequisite(s): C or better in DAS 121A.

DAS 201A Clinical Practice

11 Quarter Hours

Provides 300 hours of dental assisting practice and experience in the workplace. Emphasis is placed on infection control, data collection, patient management techniques, communication, professionalism and ethics, and entry-level, four-handed dental assisting procedures. A one hour weekly seminar for 10 weeks is conducted to integrate theory and laboratory practices and student reflection on individual experiences.

Prerequisite(s): C or better in DAS 221A.

DAS 211B RDA Functions

4 Quarter Hours

Provides the knowledge and skills necessary to perform Registered Dental Assistant functions. Emphasis is on acid etch, sealant placement, provisional coverage, fluoride application, dental dam application, selective coronal polishing, fabrication of amalgam restorations, provisional coverage fabrication, and supragingival cement removal. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in DAS 131.

DAS 221A Dental Specialties

3 Quarter Hours

Introduces the dental assistant to dental specialty practices. The following specialties are included: endodontics, oral and maxillofacial surgery, oral pathology, orthodontics, periodontics, pediatric dentistry, prosthodontics and dental public health. The course includes Registered Dental Assistant clinical skills related to each specialty. 10 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in DAS 102.

DAS 231 Professional Concepts

1 Quarter Hour

Emphasizes the development of professionalism for dental office personnel. The course will explore the legal and ethical practice of dentistry, risk management, and the study of the state Dental Practice Act. Content includes the exploration of interpersonal skills and factors related to job satisfaction.

Prerequisite(s): C or better in DAS 102.

DAS 261 CDA/RDA Exam Preparatory

4 Quarter Hours

Provides a comprehensive review of the Dental Assisting Curriculum. This course is designed as a guide for students to enhance their individual preparation for national and state dental assisting board exams. 20 hours of lecture and 40 hours of lab are required. This is the capstone course.

Prerequisite(s): C or better in DAS 211B.

DENTAL HYGIENE

DHY 111A Dental Hygiene I

6 Quarter Hours

Introduces students to the dental hygiene clinical techniques of patient assessment and treatment. Students will develop skills in the taking of a medical/dental history, vital signs, and performing extraoral and intraoral examinations. Students will practice instrumentation techniques utilizing proper infection control procedures. All procedures are taught to clinical competence. 20 hours of lecture and 80 hours of clinical lab are required.

Prerequisite(s): Acceptance in the program.

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DHY 112A Principles of Dental Hygiene

3 Quarter Hours

Provides students with the knowledge to perform clinical dental hygiene practices within the dental office setting in a safe and efficient manner, following all OSHA guidelines. Topics will include infection control, medical and dental emergencies, and basic dental office procedures.

Prerequisite(s): Acceptance in the program.

DHY 113A Dental Histology and Embryology

3 Quarter Hours

Studies the developmental and structural microscopic anatomy of the orofacial region. The knowledge of how cells, tissues, and organs develop and function enhances the understanding of oral manifestations and the basis of their treatment. An introduction into tooth eruption patterns is presented.

Prerequisite(s): Acceptance in the program.

DHY 114A Oral Anatomy

3 Quarter Hours

Provides a comprehensive study of the anatomy of the oral cavity. The function of various components of the orofacial area and how form, shape, and arrangement of the teeth aid in the prevention of dental disease are discussed. The laboratory portion of this course includes a comprehensive analysis of each individual tooth in the dentition. 30 hours of lecture and either 20 hours of lab or 10 hours of online instruction are required.

Prerequisite(s): Acceptance in the program.

DHY 116 Head and Neck Anatomy I

2 Quarter Hours

Provides a comprehensive study of the anatomy of the head and neck regions, including: skeletal, nervous, circulatory, lymphatic, and muscular systems and their relationship to dental hygiene clinical procedures.

Prerequisite(s): B- or better in SCI 102C.

DHY 117 Head and Neck Anatomy II

1 Quarter Hour

Provides a review of head and neck anatomy, specific anatomical landmarks important to the clinical dental hygienist, and an introduction to the application of this knowledge to the use of local anesthesia.

Prerequisite(s): Program Director/Dean approval.

DHY 121A Clinical Dental Hygiene II

4 Quarter Hours

Provides a continuation of performing patient assessment and treatment in the clinical setting. Additional topics such as patient communication, fluoride application, occlusal analyses, oral infection control, dental prostheses care, chemotherapeutics, and dental stain classification are introduced to enhance the student's ability to provide comprehensive dental hygiene services to patients. All procedures are taught to clinical competence. 20 hours of lecture and 80 hours of clinical lab are required.

Prerequisite(s): Program Director/Dean approval.

DHY 122 Oral Pathology

3 Quarter Hours

Studies disease and the disease process. Emphasis will be placed on the detection and treatment of diseases of the oral region and the oral manifestations of systemic diseases. Case histories are presented in which the student's objective is to formulate a differential diagnosis of an unknown lesion and propose a rational approach for evaluation and treatment of the patient.

Prerequisite(s): Program Director/Dean approval.

DHY 123 Dental Radiography

4 Quarter Hours

Focuses on the theories and principles of the x-ray, its nature and properties, and recognition of the normal anatomical structures present in a properly exposed set of periapical and interproximal radiographs. Practice is provided in exposure, development, and mounting of dental radiographs using a variety of techniques. All technical skills are taught to a minimum of laboratory competence. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Program Director/Dean approval.

DHY 131A Clinical Dental Hygiene III

4 Quarter Hours

Provides a continuation of the study of performing patient assessment and treatment in the clinical setting. Emphasis will be placed on the recognition and treatment of the periodontally involved patient.

Additional preventive and auxiliary procedures will be introduced, such as ultrasonic/sonic instrumentation, treatment of hypersensitive teeth, development of the maintenance appointment, and smoking cessation programs. All procedures are taught to clinical competence. 20 hours of lecture and 80 hours of clinical lab are required.

Prerequisite(s): Program Director/Dean approval.

DHY 132 Periodontics I

2 Quarter Hours

Covers the diagnosis, treatment, and prevention of pathologic conditions affecting the periodontium. Prepares students to evaluate the patient's disease status and plan the appropriate treatment.

Prerequisite(s): Program Director/Dean approval.

DHY 133A Dental Materials

3 Quarter Hours

Studies the composition and properties of materials used in the practice of dentistry. Emphasis is placed on the materials and procedures for which the dental hygienist is directly responsible. Students will practice proper care and manipulation of the materials in the laboratory. 30 hours of lecture and 20 hours of lab are required. All technical skills are taught to a minimum of laboratory competence.

Prerequisite(s): Program Director/Dean approval.

DHY 134 Dental Health Education

2 Quarter Hours

Exposes student dental health educators to many of the dental health care issues that affect society, the impact they have on dental health, and the educational techniques that can be employed to assist the individual on matters affecting health decisions. Further study will include human behavior, interpersonal relations and communication skills relating to patient education, motivation, and acceptance of health care.

Prerequisite(s): Program Director/Dean approval.

DHY 141A Clinical Dental Hygiene IV

2 Quarter Hours

Continues patient assessment and treatment in the clinical setting emphasizing all previously taught clinical skills for patient care. All procedures are taught to clinical competency. 10 hours of lecture and 60 hours of clinical lab are required.

Prerequisite(s): Program Director/Dean approval.

DHY 201 Dental Pain and Anxiety Control

4 Quarter Hours

Provides students with the basic concepts of local anesthetics and pain control. The rationale for pain control, a review of specific anatomic landmarks, physiology, and pharmacology of anesthetic agents will be included. Through lecture and lab, detailed instruction in the use of local anesthesia and nitrous oxide, along with safety measures, will be provided. All procedures are taught to clinical competence. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Program Director/Dean approval.

DHY 211B Clinical Dental Hygiene V

6 Quarter Hours

Continues the focus of performing patient care. Emphasis will be placed on treating the patient with special needs along with dietary assessment and planning for all age groups of patients. All procedures are taught to clinical competence. 20 hours of lecture and 120 hours of clinical are required.

Prerequisite(s): Program Director/Dean approval.

DHY 212 Periodontics II

2 Quarter Hours

Presents information on periodontal therapies relative to the hygienist's role as co-therapist in clinical practices. Further study includes the clinical and histological effects of periodontal procedures on oral tissues including surgical and non-surgical techniques used.

Prerequisite(s): Program Director/Dean approval.

DHY 214A Pharmacology for the Dental Hygienist

3 Quarter Hours

Provides a general knowledge of the fundamentals and concepts of drugs commonly used in dentistry and relates this information to the successful practice of clinical dental hygiene.

Prerequisite(s): Program Director/Dean approval.

DHY 221A Clinical Dental Hygiene VI

6 Quarter Hours

Continues the study of clinical dental hygiene treatment designed to refine the technical skills learned from previous courses and provide a continuation of the study of the techniques and philosophies of

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handling patients with special needs. All procedures are taught to clinical competence. 20 hours of lecture and 120 hours of clinical are required.

Prerequisite(s): Program Director/Dean approval.

DHY 222 Community Dentistry

4 Quarter Hours

Surveys public health and community dentistry, comparing and contrasting the role of the dental hygienist in the community to that of private practice. An introduction is given to biostatistics with an emphasis on planning community programs.

Prerequisite(s): Program Director/Dean approval.

DHY 223 Radiographic Interpretation

1 Quarter Hour

Emphasizes the recognition of normal anatomical landmarks as well as pathological conditions commonly encountered in the practice of dental hygiene. This course is designed to complement DHY 123 (Dental Radiography).

Prerequisite(s): Program Director/Dean approval.

DHY 231A Clinical Dental Hygiene VII

6 Quarter Hours

Continues the study of clinical dental hygiene treatment designed to increase the student's speed and ability. Discussions of current dental hygiene concepts are introduced. Clinical requirements include a case study of a patient with written documentation and a class presentation. All procedures are taught to clinical competence. 20 hours of lecture and 120 hours of clinical are required.

Prerequisite(s): Program Director/Dean approval.

DHY 232 Dental Law and Ethics

2 Quarter Hours

Surveys the laws that govern the practice of dental hygiene. A discussion of ethical codes of conduct that guide the dental hygienist is provided.

Prerequisite(s): Program Director/Dean approval.

DIAGNOSTIC MEDICAL SONOGRAPHY

DMS 201 Sonographic Technique

4 Quarter Hours

Introduces students to scanning with an ultrasound machine. Scanning protocols, basic machine operations, and patient preparation are presented. This course is designed to correlate with the students' beginning experiences in clinical training. Beginning level sonographic anatomy is presented.

Prerequisite(s): Acceptance in the program. Corequisite(s): DMS 210A.

DMS 210A Ultrasound of the Normal Abdomen and Pelvis

4 Quarter Hours

Presents advanced sonographic anatomy of the normal abdomen, retroperitoneum, and pelvis, including all soft tissue organs and major vascular structures. Normal variants in these areas are also covered. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): Acceptance in the program. Corequisite(s): DMS 201.

DMS 211A Ultrasound of Abdominal Pathology

4 Quarter Hours

Presents pathological conditions of the abdomen and retroperitoneum. Comparisons are made with normal sonographic appearances so students learn to recognize pathologies and abnormalities. All soft tissue organs and vascular structures in the abdomen and retroperitoneum are covered. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): B- or better in DMS 210A.

DMS 212A OB/GYN Ultrasound Normal and Pathology

4 Quarter Hours

Presents abnormal conditions of the female pelvis. Also emphasized at this time is the scanning of the pregnant uterus. In-depth obstetrical scanning and protocols are presented. Comparisons are made with normal sonographic appearances so students learn to recognize pathologies and abnormalities. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): B- or better in DMS 210A. Corequisite(s): DMS 211A.

DMS 213B Ultrasound of Superficial Structures and Specialty Exams

4 Quarter Hours

Covers the normal and abnormal anatomy and sonographic appearance of the breast, prostate, superficial structures and related procedures. There is also an introduction to vascular scanning and protocols

included in this course. Comparisons are made with normal structures so students learn to recognize pathologies and abnormalities. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): B- or better in DMS 212A.

DMS 215A Principles of Ultrasound and Instrumentation I

4 Quarter Hours

Presents the physics of ultrasound. Correlation will be made with machinery instrumentation as it relates to ultrasound and image acquisition. This course along with Principles of Ultrasound and Instrumentation II are preparatory courses for the physics portion of the national board exams administered by ARDMS. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): DMS 201.

DMS 216A Principles of Ultrasound and Instrumentation II

4 Quarter Hours

Builds on knowledge gained in Principles of Ultrasound and Instrumentation I. Students will continue to learn the concepts and physical laws that govern ultrasound. This course will prepare students to apply for the physics examination administered by the ARDMS. A mock registry examination will be included. Students will be expected to achieve mastery level in all areas covered.

Prerequisite(s): B- or better in DMS 215A.

DMS 220 Clinical I

6 Quarter Hours

Introduces students to the clinical environment. Students will learn departmental protocols and expectations from the clinical supervisor. Actual patient scanning will begin at this time under the direct supervision of the clinical sonographer. Emphasis on functioning as a member of the health care team is stressed. Requires 360 clinical hours.

Prerequisite(s): B- or better in DMS 201, Student background check.

DMS 221 Clinical II

6 Quarter Hours

Continues having students scan and gain confidence under the supervision of the clinical supervisor. Emphasis is placed on structure identification. Recognizing pathological conditions is also stressed. Students continue to function as a member of a health care team. Requires 360 clinical hours.

Prerequisite(s): B- or better in DMS 220.

DMS 222 Clinical III

6 Quarter Hours

Continues having students scan under the indirect supervision of the clinical supervisor. Students will be performing complete ultrasound exams without direct guidance. Teamwork and improving image quality and scanning speed should characterize the clinical experience.

Requires 360 clinical hours.

Prerequisite(s): B- or better in DMS 221.

DMS 223 Clinical IV

6 Quarter Hours

Continues having students scanning independently under the guidance of the clinical supervisor during this portion of the clinical training. Students will be making independent decisions and functioning as a team member in the department. Scanning speed will be emphasized as well as competence in all areas of general ultrasound. Requires 360 clinical hours.

Prerequisite(s): B- or better in DMS 222.

DMS 230 Ultrasound Review

2 Quarter Hours

Reviews the major concepts presented in all previous courses, excluding Principles of Ultrasound and Instrumentation I and II. Students should use this course as a review for the registry examinations required for certification. A mock registry exam for the abdomen and superficial structures and obstetrics/gynecology will be part of the curriculum. Students will be expected to apply critical thinking skills and demonstrate mastery in all areas of AB/Superficial and OB/GYN ultrasound.

Prerequisite(s): B- or better in DMS 213B, B- or better in DMS 216A.

DIESEL

DSL 101 Diesel Engine Theory

4 Quarter Hours

Focuses on the theory of operation for the diesel engine. Fuel, compression, and other systems are discussed. Major components of each are examined as background to viewing the engine as a system. 30 hours of lecture and 20 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Corequisite(s): DSL 106.

DSL 106 Diesel Shop Practices

4 Quarter Hours

Introduces students to the field of diesel repair, the diesel repair facility, tools and safety procedures required within the diesel courses as well as in diesel repair centers. Topics include safety, Material Safety Data Sheets (MSDS), starting and moving diesel tractors and the proper use of shop tools and equipment along with basic heavy equipment systems. 30 hours of lecture and 20 hours of lab are required.

DSL 116 Introduction to Diesel Electrical

5 Quarter Hours

Focuses on the introduction to auto/diesel electrical/electronic systems which includes basic theories, electrical/electronic components, wiring and circuit diagrams, circuit protection, switches, relays solenoids and battery fundamentals. This course also focuses on the use of test equipment such as digital multimeters, test lights, jumper wires and logic probes used to diagnose basic electrical/electronic faults. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Corequisite(s): DSL 106.

DSL 141 Diesel Electrical/Electronic Systems I

5 Quarter Hours

Continues the coverage of electrical systems including lighting, electrical devices and accessories, and motor-driven electrical components. Computer controlled electronics is introduced including its use in security alarms, airbags, and sound systems. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): DSL 106, C or better in DSL 116.

DSL 142 Diesel Electrical/Electronic Systems II

5 Quarter Hours

Continues the coverage from previous courses focusing on advanced diagnostic techniques. Includes computerized testing and analysis of electrical/electronic systems. Advanced diagnostic techniques are utilized to analyze system problems. Also examines new technology including hybrid and fuel-cell systems, navigation systems, safety devices, and other vehicle features and options. 15 hours of lecture and 70 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 141.

DSL 151A Basic Welding, Cutting, and Fabrication

4 Quarter Hours

Introduces students to the theory and application of cutting and welding processes. Topics include gas metal arc welding, shielded metal arc welding, plasma arc cutting, and flame cutting techniques as well as hands-on activities completing simple fabrication projects. 10 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.

DSL 171 Diesel Engine Repair

5 Quarter Hours

Allows students the opportunity to complete cylinder head diagnosis and repair service will be covered. Covers the entire engine construction focusing on the cylinder head and the upper engine to include intake manifolds and exhaust manifolds. Cooling and lubrication systems, block, sleeves, and crankshafts will also be covered. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 101, DSL 106, C or better in DSL 116.

DSL 181 Introduction to Diesel Maintenance and Repair

4 Quarter Hours

Introduces students to preventative maintenance of diesel equipment. Coverage will include safety equipment, basic vehicle operation, instruments and controls along with hardware, inspections of the brakes, tires, wheels and suspension as well as steering systems. An introduction to Preventative Maintenance Plans (PMP) will be covered. 20 hours of lecture and 40 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): DSL 106, C or better in DSL 116.

DSL 211 CDL Preparation for Diesel Service Technician

4 Quarter Hours

Provides instruction for practice and safe operation of commercial vehicles for Diesel Service students. This course is designed for diesel service technicians who operate commercial vehicles for the purpose of service and diagnosis. Instruction will include pre-trip inspections, range driving, and on-road driving. A majority of class time is spent behind the wheel, however, some lab/classroom time is involved. Students will earn a minimum of 30 hours of driving time in both range and on-road settings.
Prerequisite(s): DSL 181, professional Driving Waiver, current TIP issued by Michigan, USDOT medical exam/drug screen.

DSL 221 Heavy Duty Brake Service

6 Quarter Hours

Focuses on the design and operation of the complete air brake system for a tractor and trailer. Diagnosis of system problems as well as the machining and rebuilding of various system components will be performed. Air compressors, air lines, and storage tanks as well as brake switches and trailer brakes will be covered. 20 hours of lecture and 85 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): DSL 106, C or better in DSL 116.

DSL 231 Heavy Duty Suspension/Steering

6 Quarter Hours

Examines the suspension and drive systems for both single axle and dual axle tractors. Steering mechanisms and suspension components are discussed as well as diagnosis and repair of suspension and steering systems. Alignment techniques will be used to properly align a tractor. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): DSL 106.

DSL 241 Heavy Duty Heating/Air Conditioning

6 Quarter Hours

Combines heating and cooling of the truck cab (driver comfort), product refrigeration for freight industry, and passenger comfort for the bussing industry. Students learn to diagnose and repair vehicles and commercial heating/refrigeration systems. Topics include lubricants, compressor types, electrical and mechanical controls, refrigerant types and characteristics, as well as leak testing and repair. Includes lecture and hands-on experiences to assist in preparation for the State License exam for Automotive Heating/Air Conditioning as well as EPA 609 and EPA 608 certifications. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 141.

DSL 251 Auxiliary Systems

4 Quarter Hours

Focuses on ADA and other systems used in the bussing industry. Topics and equipment covered include, but are not limited to, bus doors, ADA lifts, audio/video systems, passenger lighting, and comfort controls. 20 hours of lecture and 40 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 141.

DSL 261 Heavy Duty Drive Trains

6 Quarter Hours

Focuses on manual transmission drive trains. Diagnosis, service and repair of manual transmissions, transfer boxes, clutches, and single and dual rear drive axles will be covered. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 141.

DSL 271 Diesel Engine Performance

5 Quarter Hours

Focuses on an introduction to diesel engine fault diagnosis and adjustments and/or repair. Topics include computerized engine controls, fuel systems, turbo chargers and superchargers as well as the use of computerized diagnostic equipment. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.

Prerequisite(s): C or better in DSL 101, C or better in DSL 141, C or better in DSL 171.

DSL 281 Heavy Duty Bus/Truck Maintenance

4 Quarter Hours

Focuses on preventative maintenance of the engines, fuel system, air and exhaust system, and cooling system. Coverage will include safety equipment, instruments and controls along with hardware, inspections of the brakes, tires, wheels and suspension, and steering systems. Diagnosis and repair of problems related to any of the systems will be covered. 20 hours of lecture and 40 hours of lab are required.

Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 181, C or better in DSL 221, C or better in DSL 231.

DSL 285 Power Generation

4 Quarter Hours

Provides extensive safety training while addressing the installation, maintenance, and servicing of various types of power generation sets. Topics include a basic introduction to generators/alternators, voltage regulation, governors, engine/generator instrumentation and controls, generator protection, automatic transfer switches, sizing and servicing generator systems, and electronic switching components necessary in the generation and/or transmission of electric power.

Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.
Prerequisite(s): C or better in DSL 142, C or better in DSL 271.

DSL 291 Hydraulics

5 Quarter Hours

Focuses on maintenance, inspection, and repair of heavy equipment hydraulic systems. Topics and equipment include pumps, filtration, hoses and fittings, control valves, and actuators. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Diesel Service Technology.

Prerequisite(s): AST 112B or DSL 141, MTH 108 or MTH 111.

DIGITAL MEDIA DESIGN

DMD 101 Introduction to Digital Media Design

4 Quarter Hours

Introduces students to the design process and design principles used in conjunction with current digital media production. Projects explore the elements of typography, color, layout, and creative conceptualization.

DMD 111 Introduction to Digital Design/Illustration

4 Quarter Hours

Introduces students to various processes in creating vector-based graphics and illustrations. Color, texture, form, shape, and type manipulation techniques are applied to the design of logos, technical illustrations, icon symbols and other miscellaneous pieces. Students use industry standard illustration software on multiple computer platforms.

Prerequisite(s): DMD 101, any INF class.

DMD 121 Introduction to Digital Publishing

4 Quarter Hours

Introduces students to the basics of page layout integrating design elements and principles to create a variety of visual communication documents such as newsletters, brochures, and books. Students use industry standard desktop publishing software on multiple computer platforms.

Prerequisite(s): DMD 101, any INF class.

DMD 131 Introduction to Graphic Imaging

4 Quarter Hours

Introduces students to raster-based editing software used to produce graphics for the web and print. Topics include basic image adjustment and retouching techniques as well as methods for manipulating, repairing, and combining images.

Prerequisite(s): Any INF class.

DMD 201 Typography

4 Quarter Hours

Introduces students to the principles of typographic design through the study of the evolution of letterforms and type anatomy. Students will learn the essential tools to digitally format and manipulate type attributes in computer applications as well as identify type styles and fonts appropriate to the message communicated.

Prerequisite(s): DMD 111.

DMD 211 Corporate Branding Design

4 Quarter Hours

Introduces the processes involved with establishing brand identity design. This course examines design process methods and visual problem-solving skills to communicate a consistent product and/or corporate identity system. Students will focus on aligning the company's image with its mission, culture, and values.

Prerequisite(s): DMD 121, DMD 131, DMD 201.

DMD 212 Publication Design Processes

4 Quarter Hours

Utilizes the design process to organize a large amount of copy and imagery into an industry appropriate publication. Students will learn the practice of managing and meeting a potential client's goals and expectations as it pertains to the layout of content appropriate documents. Students use industry standard desktop publishing software, Adobe InDesign, to produce print-ready or digital output.

Prerequisite(s): DMD 211.

DMD 213 Collaborative Design Practices

4 Quarter Hours

Focuses on the execution of collaborative projects for clients from a variety of businesses. Students will focus on solving real world design problems involving orientation, analysis, conception, design, formal presentation, implementation, and evaluation.

Prerequisite(s): DMD 212.

DMD 241 Digital Media Production Methods

4 Quarter Hours

Emphasizes the technology and processes used in the preparation of digital files to create electronic press-ready output for commercial printing and publishing. Students will learn proper pre-flight procedures and proofing standards to ensure accurate and predictable printing outcomes.

Prerequisite(s): DMD 121, DMD 131, DMD 201.

DMD 251 Digital Media Business Practices

4 Quarter Hours

Provide students essential information pertaining to the business practices of design including: proposals, contracts, competitive analysis, salary standards, project management tools and pricing. Students will prepare a project management kit for a real-world client.

Prerequisite(s): DMD 131, DMD 211 or DVP 151. Corequisite(s): DMD 212 or DVP 252.

DMD 291 Portfolio Development

4 Quarter Hours

Allows students the opportunity to rework designs created in earlier courses as well as freelance and intern projects to develop both traditional print and digital portfolios. Students will develop a self-promotional identity package including a creative resume.

Prerequisite(s): DMD 212.

DMD 301 Intermediate Graphic Imaging

4 Quarter Hours

Emphasizes electronic imaging skills with continuous application of design process methods and visual problem-solving skills.

Prerequisite(s): DMD 213.

DMD 311 Advanced Graphic Imaging

4 Quarter Hours

Covers state-of-the-art methods of image production, conversion, and display. Included in the concepts covered are elements of photography, commercial printing, video, and laser scanners.

Prerequisite(s): DMD 301, WRK 201 or WRKTC201.

DMD 331 Integrated Media Design

4 Quarter Hours

Emphasizes integration of proposals, project management, concept development and industry standard software packages for print and web design to achieve the desired outcome in a project based environment.

Prerequisite(s): DMD 311.

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DMD 401 Multi-Media Production I

4 Quarter Hours

Introduces techniques and equipment used for audio and visual production. Multimedia presentation concepts and skills are emphasized.

Prerequisite(s): DMD 311.

DMD 402 Multi-Media Production II

4 Quarter Hours

Explores advanced techniques and equipment used for audio and visual production. Multimedia production concepts and skills are emphasized.

Prerequisite(s): DMD 401.

DMD 411 Graphic Presentation

4 Quarter Hours

Emphasizes the design and creation of digital media presentations utilizing advanced digital media production skills and techniques.

Prerequisite(s): DMD 401.

DIGITAL VIDEO PRODUCTION

DVP 101 Digital Media Fundamentals

4 Quarter Hours

Introduces an overview of video production utilizing a digital camcorder and video editing equipment. Students study video technologies, basic equipment operation, edits composition, basic lighting and audio, storyboard creation, script writing, and production planning.

DVP 111A Interviewing and Scriptwriting

4 Quarter Hours

Introduces video production script-writing techniques for conducting client interviews that deliver factual information with imaginative approaches for corporate, broadcast and other professional communications.

Prerequisite(s): ENG 091 or satisfies developmental writing or placement exam, DVP 101.

DVP 121 Introduction to Audio Recording

4 Quarter Hours

Introduces basic audio for practical use in video and media applications. Topics include digital sound characteristics, microphones, single and multi-track techniques, and sound effects.

Prerequisite(s): DVP 101, any of the INF courses.

DVP 131 Video Field Production

4 Quarter Hours

Introduces shooting video on location within a controlled environment. Students practice various shooting techniques, audio and edit planning, following production shot lists, and shooting to scripted and storyboarded needs.

Prerequisite(s): DVP 111A, DVP 121.

DVP 151 Introduction to Digital Video Editing

4 Quarter Hours

Introduces students to the non-linear (digital) video editing process. Covers computer-based video editing technologies/software. Students practice on the fundamentals of organizing and creating streaming video footage for use with multi-media and/or web applications.

Prerequisite(s): DVP 101, any of the INF courses. Corequisite(s): DVP 121.

DVP 201 Motion Graphics

4 Quarter Hours

Develops knowledge and skills to organize footage for use in creating professional on-screen motion graphics and special effects. Students will also work with character generated type to synchronize sound with on-screen graphic images. Students gain proficiency in the hands-on use of computer tools and software to integrate edited footage into a digital media production.

Prerequisite(s): DVP 151.

DVP 211 Digital Video Production Management

4 Quarter Hours

Presents the management and psychology of professional production coordination, talent development and retention, economics and budgeting for independent producers and preparation of the final digital video portfolio reel.

Prerequisite(s): DVP 131, DVP 252.

DVP 221 eLearning Design

4 Quarter Hours

Combines the skills of graphic design, multimedia construction and coding with interpersonal and language skills to interview content experts, then write, design, deploy and assess eLearning content through current technology. Students will design applications for digital instruction and the tracking of key performance metrics to produce eLearning modules for industry, education and a variety of digital communication careers.

Prerequisite(s): DVP 211.

DVP 252 Intermediate Digital Video Editing

4 Quarter Hours

Provides students with the ability and working knowledge to create final edits for use in their digital video production by preparing digital footage through the use of digital video mark points. Combining sound and motion graphics are covered through the use of non-linear editing software as well.

Prerequisite(s): DVP 151.

DVP 261A Editing/Motion/Audio - Direct Study Lab

4 Quarter Hours

Creates basic on-screen graphics and effects utilizing the video lab for final digital video production. Students will also work towards the completion of a final DVD product by implementing all edits, audio, and effects necessary for the final composite project for presentation and inclusion in their portfolio.

Prerequisite(s): DVP 131, DVP 201.

EARLY CHILDHOOD EDUCATION

ECE 101B Introduction to Early Childhood Education

4 Quarter Hours

Focuses on introductory concepts of Early Childhood Education professions including professionalism, ethics, and standards. Historical events as well as current issues are reviewed. Students participate in hands-on activities to develop an understanding of developmentally appropriate practices within learning environments. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

ECE 111B Early Childhood Development

4 Quarter Hours

Focuses on typical and atypical developmental milestones of physical, cognitive, language, and social/emotional development of children from birth to age 12 with a focus on the preschool years. Theories of child development and contributions of theorists are reviewed in the context of application to developmental milestones. The effects that multiple, interrelated environmental factors have on the growth and development of the child will be explored. Must complete with a C (73%) or better.

Prerequisite(s): ENG 098B or satisfies developmental reading or placement exam, DHS clearance, student background check.

ECE 131A Healthy Environments for Early Childhood

4 Quarter Hours

Focuses on the creation of a safe and healthy learning environment to encourage play, exploration, and learning. Students learn how to use space, relationships, materials, and routines as resources for ensuring an inclusive safe indoor and outdoor learning environment. Focus on how environment affects growth and development through proper nutrition, self-wellness for adults and sanitation guidelines are reviewed. Legal and ethical guidelines for reporting suspected child abuse and neglect are covered. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

ECE 141A Creative Activities

4 Quarter Hours

Focuses on understanding creativity and the development of skills to assist and encourage young children to express their creative natures. Through a hands-on approach, students will compare creative materials and processes using multiple teaching strategies and disciplines. A focus on child-centered and teacher-guided experiences with attention to accommodations for children identified with special needs will be included through both process and product instructional methods. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

ECE 151A Administration of Early Childhood Education Programs

4 Quarter Hours

Focuses on the essential organization, planning, operations, legal issues related to children and staff and ongoing quality improvement of child care centers and preschool environments. Licensing, program

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structure, and accreditation standards, including professionalism and ethics are reviewed. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

ECE 165 Observation and Assessment Techniques for Early Childhood Education Programs

4 Quarter Hours

Focuses on developmentally appropriate, ethical assessment of preschool children. Students will participate in hands-on child evaluation and practice developing assessment documents for parents and institutions for the purposes of determining current levels of functioning and directing curriculum development. Students will demonstrate basic knowledge of the referral process for IEPs and IFSPs, and the roles of the teachers, parents and helping professional in these processes. Course assignments demonstrating subject matter and content application are required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

Corequisite(s): MTH 091 or satisfies developmental math or placement exam.

ECE 171A Language Development and Language Arts

4 Quarter Hours

Focuses on milestones of language development in children from birth to age 12. An exploration of language arts theory and techniques to assist children in developing foundational skills through curriculum planning that will allow them to be proficient in listening, speaking, reading, and writing is reviewed. Techniques include creative drama, puppetry, whole language exploration and phonemic awareness. Students will also review structural and transformational linguistics theories. Specific attention is paid to English Language Learners as they acquire language in the classroom. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B or EDU 200A, DHS clearance, student background check.

ECE 181 The School-Age Child

4 Quarter Hours

Focuses on developmental milestones and curricular planning for school-age children (5-12 years or kindergarten through 5th grade) as they relate to out of school program planning. This coursework includes instructional strategies that link the school-age curriculum and planning to State of Michigan Grade Level Content Expectations. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

ECE 191A CDA Preparation

4 Quarter Hours

Focuses on the development of documentation for the CDA credential as outlined by the Council for Professional Recognition. The course is designed to develop the CDA Resource File and prepare students for the Observational Assessment. Must complete with a C (73%) or better.

Prerequisite(s): ECE 101B, DHS clearance, student background check.

ECE 201C Infant and Toddler Development and Curriculum

4 Quarter Hours

Focuses on developmental milestones for children birth through 35 months in cognitive, language, physical, and social/emotional domains, including typical and atypical development. Provides an intense look at methods of designing and implementing appropriate programs, including curriculum and assessment, physical space adaptations, and parent/school/community partnerships. Review of applicable early intervention procedures, including IEPs and IFSPs is explored. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

Corequisite(s): ECE 201CL.

ECE 201CL Infant and Toddler Development and Curriculum Lab

1 Quarter Hour

Focuses on developmentally appropriate interactions between adults and children birth through 35 months in and infant/toddler ECSE, or licensed infant or toddler program. Field work components will include a focus on relationship building, environmental structure and professionalism in infant/toddler environments. Students must complete 20 hours of supervised field work. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

Corequisite(s): ECE 201C.

ECE 211A Developing Anti-Bias Curriculum

4 Quarter Hours

Focuses on multiple influences of bias as well as the possible effects of personal attitudes and dispositions on children's development and learning. Students will analyze classroom

environments for practices of equality, respect, and tolerance.

Curriculum will be developed that will promote anti-bias ideals, create a strong classroom community, and empower families through positive reciprocal relationships. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

ECE 221B Math, Science, and Technology for Early Childhood

4 Quarter Hours

Focuses on the integration of developmentally appropriate math, science, and technology content into the early childhood classroom curriculum. The process of using inquiry tools and problem-solving strategies and focused learning centers with content embedded in all other classroom areas is explored. Emphasis is placed on development of activities and procedures that put the child in the position of problem solving through hands-on, exploratory processes in groups or individually. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

ECE 231 Guidance and Discipline

4 Quarter Hours

Focuses on typical and atypical social and emotional development of children birth to age 12. After reviewing assessment strategies, students will review the process for additional consultation and/or referral for children displaying atypical development, including referrals to Child Protective Services for suspected abuse or neglect. Students will apply child development theories and research through development of curriculum that enhances each child's social skills as an individual and through community group building activities. Includes 20 hours of fieldwork. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

ECE 251 Developing Curriculum for Early Childhood

4 Quarter Hours

Focuses on developmentally appropriate design of curricula that promotes the growth and development of the preschool child (ages 3 and 4) with curricular connections to early elementary. Differentiation for special needs is reviewed. Curricular domains covered are aesthetic, affective, cognitive, language, physical, and social/emotional. Course assignments demonstrating subject matter and content application are required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 165, DHS clearance, student background check.

ECE 271B Early Childhood Education Practicum

4 Quarter Hours

Focuses on planning and implementing a developmentally appropriate, anti-bias, child-centered classroom environment across curricular and developmental domains. Students will demonstrate competence in child assessment, group guidance, advocacy, peer collaboration, and parent communication. Includes 90 hours of supervised participation in a licensed preschool for children for ages 3 and 4, or an ECSE preschool program. Course assignments demonstrating subject matter and content application are required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 251, Program Director/Dean approval, DHS clearance, student background check.

ECE 281 Parents and Teachers: Partners in Education

4 Quarter Hours

Focuses on information and strategies that can be used by teachers to encourage parents to work in partnership with schools. Promoting holistic child development with the parent in the role of the teacher in the home and community with the teacher as support to the parent is explored. The teacher's role as a child advocate through mandated reporting for child abuse or neglect and family advocate through the IEP/IFSP process is reviewed. Course assignments demonstrating subject matter and content application are required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 111B, DHS clearance, student background check.

ECE 301 Advocating for Young Children

4 Quarter Hours

Focuses on strategies for Early Childhood Education professionals to use community resources for the development of the rights of young children and their families. Addresses working with children suffering from abuse and neglect. Develops advocacy techniques on behalf of children promoting safe, healthy, and nutritional environments. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check.

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ECE 351 Philosophies in Early Childhood Education

4 Quarter Hours

Explores contemporary early childhood educational practices and theoretical foundations of curriculum. Includes an introduction to Reggio Emilia and Maria Montessori's practices. Must complete with a C (73%) or better.

Prerequisite(s): ECE 251, DHS clearance, student background check.

ECE 361 Survey of Curriculum

4 Quarter Hours

Evaluates the application of curriculum in 20 different early childhood programs and its effects on quality care for young children both on site and through research. The assessment tool will require knowledge of ECERS evaluations. The evaluations will be completed off campus. Must complete with a C (73%) or better.

Prerequisite(s): ECE 251, ECE 271B, DHS clearance, student background check.

ECE 371 Early Childhood Education Practicum II

4 Quarter Hours

Provides students with a direct fieldwork experience implementing curriculum content in a lead teacher role under a qualified teacher. Michigan curriculum standards will serve as the basis for instruction. Includes 120 hours of participation in a structured program for 3-5 year olds. Must complete with a C (73%) or better.

Prerequisite(s): ECE 271B, Program Director/Dean approval, DHS clearance, student background check. Corequisite(s): ECE 372.

ECE 372 Implementation of Curriculum in an Early Childhood Education Environment

4 Quarter Hours

Develops daily, weekly, and monthly lesson plans to be implemented within ECE371 Practicum II. Developmentally appropriate practices and Michigan curriculum standards will provide the framework for on-going assessment of the curriculum implementation. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check. Corequisite(s): ECE 371.

ECE 401 Advanced Infant/Toddler Care

4 Quarter Hours

Examines the importance of parent and caregiver relationships in developing quality care for infants and toddlers. The essentials of infant and toddler care giving, developmental growth patterns, and direct observations will be emphasized. A 20-hour fieldwork observation will be required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 201C, ECE 201CL, DHS clearance, student background check.

ECE 441 Music and Movement for Young Children

4 Quarter Hours

Focuses on the physical development, music curriculum, and movement activities in an early childhood education environment. This course will require a hands-on demonstration of skills. Must complete with a C (73%) or better.

Prerequisite(s): ECE 141A, DHS clearance, student background check.

ECE 451 Early Childhood Education Practicum III

4 Quarter Hours

Provides a supervised fieldwork experience in an administrative role that focuses on leadership and management techniques. Includes 120 hours of participation in a quality licensed program for birth-five year olds. Must complete with a C (73%) or better.

Prerequisite(s): ECE 151A, ECE 271B, Program Director/Dean approval, DHS clearance, student background check.

ECE 452 Administrative Operations in ECE

4 Quarter Hours

Provides critical application of essential administrative duties as performed in an early childhood education environment. Knowledge of professional and ethical responsibilities will be evaluated. The duties shall include supervising, organizing, budgeting, accounting, and scheduling skills. Licensing standards and NAEYC accreditation will be emphasized. Must complete with a C (73%) or better.

Prerequisite(s): DHS clearance, student background check. Corequisite(s): ECE 451.

ECE 461 Early Assessment and Referral

4 Quarter Hours

Focuses on knowledge of characteristics and classifications of common delays, impairments, and disabilities. Tools of assessment and methods of referral for young children demonstrating atypical development with an emphasis on the goals and benefits of

developmentally appropriate assessment is explored. IFSP, IEP, early intervention, and legal issues surrounding these topics will be featured. Must complete with a C (73%) or better.

Prerequisite(s): ECE 165, DHS clearance, student background check.

ECE 471 Early Literacy Intervention

4 Quarter Hours

Provides essential background into speech, cultural, linguistic and language development of young children. An emphasis will be placed on the link between home and educational environment. Home-to-school activities will be developed. Must complete with a C (73%) or better.

Prerequisite(s): ECE 171A, DHS clearance, student background check.

ECE 491 Senior Seminar: Early Childhood Education

4 Quarter Hours

Focuses on multiple influences on child growth and development through cross content curricular applications with a focus on health, safety, and nutrition. Students will recognize themselves within the framework of the professional community of early childhood educators. Licensing and regulation issues will be highlighted. This is the capstone course for students seeking the ZS teaching endorsement. Course assignments demonstrating subject matter and pedagogical knowledge are required. Must complete with a C (73%) or better.

Prerequisite(s): Program Director/Dean approval, DHS clearance, student background check.

ECONOMICS

ECN 201 Principles of Macroeconomics

4 Quarter Hours

Provides an introduction to aggregate economic issues to include inflation, unemployment, and Gross Domestic Product (GDP); economic theories; market system; and the role of government.

Prerequisite(s): MTH 108 or MTH 111.

ECN 202 Principles of Microeconomics

4 Quarter Hours

Examines the functions of individual business decision making, market structures, market failures, and the role of government within the economy.

Prerequisite(s): MTH 108 or MTH 111.

ECN 301 International Economics

4 Quarter Hours

Focuses on economic topics of international trade theories including advantages, costs, and barriers to free trade; capital mobility; balance of payments; and foreign exchange markets.

Prerequisite(s): ECN 201.

EDUCATION

EDU 200A Introduction to Professional Education Experiences

4 Quarter Hours

Introduces candidates to the realities of the teaching profession, the structure and operation of schools, current educational issues and trends, and the foundations of education. Includes 20 hours of observation and participation in P-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): ENG 102, MTH 111, Program Director/Dean approval, student background check.

EDU 221 Supplemental Fieldwork

1 Quarter Hour

Provides observation and participation in P-12 classroom settings to candidates who transfer in credit for EDU200 but need the fieldwork component.

Prerequisite(s): EDU 200A and student background check.

EDU 222 Supplemental Fieldwork A

1 Quarter Hour

Provides observation and participation in P-12 classroom settings to candidates who transfer in credit for EDU312 but need the fieldwork component.

Prerequisite(s): Student background check.

EDU 223 Supplemental Fieldwork B

1 Quarter Hour

Provides observation and participation in P-12 classroom settings to candidates who transfer in credit for EDU200 but need the fieldwork component.

Prerequisite(s): Student background check.

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EDU 312A Educational Psychology

4 Quarter Hours

Focuses on the learning process including the role of the teacher in learning; efficiency of learning as it is affected by the developmental processes; psychological principles that are central to the learning process and their relationship to the teaching situation; variables in learning; and evaluation of the outcomes of learning. Emphasizes application of learning theory and multicultural concepts in a field-based context. Includes 20 hours of observation and participation in P-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 200A and student background check.

EDU 321A Theory and Principles of Reading Instruction

4 Quarter Hours

Focuses on theory and process in developmentally appropriate reading and writing instruction, including language and literacy acquisition, comprehension, word recognition, methods of instruction and assessment, program development, and planning for individual instructional needs. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 312A and student background check.

EDU 330 The Exceptional Learner

4 Quarter Hours

Studies the physical, psychological, social, and educational factors related to exceptional individuals, including intellectually gifted, English language learners, and the handicapped. Emphasizes collaborative historical, legal, legislative, and futuristic aspects of educating the exceptional learner. Includes 20 hours of observation and participation in P-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 312A and student background check.

EDU 346A Integrating Technology into 21st Century Learning

4 Quarter Hours

Introduces selection, evaluation, and use of appropriate media, including microcomputers and Web-based learning, as an integral part of the curriculum to achieve stated learning objectives. Provides hands-on experience in preparing and using leading edge technology, materials and equipment for effective classroom learning. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 200A, INF 141A and student background check.

EDU 351 Instructional Design and Assessment

4 Quarter Hours

Prepares candidates to design curriculum and assessments aligned to state and national standards. Instructional design principles as well as formative and summative assessment practices will be covered. Practice using assessment data to drive curricular and instructional decisions. Emphasis on teaching and learning for all students.

Prerequisite(s): EDU 421A or EDU 425, student background check.

Corequisite(s): EDU 346A.

EDU 371 Early Childhood Education ZS Practicum

4 Quarter Hours

Focuses on planning and implementing a developmentally appropriate, child-centered classroom environment across curricular and developmental domains. Students will demonstrate competence in child assessment, group guidance, advocacy, peer collaboration, and parent communication. Includes 90 hours of lead teaching in an ECSE pre-school program. Course assignments demonstrating subject matter and content application are required. Must complete with a C (73%) or better.

Prerequisite(s): ECE 251, Program Director/Dean approval, DHS clearance, student background check. Corequisite(s): ECE 165.

EDU 421A Reading in the Content Areas

5 Quarter Hours

Studies the principles, techniques, and processes of literacy instruction needed to help candidates become independent, strategic learners in the content areas taught in the elementary school. Applies learning principles and practices to real-world teaching situations. Includes 20 hours of observation and participation in K-8 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 321A and student background check, acceptance in the program.

EDU 425 Literacy Education in the Secondary School

6 Quarter Hours

Introduces the theoretical foundation for literacy development and the methods and processes in developmentally appropriate instruction. Emphasizes the principles, techniques, and processes of literacy instruction needed to help candidates become independent, strategic learners in the content areas taught in middle and high schools. Includes 20 hours of observation and participation in grade 6-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 312A and student background check, acceptance in the program.

EDU 429 Reading Assessment

5 Quarter Hours

Focuses on appropriate literacy assessments and how to use the results to differentiate instructional methods to meet the diverse needs of students in grades P-12. Applies learning principles and practices to real-world teaching situations. This course also has a field experience of approximately 30 hours with a student-selected case study child aged within the student's certification level. As the focus of the field experience, students in this course will be required to administer and analyze a variety of assessments. Students will then compile the gathered data into an informative assessment report. Discussions about the reflections on the context of the group's needs and interventions, within the students' field experiences, will be an integral part of each classroom session. This course is only open to certified elementary and secondary teachers.

Prerequisite(s): Program Director/Dean approval.

EDU 441A Classroom Management

4 Quarter Hours

Focuses on classroom development techniques, which lead to the creation of a positive, democratic learning environment. The techniques learned will help P-12 students monitor and adjust behavior in order to achieve self-discipline. The culminating activity is a Classroom Development Plan. This course requires 30 hours of fieldwork. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 312A and student background check, acceptance in the program.

EDU 445A Educational Foundations

2 Quarter Hours

Studies education and schooling in American culture and society. Employs hypotheses and concepts drawn from a series of disciplines as a means of identifying and examining central characteristics of the American educational system. Focuses on the interpretation and appraisal of current educational practices and trends. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): Program Director/Dean approval, acceptance in the program, student background check.

EDU 446 Educational Capstone

4 Quarter Hours

Studies education and schooling in American culture and society. Focuses on the interpretation and appraisal of current educational practices and trends, particularly surrounding careers in education for those without P-12 teacher certification.

Prerequisite(s): Program Director/Dean approval.

EDU 451A Theory and Techniques: Elementary Language Arts and Social Studies

4 Quarter Hours

Introduces the theory of instruction, methods, and materials in the elementary school focused on language arts, social studies, and the visual and performing arts. Includes observations of classroom procedures, participation in simulation, and micro-teaching in elementary classrooms. Emphasizes the application of effective instructional theory and practice, sound decision making, and multicultural education in a field-based context. Includes 30 hours of participation in P-8 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 351, Program Director/Dean approval, acceptance in the program, student background check.

EDU 452 Theory and Techniques: Elementary Mathematics and Science

4 Quarter Hours

Introduces the theory of instruction, methods, and materials for teaching elementary mathematics, science, health, physical education and nutrition. Includes observations of classroom procedures,

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participation in simulation, and micro-teaching in elementary classrooms. Emphasizes the application of effective instructional theory and practice, sound decision making, and multicultural education in a field-based context. Includes 30 hours of participation in P-8 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): EDU 351, Program Director/Dean approval, acceptance in the program, student background check.

EDU 461A Theory and Techniques of Instruction: Mathematics (6-12)

4 Quarter Hours

Introduces the theory of instruction, methods, and materials in the secondary subject matter fields in which candidates expect to teach. Includes observations of classroom procedures, participation in simulation, and micro-teaching in mathematics. Emphasizes the application of effective instructional theory and practice, sound decision making, and multicultural education in a field-based context. Includes 30 hours of participation in grade 6-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): Program Director/Dean approval, acceptance in the program, student background check, EDU 351.

EDU 462A Theory and Techniques of Instruction: English (6-12)

4 Quarter Hours

Introduces the theory of instruction, methods, and materials in the secondary subject matter fields in which candidates expect to teach. Includes observations of classroom procedures, participation in simulation, and micro-teaching in English. Emphasizes the application of effective instructional theory and practice, sound decision making, and multicultural education in a field-based context. Includes 30 hours of participation in grade 6-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): Program Director/Dean approval, acceptance in the program, student background check, EDU 351.

EDU 464A Theory and Techniques of Instruction: Social Studies (6-12)

4 Quarter Hours

Introduces the theory of instruction, secondary methods, and materials in the subject matter fields in which candidates expect to teach. Includes observations of classroom procedures; participation in simulation and micro-teaching in social studies. Emphasis on the application of effective instructional theory and practice, sound decision making, and multicultural education in a field-based context. Includes 30 hours of participation in grade 6-12 classroom settings. A grade of C or better must be attained to complete the Teacher Preparation Program.

Prerequisite(s): Program Director/Dean approval, acceptance in the program, student background check, EDU 351.

EDU 471 Educational Work Experience

10 Quarter Hours

Consists of 300 hours of work experience in an education setting. This work experience could be at an early childhood center, a residential or private youth facility, a college or university, an intermediate school district, a textbook or other educational products company, or in a P-12 school as a paraprofessional or other staff member. Explores career options for people with degrees in education but without teaching certificates.

Prerequisite(s): Program Director/Dean approval, student background check.

EDU 471A Educational Work Experience

4 Quarter Hours

Consists of 120 hours of work experience in an education setting. This work experience could be at an early childhood center, a residential or private youth facility, a college or university, an intermediate school district, a textbook or other educational products company, or in a P-12 school as a paraprofessional or other staff member. Explores career options for people with degrees in education but without teaching certificates.

Prerequisite(s): Program Director/Dean approval, Student background check.

EDU 475 Pre-School Practicum

3 Quarter Hours

Requires candidates who currently hold a ZA endorsement and wish to add the ZS endorsement to complete 90 hours of lead teaching in an early childhood special education classroom.

Prerequisite(s): Program Director/Dean approval, DHS Clearance, student background check.

EDU 476 Directed Teaching-Postbaccalaureate Early Childhood Education

5 Quarter Hours

Requires 150 hours of observation and lead teaching in grades K-3. This course is only appropriate for certified teachers seeking to add the ZS (early childhood) endorsement to an existing elementary teaching certificate.

Prerequisite(s): Program Director/Dean approval, DHS Clearance, student background check.

EDU 481A Directed Teaching I

12 Quarter Hours

Requires candidates to observe and teach in K-12 classroom settings for approximately 13 weeks during regular school hours, following the school district calendar and the supervising teacher's contractual agreement. Attendance at professional development conferences and seminars may be required.

Prerequisite(s): Program Director/Dean approval, Student background check.

EDU 482A Directed Teaching II

6 Quarter Hours

Requires candidates to observe and teach in P-12 classroom settings for approximately 7 weeks during regular school hours, following the school district calendar and supervising teacher's contractual agreement. Attendance at professional development conferences and seminars may be required.

Prerequisite(s): EDU 481A, Program Director/Dean approval, Student background check.

EDU 499 Special Topics in Education

4 Quarter Hours

Allows current teachers and administrators to obtain college credit for continuing their certification.

Prerequisite(s): Program Director/Dean approval.

EDU 499A Special Topics in Education

2 Quarter Hours

Allows current teachers and administrators to obtain college credit for continuing their certification.

Prerequisite(s): Program Director/Dean approval.

ELECTRICAL ENGINEERING

EE 311A Circuit Analysis I

4 Quarter Hours

Introduces the analysis of DC and AC circuits. Covers voltage, current, resistance, capacitance, and inductance. Emphasizes complex impedance, node and mesh analysis, network theorems, and transient analysis. Includes computer analysis and simulation. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): MTH 251, SCI 252.

EE 312 Circuit Analysis II

4 Quarter Hours

Continues the study of electric circuits with sinusoidal excitation, phasors, and steady-state AC analysis. Emphasizes frequency response, Bode plots, filter circuits, complex frequency analysis, and Laplace transforms. Introduces AC power and three-phase circuits. Includes computer analysis and simulation. 30 hours of lecture and 30 hours of lab are required.

Prerequisite(s): EE 311A.

EE 321A Digital Logic and Circuits I

4 Quarter Hours

Introduces discrete-state logic, circuits, and systems. Covers number bases (2, 8, 10, 16) and integer arithmetic, digital electronic parameters, logic circuits and gates, and combinational logic design using Boolean algebra and computer tools. Surveys adders, comparators, encoders and decoders, multiplexers and demultiplexers, and parity generators. Continues with latches and flip-flops, synchronous logic design, and finite state machines. Includes hardware description languages.

Prerequisite(s): MTH 112A.

EE 322 Digital Logic and Circuits II

4 Quarter Hours

Continues the study of discrete-state logic, circuits, and systems. Reviews sequential logic design. Surveys digital building blocks: arithmetic circuits, counters, registers, logic arrays, and memory arrays. Covers computer architecture, programming, machine and assembly language, addressing modes, caches and virtual memory, and input/output. Computer tools are used to synthesize and test logic designs using FPGA's. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EE 321A.

DESCRIPTIONS OF UNDERGRADUATE COURSES

EE 331A Electronic Circuits I

4 Quarter Hours

Introduces semiconductor physics and devices. Covers the p-n junction, diode, bipolar transistor, metal-semiconductor junction, and MOSFET. Emphasizes biasing, small-signal analysis, single-stage amplifier design, and frequency response. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EE 312, SCI 252.

EE 332 Electronic Circuits II

4 Quarter Hours

Continues the analysis and design of circuits. Includes bipolar and CMOS differential amplifiers, feedback, and stability. Addresses digital circuits including static CMOS, dynamic logic, pass-transistor logic, and integrated circuits. Emphasizes computer simulation of digital circuits. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EE 331A.

EE 341 Electromagnetic Fields and Waves

4 Quarter Hours

Presents vector analysis of static and dynamic electric and magnetic fields. Covers Maxwell's equations, energy, power, plane electromagnetic waves, phasors, transmission lines, antennas, and the Smith chart.

Prerequisite(s): SCI 252. Corequisite(s): EE 312.

EE 361 Dynamic Systems and Control

4 Quarter Hours

Introduces mathematical modeling of mechanical, fluid, and electrical systems in graphical and state equation form. This course includes time and frequency response of linear systems and linear feedback control.

Prerequisite(s): EE 311A, SCI 251. Corequisite(s): EE 312.

EE 411 Signals and Systems

4 Quarter Hours

Analyzes continuous and discrete time signals, continuous, linear, and time-invariant systems, causality, impulse response, superposition, and convolution. Topics include Fourier series, Fourier transforms, spectrum, Sampling theorem, and frequency response and filtering. Basic digital signal processing using the discrete-time Fourier and the discrete Fourier transform as well as the use of computer modeling and simulation will also be covered.

Prerequisite(s): EE 361, MTH 251, MTH 340.

EE 421 Microprocessors and Microcontrollers

3 Quarter Hours

Presents microprocessor architecture, including instruction sets, addressing modes, memory organization, timers, interrupts, and peripherals. Covers assembly language programming, analog and digital interfacing, and briefly introduces C programming.

Prerequisite(s): EE 322. Corequisite(s): EE 426, EE 431.

EE 426 Microprocessor/Automation Control Lab

2 Quarter Hours

Presents an opportunity to research and apply the theories and techniques presented in EE421 and EE431. 40 hours of lab are required.

Corequisite(s): EE 421, EE 431.

EE 431 Automation and Control

3 Quarter Hours

Focuses on industrial automation systems, sensors and measurement systems, data acquisition, process control, PID control, PLCs, motor drives, variable speed drives, embedded systems applications, and robotics.

Prerequisite(s): EE 361. Corequisite(s): EE 421, EE 426.

EE 441 Communication Systems and Circuits

4 Quarter Hours

Analyzes signals and noise, Fourier series and transforms, and random variables. Topics include analog and digital modulation techniques, coding systems, multiplexing, and detection. Introduces information theory. Examines system performance, design, and application.

Prerequisite(s): EE 411.

EE 451 Energy conversion and Power Electronics

4 Quarter Hours

Introduces students to the basics of power electronics, including power diodes and transistors, DC-DC and DC-AC converters, thyristors, inverters, rectifiers, magnetic circuits, inductors and transformers, and motor drives. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EE 332, EE 341.

EE 491 Engineering Project Management

4 Quarter Hours

Emphasizes project management strategies for planning and assignment of work, estimating hours for project completion, and tracking for progress and change in job requirements. This course includes critical path scheduling, resource allocation, and client/customer interface.

Prerequisite(s): EE 431, EGR 321. Corequisite(s): EE 451.

EE 498 Senior Design Project I

2 Quarter Hours

Continues the topics in EE491 (Engineering Project Management) and utilizes concepts from electrical engineering courses to complete a design project and prepare an engineering report on the design. This is a capstone course where students work in teams.

Prerequisite(s): EE 491.

EE 499 Senior Design Project II

2 Quarter Hours

Continues the topics in EE498 to complete a design project and prepare an engineering report on the design. This is the second course in the capstone design course sequence.

Prerequisite(s): EE 498.

ELECTRONIC AND ELECTRICAL TECHNOLOGY

EET 111A Electrical Technology

4 Quarter Hours

Introduces electrical fundamentals, including nomenclature, symbols, SI units, and schematic diagrams. Covers conductors, voltage, current, resistance, and power. Uses Ohm's Law, Watt's Law, and Kirchhoff's Voltage Law to analyze series circuits and voltage dividers. Emphasizes hands-on lab experiments in building and measuring circuits using a breadboard, multimeter, and power supply.

Prerequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam. Corequisite(s): MTH 099E or satisfies developmental pre-algebra or placement exam.

EET 115D DC Circuits

4 Quarter Hours

Focuses on the study of electrical circuits using Ohm's, Watt's, and Kirchoff's Laws to analyze parallel, series-parallel, and ladder networks. Covers the Thevenin, Norton, and Superposition Theorems, and the loop current method of circuit analysis. Emphasizes hands-on lab experiments, the use of test and measurement equipment, and technical report writing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EET 111A, MTH 099E or satisfies developmental essential math concepts or placement exam. Corequisite(s): MTH 111.

EET 121 Computer Aided Schematic Design

4 Quarter Hours

Introduces CAD software for electronic system design and development. Topics include developing and producing schematics, documentation and prints, using software to convert schematics to board layouts, including flexible circuits, single, double and multi-layer boards.

Prerequisite(s): EGR 111 or any INF course, MTH 091 or satisfies developmental essential math concepts or placement exam.

Corequisite(s): EET 111A.

EET 125B AC Circuits

4 Quarter Hours

Continues the study of electrical circuits with alternating current and reactive circuit elements. Covers electromagnetism, capacitance, inductance, phasors, and complex impedance. Introduces frequency response, decibels, Bode plots, filter circuits, and resonance. Emphasizes lab experiments and technical report writing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EET 115D, MTH 111. Corequisite(s): MTH 112A.

EET 131 Industrial Controls

4 Quarter Hours

Covers the electrical control of machinery, the programmable logic controller (PLC), relay schematics, ladder logic programming and logic operation. Students learn the design and basic operation of the control circuitry of the PLC. Topics include control circuit components, counters, timers, sequencers, motor starters, motor control circuits, pneumatic programming.

Prerequisite(s): EET 136.

EET 136 Digital Circuits I

4 Quarter Hours

Introduces digital logic, circuits, and systems. Covers number bases (binary, octal, decimal, hexadecimal), codes (2's complement, floating point), integer arithmetic, and logic functions. Uses Boolean algebra, DeMorgan's Laws, and Karnaugh maps to minimize logic functions. Surveys digital circuit parameters, and adders, comparators, encoders, decoders, multiplexers, demultiplexers, and parity generators.

Prerequisite(s): EET 115D, MTH 111.

EET 211 Solid State Devices I

4 Quarter Hours

Introduces semiconductors and electronic circuits. Devices include diodes and the bipolar junction transistor (BJT). Covers semiconductor theory, approximations, diode circuits, transistor biasing, load-lines, Q-point, and single- and multi-stage BJT amplifier circuits. Includes laboratory exercises.

Prerequisite(s): EET 125B.

EET 212 Solid State Devices II

4 Quarter Hours

Continues the study of semiconductors and electronic circuits. Devices covered include junction field-effect transistors (JFET's), metal-oxide semiconductor FET's (MOSFET's), thyristors, and operational amplifiers (op-amps). Circuits covered include buffers, amplifiers, summers, and filters. Includes laboratory exercises.

Prerequisite(s): EET 211.

EET 216 Digital Circuits II

4 Quarter Hours

Continues the study of digital systems with sequential logic components. Covers S-R and D latches, D and J-K flip-flops, and memory structures. Surveys counters, frequency dividers, timers, one-shots, shift registers, Flash memory, static RAM, dynamic RAM, and interfacing. Emphasizes hands-on lab experiments, and includes one design project.

Prerequisite(s): EET 136.

EET 221 Fiberoptics and Data Communications

4 Quarter Hours

Introduces students to fiber optics system components including optical fibers, optical sources, amplifiers, couplers, light detectors, and the principles of optical fiber communication systems. Hands-on experiments will provide students experience with fiber splicing, coupling, termination, and loss testing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EET 211.

EET 226A Microprocessor/Microcontroller Fundamentals

4 Quarter Hours

Introduces embedded programming and systems with the PIC18 family of microcontrollers. Covers the PIC18 architecture: (registers, addressing modes, memory organization, and instruction set), software control structures, hardware/software interfacing, timing, and peripheral control. Includes programming exercises in assembly and C language, using the MPLAB integrated development environment.

Prerequisite(s): EET 216.

EET 251 Introduction to Photonics and Laser Technologies

4 Quarter Hours

Introduces the fundamentals of light, optics, and lasers. Covers the nature and properties of light (such as energy, amplitude, wavelength, frequency, period, phase, propagation). Addresses geometrical optics (reflection, diffraction, imaging, thin lens formula, lens maker's equation), wave optics (interference, diffraction, polarization), and the basic principles and practical applications of lasers. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): MTH 112A. Corequisite(s): EET 211.

EET 261 Introduction to Robotics

4 Quarter Hours

Provides an overview of industrial robots, mobile robots, control, actuators, and sensors. Basic robotic mechanics and operations are introduced. Students gain experience with robot programming for a variety of tasks through simulations and hardware/software interfacing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): EET 226A.

EET 271 Capstone Project

4 Quarter Hours

Demonstrates the students' abilities to design a project, procure parts, then build, program, troubleshoot, document, and demonstrate the project to the class. Projects may use electronic, photonic, and

mechanical components, such as PLC's, microcontrollers, photo-sensors, displays, motors, pneumatic and hydraulic systems, vehicles, or robots. Emphasizes fabrication, troubleshooting, and problem-solving skills. 20 hours of lecture and 40 hours of lab are required. This is the capstone course of the Electronics Technology program.

Corequisite(s): EET 131, EET 212.

ELECTRONIC SYSTEMS TECHNOLOGY

EST 101 Introduction to Electronic Systems Technology

4 Quarter Hours

Introduces students to the field of Electronic Systems Technology and career opportunities related to the field. The concept of a total systems integration approach is introduced. Provides an overview of low voltage systems, fire/intrusion alarm systems, telecommunication systems, fiber optics, wireless communication systems, and digital home technology systems, and the integration of these systems controlled by a central computer.

EST 111 Electronic Circuits and Components

4 Quarter Hours

Provides students the fundamentals of all aspects of Electronics, from what a resistor and other components are, to the design, characterization, and fault-finding of active circuits. Both analog and digital circuitry is included. Students will learn circuit design through highly active Virtual Labs.

Corequisite(s): EST 101.

EST 121 Low Voltage Systems

4 Quarter Hours

Provides students with the principles of low voltage systems. Installation techniques, tools, and supportive hardware, raceways, and cabling is studied, along with the applicable standards and codes associated with low voltage systems. Job safety, job planning, and cost estimating are introduced. Students will gain extensive hands-on opportunities in lab exercises.

Prerequisite(s): EST 101, EST 111, NET 101.

EST 131 Fiber Optic Systems

4 Quarter Hours

Provides a comprehensive, in-depth study of fiber optic communication systems including system design, operating principles, characteristics, and the components that comprise fiber optic systems. Single and multi-mode cabling systems are covered in various configurations and environments. New and improved components and systems architectures are also covered. Topics include Raman amplifiers, time division multiplexing, and MEMs components. Hands-on experience is gained through labs.

Prerequisite(s): EST 121.

EST 161 ESPA Certification Preparation

2 Quarter Hours

Reviews concepts introduced during the first year in the EST program in preparation for taking the Electronic Systems Preparation Alliance's (ESPA) Certified-EST Exam. Using ESPAs "Exam Blueprint" Domains and Tasks, students will review and prepare for questions over electrical basics, tools, construction methods and materials, wiring and installation practices and standards, codes, and safety practices. The ESPA exam will be offered on campus at the conclusion of this course. Scholarships to cover the cost of this exam are available. Passing this exam will result in one year free membership in CEDIA.

Prerequisite(s): EST 121.

EST 211 Audio/Video Systems

4 Quarter Hours

Covers audio/video systems that are installed in schools, hospitals, churches, corporate environments and home theater sound systems. Topics include sound reinforcement principles, system wiring, interfaces, equipment used, and psychoacoustics. Equipment coverage includes microphones, console automation, analog systems, digital systems, loudspeakers, and HDTV. Hands-on experience is gained through labs.

Prerequisite(s): EST 121.

EST 231 Telecommunication Systems

4 Quarter Hours

Provides students an industry overview of telecommunication systems. The fundamentals of POTS and VoIP are covered along with circuit switched PBX's and public switched telephone network systems. Virtual Private Networks and other specialized network services are introduced. Students gain experience in system installation techniques using various installation tools and connectors during labs.

Prerequisite(s): CIS 107B, CSC 121B, EST 131.

EST 236 Wireless Systems

4 Quarter Hours

Provides students with an overview of key wireless technologies and wireless system design fundamentals. Coverage includes path loss, small scale fading multipath, spatial-temporal channel modeling, and microcell indoor propagation. New wireless LAN technologies and 3G air interface standards are detailed, including W-CDMA, GPRS, UMTS, and EDGE.

Prerequisite(s): CIS 107B, CSC 121B, EST 231.

EST 241 Electronic System Integration Strategies

4 Quarter Hours

Describes the important skills, knowledge and strategies necessary to master the integration of a computer centralized control system with other various electronic sub-systems. The electronic sub-systems include audio/video, telecommunications, wireless, low voltage, security and surveillance, HVAC, and building access. The applications cover commercial, industrial, and residential. Strategies of retrofitting older systems to a centralized computerized control are also discussed.

Prerequisite(s): EST 231, EST 236, EST 251A.

EST 251A Security, Access Control, and Surveillance

4 Quarter Hours

Covers the fundamentals, skills, and applications necessary to design, install, maintain, and troubleshoot modern security and fire alarm systems, CCTV, and surveillance systems, and access control systems. Extensive labs allow students to gain experience with the sensors, cameras, devices, technologies, and wiring that these systems utilize. While this course focuses on residential applications, the fundamentals and technologies studied are additionally used in commercial and industrial settings.

Prerequisite(s): EST 231.

EST 261 CEDIA Certification Preparation

2 Quarter Hours

Reviews concepts addressed over their course of study in the EST program in preparation for taking the Consumer Electronics Design and Installation Association's (CEDIA) Certified Professional EST II Exam. Using CEDIA's "Job Task Analysis" students will review and prepare for questions over general technician roles and responsibilities, infrastructure (pre-wire and trim-out), equipment mounting, audio/video systems set-up, communications, integrated control systems set-up, and system verification and testing. The CEDIA exam is administered at off-campus locations.

Prerequisite(s): EST 161, EST 236, EST 251A.

EST 271 Maintenance, Troubleshooting, and Repair

4 Quarter Hours

Covers basic electronic maintenance, troubleshooting, and repair methods. The five steps of systematic, successful troubleshooting; analyzing, diagnosing, repair, test, and prevention, are explored in detail. The processes of system documentation, system commissioning, and user training are examined. Several practical scenarios are presented to hone these skills and to allow for use in common EST test equipment.

Prerequisite(s): EST 231, EST 236, EST 251A. Corequisite(s): EST 241.

EMERGENCY MEDICAL SERVICES

EMS 101 Basic EMT I

12 Quarter Hours

Provides an overview of the components of the Emergency Medical Services system including roles and responsibilities of the Basic EMT, an overview of basic human anatomy, airway management patient assessment and documentation, and will address basic medical emergencies. 80 hours of lecture, 20 hours of online classroom, and 40 hours of lab are required.

Prerequisite(s): Student background check.

EMS 102 Basic EMT II

12 Quarter Hours

Continues the study of the Basic EMT program in preparation for Basic EMT licensure. Topics include additional medical and behavioral assessment, trauma management, patient stabilization, and transportation. This course will also focus on special populations and cultural considerations. 70 hours of lecture, 60 hours of lab, and 60 hours of clinicals are required.

Prerequisite(s): C or better in EMS 101, Student background check.

EMS 201E Paramedic Training I

12 Quarter Hours

Includes specialized topics such as emergency vehicle operations and hazardous materials response. Introduces training in shock management, intravenous therapy, and advanced airway control techniques. Introduces medication administration, including a variety of administration routes and dosage calculations as well as drugs specific to the Advanced EMT role. This course reviews the Advanced EMT's role and responsibilities, addresses the field's medical and legal aspects, and instructs in EMS system operation at the Advanced EMT and Advanced Life Support levels. Includes hands-on laboratory experiences and clinical work.

Prerequisite(s): C or better in EMS 102 or basic EMT license, Student background check.

EMS 202A Paramedic Training II

12 Quarter Hours

Introduces respiratory emergencies and patient management at the paramedic level, along with appropriate use of respiratory medications. Introduces the concepts and terminology relative to cardiac arrhythmias and examines how to differentiate among them. This course presents electrical treatment modalities such as defibrillation and cardioversion for cardiac emergencies as well as the use of cardiac medications. Introduces the concepts of 12-lead electrocardiography and addresses assessment and management of the patient suffering from acute myocardial infarction. Includes extensive practical laboratory experience and a required clinical component including hospital and ALS ambulance rotations.

Prerequisite(s): C or better in EMS 201E, Student background check.

EMS 203A Paramedic Training III

12 Quarter Hours

Reviews the concepts underlying mechanism of injury and nature of illness and expands on the treatment of trauma and various medical conditions, while integrating pathophysiological and pharmacological knowledge acquired in EMS201D and EMS202A. Includes extensive practical laboratory experience and a required clinical component.

Prerequisite(s): C or better in EMS 202A, Student background check.

EMS 204 Paramedic Training IV

12 Quarter Hours

Introduces the care of special patients including neonatal, pediatric, and geriatric populations. Includes extensive clinical experience in various hospital and non-hospital medical environments, and on Advanced Life Support ambulances. Begins to synthesize didactic and practical knowledge and develop paramedic critical thinking skills. Extensive skill performance evaluation is included.

Prerequisite(s): C or better in EMS 203A, Student background check.

EMS 205 Paramedic Training V

12 Quarter Hours

Continues the development of critical thinking skills through scenario-based instruction and participation in ACLS, PALS and a trauma course. Reinforces electrical therapy skills of defibrillation, cardioversion, external pacing, as well as 12-lead electrocardiography. Reviews emergency pharmacology and explores appropriate EMS system operations at the paramedic level. There is an emphasis on development of the paramedic as a professional. This course includes a field internship of 250 hours, ACLS, PALS, a trauma course and lecture.

Prerequisite(s): C or better in EMS 204, Student background check.

EMERGENCY SERVICES MANAGEMENT

ESM 201 Law and Ethics for Emergency Services Personnel

2 Quarter Hours

Focuses on legal, ethical, and bioethical aspects of emergency services. Included topics are licensure and certification, professional liability, quality assurance, and risk management.

ESM 211 Emergency Services Management Operations and Finance

4 Quarter Hours

Introduces students to a broad scope of strategic planning, marketing tactics, and operational decisions in emergency services management. This course also introduces students to an overview of basic accounting principles and finance in emergency services settings along with addressing considerations in budget preparation and management.

DESCRIPTIONS OF UNDERGRADUATE COURSES

ESM 251 Emergency Services Management Seminar

4 Quarter Hours

Discusses a variety of significant issues related to emergency services in today's dynamic, customer-driven environment. This course focuses on challenges of changes and management's response to change, the diversity of management methods, and managing strategies for the future. As a seminar, this course uses peer teaching and learning approaches, involves group learning experiences in a team environment, requires practical application of concepts and includes a capstone project. This course culminates the associate's degree in the emergency services management program.

Prerequisite(s): ESM 201, ESM 211.

ENGINEERING

EGR 101 Engineering Graphics

4 Quarter Hours

Surveys the use of drafting instruments and computers to generate the necessary geometry for design, analysis, and manufacturing. 30 hours of lecture and 20 hours of lab are required.

EGR 105 Introduction to Engineering and Design

4 Quarter Hours

Surveys the profession of engineering through analysis and design problem-solving examples. This course also introduces students to engineering sketching.

Prerequisite(s): MTH 124.

EGR 111 Technical Communications for Engineering Sciences

4 Quarter Hours

Prepares students to communicate technical information in written, digital and oral forms in an effective manner to a variety of audiences. Use of supporting computer software is emphasized.

Prerequisite(s): C or better in ENG 101 or placement exam and approved writing sample.

EGR 131 Industrial Mathematics

4 Quarter Hours

Provides the technical student with a core set of mathematical skills that are required to perform a variety of industrial jobs including technicians and the skilled trades. The content and difficulty of the course will move from simple to more complex mathematical functions. Many of the problems used in this course are based on manufacturing drawings and schematics. This course will include a review of basic Algebra, advanced Algebra (more commonly known as Algebra II), plane geometry and an introduction to the fundamentals of trigonometry.

EGR 171 Computing for Engineers

4 Quarter Hours

Introduces students to programs useful for solving engineering problems. Covers the design and implementation of algorithms and topics in computer programming: arrays, files, functions, pointers, and structured data types.

Prerequisite(s): EGR 111, MTH 112A. Corequisite(s): MTH 124.

EGR 321 Engineering Economy I

4 Quarter Hours

Introduces the foundations of engineering economy. Students will develop an understanding and the ability to work problems that account for the time value of money, cash flow, and equivalence at different interest rates. The techniques are mastered from the basis of how an engineer in any discipline can take economic value into account in virtually any project environment. Eight factors commonly used in engineering economy computations are introduced and applied. One or more engineering alternatives are formulated to solve a problem or provide specified results. Different methods by which one or more alternatives can be evaluated economically using factors and formulas learned.

Prerequisite(s): MTH 112A or MTH 131.

EGR 322 Engineering Economy II

4 Quarter Hours

Reviews the principles of Engineering Economy I to extend the use of economic evaluation tools in real-world situations. Replacement analysis is performed and applied to the evaluation tools to make the correct economic choice. Breakeven analysis is introduced and used to assist in the economic evaluation of process. The effects of inflation, depreciation, income taxes in all types of studies, and indirect costs are incorporated into the methods previously performed in Engineering Economy I. An expanded version of sensitivity analysis is developed, and students will formulate the approach to examine parameters that vary over a predictable range of values. The elements of risk and probability are considered using expected values, probabilistic analysis, and Monte Carlo - based computer simulation.

Prerequisite(s): EGR 321.

EGR 395 Engineering Research

4 Quarter Hours

Presents junior and senior engineering students with an opportunity to investigate, in depth, an engineering topic of interest to them under the guidance of a faculty member. The chosen faculty member will work with the student to develop learning objectives for the course. These learning objectives will include writing a research paper summarizing results obtained, and presenting it to a local or national conference or in a campus-based symposium as arranged by the dean.

Prerequisite(s): ME 341A, ME 351, Program Director/Dean approval.

ENGLISH

ENG 091 English Review

4 Quarter Hours

Helps students develop fluency and confidence in their writing in preparation for the demands of college-level writing. Targeted instruction addresses concepts of thesis, development, support, citations, logical order, transitions, word level, sentence level, mechanics, and document design. Consistent class attendance is critical. Credit earned does not count toward any degree. Students required to repeat a developmental course will be placed on a learning contract.

ENG 098B College Reading

4 Quarter Hours

Improves critical reading skills and comprehension necessary for college level reading in career-related areas. Consistent class attendance is critical. Credit earned does not count toward any degree. Students required to repeat a developmental education course will be placed on a learning contract.

ENG 101 Composition I

4 Quarter Hours

Emphasizes academic writing by reading and thinking critically to strengthen essential communication skills through the use of the writing process. Various assignments focus on summary and response, analysis, and informative writing. Research practices and research writing in APA style are essential to the course.

Prerequisite(s): ENG 091 or satisfies developmental writing or placement exam, ENG 098B or satisfies developmental reading or placement exam.

ENG 102 Composition II

4 Quarter Hours

Continues developing students' critical thinking and writing skills through reading and argumentative writing. Emphasizes academic writing to articulate the relationships among language, knowledge, and power. Various assignments focus on position, argument analysis, and argumentative proposal. Research practices and research writing in APA style are essential to the course.

Prerequisite(s): C or better in ENG 101 or placement exam and approved writing sample.

ENG 211A Structures of English

5 Quarter Hours

Examines the structures of English by applying various theories of grammar including traditional, transformational, and structural grammars. This course also examines aspects of language such as syntax, morphology, phonology, etc. Analyzes language use in various social contexts and with various audiences with an emphasis on Standard American English.

Prerequisite(s): ENG 102.

ENG 221 Critical Writing and Literary Analysis

4 Quarter Hours

Studies literary analysis and provides practice of methods used to analyze the contents of literary works; includes a review of major themes and schools of literary criticism.

Prerequisite(s): ENG 102.

ENG 231 Language and Culture

4 Quarter Hours

Studies how and why people communicate the way they do. Habitual talking, listening, and writing behaviors of individuals and groups are examined as well as the influences of the history of the English language, home, community, and culture on the language structures and language uses of individuals. Culture, as it influences linguistic preference, is studied.

Prerequisite(s): ENG 102.

DESCRIPTIONS OF UNDERGRADUATE COURSES

ENG 311 Creative Writing

4 Quarter Hours

Expands students' writing skills beyond the expository style studied in Composition I and II and in the Workplace Communication course. This course studies poetry forms and fiction writing techniques. It is not necessary that a student be an experienced creative writer, only that he or she be committed to the writing process.

Prerequisite(s): ENG 102.

ENG 321 Language Arts and Linguistic Foundations

4 Quarter Hours

Applies linguistic theory to language arts education. Includes an overview of structural and transformational linguistics and its impact on oral and written communication and explores the theory and techniques of listening, speaking, and writing effectively in the English language.

Prerequisite(s): ENG 101. Corequisite(s): ITP 111 or SPN 101.

ENG 411 Foundations of Mass Communication

4 Quarter Hours

Studies theory of behavior in communication in general and in mass media in particular. This course also focuses on the design and evaluation of public opinion studies and research topics in communication with an emphasis on the effects that various media have on consumers.

Prerequisite(s): ENG 102.

ENG 493 Senior Seminar: English and Language Arts

4 Quarter Hours

Demonstrates a broad mastery of English and Language Arts content and translates theoretical principles into practical applications.

Students must assess their knowledge of English and Language Arts subject matter; identify, remediate, and evaluate growth in weak areas; and integrate and apply the full spectrum of knowledge across the English and Language Arts curriculum in this capstone course. Students must distinguish themselves as analytic and reflective problem solvers in the examination of the history, scholarly literature, issues, standards, and the professional community of English and Language Arts educators.

Prerequisite(s): Senior status, Program Director/Dean approval.

ENTREPRENEURSHIP

EN 201 Introduction to Entrepreneurship

4 Quarter Hours

Explores what it means to be an entrepreneur. What is involved in creating a successful entrepreneurial venture? Characteristics and traits of successful entrepreneurs are explained.

Prerequisite(s): MGT 101, MKT 111B.

EN 211 Human Resources for Entrepreneurs

4 Quarter Hours

Explores and considers the following: How do rules and regulations determine my actions as an entrepreneur, what role do Human Resources play in the success or failure of a small business, and how does my relationship with my employees impact my business.

Prerequisite(s): MGT 101, MKT 111B.

EN 221 Finance for Entrepreneurs

4 Quarter Hours

Focuses on the all-important aspect of financial management, at the conclusion of the course students will understand and address the following issues as it pertains to their business concept: Cash management, financial aspects of business growth, budget process, sustainable cash flow, importance of ethics in financial relations.

Prerequisite(s): ACC 122.

EN 231 Marketing for Entrepreneurs

4 Quarter Hours

Focuses on the idea that no matter how great an idea or concept is, it will fail without good marketing. This course is designed to help address the following: Development of a competitive edge, proposal to successfully market a business, overcome any obstacles in marketing a business, communication of value to the consumer, importance of image and branding; and the processes to provide the fundamental information and knowledge needed to produce a viable marketing plan.

Prerequisite(s): EN 201, EN 211.

EN 241 Managing Entrepreneurial Operations

4 Quarter Hours

Establishes a framework for an entrepreneur to manage day-to-day operations of their business. The course will be centered on: Planning, creating operational effectiveness, developing the customer experience, regulatory compliance, and effective organizational leadership skills.

Prerequisite(s): EN 231.

EN 291 Developing the Business Plan

4 Quarter Hours

Focuses on the development of a presentation ready business plan and have the opportunity to present their plan. This course will draw on the information and work done in all previous EN courses. This is the capstone course in the series.

Corequisite(s): EN 241.

FINANCE

FIN 101 Personal Finance

4 Quarter Hours

Provides a balanced exposure to development and understanding the various aspects involved in managing one's personal finance.

Prerequisite(s): ENG 091 or satisfies developmental writing or placement exam, MTH 091 or satisfies developmental math or placement exam, ENG 098B or satisfies developmental reading or placement exam.

FIN 301A Principles of Finance

4 Quarter Hours

Covers working capital management, capital budgeting issues, a study of the time value of money, financial statement analyses, valuation of financial instruments, term structure of interest rates, and analyses of short- and long-term capital markets.

Prerequisite(s): MTH 108 or MTH 111, ACC 122.

FIN 315 Risk Management

4 Quarter Hours

Examines the all-encompassing nature of pure risk on the individual, business, and society; illustrating ways in which risk management plans can be implemented. Exposure to this content enables students to deal with various situations where there is uncertainty about the outcome and that the possibility exists for an unfavorable outcome.

Prerequisite(s): FIN 301A.

FIN 325 Banking and Financial Institutions

4 Quarter Hours

Focuses on the monetary system; introduction to the financial markets; and regional and national banking institutions including thrifts, savings and loans, credit unions, brokerage firms, insurance companies, investment companies, and money center banks.

Prerequisite(s): FIN 301A.

FIN 341 Credit Analysis and Commercial Lending

4 Quarter Hours

Introduces students to credit analysis, credit bureaus, credit ratings, and to the differences between personal and commercial credit. Students receive exposure to how lines of credit are determined as well as various methods individuals and businesses can use to procure funds.

Prerequisite(s): FIN 301A.

FIN 355 Financial Markets

4 Quarter Hours

Examines the development of modern financial markets with emphasis on the factors that determine interest rates, pricing mechanisms for fixed-income securities, and private and public raising of financial capital.

Prerequisite(s): FIN 301A.

FIN 401 Personal Financial Planning

4 Quarter Hours

Provides a comprehensive analysis of a financial portfolio including defining the purpose and the individual investments included within that portfolio to assess whether financial goals can/are being met. Students will work to specify realistic financial goals given available resources. Students will gain an awareness of the resources available and sources of income used to obtain the financial goals, as well as an understanding of the risk/reward ratio of each investment alternative.

Prerequisite(s): FIN 355.

FIN 451A International Financial Management

4 Quarter Hours

Introduces students to investing in non-domestic securities or assets as another way to diversify a portfolio or holdings. Students will explore the various risks—political, exchange rates, foreign taxation, and different reporting methods—that are inherent in international investing. Since foreign investment returns are not correlated with US returns, hedging and various market instabilities can offer unique opportunities for portfolio diversification and will be explored.

Prerequisite(s): FIN 401.

DESCRIPTIONS OF UNDERGRADUATE COURSES

FIN 461 Investment Management

4 Quarter Hours

Acquaints students with the various investment alternatives and examines the advantages and disadvantages of each. Students will be given the opportunity to assess and evaluate investment alternatives using various techniques including fundamental and technical analysis, risk/reward models, and diversification.

Prerequisite(s): FIN 401.

FIN 471 Financial Statement Analysis

4 Quarter Hours

Explores the use of fundamental financial analysis and valuation techniques when evaluating the balance sheet, income statement, and cash flows statement. The focus of this course is on financial data that can be analyzed to assist in investment, commercial lending, or other economic decisions.

Prerequisite(s): FIN 451A, FIN 461.

FIN 491 Finance Seminar

4 Quarter Hours

Integrates material from previous finance courses through practical application of analysis and assessment of financial markets, corporate financing, and personal financial planning. This is a capstone course for the Bachelor of Business Administration - Finance degree program.

Prerequisite(s): FIN 471.

FIRE PROTECTION/PUBLIC SAFETY

FIRE 101 Fire Academy (Part I)

10 Quarter Hours

Introduces students to the basics of firefighting through a combination of lecture and hands-on learning. The course includes utilizing tools and equipment commonly used by municipal fire departments. Hazardous materials operations level training is a required component. Topics include the basics of fire suppression, apparatus operation, life safety, and physical fitness. This course is sanctioned by the Michigan Fire Fighters Training Council (MFFTC), the firefighter certification agency for the State of Michigan. Completion of this course, along with FIRE102 and medical first responder, will prepare students to take the Michigan Firefighter certification exams.

Prerequisite(s): Student background check.

FIRE 102 Fire Academy (Part II)

14 Quarter Hours

Introduces students to the basics of firefighting through a combination of lecture and hands-on learning. The course includes utilizing tools and equipment commonly used by municipal fire departments. Topics include advanced fire suppression, aerial operation, life safety, and physical fitness. This course is sanctioned by the Michigan Fire Fighters Training Council (MFFTC), the firefighter certification agency for the State of Michigan. Completion of this course, along with FIRE101 and medical first responder, will prepare students to take the Michigan Firefighter certification exams.

Prerequisite(s): C or better in FIRE 101, Student background check, Program Director/Dean approval.

FIRE 121 Principles of Emergency Services

4 Quarter Hours

Provides an overview to fire protection and emergency services; career opportunities in fire protection and related fields; culture and history of emergency services, 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 psychics; introduction to fire protection systems; introduction to fire strategy and tactics; life safety initiatives.

Prerequisite(s): Student background check.

FIRE 131 Fire Prevention

4 Quarter Hours

Provides fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; fire and life safety education; and fire investigation.

Prerequisite(s): Student background check.

FIRE 141 Fire Protection

4 Quarter Hours

Provides information related to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers.

Prerequisite(s): Student background check.

FIRE 151 Building Construction for Fire Protection

4 Quarter Hours

Provides the components of building construction related to firefighter and life safety. The elements of construction and design of structures are shown to be key factors when inspecting buildings, preplanning fire operations, and operating at emergencies.

Prerequisite(s): Student background check.

FIRE 211 Principles of Fire and Emergency Services, Safety and Survival

4 Quarter Hours

Introduces the basic principles and history related to the national firefighter life safety initiatives, focusing on the need for cultural and behavior change throughout the emergency services.

Prerequisite(s): Student background check.

FIRE 221 Fire Behavior and Combustion

4 Quarter Hours

Explores the theories and fundamentals of how and why fires start, spread, and are controlled.

Prerequisite(s): Student background check.

MFR 101 Medical First Responder

3 Quarter Hours

Provides the education necessary for first responders to provide initial care to people suffering from a variety of medical conditions. This training is first level of EMS recognized by the state of Michigan. This EMS license is typically utilized by Police, Security Agencies, rural Fire Departments, Industrial workers, lifeguards, and search and rescue teams. All students that successfully complete this course will be eligible for NREMT Medical First Responder testing to obtain a state of Michigan MFR License. Students will also receive an American Heart Association Healthcare Provider (CPR) card that is current for two years upon completion.

Prerequisite(s): Student background check.

FOOD AND BEVERAGE MANAGEMENT

FBM 111 The History and Culture of Eating and Drinking

4 Quarter Hours

Provides a history, anthropology, and culture studies class about food and beverage, its implications for politics, religion, economics, health and well-being, and esthetics.

FBM 121 Culinary Fundamentals

6 Quarter Hours

Focuses on the fundamental supervisory skills required in the food and beverage management industry. Students will be taught how to identify the quality of food products, how to understand, create, and monitor sanitation systems. Students will participate in the identification and operation of basic kitchen equipment and small wares, identify and evaluate quality and presentation of a la care and banquet food items. During the class students will develop an understanding of skills required to recruit, interview, and hire chefs and kitchen staff, and develop critical thinking skills necessary to address common kitchen issues.

Prerequisite(s): C or better in CUL 131B.

FBM 131 Accounting for Food and Beverage Managers

4 Quarter Hours

Lays the foundation on which the student's ability to manage the daily financial health of his/her restaurant is built. Basic accounting skills of sales and cost management are practiced within a restaurant structured financial system. The course utilizes QuickBooks, a user friendly bookkeeping system which is the basis of many small and large business back office operation.

FBM 151 Liquor Identification and Liabilities

4 Quarter Hours

Gives students an understanding of the various forms of alcohol along with the tools needed to handle difficult situations in regards to a restaurant or bar patron's consumption of alcohol. Topics that are covered include identifying and classifying spirits, liquor liability, intoxication rate factors, acceptable forms of identification, and documentation of alcohol related incidents.

DESCRIPTIONS OF UNDERGRADUATE COURSES

FBM 221 Menu Planning and Analysis

4 Quarter Hours

Introduces students to all aspects of menu development. Students will develop menus start to finish, including, analyzing a business, creating a concept that is appropriate to a theme of a restaurant, and developing a menu appropriate to the theme. Students will utilize industry specific mathematics to cost out menus, and analyze existing menus. Students will learn to analyze a balanced menu based on food cost, labor cost, operating expenses, and extensive market research.
Prerequisite(s): C or better in BPA 152 or C or better in CUL 153 or C or better in FBM 261.

FBM 231 Hospitality Financial Management

4 Quarter Hours

Gives students the opportunity to apply accounting systems and principles that were taught in FBM131, accounting for food and beverage managers. The class begins with an overview of QuickBooks back office accounting management and how accounting is used to collect and organize data on a shift by shift basis. Principal areas of focus are those systems which most directly impact on, and measure effective shift management. Examples include daily sales recording and breakdown by revenue center, labor scheduling from budget, shift by shift performance review of sales, labor, food and beverage costs, weekly cost center review, proactive management, and action plan creation.

Prerequisite(s): FBM 131.

FBM 241 Food and Beverage Management

4 Quarter Hours

Focuses on the development of a food service operation plan and essential skills needed to manage a variety of food service operations. Emphasis is given on strong leadership skill development, developing front of the house and back of the house teams, staffing, labor cost, human resource management, and creating restaurant long term plans.

FBM 251 Introduction to Wine

4 Quarter Hours

Provides an overview of the subject of wine, from vineyard to bottle and bottle to table. This survey course explores the world of wine through lectures, tastings, assigned readings, viewings, and projects. Upon successful completion of the course, students will demonstrate basic knowledge of grape growing and wine making; recognition of the main categories of wine, including grape varieties, wine styles and wine growing regions; identify wine attributes by taste; and understand general principles of wine pairing and wine service.

FBM 255 Beer Styles and Service

4 Quarter Hours

Introduces a variety of different beer styles and outlines proper service techniques. Specific examples of service techniques include pouring and serving draught beer, serving bottled beer, proper beer storage, and using beer glassware appropriately. Students in the class will also receive hands-on experience in brewing, brewing equipment, beer ingredients, and beer and food pairing; along with an understanding of normal beer flavors versus off-flavors using a problem solving approach to recognize flavor deterioration.

FBM 261 Bar Management and Mixology

6 Quarter Hours

Acquaints students with a magnitude of drink recipes and drink mixing techniques. Students will not only be able to identify, but will also become comfortable creating classic and original cocktails in this course. This course also explores the world of bar management and supervision; including, but not limited to purchasing, receiving, storing, inventorying, and handling bar supplies and equipment. Bar Management and Mixology will also cultivate proper communication practices between guests, distributors, servers, bartenders, and managers.

Prerequisite(s): C or better in FBM 151.

FBM 281 Restaurant Operations

8 Quarter Hours

Provides students with an introductory learning experience in the essentials of food and beverage front of the house management. Focus is given to: guest needs and customer service, cost controls, marketing, forecasting, and focuses on teamwork while analyzing various management styles. Students will attend class lectures and experience day to day management activities in a supervised food service environment. Student must complete 16 hours of lab, 4 hours of lecture, and 4 hours of Blackboard contact each week.

Prerequisite(s): CUL 222A.

FBM 331A Hospitality Marketing

4 Quarter Hours

Examines the essentials of food service marketing and focuses on the nature of industry competition, and the importance of customer service. This course identifies how food service management can assess and best serve their target market and support the organization's mission. Marketing principles will be applied to the food service industry through an analysis of marketing mix, marketing strategy, and sales techniques.

Prerequisite(s): WRKCM201A.

FBM 341 Wine and Viticulture

6 Quarter Hours

Provides a global perspective on wine growing and production regions of the world. Includes pairing wine and other spirits with food. Students will become familiarized with the service methods distinct to alcohol and spirits and how to responsibly enjoy them and the laws that govern them. The history, grape growing, fermentation, winemaking operations, and sociology of wine will be explored.

Prerequisite(s): FBM 251.

FBM 351A Banquet Meeting and Planning

4 Quarter Hours

Provides analysis of banquet planning from initial customer contact to delivery of food and beverage. Focus is given on organizational communication, guest need assessment, cost control, facility layout, and learning ability to multi-task with awareness of all facets of foodservice operation functions.

Prerequisite(s): FBM 281, WRKCM201A.

FBM 401 Hospitality Human Resource Management

4 Quarter Hours

Provides a comprehensive analysis of food service human resource management. Facilitates the process of evaluating employees within a hospitality organization through development of appraisal systems, measurement tools, and roles of training and development. Focus is also given on hospitality employment laws, management and labor relations, and social issues within the work environment.

Prerequisite(s): FBM 281.

FBM 441 Hospitality Ownership and Entrepreneurship

4 Quarter Hours

Presents growth and development of hospitality opportunities while focusing on present status and future trends of the food and lodging industry. Includes special problems of operating small and medium sized establishments. Introduces credit and account procedures, management of staff, marketing, advertising, and security, as well as; the personal attitudes, qualifications and ethics of ownership.

Prerequisite(s): FBM 231, WRKCM201A.

FBM 451A Controlling and Analyzing Foodservice Operational Costs

4 Quarter Hours

Analyzes total food service operations management. Students will apply accounting principles to the analysis of financial data in food and beverage operations. Budgeting systems, restaurant profitability, and cost control measures will be covered with an eye toward implementing and building effective management and personnel cost control initiatives.

Prerequisite(s): FBM 231, WRKCM201A.

GAME SOFTWARE DEVELOPMENT

GSD 301 Game Scripting

4 Quarter Hours

Introduces students to storyboarding, game layout, and game design. Students will create scripts and storyboards for existing games and games of their own design.

Prerequisite(s): ENG 102.

GSD 311 C# Programming

4 Quarter Hours

Introduces students to program design and development using C#. Students will recognize and interpret basic concepts, types, variables, conversions, expressions, statements, namespaces, structs, arrays, interfaces and attributes of C# programming language.

Prerequisite(s): CS 218A.

GSD 321 Game Console Design

4 Quarter Hours

Allows students to continue the use of C# in the design of programs for Game Consoles specifically using XNA for Microsoft applications. Combining Windows and Console game development, students will experience state-of-the-art authoring, development, and debugging.

Prerequisite(s): GSD 311.

GSD 331 Application Security Practices

4 Quarter Hours

Provides students with the ability to recognize, design, and build software security into project development. Strategies and methods of preventing attacks and mitigating exploits, focusing on threat modeling analysis and best security practices will be explored.
Prerequisite(s): GSD 311.

GSD 341 Flash Game Development

4 Quarter Hours

Continues the use of the Flash programming language for developing games and graphical animations. It draws heavily upon the concepts and terminology of object-oriented programming languages.
Prerequisite(s): GSD 311, WEB 201.

GSD 401 3-D Character Design

4 Quarter Hours

Provides the basics of 3D character design. Students will design and model characters using wire frame techniques, texturing, character rigging, and rendering.
Prerequisite(s): GSD 341.

GSD 411 3-D Character Animation

4 Quarter Hours

Provides the basics of 3D character animation. Students will design the associated movie clips for a 3D character's range of motion, reviewing walking, facial, and animal motion.
Prerequisite(s): GSD 401.

GSD 421 Artificial Intelligence

4 Quarter Hours

Introduces students to AI technologies for interacting with and playing against large-scale, networked games. Students will learn standard AI techniques including character following, knowledge representation and reasoning, search, learning, and planning.
Prerequisite(s): GSD 341.

GSD 431 Game Programming I

4 Quarter Hours

Introduces students to game programming using game development engine software. Processes of game development, game assets, and introduction to UnrealEd development application, binary space partitioning, terrain generation, volume development, and lighting are implemented.
Prerequisite(s): GSD 411.

GSD 432 Game Programming II

4 Quarter Hours

Continues the use of game development engine software for programming games. Topics covered will include particle effects, working with the Karma Physics engine, Bot development and AI navigation, and creating scripted sequences.
Prerequisite(s): GSD 431.

GSD 499 Senior Design Project in Game Software Development

4 Quarter Hours

Provides students with an opportunity to demonstrate mastery of game design. At the end of this course students will have designed and programmed a complete game that highlights acquired skills for prospective employers.
Prerequisite(s): GSD 432, Program Director/Dean approval.

GEOGRAPHY

GEO 101B World Geography I

4 Quarter Hours

Examines world regional geography, with special attention given to Europe, Russia, and the Americas. The concepts of regionalism, culture, and national environment are studied, along with historical, political, and economic forces that shape people's lives.

GEO 102B World Geography II

4 Quarter Hours

Examines world regional geography, with special attention given to Africa, the Middle East, and Asia. The concepts of regionalism, culture, and natural environment are studied, along with the historical, political, and economic forces that shape people's lives.

HEALTH INFORMATION TECHNOLOGY

HIT 100 Healthcare Delivery Systems

4 Quarter Hours

Includes an in-depth study of the health information management profession, opportunities and career options in health information, healthcare delivery systems, healthcare reimbursement overview, and accreditation and certification applicable to health records, including paper/hybrid/EHR formats; storage.

HIT 101A Health Data Content and Structure

4 Quarter Hours

Includes an in-depth study of origin, use, content and structure of health records, including paper/hybrid/EHR formats; storage and retrieval systems; numbering and filing systems; documentation requirements; forms and screens designs and content; use and structure of healthcare data and data sets; and how these components relate to primary and secondary record systems.
Prerequisite(s): HIT 100, HSC 151.

HIT 103A Organization and Supervision

4 Quarter Hours

Introduces the principles of organization and supervision in order to develop effective skills in leadership, motivation, and team-building techniques.
Prerequisite(s): HIT 101A.

HIT 201 Healthcare Statistics

2 Quarter Hours

Includes an in-depth study of health statistics (sources, definitions, collection, reporting, presentation, and analysis of data). Special projects, policies, and procedures will be used to enhance the student's ability to house healthcare data.
Prerequisite(s): HIT 101A.

HIT 211 Coding/Classification Systems I

4 Quarter Hours

Emphasizes basic coding principles of ICD-10-CM/PCS and provides an introduction to the different types of nomenclatures and classification systems.
Prerequisite(s): HIT 101A, HSC 104, HSC 206, MED 103, SCI 100F.

HIT 212 Coding/Classification Systems II

4 Quarter Hours

Introduces advanced coding principles of ICD-10-CM/PCS. Projects will include the hands-on coding of actual medical records and computerized coding systems.
Prerequisite(s): HIT 211. Corequisite(s): HIT 213.

HIT 213 Coding/Classification Systems III

4 Quarter Hours

Emphasizes basic coding principles of CPT/HCPCS.
Prerequisite(s): HIT 211. Corequisite(s): HIT 212.

HIT 214A Coding/Classification Systems IV

2 Quarter Hours

Expands coding principles of ICD-10-CM/PCS accomplished in Coding/Classification Systems I and II by simulating a coding professional practice experience. Coding skills are enhanced by use of advanced case scenarios, actual patient records, and computerized coding systems.
Prerequisite(s): HIT 212, HIT 213. Corequisite(s): HIT 235.

HIT 221B Clinical Quality Assessment and Performance Improvement

4 Quarter Hours

Introduces the principles of the quality assessment process and provides a framework for gaining skills in collecting and analyzing data. Students will be introduced to federal, state, and local requirements and accrediting agency requirements as they apply to performance improvement in health care. Students will participate in simulated quality assessment and data retrieval activities.
Prerequisite(s): HIT 231A.

HIT 231A Legal and Ethical Issues

4 Quarter Hours

Includes an in-depth study of current legal and ethical issues applicable to health information, including HIPAA Privacy and safety rules.
Prerequisite(s): HIT 101A.

HIT 235 Reimbursement Methodologies and Information Management

4 Quarter Hours
Studies the uses of coded data and health information in reimbursement and payment systems appropriate to all healthcare settings and managed care. Students will also become familiar with the concepts of computer technology related to health care, and the tools and techniques for collecting, storing, defining, and assessing the quality of healthcare data.

Prerequisite(s): HIT 212, HIT 213. Corequisite(s): HIT 214A.

HIT 243A Health Information Technology Professional Practice Experience

4 Quarter Hours
Provides students with a 120-hour, supervised, learning experience in a healthcare facility. Through this unpaid work experience, students will perform health information functions, procedures, and interact with professionals in the healthcare field.

Prerequisite(s): Minimum GPA 2.50, Student background check, Program Director/Dean approval.

HIT 291 RHIT Review

2 Quarter Hours
Provides a consistent, accurate, and organized review of all HIT content areas in preparation for the AHIMA National Certification Examination. This is the capstone course.

Prerequisite(s): HIT 212 or HIT 213.

HEALTH NAVIGATOR

HN 111 Patient Navigator Fundamentals I

4 Quarter Hours
Provides an introduction to patient navigation.

Prerequisite(s): Student background check, acceptance in the program. Corequisite(s): HN 131, HN 141.

HN 131 Emerging Diseases

4 Quarter Hours
Builds a basic understanding of diagnostic tests, the treatments and related side effects of the most commonly occurring diseases such as cancer, cardiovascular disease, and diabetes.

Prerequisite(s): Student background check, acceptance in the program. Corequisite(s): HN 111, HN 141.

HN 141 Navigating Resources in Healthcare

4 Quarter Hours
Introduces students to the various resources available in the community, how to access them, and appropriately apply those resources to meet the needs of the individual patients.

Prerequisite(s): Student background check, acceptance in the program. Corequisite(s): HN 111, HN 131.

HN 212 Patient Navigator Fundamentals II

4 Quarter Hours
Assists students in developing the skill set required of a patient navigator.

Prerequisite(s): B- or better in HN 111, B- or better in HN 131, B- or better in HN 141. Corequisite(s): MGT 114, MGT 250.

HN 213 Patient Navigator Fundamentals III

6 Quarter Hours
Promotes the profession of health navigation. Prepares for the professional role in the complexity of the healthcare setting.

Prerequisite(s): B- or better in HN 212, B- or better in MGT 114, B- or better in MGT 250. Corequisite(s): HN 271, WRK 291B.

HN 271 Patient Navigator Fieldwork

3 Quarter Hours
Provides students with 80 hours of a supervised learning experience in the Patient Navigator field. Designed to provide students with the opportunity to apply the skills acquired from their classroom instruction.

Prerequisite(s): B- or better in HN 212, B- or better in MGT 114, B- or better in MGT 250. Corequisite(s): HN 213, WRK 291B.

HEALTH SCIENCE

HSC 100B Community First Aid

1 Quarter Hour
Emphasizes how the Adult and Pediatric First Aid/CPR/AED course incorporates the latest science and teaches students to recognize and care for a variety of first aid emergencies such as burns, cuts, scrapes, sudden illnesses, head, neck, back injuries, heat and cold emergencies and how to respond to breathing and cardiac emergencies to help victims of any age - adults (about 12 years and older) and pediatric (infants and children up to 12 years of age). Students who successfully complete this course will receive a certificate for Adult and Pediatric First Aid/CPR/AED valid for two years.

HSC 102 BLS Provider Training and First Aid

1 Quarter Hour
Basic Life Support for Healthcare Providers (HSC102): Breathes new life into resuscitation education, Basic Life Support for Healthcare Providers (BLS) is designed to train professionals to respond to cardiac and breathing emergencies for adult, child, and infant victims. Consistent with the 2010 AHA Guidelines for CPR/ECC, BLS is the foundational CPR/AED program typically required for healthcare providers and public safety professionals. Through the use of lecture, skills demonstration and practice, case-based emergency response scenarios, and reflection and debriefing activities with a focus on team-based response, BLS builds the key critical thinking, problem solving, and team dynamic skills that are needed to drive better patient outcomes. Upon successful completion of the course, learners will receive a 2-year Basic Life Support for Healthcare Providers.

First Aid (Also required for HSC102): Prepares students to recognize and care for a variety of first aid emergencies and meets OSHA/workplace requirements. Through a combination of self-paced online learning and instructor-led classroom skill session you will have the opportunity to practice and demonstrate skill competency required for certification. The online portion features simulation learning, an interactive experience where participants respond to real-world emergencies in a virtual setting. The online portion must be completed prior to attending the classroom skill session and must be taken on a Flash-enabled computer with a high speed Internet connection. Upon successful completion of this course you will receive a certificate for First Aid valid for two years.

HSC 104 Introduction to Disease

4 Quarter Hours
Introduces students to the fundamental aspects of the study of diseases. Emphasis will be on the definition, etiology, diagnosis, and treatment of specific diseases. This course will concentrate on clinical abstracting from the medical record.
Prerequisite(s): C or better in MED 103, C or better in SCI 102C or C or better in SCI 100F. Bachelor of Health Services Administration majors: C or better in SCI 100F. No minimum grade requirement for Phlebotomy or Pharmacy Technician majors.

HSC 105C Patient Care for the Imaging Professional

4 Quarter Hours
Exposes allied health students to basic concepts of patient care that will confront them in the medical setting. Theory and practice will include such areas as medical ethics, legal concepts, infection control, microbiology, history taking, vital signs, dealing with emergencies, and patient positioning and transfer methods. Emphasis on the total patient is presented with regards to the patient's physical, psychological, social, and spiritual needs. This course is comprised of 40 hours of lecture and 20 hours of lab.
Prerequisite(s): B- or better in SCI 101C.

HSC 111 Introduction to Healthcare

4 Quarter Hours
Acquaints students with a variety of perspectives about existing healthcare systems. A particular emphasis on the complexity of the American healthcare system will be made. Comparisons with other health care delivery models and national trends will be discussed. Current events are incorporated throughout this course.

HSC 112 Clinical Documentation

1 Quarter Hour
Introduces medical documentation for rehabilitation professionals. Offered early in the OTA and PTA programs.
Prerequisite(s): Acceptance in the program.

HSC 141 Scientific Basis of Nutrition

4 Quarter Hours

Applies nutritional biochemistry and physiology content to an analysis of health and illness situations from a holistic perspective. Nutritional, allopathic and alternative healing modalities will be explored and applied through the use of case studies and other varied learning experience.

Prerequisite(s): B- or better in SCI 102C.

HSC 151 Introduction to Electronic Health Records

2 Quarter Hours

Introduces students to health informatics, with primary focus on the function of electronic health records (EHR) systems in health care delivery. Emphasis will be directed toward interdisciplinary use of an EHR to enhance quality and safety in patient care. Students will learn to use EHR software, access a patient account, create a patient file, and to enter and retrieve data. Compliance with HIPAA and confidentiality will be introduced.

Prerequisite(s): ENG 101.

HSC 161 Legal Concepts to Medical Practice

2 Quarter Hours

Focuses on the legal, ethical, and bioethical aspects of medical practice. Included are licensure, professional liability, quality assurance, and risk management.

Prerequisite(s): Acceptance in the program.

HSC 181A Acoustical Physics

5 Quarter Hours

Presents the fundamental principles of acoustical physics. This course will cover acoustical properties, instrumentation, transducer types and characteristics, Doppler principles, and biological effects.

Prerequisite(s): Cardiac Sonography majors: MTH 108 or MTH 112, B- or better in CAS 121, Vascular majors: MTH 108 or MTH 112, Corequisite(s): VAS 101A.

HSC 206 Basic Pharmacology

4 Quarter Hours

Provides a theoretical foundation for the fundamental principles and concepts of pharmacotherapeutics and classification of drugs. A grade of B- or better must be maintained to satisfactorily complete this course.

Prerequisite(s): B- or better in SCI 100F or B- or better in SCI 102C.

HSC 208 Cardiovascular Pharmacology

2 Quarter Hours

Provides theoretical foundation for the fundamental principles and concepts of pharmacotherapies and drug classifications. This course will focus on the drugs the sonographer will most likely encounter in the cardiovascular patient population.

Prerequisite(s): B- or better in MED 103.

HSC 211 Lifespan Development

2 Quarter Hours

Focuses on human development in the gross, fine, cognitive, and psychological domains from birth to death. Emphasis is placed on gross motor and psychological development.

Prerequisite(s): C or better in HSC 281.

HSC 221 Nutrition

4 Quarter Hours

Teaches students how the logic of science is applied to basic nutrition concerns, including food groups and recommended nutritional guidelines.

HSC 281 Neurological Foundations of Motor Control

2 Quarter Hours

Focuses on the neuroanatomy of the central and peripheral nervous systems as it relates to normal motor control and sensory integration. The neurological foundations of therapeutic exercise principles are introduced.

Prerequisite(s): Acceptance in the BRS or OTA program.

HSC 285 Clinical Pathology

3 Quarter Hours

Focuses on an advanced investigation of specific orthopedic, neurological, rheumatological, and medical conditions.

Prerequisite(s): C or better in SCI 211, acceptance in the BRS, OTA, or PTA program.

HSC 312 Health Law and Regulations

4 Quarter Hours

Addresses legal issues, restraints, and problems arising from organization and delivery of healthcare services. Topics to be included are: tort law; hospital, physician, nurse, and other health professional's liability; informed consent; medical records; legal reporting obligations; abortion; autopsy, donation and experimentation; sterilization and artificial insemination; euthanasia; patient rights and responsibilities; labor relation; insurance; trial procedures; and restraint of trade are topics which are included.

Prerequisite(s): HSC 111, Junior status.

HSC 315 Planning and Evaluation of Health Services

4 Quarter Hours

Researches and examines the steps to planning, implementation, and evaluation of health services. Includes the development of measurable objectives and the compilation and presentation of a report.

Prerequisite(s): HSC 401, HSC 312, HSC 403.

HSC 341 Health, Physical Education and Nutrition for Elementary Teachers

4 Quarter Hours

Focuses on the importance of health and physical education for children in grades K-8. Students will learn how to incorporate health and physical education into their curriculum using research-based teaching strategies.

HSC 401 Healthcare Administration

4 Quarter Hours

Studies the basic principles of healthcare administration including planning, organizing, staffing, directing, and controlling. The emphasis will be on administration of hospitals, organizational structure, trustee responsibility, medical staff relationships, third-party payors, and fiscal management.

Prerequisite(s): HSC 111, Junior status.

HSC 402A Ethics for Health Professionals

4 Quarter Hours

Examines the current ethical issues in the healthcare system. Problems and conflicts posed by interpersonal, professional, and client relationships as well as business considerations will be discussed. Ethical issues explored may include right to live, right to die, transplants, informed consent, sterilization, abortion, and human experimentation.

HSC 403 Health System Finance

4 Quarter Hours

Examines basic accounting principles and finance in healthcare settings. Considerations in budgetary preparation will be discussed.

Prerequisite(s): HSC 401, HSC 312.

HSC 411 Seminar in Health Issues

4 Quarter Hours

Studies current healthcare issues such as managed care, health insurance, foreign healthcare systems, and the policies of healthcare. Individual or group projects will be a component of this course.

Prerequisite(s): HSC 401, HSC 312, HSC 403, HSC 402A. Corequisite(s): HSC 315.

HEATING, VENTILATION, AND AIR CONDITIONING

HVAC 101 Introduction to Mechanical Systems

4 Quarter Hours

Focuses on various heating and cooling systems, components, and applications. Topics include heating and cooling requirements, heating fuels, the refrigeration cycle, electrical symbols and schematics, identification of component parts and uses, and the operation of HVAC equipment.

HVAC 112A HVAC Installation, Maintenance and Repair

4 Quarter Hours

Expands on the knowledge students obtained in previous HVAC courses. Installation of heating and cooling systems, preventative maintenance, system inspections, and systematic troubleshooting of problems will be covered. 10 hours of lecture and 60 hours of lab are required.

Prerequisite(s): HVAC 115, HVAC 123A. Corequisite(s): HVAC 116.

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HVAC 115 Heating I

4 Quarter Hours

Covers the skills and techniques for the installation and operation of domestic and commercial heating systems. Topics include structural considerations, gas piping, gas pressure testing, chimneys, liners, venting, electrical and plumbing coordination, and general installation procedures with a focus on forced-air heating systems. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): HVAC 101, HVAC 151A.

HVAC 116 Heating II

4 Quarter Hours

Continues topics from HVAC115 and explores the theory and application of hydronic heating systems. Topics include boiler types and characteristics, copper piping, terminal devices, electrical and mechanical controls, and safety considerations. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): HVAC 115.

HVAC 121 EPA Recovery/Certification

2 Quarter Hours

Covers the EPA regulations on recovery and recycling of all refrigerants. Topics also include refrigerant types and characteristics, leak testing, and repair.

Prerequisite(s): HVAC 101, HVAC 151A. Corequisite(s): HVAC 123A.

HVAC 122 Introduction to Refrigeration

4 Quarter Hours

Combines lecture and hands-on laboratory exercises. Students learn to diagnose and repair domestic and commercial refrigeration systems. Topics include lubricants, copper piping methods, compressor types, electrical and mechanical controls, an introduction to recovery, recycling and reclaiming of refrigerants, and safety considerations.

Prerequisite(s): HVAC 121.

HVAC 123A Air Conditioning and Heat Pumps

4 Quarter Hours

Covers the theory and application of heat pumps and air conditioners in domestic and commercial heating and cooling systems. Topics include heat pump principles and controls, air conditioning and heating cycles, defrost cycles, reverse cycles, maintenance, troubleshooting, and performance. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): HVAC 101, HVAC 151A.

HVAC 131 Mechanical Code

2 Quarter Hours

Familiarizes students with the methods and techniques used in field inspection of mechanical systems. The Uniform Mechanical Code will be covered along with appropriate portions of the Building Officials and Code Administrators (BOCA) Code.

Prerequisite(s): HVAC 101.

HVAC 151A HVAC Electrical Systems and Applications I

4 Quarter Hours

Provides the foundational knowledge and skills to understand and safely install, service, and troubleshoot HVAC/R electrical circuits and electronics. Topics include basic electrical theories, HVAC/R electricity and electronic symbols and schematics, proper meter usage, motors, controls, and other electrical/electronic devices. The sequence of operation and diagnostic troubleshooting, utilizing pictorial, schematic, and hands-on approaches are also stressed.

Corequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam.

HVAC 152 HVAC Electrical Systems and Applications II

4 Quarter Hours

Continues coverage from HVAC151A. Topics include selecting, installing, and troubleshooting HVAC components and systems. Heating systems include oil, gas, electric, and heat pumps. Refrigeration systems include residential and commercial systems. Modern control systems and solid-state control circuits are also included. Diagnostic troubleshooting utilizing schematic diagrams and test equipment are emphasized in this course.

Prerequisite(s): HVAC 151A.

HVAC 221 Sheet Metal Layout

4 Quarter Hours

Focuses on design, layout and construction of flat duct, offsets, and fittings to move air for heating and cooling equipment. Focuses on Manual D (R) from the Air Conditioning Contractors of America (ACCA), the industry standard for this type of work. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): HVAC 112A.

HVAC 231A Heating and Cooling Analysis

4 Quarter Hours

Focuses on the calculations for heat loss and gain for residential construction as prescribed in Manual J (R) from the Air Conditioning Contractors of America (ACCA), the industry standard for this type of work. Topics include heat loss, heat gain, furnace and air conditioning sizing, and duct sizing.

Prerequisite(s): HVAC 116, HVAC 123A, MTH 111.

HVAC 241 Home Energy Auditing

4 Quarter Hours

Covers topics related to home energy auditing, including the evaluation, diagnosis, and proposed treatment of an existing home. Students will gain experience in rating home energy efficiency using software modeling, blower doors, infrared cameras, and other related technology.

Prerequisite(s): HVAC 231A.

HEMODIALYSIS PATIENT CARE TECHNICIAN

HT 101 Introduction to Dialysis

4 Quarter Hours

Introduces students to the field of hemodialysis. Kidney disease and its treatments, both historical and current, will be discussed. Professionalism in the field will be emphasized.

Prerequisite(s): B- or better in ENG 102, B- or better in MED 103, B- or better in MTH 108, B- or better in SCI 102C. Corequisite(s): MED 116.

HT 111 Fundamentals of Dialysis I

4 Quarter Hours

Provides students with an understanding of scientific and dialysis principles, such as osmosis and diffusion, and how they are applied in dialysis treatment. Devices required for dialysis and the theory of dialysis will also be discussed. This course consists of 30 hours of theory/lecture and 20 hours of lab experience.

Prerequisite(s): P in HSC 102, B- or better in HT 101, B- or better in MED 116. Student background check, acceptance in the program. Corequisite(s): HT 131, MED 185.

HT 112 Fundamentals of Dialysis II

4 Quarter Hours

Provides students with an introduction to the process of initiating dialysis. The procedures and complications associated with the initiation of dialysis are discussed along with the types of vascular accesses. Infection control and prevention are emphasized. Students will practice the steps for initiating dialysis during this course. This course consists of 30 hours of theory/lecture and 20 hours of lab experience.

Prerequisite(s): B- or better in HT 111, B- or better in HT 131, B- or better in MED 185. Corequisite(s): HT 132, PSY 101 or PSY 111.

HT 113 Fundamentals of Dialysis III

4 Quarter Hours

Focuses on water treatment and the functions of dialysis, including dialyzer reprocessing. An understanding of the water treatment components their function and required AAMI Standards as it pertains to the function of the water treatment facility will be emphasized. This course consists of 30 hours of theory/lecture and 20 hours of lab experience.

Prerequisite(s): Program Director/Dean approval, B- or better in HT 112, B- or better in HT 132, B- or better in PSY 101 or B- or better in PSY 111. Corequisite(s): HT 133, HT 171, WRK 291B.

HT 131 Clinical Practicum I (Lab)

4 Quarter Hours

Requires students to participate in 40 hours of lab experience and an 80 hour clinical experience with patients and technologists at an approved ESRD center or hospital with ESRD facilities. This practicum will include an orientation to the clinical or facility, the operation of dialysis machine (limited to assemble and disassemble), gathering supplies for dialysis treatment, verification of the treatment plan, and preparation of the delivery system. Students must be prepared and willing to participate on any shift that may be required to complete this practicum experience.

Prerequisite(s): P in HSC 102, B- or better in HT 101, B- or better in MED 116. Student background check, acceptance in the program. Corequisite(s): HT 111, MED 185.

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HT 132 Clinical Practicum II (Lab)

4 Quarter Hours

Requires students to participate in 40 hours of lab experience and an 80 hour clinical experience with patients and technologists at an approved ESRD center or hospital with ESRD facilities. This practicum will include reinforcement of the skill sets learned in Clinical Practicum I. In addition, students will demonstrate their skills in pre-dialysis patient assessment, evaluation and preparation of the internal vascular access for needle insertion. Students must be prepared and willing to participate on any shift that may be required to complete this practicum experience.

Prerequisite(s): B- or better in HT 111, B- or better in HT 131, B- or better in MED 185. Corequisite(s): HT 112, PSY 101 or PSY 111.

HT 133 Clinical Practicum III (Externship)

4 Quarter Hours

Requires students to participate in a 170 hour clinical experience with patients and technologists at an approved ESRD center or hospital with ESRD facilities. This practicum will include an evaluation of competency in the skill sets learned in Clinical Practicum I and II. In addition, students will demonstrate their ability to initiate hemodialysis with a catheter and participate in dialysis reprocessing unit orientation.

Prerequisite(s): Program Director/Dean approval, B- or better in HT 112, B- or better in HT 132, B- or better in PSY 101 or B- or better in PSY 111. Corequisite(s): HT 113, HT 171, WRK 291B.

HT 171 Hemodialysis Technician Credential Review

3 Quarter Hours

Provides a comprehensive review for individuals interested in taking a Hemodialysis Certification exam. The review will include the terminology, anatomy and physiology, patient care, machine technology, water treatment, dialyzer reprocessing and educational/personal development content areas of the examination.

Prerequisite(s): Program Director/Dean approval. Corequisite(s): HT 113, HT 133, WRK 291B.

HISTORY

HIS 201 United States History to 1865

4 Quarter Hours

Investigates major events and developments in American history from early beginnings to 1865. This course considers how the nation evolved and studies how the past has created a distinctive American character that continues to have an impact on the nation and the world. Includes discussion of some historiographical interpretations of the period.

HIS 202 United States History Since 1865

4 Quarter Hours

Investigates major events and developments in American history since 1865. This course considers American domestic history and analyzes how and why the United States became a global power. Includes discussion of some historiographical interpretations of the period.

HIS 231 Michigan History

4 Quarter Hours

Investigates major events and developments in Michigan history from First Nation Peoples to the present. Analyzes the contributions of prominent Michiganians. Includes discussion of some historiographical interpretations of Michigan history.

HIS 301 Women's Studies

4 Quarter Hours

Explores the experiences of women in America and provides an overview of the present and historic influences on contemporary women in social, political, and economic roles.

Prerequisite(s): ENG 102.

HIS 311 Social Studies Foundations

4 Quarter Hours

Integrates the disciplines of geography, history, political science, and economics into an overview of the structure of the respective disciplines. Provides solid content background and resources for the elementary school teacher.

Prerequisite(s): GEO 101B, GEO 102B, HIS 201, POL 201A.

HIS 351 World History I

4 Quarter Hours

Investigates major events and developments in world history from early human beginnings to c.300 CE, including discussion of some historiographical interpretations from the period.

HIS 352 World History II

4 Quarter Hours

Investigates major events and developments in world history from c. 300 CE to c.1789 CE, including discussion of some historiographical interpretations of the period.

HIS 353 World History III

4 Quarter Hours

Investigates major events and developments in world history from c. 1789 CE to c.1914 CE, including discussion of some historiographical interpretations of the period.

HIS 354 World History IV

4 Quarter Hours

Investigates major events and developments from the twentieth century to the present, including discussion of some historiographical interpretations of the period.

HIS 411 Emerging Nations

4 Quarter Hours

Analyzes the patterns of political, social, religious, and economic development of emerging nations in Asia, Africa, and Latin America with reference to theoretical perspectives such as globalization.

HIS 491A Senior Seminar: History and Social Studies

4 Quarter Hours

Examines historiography, the relationship of history to the other social studies content areas, historical methods of research and interpretation, the utility and applications of history, and some major historiographical debates. Serves as the capstone course for the undergraduate history/social studies program.

Prerequisite(s): Senior status, Program Director/Dean approval.

HUMAN RESOURCE MANAGEMENT

HRM 215A Staffing Human Resources

4 Quarter Hours

Studies the challenges of a comprehensive staffing model that identifies all the key components of staffing, external influences, and staffing system management. Major areas covered are the staffing model, external influences (economic, laws and regulations), staffing strategy and planning, job analysis, measurement, external and internal recruitment, selection, decision making, and the final match.

Prerequisite(s): MGT 212.

HRM 225A Training and Developing Human Resources

4 Quarter Hours

Examines the various aspects of training and development of employees in the workforce. Covered topics include: orientation, strategic training, needs assessments, learning theories, new training technologies, employee career development, and career management.

Prerequisite(s): MGT 212.

HRM 291 Human Resource Seminar

4 Quarter Hours

Focuses on material studied in previous associate degree level courses at Baker College. Students will evaluate and analyze current topics in HR through case analysis and through the development of a policy manual/employee handbook. This is the capstone course in the human resource management associate's degree program.

Prerequisite(s): HRM 215A, HRM 225A, HRM 300, HRM 315A.

HRM 300 Compensating Human Resources

4 Quarter Hours

Examines a variety of compensation methods and their relationships to organizational strategies, pay structures, and employee performance. Topics include total rewards, design of pay levels, benefit options, compensating special groups, cost management, and administration.

Prerequisite(s): HRM 225A.

HRM 315A Performance Management of Human Resources

4 Quarter Hours

Provides a comprehensive analysis of how human resource management facilitates the process of how employees are evaluated within an organization through the development of appraisal systems, measurement tools, and the roles of feedback and coaching training and development. This course will also examine how the functions of human resources align with the organization's core values, goals and strategy while supporting an organization in the execution of its mission and vision and how to while measuring human resources effectiveness.

Prerequisite(s): HRM 225A.

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HRM 401 Human Resources and Employment Law

4 Quarter Hours

Provides an introduction to employment law and labor law for a non-legal professional in human resource management and/or labor relations.

Prerequisite(s): LAW 211.

HRM 401R Human Resources and Employment Law

6 Quarter Hours

Provides an introduction to employment law and labor law for a non-legal professional in human resource management and labor relations. An emphasis will be placed on employment, labor, and social issues in the work environment. This course is exclusive to the Accelerated Bachelor of Business Leadership program.

Prerequisite(s): MTH 312R, WRI 312R.

HRM 435B International Human Resource Management

4 Quarter Hours

Examines how global human resource management practices within a global context is distinctive from domestic human resource management. Students will analyze the challenges that multinational corporations are confronted with, which include cultural, political, social, and legal issues; the level of managerial skill and education; technological development in the host country. Issues such as expatriation versus local management, selecting and preparing for international assignments, cultural adaptation at the individual and system level, and the influence of globalization on future HRM practices are also examined.

Prerequisite(s): HRM 291.

HRM 491 Strategic Human Resource Management

4 Quarter Hours

Focuses on the way strategies can be formed and enacted in organizations, and on the internal and external environmental contexts from which human resource strategies emerge. Students will be given the opportunity to enhance their analytical skills in organizational analysis and strategic thinking through case studies. Students will be provided with opportunities to synthesize managerial strategy issues with HRM processes, in a considered and reflective manner. This is the capstone course in the Human Resource Management program.

Prerequisite(s): HRM 435B. Corequisite(s): HRM 401.

HUMAN SERVICES

HUS 101B Introduction to Human Services

4 Quarter Hours

Serves as an overview of the historical developments in the field of human service and provides an introduction to the philosophical framework, the major theoretical models, and the interdisciplinary nature of human service. Students will explore human service occupations, professional organizations, community resources, and ethical and legal issues. Must complete with a C or better.

Prerequisite(s): Student background check.

HUS 121 Family Dynamics

4 Quarter Hours

Provides students with a healthy foundation of knowledge and skills for building strong relationships and families. This course emphasizes family strengths, the benefits that come from diversity, and the fact that families are systems of relationships. These systems interact within themselves and are also influenced by society at large. The concepts and ideas presented are directly applicable to students' lives as well as their future professional work. Must complete with a C or better.

Prerequisite(s): Student background check.

HUS 131B Human Services Resources

2 Quarter Hours

Acquaints students with available human service resources including those that are governmentally based, private sector based, and community service affiliated. Particular emphasis will be placed on client definition, needs assessment, eligibility requirements, and the referral process. Must complete with a C or better.

Prerequisite(s): Student background check.

HUS 141 Abuse and Neglect in the Family

4 Quarter Hours

Explores the etiology, prevalence, and treatment of different types of neglect and violence in families across the lifespan. This course will explore abusive and neglectful behaviors, evidence of signs and symptoms of neglect and abusive patterns, and identify appropriate reporting procedures. Must complete with a C (73%) or better.

Prerequisite(s): C or better in HUS 101B, student background check.

HUS 201 Substance Abuse

4 Quarter Hours

Explores the types of substance abuse prevalent in communities, factors that lead to substance abuse and the impact on families, the workplace, and society in general. This course introduces students to current treatment programs and their various philosophies. Must complete with a C or better.

Prerequisite(s): Student background check.

HUS 211 Assessment, Recording, and Reporting

4 Quarter Hours

Teaches students how to conduct a client assessment, including interviewing and appropriate manual- and computer-based recording and reporting of client records in to an organized and comprehensive assessment report. Must complete with a C or better.

Prerequisite(s): C or better in HUS 131B, C or better in HUS 201, PSY 241, student background check.

HUS 221 Case Management I

4 Quarter Hours

Emphasizes prevention and intervention strategies for less severe cases in human services. Students will learn parenting skills, listening skills, planning, assessment of community resources, referral procedures, general crisis intervention, and setting appropriate boundaries in his/her role as a case manager. Must complete with a C or better.

Prerequisite(s): Human Services and Gerontology majors: C or better in HUS 211, Corrections majors: CRI 221, All majors: student background check. Corequisite(s): HUS 231.

HUS 231 Crisis Intervention

2 Quarter Hours

Emphasizes the assessment of diverse crisis situations with emphasis on the use of short-term intervention and problem-solving techniques to help individuals and families de-escalate crisis situations and develop appropriate coping techniques. This course will address the A-B-C Model of Intervention, brief and short-term interventions, and multicultural issues in crisis intervention situations. Must complete with a C or better.

Prerequisite(s): C or better in HUS 141, student background check. Corequisite(s): HUS 221.

HUS 271A Human Services Internship I

6 Quarter Hours

Consists of 125 clock hours of paid/unpaid, experience in a social service or mental health agency in the community under supervision of agency and Baker College staff. The students will also be required to complete 20 hours in seminar format, to integrate learning in the field with classroom instruction. This course is the beginning internship required of all human service majors in both the associate's and bachelor's degree programs. The primary focus of this internship is the development and application of knowledge and skills in community resources. Must complete with a C or better.

Prerequisite(s): ENG 102, C or better in HUS 101B, C or better in HUS 131B, minimum GPA 2.50, Program Director/Dean approval, student background check.

HUS 292A Family Support Strategies

4 Quarter Hours

Develops specific skills to support and strengthen families, including interviewing and communication skills, assessing family needs and strengths, eliciting relevant cultural information, formulation of family support plans and appropriate outcomes, problem-solving strategies, recordkeeping, making referrals, and resolving ethical dilemmas. The approach is a family-centered, solution-focused model of integrated family services. Must complete with a C or better.

Prerequisite(s): C or better in HUS 121, student background check.

HUS 301A Research Methods in Human Services

4 Quarter Hours

Examines research and theory within the human services community. For students to become a consumer of research, topics such as grant writing, ethics in research, research design and application, and using research results in a variety of human services communities will be addressed. Must complete with a C or better.

Prerequisite(s): C or better in HUS 211, MTH 109 or MTH 112A, student background check.

HUS 306 Introduction to Gerontology

4 Quarter Hours

Provides an introduction to the field of human aging and the aging process. The course will explore various dimensions of the aging process from several perspectives, including, but not limited to, the

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aging individual, the social context of aging from cross-cultural perspective, and societal responses to an aging population. Topics covered will include the demographic, biological, psychological and sociological effects of aging as well as the role of the older adult in the family, community and institutions for the aged. Must complete with a C or better.

Prerequisite(s): student background check.

HUS 321A Human Services Administration I

4 Quarter Hours

Introduces students to human service supervision and management at the first-line level. Students will attain an understanding of organizational management perspectives on staff motivation and administrative planning in human service agencies and organizations, including a review of professional and governmental agency standards. Must complete with a C or better.

Prerequisite(s): C or better in HUS 101B, student background check.

HUS 351 Child Welfare Services

4 Quarter Hours

Introduces students to a survey of child welfare services. Topics include family support, protecting abused and neglected children, foster care, delinquency, adoption, and family court process. Must complete with a C or better.

Prerequisite(s): C or better in HUS 131B, C or better in HUS 141, student background check.

HUS 371A Human Services Internship II

6 Quarter Hours

Consists of 125 clock hours of paid/unpaid, experience in a social service or mental health agency in the community under the supervision of agency and Baker College staff. The students will also be required to complete 20 hours in seminar format, to integrate learning in the field with classroom instruction. This course is the second internship required for all Human Service majors in the associate's degree and bachelor's degree programs. The primary focus of this internship is the development of case management plans to treat identified problems. Students will observe agency staff and assist in client assessment, reporting, and recording. Must complete with a C or better.

Prerequisite(s): C or better in HUS 271A, minimum GPA 2.50, Program Director/Dean approval, student background check.

HUS 403 Mental Health Services

4 Quarter Hours

Introduces students to the Community-Counseling Model for the delivery of mental health services. Topics include preventive education, outreach to vulnerable populations, client advocacy, facilitating specialized groups, and the provision of services within the client's community. Must complete with a C or better.

Prerequisite(s): PSY 411, student background check.

HUS 406 Care Management for Older Adults

4 Quarter Hours

Emphasizes theory and practice of care management. Content includes development of comprehensive care plans, monitoring of the client's progress toward achieving intervention goals, and discussion of ethical practice standards. Must complete with a C or better.

Prerequisite(s): C or better in HUS 221, C or better in HUS 306, student background check.

HUS 411A Institutional Treatment and Alternative Settings in Human Services

4 Quarter Hours

Provides a comprehensive examination of various placement and treatment environments from the most restrictive setting to independent living. This course considers diagnostic criteria and a variety of conditions under which institutional placement and other treatment alternatives are indicated relative to particular case situations and case monitoring of clients in these settings. Must complete with a C or better.

Prerequisite(s): C or better in HUS 221, student background check.

HUS 412 Case Management II

4 Quarter Hours

Emphasizes prevention and intervention strategies for more severe cases. Students will learn how to coordinate interventions for clients with multiple and complex problems, determine when to make referrals to social and legal agencies, facilitate the reintegration of families, intervene in crisis situations, and conduct evaluations for licensing of alternative home placements. Must complete with a C or better.

Prerequisite(s): C or better in HUS 221, student background check.

HUS 416 Gerontology Resources

2 Quarter Hours

Examines the local structures, both public and private, which provide services for the elderly within the larger framework of national and state structures. Includes considerations in working with the adult population and appropriate advocacy education. Must complete with a C or better.

Prerequisite(s): C or better in HUS 131B, C or better in HUS 306, student background check.

HUS 417 Activity in Aging

2 Quarter Hours

Focuses on the analysis of concepts, theories and programming related to the role activity plays in successful aging. Must complete with a C or better.

Prerequisite(s): C or better in HUS 306, student background check.

HUS 421A Human Services Administration II

4 Quarter Hours

Introduces students to human service management and administration at the middle and upper management levels. This course also presents an evaluation and analysis of major components in human service delivery systems, including budgeting, program evaluation, employee relations, in-service training programs, and collaboration among agencies and organizations. Must complete with a C or better.

Prerequisite(s): C or better in HUS 321A, student background check.

HUS 426 Hospice Care

4 Quarter Hours

Examines the physical, spiritual, legal, economic, cultural, and ethical issues associated with care at the end of life. Content includes working with the elderly and support strategies for families and friends. Must complete with a C or better.

Prerequisite(s): C or better in HUS 446, PSY 211, student background check.

HUS 431 The DSM System

4 Quarter Hours

Introduces students to the multi-axial diagnostic system for the classification of mental disorders and explores the 17 major categories of mental disorders. Students will learn to differentiate various forms of psychopathology, evaluate alternative interventions, and develop proficiency in the language used by a variety of professionals to communicate about mental health and human services problems. Must complete with a C or better.

Prerequisite(s): PSY 311, student background check.

HUS 436 Public Policy and Aging

4 Quarter Hours

Examines the policy process, focusing on issues such as retirement, pensions, healthcare, housing, social services, and intergenerational issues. Must complete with a C or better.

Prerequisite(s): C or better in HUS 416, C or better in HUS 446, student background check.

HUS 441 Home Visitation

2 Quarter Hours

Introduces students to the history and philosophy of home visitation interviewing, establishing positive relationships and professional boundaries with clients, developing helping skills, and addressing the needs of high risk families. This course identifies and explores issues relevant to supporting a wide range of families through home visiting. Must complete with a C or better.

Prerequisite(s): C or better in HUS 211, C or better in HUS 292A, student background check.

HUS 446 Social Gerontology

4 Quarter Hours

Focuses on the sociological aspects of aging in American society including economics, health, and concepts and theories in the study of aging. Must complete with a C or better.

Prerequisite(s): C or better in HUS 306, SOC 301, student background check.

HUS 451 Ethical Issues in Addictions Counseling

2 Quarter Hours

Assists students in developing and demonstrating the knowledge and skills required by the twelve core functions of addictions counselors in the case management process. The core functions, which will provide the framework for the course are: Screening, intake, orientation, assessment, treatment planning, counseling (individual, group, and significant others), case management, crisis intervention, client education, referral, report and record keeping, and consultation with other professionals in regard to client treatment/services. Must complete with a C or better.

Prerequisite(s): student background check.

HUS 461 Managing Addictions Cases

6 Quarter Hours

Introduces students to the development and understanding of the Certified Addictions Counselor Code of Ethical Conduct, and how to apply the Code to analysis of incidents and dilemmas that occur in counseling situations. The principles of the Code of Ethical Conduct are: non-discrimination, responsibility, competence, legal and moral standards, public statements, publication credit, client welfare, confidentiality, client relationships, interprofessional relationships, remuneration, and societal obligations. Must complete with a C or better.

Prerequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam, student background check.

HUS 471A Human Services Internship III

6 Quarter Hours

Consists of 125 clock hours of paid/unpaid, experience in a social service or mental health agency in the community under the supervision of agency and Baker College staff. The students will also be required to complete 20 hours in seminar format, to integrate learning in the field with classroom instruction. This is the third and final internship required for all Human Service bachelor degree students. The primary focus of this internship is the development of knowledge and skills in treatment planning and intervention. Students will observe and participate in the treatment planning process and assist in the implementation of interventions and preventions with process and outcome documentation. Must complete with a C or better.

Prerequisite(s): C or better in HUS 371A, minimum GPA 2.50, Program Director/Dean approval, student background check.

HUMANITIES

HUM 101B Art and Architecture I (Antiquity to Renaissance)

4 Quarter Hours

Enhances the student's appreciation and enjoyment of art. Time periods, geographical centers, cultural and societal influences, stylistic characteristics of major art movements, and the artists from each movement from the prehistoric period through the Renaissance are studied.

HUM 102B Art and Architecture II (Baroque to Modern)

4 Quarter Hours

Cultivates the student's appreciation and enjoyment of art. Time periods, geographical centers, cultural and societal influences, stylistic characteristics of major art movements, and artists from each movement from the Baroque period to the present are studied.

HUM 351A Visual and Performing Arts for Elementary Educators

4 Quarter Hours

Introduces elementary teacher preparation candidates to concepts of integrating the visual and performing arts into the elementary curriculum. Studies elements of art with orientation to a variety of media and techniques. Emphasizes preparation of innovative, motivating art lessons appropriate to elementary grades. Provides students with a basic knowledge of the melodic, rhythmic, and harmonic elements of music and the opportunity to read and play music using classroom instruments. Incorporates drama and dance into lesson design.

HUM 353 Art Appreciation

2 Quarter Hours

Fosters an appreciation of the visual arts by learning about basic art concepts, styles, vocabulary, and art-making techniques and materials (media). Students study and analyze works of art, major artists, artistic meanings, and the cultural and global communities in which the art is created.

HUM 357 Music Appreciation

2 Quarter Hours

Provides students with a greater understanding of the role music plays in human life. Students gain general knowledge of the history of music. Students are provided with opportunities to develop an appreciation of music of various genres.

HUM 401A Philosophy of Ethics

4 Quarter Hours

Identifies and analyzes ethical situations in modern society. Examines the philosophical foundations for personal and professional ethics.

Prerequisite(s): ENG 102.

INDUSTRIAL AND SYSTEMS ENGINEERING

ISE 311 Manufacturing Processes

4 Quarter Hours

Studies the relationship between product engineering and manufacturing engineering. Casting processes, bulk deformation processes, sheet metal processes, mechanics of material removal processes, non-traditional machining, plastics and powder metallurgy, fastening and joining methods, design for manufacturing, and the factory of the future are covered.

Prerequisite(s): MTH 124.

ISE 331 Introduction to Industrial and Systems Engineering

4 Quarter Hours

Focuses on the principles of systems engineering for accomplishing organizational goals in manufacturing and service industries. This course includes capabilities, productivity measurement, work and methods study, process planning, and design for productivity enhancement. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): ISE 311.

ISE 335 Work Analysis and Design

4 Quarter Hours

Teaches students to effectively utilize methods analysis tools and techniques in the design and improvement of manufacturing systems and to apply work measurement techniques in the appropriate situations.

Prerequisite(s): ISE 331, MTH 401.

ISE 411 Computer Integrated Manufacturing

4 Quarter Hours

Introduces students to the integration of computers in the manufacturing process. This course includes such concepts of Computer Integrated Manufacturing (CIM) as: production planning, robotics, industrial automation, CAD/CAM, and design for CIM manufacturability. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): one level of 3-D modeling.

ISE 421 Introduction to Operations Research

4 Quarter Hours

Provides a scientific approach to decision making that involves the operations of organizational systems and is applied to problems that concern how to conduct and coordinate the operations or activities within an organization. The process begins by carefully observing and formulating the problem and then constructing a scientific (typically mathematical) model that attempts to abstract the essence of the real problem in the context of the entire system. Operations research solutions yield an optimal value of the system measure of desirability. Topics include: linear programming, network analysis, dynamic programming, probability theory, queuing theory, inventory theory, reliability, and decision analysis.

Prerequisite(s): MTH 112A.

ISE 431 Facilities Design

4 Quarter Hours

Covers the techniques for achieving organizational goals in the design of manufacturing and service facilities. Includes plant location, building design, plant layout, and material handling.

Prerequisite(s): ISE 335.

ISE 435 Manufacturing Strategies

4 Quarter Hours

Focuses on the understanding of manufacturing as a production system. This course recognizes the challenges associated with the flow of the production system and allows students to understand and apply principles and practices of lean manufacturing. The Toyota Production System is used as an example of a lean production system.

Prerequisite(s): ISE 335.

ISE 491 Engineering Project Management

4 Quarter Hours

Emphasizes project management strategies for planning and assignment of work, estimating hours for project completion, tracking for progress and change in job requirements. This course includes critical path scheduling, resource allocation, and client/customer interface. Students may not receive credit for both ISE491 and ME491.

Prerequisite(s): Senior status, EGR 321.

ISE 498 Senior Design Project I

2 Quarter Hours

Continues the topics in ISE491 (Engineering Project Management) and utilizes concepts from industrial engineering courses to complete a design project and prepare an engineering report on the design. This

is a capstone course where students work in teams. Students may not receive credit for both ISE498 and ME498.
Prerequisite(s): ISE 491.

ISE 499A Senior Design Project II
 2 Quarter Hours

Continues the topics in ISE498 to complete a design project and prepare an engineering report on the design. This is the second course in the capstone design course sequence. Students may not receive credit for both ME499A and ISE499A.
Prerequisite(s): ISE 498.

INFORMATION SYSTEMS

INF 091 Foundations of Computing
 4 Quarter Hours

Provides a foundation for those students with little or no computer experience or those who would like to enhance their basic skills. Students will be introduced to skill sets such as computer terminology, using a keyboard and mouse, running programs, creating, saving, and retrieving files, using storage media, accessing the Internet, and manipulating a PC desktop. Credit earned does not count toward any degree.

INF 112 Word Processing
 2 Quarter Hours

Introduces students to word processing software and applications. This will include demonstrating the ability to perform basic Windows operations commands and word processing commands, which include creating, saving, printing, formatting, editing, and retrieving documents.

INF 113 Electronic Spreadsheets
 2 Quarter Hours

Introduces students to beginning electronic spreadsheet terminology, concepts, and applications. Students will gain the ability to enter/edit, save/retrieve files, format, and print spreadsheets and reports. Students are also introduced to basic formula development.

INF 114A Introduction to Database Applications
 2 Quarter Hours

Introduces beginning database terminology, concepts, and applications using a file management software program. Students will demonstrate an understanding of data hierarchy; the ability to design simple files, edit file content, print file content, and simple reports; and the ability to search and sort files and use pre-existing formulas.

INF 121 Introduction to Windows
 2 Quarter Hours

Provides students with hands-on experience in the basics of using the Microsoft Windows environment. The areas of exploration will include the Start Button, Task Bar, My Computer, Windows Explorer, Customizing Displays, Paint, and the use of shortcuts.

INF 131 Internet and the World Wide Web
 2 Quarter Hours

Covers the fundamentals of using the Internet. Topics include Internet terminology, connecting to the Internet, e-mail, netiquette, browsing and searching the World Wide Web, referencing material used in research papers, copyright considerations, downloading and installing software, and creating a web page.

INF 141A Microsoft PowerPoint
 2 Quarter Hours

Provides students with hands-on experience in the use of Microsoft PowerPoint to develop computer-based presentations. Topics include creating slides, handouts, speaker's notes, and outlines as well as the use of PowerPoint Wizards and Templates.

INF 161 Technology and Society
 2 Quarter Hours

Explores timely social, legal, philosophical, ethical, political, constitutional, and economic implications of computing and technology. Coverage of the issues related to a technological society including social networking, privacy topics such as cameras in cell phones, access to our search queries and all sorts of data we put on the Web, social networking, location tracking, high-tech surveillance systems, intellectual property, professional ethics and responsibilities, and crime.

**INFORMATION TECHNOLOGY
 AND SECURITY**

ITS 111 Introduction to Information System Security
 4 Quarter Hours

Provides students with a background in information security, security management, and the technical components of security. Students will be given an overview of the entire field of information security: the history, the terminology, and the management aspects of information security programs with sufficient detail to facilitate an understanding of information security systems and their management.

ITS 211 Introduction to Network Security
 4 Quarter Hours

Provides students with a strong foundation in network security concepts, along with analysis and design of these systems. It is a preparatory course in network security methodologies and helps prepare students for the CompTIA Security+ certification examination.
Prerequisite(s): NET 102.

ITS 221 VPN/Firewall Architecture and Management 1
 4 Quarter Hours

Examines the major network security tools in use today, with the idea that firewalls are most effective when backed by thoughtful security planning, well-designed security policies, and integrated support from anti-virus software, intrusion detection systems, and related tools. Coverage includes packet filtering, authentication, proxy servers, encryption, bastion hosts, virtual private networks (VPNs), log file maintenance, and intrusion detection systems. Students will also learn about relevant National Institute of Standards and Technology guidelines that are used by businesses and information technology professionals.
Prerequisite(s): ITS 211.

ITS 222 VPN/Firewall Architecture and Management II
 4 Quarter Hours

Continues coverage from ITS221 and provides realistic projects and cases incorporating cutting-edge technology and current trends, giving students the opportunity to hone and apply the knowledge and skills they will need as working professionals. Provides students with an understanding of key concepts and skills necessary to install and manage a firewalled network, how to gain maximum security from the firewall, and how to resolve firewall performance issues.
Prerequisite(s): ITS 221.

ITS 305 Security Policies and Auditing
 4 Quarter Hours

Discusses the key structure elements and terms of written information protection policy and reviews some typical policy contents. Prepares students to develop the related standards, procedures, and guidelines for implementing the policy. Evaluates the tools needed to select, develop, and apply a security program that meets business goals.
Prerequisite(s): ITS 211.

ITS 315 Information Systems Threat Assessment
 4 Quarter Hours

Prepares students to assess and then correct the vulnerabilities present within information systems. Details methods and tools used in attacks and discusses countermeasures. Discusses available security resources. Analyzes attack "types." Specifically covers intrusion detection systems.
Prerequisite(s): ITS 305.

ITS 321 Legal and Ethical Issues in Information Technology
 4 Quarter Hours

Explores legal and ethical issues faced in the information technology field. Students will learn about ethical issues within an organization as they relate to relationships internally as well as with customers, partners, and society. In addition, students will learn of current legal issues in information technology such as intellectual property, privacy rules, and legislative actions. Exploration of the impact of these issues on current and proposed technical strategies will help prepare students to provide influence with regard to legal and ethical issues they will face in today's organizations.
Prerequisite(s): ITS 211.

ITS 325 Securing Systems
 4 Quarter Hours

Prepares students to understand the inherent vulnerabilities of a variety of systems including Windows and Linux/UNIX, and proactively defend against attacks on these systems. Covers defense strategies

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through understanding of system and file permissions, password and account security, the Windows Registry, Malware prevention, encryption, and Directory Service management via policies. Discusses hardening of network operating systems and remote network access through a detailed survey of built-in security tools and third party utilities.

Prerequisite(s): ITS 305. Corequisite(s): ITS 315.

ITS 331 Designing for Security

4 Quarter Hours

Provides students with concepts needed for creating secure networks and systems requiring advanced planning. Once networks or systems are open to either the Internet or an internal user base, they are exposed to threats ranging from viruses to outright destruction. Therefore, designing these systems and networks with an understanding of their function and security needs before being exposed to these threats will provide information with its best defense. The objectives of this course are to create a framework to define the needed functions of the network or systems and ensure that secure methods are used to provide these tools. This course will focus on the use of tools to update these functions to continue to provide secure services. Finally, this course will also explore sites and services that can be used to discover new exploits and methods to secure them, and tools used by security professionals to audit the vulnerability of the network and systems.

Prerequisite(s): ITS 211.

ITS 341 Scripting for Network Administrators

4 Quarter Hours

Introduces scripting language and its environment. Students will build scripts and utilities to automate system tasks and create powerful system management tools to handle the day-to-day tasks that drive a system administrator's life. The course covers batch scripting, secure scripting and string processing. Students will also learn how to automate the scripting of security related functions.

Prerequisite(s): LUX 205, MNP 201 or MNP 221.

ITS 405 Internet and Web Security

4 Quarter Hours

Prepares students to understand web and Internet security from an administrator, developer, and end user's perspective. Covers topics regarding website security, including SSL encryption and web authentication. Examines risks that threaten a site and hardware and software tools available to protect against hacking, port scanning, and denial-of-service attacks.

Prerequisite(s): ITS 325.

ITS 415 Firewall Concepts

4 Quarter Hours

Prepares students to protect private networks from external security threats through the use of firewall systems. Discusses security holes in common Internet services and how to proactively defend against external attacks. Discusses the philosophies of firewall design, access lists, authentication, and general security policy. Covers a wide variety of firewall systems over multiple operating systems.

Prerequisite(s): ITS 305.

ITS 421 Tactical Perimeter Defense

4 Quarter Hours

Examines the critical defensive technologies needed to secure network perimeters. Includes coverage of network security threats and goals, advanced TCP/IP concepts, router security, intrusive detection, firewall design and configuration, IPSec and virtual private network (VPN) design, and wireless network design and security. Material maps to the Security Certified Network Specialist certification (SCO-451).

Prerequisite(s): ITS 331.

ITS 425 Computer Forensics and Investigation

4 Quarter Hours

Provides students with an overview of computer forensics, operating systems and how they function. Students are introduced to forensic tools along with concepts such as chain of custody and documentation of evidence/procedures. Students learn how to act as an expert witness if needed to appear at a trial. The outcomes of this course map to the International Association of Computer Investigative Specialists certification (IACIS).

Prerequisite(s): ITS 305.

ITS 435 Disaster Recovery

4 Quarter Hours

Prepares students to identify risks within businesses and how to minimize loss. Discusses cost/benefit analysis of disaster recovery planning. Identifies methods for minimizing the risk of a disaster and the response tasks to be performed during a disaster. Details the development of a disaster recovery plan (DRP).

Prerequisite(s): ITS 305.

ITS 491 Information Security Research and Design Project

4 Quarter Hours

Integrates the knowledge and skills students have obtained in this program to plan, design, and research a network security environment that would mirror a real-world environment. This course will require a written research paper, an oral presentation, and the design of a network that utilizes the concepts learned within the core and specialization minors of their degree. This is a capstone research project.

Prerequisite(s): Program Director/Dean approval.

INTERIOR DESIGN

IND 100 Introduction to Interior Design

4 Quarter Hours

Introduces personal skills and resources needed to become a professional interior designer. Students utilize visual and creative skills to develop functional designs for interior spaces. Study focuses on: basic elements and principles of design, space planning, color theory, lighting, furniture arrangement, surface materials and portfolio building. Visual and oral presentation skills are introduced to prepare students professionally.

IND 102 Workroom Practices

4 Quarter Hours

Offers a basic study of materials and components used in interior design. Focuses on selection, specification, and calculation of surface materials, drapery, and cabinetry.

IND 104 Interior Design Business Practices

4 Quarter Hours

Provides an in-depth study of the business of interior design and the essentials for conducting a successful design practice.

Prerequisite(s): IND 102, IND 111A.

IND 105C Textiles

4 Quarter Hours

Generates an understanding of the textile industry and of the products the textile industry produces. Students learn to analyze and identify natural and synthetic fibers, the methods of construction and finishing of fabric, and the properties of fabric for its intended end uses.

IND 111A Space Planning I

4 Quarter Hours

Applies basic theory of proxemics and human behavior to the design of residential facilities. Study includes advanced spatial planning of furniture and floor plan arrangements. Projects incorporate kitchen elevations and layout design, and allows students to research and specify materials.

Prerequisite(s): IND 100, IND 121.

IND 112A Space Planning II

4 Quarter Hours

Focuses on more advanced space planning, requiring higher level skills. This course will include a capstone design project that will require code compliance and specifications.

Prerequisite(s): IND 111A.

IND 121 Interior Design Graphics

4 Quarter Hours

Introduces basic drafting skills necessary to create construction drawings. This course is essential for a basic understanding of proper use and application of drafting equipment. Students apply proper lettering, linework, and dimensioning techniques to produce floor plans, isometric drawings, and perspective drawings.

IND 131 Introduction to CAD

2 Quarter Hours

Introduces concepts of basic AutoCAD to students providing them with a foundation to move to greater productivity with the software in subsequent CAD courses.

Prerequisite(s): IND 111A, any of the INF courses.

IND 141 Electrical and Mechanical Factors

4 Quarter Hours

Examines mechanical and electrical systems including HVAC, plumbing, electrical, fire protection, and vertical transportation. Interior designers need to coordinate the location of plumbing fixtures, air diffusers, sprinklers, and other visible mechanical elements with the overall design. Students will learn how to deal properly with the initial location or relocation of the mechanical fixtures and electrical devices.

Prerequisite(s): IND 121.

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IND 151 Interior Design Sales

4 Quarter Hours

Acquaints students with the basic principles of effective sales techniques critical to the interior design industry for both residential and commercial projects. Topics include application of the programming process, problem solving, critical thinking, teamwork, networking and presentation in the sales process as well as diverse approaches to selling concepts, services, and products.
Prerequisite(s): IND 111A.

IND 201 History of Furnishing

4 Quarter Hours

Gives interior design students a clear understanding of the architecture and furniture styles from prehistoric to present days.

IND 202 Rendering Techniques and Perspectives

4 Quarter Hours

Helps students develop an individual rendering style, to produce perspective drawings, and to visually illustrate ideas.

Prerequisite(s): IND 111A.

IND 214 20-20 CAD

2 Quarter Hours

Expands student's kitchen and bath design capability through the use of 20-20 design software.

Prerequisite(s): IND 111A.

IND 215 Interior Design CAD

4 Quarter Hours

Introduces students to the use of the computer in the creation of drawings in place of traditional drafting methods. Students will create and edit drawings using computer software for interior design.

Prerequisite(s): IND 131, IND 221.

IND 221 Building Systems

4 Quarter Hours

Emphasizes residential design and blueprint reading. Students will obtain technical skills in residential building systems, codes, and construction. Students will also be exposed to methods of detailing and material usage.

Prerequisite(s): IND 111A.

IND 231 Studio Bath

4 Quarter Hours

Applies design principles and presentation standards in the planning and designing of bathrooms. Following NKBA guidelines, students study proper application and construction techniques using electrical and plumbing fixtures. Cabinet selection and proper room layout applications will be covered. Projects include manual- and computer-generated drawings using 20-20 design software.

Prerequisite(s): IND 214, IND 221.

IND 241 Studio Kitchen

4 Quarter Hours

Applies design principles and presentation standards in the planning and designing of efficient kitchen layouts. Following NKBA guidelines, students obtain hands-on experience studying basic lighting, venting, plumbing, electrical, and construction techniques. Proper cabinet, appliance, and fixture selection and application will be covered. Projects include manual- and computer-generated drawings.

Prerequisite(s): IND 214, IND 221.

IND 253A Portfolio Projects

4 Quarter Hours

Explores the various methods used in the design and presentation of portfolios. Students will be required to submit a portfolio.

Prerequisite(s): IND 112A, IND 201, IND 241, ACT 103 or IND 215.
Corequisite(s): IND 104, IND 231.

IND 301 Building Codes and Construction

4 Quarter Hours

Studies residential and commercial construction techniques and their applicable codes for accessibility, fire protection, and life safety.

Prerequisite(s): ACT 102 or ACT 192A or IND 112A.

IND 321 Advanced Rendering Techniques and Perspectives

4 Quarter Hours

Involves individual and team exploration with an emphasis on problem solving through varying types of rendering design typologies and sketching. This class helps students to develop individual rendering style, and reinforce skills in 3-dimensional drawing techniques. Students would further develop their creative thinking by exploration of a variety of approaches and concepts with originality and elaboration.

Prerequisite(s): IND 112A, IND 202, IND 253A.

IND 331 3-D Modeling

4 Quarter Hours

Explores the presentation of design solutions in 3D form with emphasis on model making.

Prerequisite(s): IND 112A, IND 253A.

IND 341 Universal Design

4 Quarter Hours

Enhances the students' ability to apply universal design principles through the design of the built environment to enhance the function for all individuals, regardless of their abilities. Students will also gain understanding of the effects aging, injury and disabilities have on the home and work environments.

Prerequisite(s): IND 112A. Corequisite(s): IND 301.

IND 351 Sustainable Design

4 Quarter Hours

Provides essential knowledge of sustainable building concepts that are fundamental to all LEED Rating Systems. Students will be exposed to the basics of the USGBC LEED building certification process and will apply LEED design concepts in a real project case. Students completing this course will be prepared to sit for the LEED Green Associate certification.

Prerequisite(s): ACT 207, ACT 202 or IND 141.

IND 361 Healthcare Design

4 Quarter Hours

Concentrates on the specialized intricacies of the healthcare environment with a focus on identifying and implementing safe, maintainable products, finishes, and space planning in healthcare facilities in addition to research methodology, and the emotional and psychological impact of the environment on all stakeholders concerned.

Prerequisite(s): IND 341.

IND 401 Lighting Design

4 Quarter Hours

Meets the interior designer's need for education in lighting systems, equipment, terminology, and calculation methods.

Prerequisite(s): IND 112A.

IND 421 Historical Preservation

4 Quarter Hours

Applies the study of historical art and architecture to appropriate design periods. Topics include strategies for identifying local community restoration and preservation efforts and current restoration planning techniques and procedures. Posed with a restoration problem-solving scenario, students will prepare a project restoration plan.

Prerequisite(s): Program Director/Dean approval.

IND 431 Commercial Design I

4 Quarter Hours

Involves students in in-depth explorations of non-residential environments such as restaurants or bistros and retail such as boutiques. Students would concentrate on project management including problem identification, identification of client and user needs and information gathering research and analysis and space planning. Students will be required to render by any medium, manual or computer-generated, that successfully communicates the design intent. This course would also teach students to express ideas clearly in oral presentations and critiques.

Prerequisite(s): IND 321, IND 112A, IND 401.

IND 432 Commercial Design II

4 Quarter Hours

Involves students in an in-depth exploration of systems furniture in corporate and office environments including the relationship between human behavior and the built environment. Students would concentrate on problem identification, client and user needs, and information gathering research and analysis for the corporate and office environments. This course would teach students space planning with systems furniture including the use of adjacencies, circulation, and the articulation and shaping of space.

Prerequisite(s): IND 431.

IND 491 Senior Design Studio

4 Quarter Hours

Concentrates on research, creating conceptual diagrams and sketches, and utilizing current trends in technology to generate entries for national and regional interior design competitions.

Prerequisite(s): Program Director/Dean approval.

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IND 499 Senior Design Portfolio

2 Quarter Hours

Concentrates on existing portfolios by adding work completed during the bachelor program and enhancing work already included at the associate level. Students must have their portfolio reviewed and approved by a panel of professionals from the industry.

Prerequisite(s): Program Director/Dean approval.

INTERPRETER TRAINING

ITP 101 The Deaf Community

2 Quarter Hours

Studies the variety of cultural experiences and perspectives among people who are deaf or hard of hearing. Topics include the relationship of language and community, audiological vs. cultural deafness, dynamics in families with persons who are deaf or hard of hearing, and the role of the interpreter. Must complete with a C (73%) or higher.

ITP 111 American Sign Language I

4 Quarter Hours

Provides basic knowledge of American Sign Language (ASL) vocabulary, grammar, and syntax. Begins the exploration of Deaf culture and the language of that culture. Emphasis is on comprehension and production skills. Must complete with a C (73%) or higher.

ITP 112 American Sign Language II

4 Quarter Hours

Continues the development of American Sign Language (ASL) skills for communicating with Deaf people who sign. Emphasis is on expansion of ASL vocabulary and continued development of expressive and receptive sign skills. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 111.

ITP 113 American Sign Language III

4 Quarter Hours

Provides additional vocabulary and synthesis of grammatical elements of American Sign Language (ASL) through expressive and receptive use of conversational sign language. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 112.

ITP 121 Expressive Manual Communication

2 Quarter Hours

Focuses on integrating the grammatical components of American Sign Language (ASL) into an expressive means of communication. Promotes and creates an awareness of conversational behaviors used by the Deaf community, and provides practice of those behaviors in the classroom and other settings. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 112.

ITP 131A Fingerspelling I

2 Quarter Hours

Provides practice in expressive and receptive fingerspelling skills with focus on manual alphabet and numbers. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 111.

ITP 132A Fingerspelling II

2 Quarter Hours

Provides advanced instruction and practice in expressive and receptive fingerspelling skills. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 131A.

ITP 141A Sign to Voice I

4 Quarter Hours

Provides development of the student's receptive skills in conversational sign language. Concentration is on understanding manual communication systems used by Deaf persons. Prepared videotapes are used to facilitate advanced proficiency of sign to voice systems. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 112, C or better in ITP 121.

ITP 201 Voice to Sign I

4 Quarter Hours

Introduces the interpretation process by demonstrating models of a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL) and then allowing students to interpret complete and connected short messages consecutively. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 214, C or better in ITP 231.

ITP 202 Voice to Sign II

4 Quarter Hours

Builds upon prior coursework by requiring students to demonstrate accurate interpretation by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL). In this second class, students will interpret longer texts and more complex material simultaneously and consecutively. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 201.

ITP 214 American Sign Language IV

4 Quarter Hours

Improves understanding and fluency of American Sign Language (ASL) with focus on larger informational chunks and short stories. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 113, C or better in ITP 121, C or better in ITP 132A.

ITP 221 Introduction to the Interpreting Profession

4 Quarter Hours

Introduces the roles, ethics and responsibilities of the interpreting profession. Explores needed skills of the interpreter in various settings, including educational, mental health, vocational rehabilitation, legal, religious, telecommunications and media, medical, Deaf-blind, and minimal language skills. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 214, C or better in ITP 231.

Corequisite(s): ITP 271.

ITP 231 Linguistic Principles

4 Quarter Hours

Explores the linguistic organization of American Sign Language (ASL). Includes basic linguistic perspectives, how American Sign Language is learned, and the relationship with the English language. Emphasizes topics in linguistic variation and translation. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 113, C or better in ITP 121, C or better in ITP 132A.

ITP 242A Sign to Voice II

4 Quarter Hours

Expands and advances the fluency in receptive sign language and for voicing all levels of communication of Deaf persons. Focus is on interpreter inquiries, listening, attending, internal message formulation, vocabulary search, and monitoring output. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 141A.

ITP 243A Sign to Voice III

4 Quarter Hours

Provides in-depth coverage of interpreting skills such as voice projection, analysis of sign information, prediction, self-correction, closure, prosody, and processing time. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 242A.

ITP 251A Transliterating I

4 Quarter Hours

Introduces basic skills for students to demonstrate accurate transliteration by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL). In this course, students will transliterate texts simultaneously and consecutively. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 221. Corequisite(s): ITP 272.

ITP 261A Deaf Culture and History

4 Quarter Hours

Examines the life experiences of persons in the Deaf community, the history of the Deaf community in America, and the sociology of the Deaf and the hard of hearing. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 101, C or better in ITP 214.

ITP 271 Signing Internship I

4 Quarter Hours

Presents an opportunity for students to build accuracy and fluency through hands-on skill development and observation. A minimum of 120 hours of field experience will be completed in diverse settings throughout the Deaf community in Michigan. Must complete with a C (73%) or higher.

Prerequisite(s): Student background check, Program Director/Dean approval. Corequisite(s): ITP 221.

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ITP 272 Signing Internship II

4 Quarter Hours

Presents an opportunity for students to build accuracy and fluency through hands-on skill development and observation. A minimum of 120 hours field experience will be completed in diverse settings throughout the Deaf community in Michigan. Must complete with a C (73%) or higher.

Prerequisite(s): Student background check, Program Director/Dean approval. Corequisite(s): ITP 251A.

ITP 291 Professional Interpreter Seminar I

4 Quarter Hours

Develops skills necessary for interpreting and transliterating evaluation through simulated testing using interactive multimedia of hearing and Deaf individuals. Must complete with a C (73%) or higher.

Prerequisite(s): Program Director/Dean approval.

ITP 303 Voice to Sign III

4 Quarter Hours

Continues to develop skills so that students demonstrate accurate interpretation by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL). This final class, expects students to interpret texts of greater lengths and complexity simultaneously. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 202.

ITP 315 American Sign Language V

4 Quarter Hours

Builds upon prior coursework by requiring students to demonstrate accurate interpretation by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL). In this second class, students will interpret longer texts and more complex material simultaneously and consecutively. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 214.

ITP 331 Language Semantics

4 Quarter Hours

Expands on Linguistic Principles by incorporating more advanced linguistic features between American Sign Language and English such as multiple meanings of words and multiple meanings of signs. Additionally, emphasizes ways in which language is subtly altered. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 214, C or better in ITP 231.

ITP 332 ASL Discourse

4 Quarter Hours

Explores types of ASL discourse that will vary by setting and participants. In particular, focus will be given to how ASL interpreting adapts to each unique scenario. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 315.

ITP 333 Classifiers and Depictions

4 Quarter Hours

Explores the main uses of depictions and/or classifiers to identify characteristics of nouns and verbs in American Sign Language. Additionally, students will be asked to incorporate these features as well as constructed action in stories and interpretations. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 315.

ITP 352 Transliterating II

4 Quarter Hours

Builds upon basic skills learned in the previous transliterating course for students to demonstrate accurate transliteration by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (ASL). In this second class, students will transliterate longer texts simultaneously and consecutively. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 251A.

ITP 373 Signing Internship III

4 Quarter Hours

Provides an understanding and application of appropriate team interpreting. A minimum of 120 hours of hands-on team interpreting in voice to sign and sign to voice settings required. Students will identify interpreting styles and best practice techniques. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 272, Program Director/Dean approval, student background check.

ITP 381 The Interpreting Process

4 Quarter Hours

Applies theories of interpreting with cognitive processing skills. Includes an exploration of both current and past research in the field of interpreting as well as student creation of formal research papers. Besides reviewing approaches to the interpreting process, students will take an in-depth look at how interpreters function culturally between Deaf and hearing worlds. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 352.

ITP 401 Deaf Literature and Arts

4 Quarter Hours

Explores more in depth Deaf arts including written literary works, poetry, and visual art forms such as theater, art, and film productions. Examines the significance and influence of art directly on American Deaf culture.

Prerequisite(s): C or better in ITP 315.

ITP 453 Transliterating III

4 Quarter Hours

Continues to develop transliterating skills so that students demonstrate accurate transliteration by conveying a dynamically equivalent message from the Source Language (spoken English) to the Target Language (signed English). This final class, expects students to transliterate texts of greater lengths and complexity simultaneously. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 352.

ITP 474 Signing Internship IV

4 Quarter Hours

Presents an opportunity for students to build accuracy and fluency through hands-on skill development. A minimum of 120 hours of hands-on team interpreting in voice to sign and sign to voice settings required. Students will identify interpreting styles and best practice techniques. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 373.

ITP 481 Educational Interpreting

4 Quarter Hours

Explores a day in the life of an educational interpreter and best practices. Additionally covers information on Educational Interpreter Performance Assessment (EIPA) testing and the Code of Professional Conduct as appropriate for interpreters in educational settings. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 381.

ITP 482 Interpreting in Specialized Settings

4 Quarter Hours

Examines the variety of specialty full-time and freelance settings where interpreters may work including: legal, medical, video relay service, video remote interpreting, mental health, social services, religious, government, and fine arts. Discussion and practice will focus on appropriate register, interpreting techniques, and jargon. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 381, C or better in ITP 474.

ITP 483 Deaf and Blind Interpreting

4 Quarter Hours

Explores a day in the life of a Deaf-Blind interpreter and best practices. Additionally provides opportunities for students to meet and work with Deaf-Blind individuals. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 381.

ITP 491 Professional Interpreting Seminar II

4 Quarter Hours

Continues the development of skills necessary for interpreting and transliterating evaluation through simulated testing using interactive multimedia of hearing and Deaf individuals. Additionally discusses important considerations in establishing an interpreter freelance business. Must complete with a C (73%) or higher.

Prerequisite(s): C or better in ITP 453, Program Director/Dean approval.

LAW

LAW 211 Business Law

4 Quarter Hours

Provides students with an introduction to the legal issues inherent in dynamic business environments. Topics covered include the legal system, including an examination of constitutional law; business torts; contracts; intellectual property; criminal law; and the ethical considerations for business decision making.

DESCRIPTIONS OF UNDERGRADUATE COURSES

LAW 312 Advanced Business Law

4 Quarter Hours

Advances the business student's knowledge of the law as it relates to topics such as sales, negotiable instruments, creditors' rights, secured transactions, bankruptcy, employment and labor laws, federal securities acts, personal property, real property, environmental law, insurance, and business ethics.

Prerequisite(s): LAW 211.

LEAN MANUFACTURING

LNM 311 Introduction to Lean

4 Quarter Hours

Examines the history of the Toyota Production System - more commonly known as Lean Manufacturing - and the impact it has had on manufacturing operations throughout the world. Case studies will be analyzed to gain additional insight into the success of these practices. The various tools such as: Takt time, Pitch Supermarkets, Line Balancing, 5 S, Total Productive Maintenance, Standardized Work, Heijunka - Level Loading and others will be explained and demonstrated in various simulations throughout the quarter.

Prerequisite(s): MTH 091 or satisfies developmental math or placement exam.

LNM 312 Lean Applications

4 Quarter Hours

Focuses on applications of Lean methods that can be used to minimize all forms of waste and maximize value for the customer, including value stream mapping, Takt time, line balancing, standardized work, continuous flow, Kaizen, quick changeovers, and pull scheduling. Because the course design has a heavy practice orientation, as much as half of the class time is spent working through interactive practice exercises. The Lean methodology is presented with numerous case studies and examples drawn from service, healthcare, education, business process, and manufacturing applications.

Prerequisite(s): LNM 311.

LNM 411 Six Sigma Basics-Green Belt

4 Quarter Hours

Covers the Six Sigma methodology to ensure customer satisfaction and ensure profitability. Six Sigma is a world class, fact based, system approach for both administrative and manufacturing operations. Students will follow the five phase D-M-A-I-C process in two unique case studies. This course will help prepare students to obtain Green Belt certification.

LNM 412 Advanced Six Sigma-Green Belt

4 Quarter Hours

Provides hands-on use of the DMAIC tools and expands the knowledge learned in the Six Sigma Green Belt Basic class. In order to stay competitive, organizations need to continuously improve their processes. Six Sigma Green Belts are often expected to be the leaders of a process improvement team. The Define-Measure-Analyze-Improve-Control methodology is presented with numerous case studies and examples drawn from service, healthcare, education, business process, and manufacturing applications.

Prerequisite(s): LNM 411.

LINUX/UNIX

LUX 205 Introduction to Linux/Unix

4 Quarter Hours

Provides an introduction to Linux/Unix, its history, characteristics, and system basics from a user's perspective. The following concepts are introduced: basic file structures; navigational tools; file manipulation tools; file permissions and access; 'vi' editor basics; remote terminal emulation; mail; shell fundamentals; quoting and special characters; filename generation; input/output redirection; pipelines; multitasking and input arguments. Students will demonstrate the ability to use Linux/Unix commands at the command-line level.

Corequisite(s): INF 111 or INF 131 or INF 121 or INF 161 or NET 101.

LUX 211 Shell Programming

4 Quarter Hours

Explores shell programming issues in a Linux/UNIX environment. Students should understand basic commands for file manipulation and directory navigation. While addressing the existence of other shells, this course focuses on the BASH shell. The topics covered include basic OS concepts and script writing, file System structure, debugging techniques, control structures (decision/looping), functions, arrays, and text processing.

Prerequisite(s): LUX 205.

LUX 261 Linux/Unix System Administration I

4 Quarter Hours

Introduces system administration for individual or local Linux/Unix systems. The topics will cover the essential duties of a Linux/Unix system administrator including: booting and shutting down systems, user administration, root system powers, file system creation and administration, devices and drivers, adding hardware, backing up/restoring file systems, system log files, and kernel modifications. Students will demonstrate the ability to utilize shell scripts to automate system administration and troubleshooting problems.

Prerequisite(s): LUX 211. Corequisite(s): NET 102.

LUX 262 Linux/Unix System Administration II

4 Quarter Hours

Continues system administration for Linux Workstations. The topics will cover those of a junior to intermediate level Linux system administrator including: Dynamic host configuration, domain name system, network file systems, remote administration, sharing with windows clients, e-mail, Web, FTP, and proxy servers.

Prerequisite(s): LUX 261.

LUX 263 Linux/Unix System Administration III

4 Quarter Hours

Concludes system administration for Linux Workstations. The topics will cover the duties of an intermediate level Linux system administrator including: Customizing system startup, file system repair, compiling custom kernels, routing, and multiple security techniques.

Prerequisite(s): LUX 262.

LUX 269 Linux/Unix Systems Project

4 Quarter Hours

Builds on the knowledge gained from the previous coursework to produce a project that demonstrates effective system design. This course will focus on design, implementation, and testing. Special attention will be placed on the necessary information to pass applicable certification and job testing knowledge. This is the capstone course for the Linux/Unix administration program.

Prerequisite(s): LUX 262.

LITERATURE

LIT 301 Contemporary Literature

4 Quarter Hours

Studies contemporary authors who may be classified as modern or postmodern; figures include principal ethnic and minority writers.

Prerequisite(s): ENG 102.

LIT 321A Children's Literature

4 Quarter Hours

Studies classical and contemporary writing for children. Examines a selection of materials with reference to the interests, needs, and abilities of children.

Prerequisite(s): ENG 102.

LIT 331 American Literature I

4 Quarter Hours

Surveys American literature of various genres from colonial times (1600) through the Civil War (1865). American literary movements and their historical contexts are revealed through works representing a full range of American ethnicities. Students learn to critically analyze many types of literature through class discussion, activities, and writing.

Prerequisite(s): ENG 102.

LIT 332 American Literature II

4 Quarter Hours

Surveys American literature of various genres from Reconstruction (1865) to the present. American literary movements and their historical contexts are revealed through works representing a full range of American ethnicities. Students learn to critically analyze many types of literature through class discussion, activities, and writing.

Prerequisite(s): ENG 102.

LIT 401A Survey of English Literature

4 Quarter Hours

Introduces selections from major English authors. Emphasis is on the writers' ideas, relationship to culture, and forms of expression.

Prerequisite(s): ENG 102, ENG 221.

DESCRIPTIONS OF UNDERGRADUATE COURSES

LIT 405 Literature for Young Adults

4 Quarter Hours

Studies genres and themes presented by contemporary writers of literature for young people: violence in society, search for identity, family life, friendship, historical fiction, poetry, short stories, adventure, and fantasy.

Prerequisite(s): ENG 102.

LIT 411 Studies in Literature

4 Quarter Hours

Focuses on the advanced study of world literature. Topics covered vary and include all types of literature such as poetry, novels, and short stories.

Prerequisite(s): ENG 102, ENG 221.

MANAGEMENT

MGT 101 Introduction to Business

4 Quarter Hours

Provides a basic understanding of many aspects of business through an overview of the changing business environment, the roles of small businesses, entrepreneurs, and the importance of customer relations, management, and marketing. Financial management, accounting and banking will also be discussed.

MGT 111 Professional Management Behavior

4 Quarter Hours

Examines the role that professional management behavior plays in the success of any organization. Emphasis is on the importance of customer service, ethical behavior, and effective communication, building relationships and recognizing diversity. Students will participate in role plays, team projects, networking assignments, and case studies.

Prerequisite(s): ENG 101, MGT 101.

MGT 114 Customer Service

4 Quarter Hours

Examines the elements of establishing superior service as an essential component of business success, including a focus toward interdepartmental cooperation and treating vendors, suppliers, and distributors the same as external customers. Customer contact skills including listening, courtesy, conflict management, problem solving, decision making, ethics, follow up, and communication are covered. Recommended as an introductory course for business majors or anyone having customer contact relationships.

MGT 141 Principles of Management

4 Quarter Hours

Provides an understanding of leadership styles, the management process, organizational resources and how to use them, various motivation/behavior theories, conflict management, and implementing and supporting change. Students will compare different leadership styles and apply them in case scenarios, role plays and other group/team activities involving topics such as: change, employee behavior, conflict, ethics, decision-making, and managing resources.

Prerequisite(s): ENG 101, MGT 101.

MGT 151 Introduction to E-Business

4 Quarter Hours

Explores the growth in electronic commerce and studies the challenges in adapting current business practices to this new market. Students develop skills in understanding a networked community for business functions and transactions.

MGT 211 Management and Supervision

4 Quarter Hours

Investigates the developmental role of the modern manager. Areas covered in the course are planning, decision making, forecasting, goal-setting, motivation, communication, staffing, and utilizing problem-solving concepts through group simulation and case studies.

MGT 212A Staffing and Performance Management

4 Quarter Hours

Explores a variety of human resources management issues. Students are introduced to the tactical and strategic role of the human resource function within an organization. Examines coaching, employee performance measurements, team-based/team development, accountability, employment procedures, and discipline.

Prerequisite(s): ENG 101, MGT 101.

MGT 221 Applied Business Analytics

4 Quarter Hours

Continues the study of the role analytics plays in business decision making. Students will apply analytics in various decision-making situations involved with operations, planning/control projects, and quality management initiatives.

Prerequisite(s): BUS 211 or MGT 121.

MGT 222 Management Seminar

4 Quarter Hours

Discusses a variety of significant issues related to business and organizational leadership in today's dynamic, customer-driven, global economy. This course focuses on the challenges of change and management's response to change, the diversity of management methods, and managing strategies for the future. As a seminar, this course uses peer teaching and learning approaches, involves group learning experiences in a team environment, requires practical application of concepts, and includes research and case studies. This course culminates the associate's degree of management.

Prerequisite(s): MGT 211 or MGT 221 or MGT 241.

MGT 231 Small Business Management

4 Quarter Hours

Examines the role of small businesses in the economy with emphasis on marketing, human resources, management, and financing of the small business. The role of the entrepreneur in business will be examined.

MGT 241 Business Success Seminar

4 Quarter Hours

Affords students the opportunity to develop the personal and interpersonal skills necessary for success in business careers. Course topics include goal setting and goal achievement strategy, stress management, problem solving, personal financial management, time management, a brief study of business culture and the role of the individual in a business environment.

Prerequisite(s): Management majors: MGT 211, MGT 212. Marketing majors: MKT 201, MKT 202.

MGT 250 Conflict Management

4 Quarter Hours

Teaches the fundamental concepts and theories of conflict resolution and negotiation as well as the application of these concepts and theories through exercises and case analysis.

MGT 301 Organizational Behavior

4 Quarter Hours

Introduces students to the evolution of key management concepts. Topics include foundations of organizational behavior, the individual in organizations, groups and interpersonal influence, organizational structure and process, and leadership in organizations.

Prerequisite(s): MGT 222.

MGT 311 Organizational Change

4 Quarter Hours

Examines the effects of environmental change on organizations and organizational systems. Emphasis is placed on sustaining change by building organizational capability involving human resources and organizational practices which have the potential to sustain the organization's ability to continually adapt in a dynamic environment. Topics include organizational behavior, groups and interpersonal influence, strategic interventions, approaches to systems, system analysis and design, implementation techniques, monitoring, complementary human assets, contextual relations, and linkages. Specific examples are drawn from industry experience and models.

Prerequisite(s): Junior status.

MGT 321 Management Information Systems

4 Quarter Hours

Explores the role of information systems in organizations. This course covers the major types of information systems and the impact that these systems have on organizations, including how information systems improve decision making and support the business strategy. Information system development and planning are covered, as well as information security and the challenges of future technology changes.

Prerequisite(s): Junior status.

MGT 331 Applied Leadership

4 Quarter Hours

Examines a variety of leadership and management styles and their application. Emphasis is on problem-solving, collaboration, managing resources, ethical behavior, using appropriate leadership style, team-building, and characteristics of effective leadership.

Prerequisite(s): MGT 222.

MGT 341 Globalization and Diversity

4 Quarter Hours

Examines factors that shape the cultural diversity on a global business. Students develop the ability to analyze situations and develop appropriate management techniques to effectively use diversity as an asset of the organization. Emphasis is on culture, demographic trends, environmental issues, social issues, economic issues and ethical concerns in a global business scenario.

Prerequisite(s): MGT 222.

MGT 350 Services Management

4 Quarter Hours

Examines the expanding role of service organizations in the economy, with specific focus on service firm operations, management, customer relations, marketing, and organization.

Prerequisite(s): MGT 222.

MGT 401 Labor Management Relations

4 Quarter Hours

Focuses on the basic concepts of managing a unionized workforce. Topics include the history of labor union movements, the collective bargaining process, and labor law.

Prerequisite(s): MGT 301 or MGT 311 or PSY 231.

MGT 405 Contemporary Management Strategies

4 Quarter Hours

Examines the evolution and development of various contemporary management approaches and their application. The goal is to portray a selection of individuals whose ideas have made a difference in the way we practice business management. Students will learn to synthesize the thoughts and apply the concepts of current management thinkers in order to be a more effective leader.

Prerequisite(s): MGT 222.

MGT 414R Strategic Leadership

6 Quarter Hours

Introduces students to the value, purposes, and methods of effective strategic planning and implementation. This course includes the investigation, design, development, implementation, assessment, and evaluation of the strategic planning process. This course includes the application of this process through the use of actual case studies and an online global business simulation. This course is exclusive to the Bachelor of Business Leadership program.

Prerequisite(s): ACC 351R, ECN 301R, HRM 401R, MGT 451R, PSY 231R.

MGT 422 Operations Management

4 Quarter Hours

Introduces students to a broad scope and major strategic, tactical, and operational decisions of operations management, as well as important interactions with other functional areas. Emphasis is on a conceptual understanding of the operations function and includes the following topics: product/process selection and design, facility location and layout, capacity, material management, inventory planning and control, and quality management.

Prerequisite(s): MGT 311, MTH 109 or MTH 112A.

MGT 431 Strategic Management

4 Quarter Hours

Addresses the strategic function of an enterprise. By integrating functional courses into a balanced overall view, this course focuses upon the interaction and interrelationships of an organization with its environment. This is the capstone course in the Bachelor of Business Administration in Management program.

Prerequisite(s): MGT 311, MGT 321.

MGT 442 Global Management

4 Quarter Hours

Examines factors that shape cultural diversity on a global basis. It develops the ability to analyze situations and develop appropriate management techniques to deal with a variety of business situations. It examines cultures and business practices among key global marketplaces.

Prerequisite(s): MGT 301 or MGT 311 or PSY 231.

MGT 451R Management Styles and Strategies

6 Quarter Hours

Examines a variety of leadership and management styles and strategies. Teaches the definitions, personal traits, characteristics and behaviors of effective leaders and managers. Assists students in recognizing and developing their own leadership/management skills and potentials. This course is exclusive to the Bachelor of Business Leadership program.

Prerequisite(s): MTH 312R, WRI 312R.

MARKETING

MKT 111B Principles of Marketing

4 Quarter Hours

Examines the essentials of an introductory course than can be either a survey course or a prerequisite to more advanced marketing studies. Study includes product identification, positioning and pricing strategies, consumer need identification and making the connection between consumer needs and product advertising, basic distribution strategies, and some of the decision-making tools at the disposal of the marketing manager. This course is recommended as a first course for marketing majors.

MKT 131 Personal Selling

4 Quarter Hours

Introduces the steps of the selling process from beginning to end, with a focus on organization and a systematic approach. Topics include communication, the strategic selling process, sales careers, understanding your customer, and using technology.

Prerequisite(s): Bachelor of Digital Media Technology majors: ENG 101, MKT 111B. All other majors: ENG 101, MGT 101, MKT 111B.

MKT 201 Sales

4 Quarter Hours

Acquaints students with the basic principles of effective sales techniques. Topics include personal analysis, personality development, buying motives, product knowledge, company awareness, technology, relationship selling, sales presentations, sales resistance, and sales closings.

MKT 202 Advertising

4 Quarter Hours

Introduces the principles and practices of advertising - the planning and research functions, the techniques and execution of advertising, the way the message is created, media decisions, and current issues facing the industry. Analyzes the effects of advertising on the consumer and examines the structure of the advertising messages and how they are adapted to specific audiences.

MKT 215 Applied Marketing

4 Quarter Hours

Provides a balanced exposure to marketing theory and practice with significant application of marketing principles via case studies and project work.

Prerequisite(s): MKT 111B, MKT 201, MKT 202.

MKT 241 Advertising/Digital Marketing I

4 Quarter Hours

Explores how digital advertising and social media fit into the marketing process. Introduces the concept of building brand communities by interactive, two-way communication through the objectives of theory, tactics, media, and planning. Topics include strategic communication planning, digital media, social media, customer relationship management, ethics, and digital marketing careers.

Prerequisite(s): Bachelor of Digital Media Technology majors: ENG 101, MKT 111B. All other majors: ENG 101, MGT 101, MKT 111B.

MKT 261 Marketing Planning

4 Quarter Hours

Provide students an opportunity to apply all acquired business knowledge to real life business and organizations. Focus will be on providing viable solutions with value stream relevance in a dynamic marketing environment. This is the capstone course for the Associate degree in Marketing.

Prerequisite(s): MKT 131, MKT 241, BUS 211 or MKT 251.

MKT 291 Marketing Seminar

4 Quarter Hours

Provides students the opportunity to analyze, assess, and recommend a marketing strategy, as a class, for an existing business. Focus will be on developing a total analysis package based on material studied in previous associate's degree level classes. This is a group activity similar to that of a marketing team in the world of consulting.

Prerequisite(s): MKT 215.

MKT 312 Consumer Behavior

4 Quarter Hours

Studies consumer functions such as decision-making, attitude formation and change, cognition, perception, and learning. The marketing concepts of product positioning, segmentation, brand

loyalty, shopping preference and diffusion of innovations are considered in context with the environmental, ethical, multicultural and social influences on an increasingly diverse American consumer.
Prerequisite(s): MKT 261.

MKT 342 Digital Marketing II

4 Quarter Hours
Continues the exploration of how digital advertising and social media fit into the marketing process. Emphasis will be on social networking, crowd-sourcing, mobile computing, location marketing, and development of a digital marketing plan using social media integrated with the more traditional marketing tools to fulfill the organization's objectives of satisfying the customer. Students will develop a digital marketing campaign in the course.
Prerequisite(s): MKT 261.

MKT 352 Marketing Analytics II

4 Quarter Hours
Continues the exploration of data analysis related to marketing. Students will examine a systematic and objective approach to marketing research focusing on gathering and analyzing information to make better marketing decisions. Various research methodologies are reviewed and students will work on developing data gathering instruments, participate in collecting the data, analyzing the data and producing effective reports which can be used in decision making.
Prerequisite(s): MKT 261.

MKT 401 Marketing Research

4 Quarter Hours
Explores the notion that in order to satisfy a need and create customer satisfaction, a business must know about its customers. Students will examine a systematic and objective approach to marketing research focusing on gathering and analyzing information to make better marketing decisions. Research methods will focus on planning, problem solving, and controlling. Methodologies covered include correlation, experimentation, observation, survey, and case study research.
Prerequisite(s): MKT 215 or MKT 291.

MKT 402 Advertising Management

4 Quarter Hours
Focuses on advancing the advertising campaign beyond MKT202 (Advertising) and managing the functions for getting the advertising proposal to an actual advertising initiative. This course addresses the functions of advertising agencies, media-services, agency-client relationships, integrating graphic design and marketing concepts, in-house and contractual advertising management issues, timetables, and production issues. Strategic applications, pulsing, and advertising personnel issues are also studied. This includes the study of advertising legal environments, copyrighting, types of consumer promotions and trends, and understanding specific media jargon including rate/cost calculations.
Prerequisite(s): MKT 202.

MKT 421 Marketing Management

4 Quarter Hours
Analyzes the relationship of the marketing mix to the total business environment. Some group work is required to be done outside of class. This is the capstone course of the marketing sequence, taught in seminar fashion.
Prerequisite(s): MKT 312.

MKT 431R Marketing Strategies

6 Quarter Hours
Focuses on the nature of competition and the importance of customer service. This course identifies how to access and serve target markets and support the organizational mission. This course is exclusive to the Bachelor of Business Leadership program.
Prerequisite(s): ACC 351R, ECN 301R, HRM 401R, MGT 451R, PSY 231R.

MKT 436 Marketing Strategy and Design

4 Quarter Hours
Gives students the opportunity to participate in a course that integrates previous marketing content knowledge in a problem-based learning environment. Students will design an integrated marketing campaign including a detailed marketing plan which incorporates a marketing code of ethics, and effective communication plan for the presentation of this integrated marketing campaign to both internal and external stakeholders. This is the capstone course of the Bachelor in Business Administration in Marketing program.
Prerequisite(s): MKT 312, MKT 342, MKT 352.

MATHEMATICS

MTH 091 Essential Math Concepts

4 Quarter Hours
Examines math concepts relating to whole numbers, fractions, decimals, ratios, proportions, percents, signed numbers, order of operations, and metric conversions. In addition, basic algebraic concepts and mean, median, and mode are introduced. This course is designed as a review of concepts to prepare students for success in subsequent mathematics courses. Consistent class attendance is critical. Credit earned does not count toward any degree.

MTH 099E Pre-Algebra

4 Quarter Hours
Examines the basic elements of algebra. Included in the course are integers, rational numbers, variables, exponents, radical expressions, solving a linear equation and its applications, slope-intercept form of a line, proportions, percents, and the rectangular coordinate system. Consistent class attendance is critical. Credit earned does not count toward any degree.
Prerequisite(s): MTH 091 or satisfies developmental essential math concepts or placement exam.

MTH 101 Mathematics for Business

4 Quarter Hours
Presents the application of mathematical skills to business functions to provide students with the basics needed to compute problems in the areas of simple interest, ratios, percentages, compound interest, annuities, and present values.
Prerequisite(s): MTH 099E or satisfies developmental pre-algebra or placement exam.

MTH 108 College Mathematics I: Reasoning and Application

4 Quarter Hours
Solves contemporary, real-world problems by mathematical reasoning utilizing concepts from algebra, finance, and statistics. Key topics include personal finance, mathematical models, functions and relations, dimensional analysis, statistical reasoning, and Euclidean geometry. This class focuses on quantitative literacy and the application of the above concepts in a variety of professional disciplines.
Prerequisite(s): MTH 099E or satisfies developmental pre-algebra or placement exam.

MTH 109 College Mathematics II

4 Quarter Hours
Solves contemporary, real-world problems by mathematical reasoning utilizing concepts from algebra, right-triangle trigonometry, probability, and statistics. Key topics include equations, inequalities, graphs and functions; exponential, logarithmic, and quadratic models; counting methods, probability theory, normal distribution, correlation, and regression. This class focuses on quantitative literacy and the application of the above concepts in a variety of professional disciplines.
Prerequisite(s): C or better in MTH 108.

MTH 111 Introductory Algebra

4 Quarter Hours
Introduces elements of algebra including real numbers, linear graphing, variable expressions, linear equations, polynomial operations and factoring, systems of equations, quadratic equations, and rational equations.
Prerequisite(s): MTH 099E or satisfies developmental pre-algebra or placement exam.

MTH 112A College Algebra

4 Quarter Hours
Examines more advanced elements of algebra emphasizing the use of algebra and functions in problem solving and modeling. Key topics include functions, inverse functions, complex numbers, rational functions, logarithms, exponential functions, conic sections, sequences and series. Graphing is by recognition and transformation rather than by plotting points.
Prerequisite(s): C or better in MTH 111.

MTH 124 Trigonometry

4 Quarter Hours
Analyzes trigonometric functions, their properties, solution of right and oblique triangles, radian measure, graphs, trigonometric equations, and applications.
Prerequisite(s): C or better in MTH 112A.

DESCRIPTIONS OF UNDERGRADUATE COURSES

MTH 140 Pre-Calculus

5 Quarter Hours

Studies functions, their inverses, graphs, and properties. Specifically polynomial, rational, exponential, logarithmic, and trigonometric functions are explored. Students solve equations and real-world problems involving these functions. Graphing calculators are an integral part of this course.

Prerequisite(s): MTH 124.

MTH 141 Calculus I

4 Quarter Hours

Focuses on the topics of functions, limits, continuity, the process of taking derivatives, and the application of derivatives such as related rates, curve sketching, and optimization problems. This course is for Education majors only based on the prerequisite.

Prerequisite(s): Education majors: MTH 140. All other majors: B- or better in MTH 124.

MTH 141A Calculus I

4 Quarter Hours

Focuses on the topics of functions, limits, continuity, the process of taking derivatives, and the application of derivatives such as related rates, curve sketching, and optimization problems. This course is for all majors except Education majors (see MTH 141) based on the prerequisite.

Prerequisite(s): B- or better in MTH 124.

MTH 142 Calculus II

4 Quarter Hours

Focuses on antiderivatives, the process of integration, logarithmic and exponential functions, inverse trigonometric functions, simple differential equations, and applications of integration such as area and volume.

Prerequisite(s): MTH 141.

MTH 143 Calculus III

4 Quarter Hours

Focuses on techniques of integration, improper integrals, testing sequences for convergence or divergence, the development and application of a Taylor or Maclaurin series, and the application of calculus techniques to conic sections, parametric equations, and polar equations.

Prerequisite(s): MTH 142.

MTH 211A Number Concepts for Educators

4 Quarter Hours

Introduces the principles of key mathematical concepts in a problem-solving environment. Focuses on number sense and numeration, whole number operations, fractions and decimals, computational algorithms, patterns, relations, functions, and informal algebra. Includes a variety of materials, activities, and strategies that could be used for teaching elementary school mathematics.

Prerequisite(s): MTH 111.

MTH 212A Geometric and Statistical Concepts for Educators

4 Quarter Hours

Introduces the principles of key mathematical concepts in a problem-solving environment. Focuses on mathematical logic, properties of two- and three-dimensional figures, similarity and congruence, motion geometry, common and metric measurement, statistical methods to describe, analyze, and use data, and probability applied in everyday life. Includes a variety of materials, activities, and strategies for teaching elementary school mathematics.

Prerequisite(s): MTH 211A.

MTH 244 Calculus IV

4 Quarter Hours

Includes topics such as functions of several variables, partial differentiation, multiple integration, and three space vectors.

Prerequisite(s): MTH 143.

MTH 251 Introduction to Differential Equations

4 Quarter Hours

Includes the principles and methods for solving first, second, and higher order differential equations. Applications of differential equations are also covered.

Prerequisite(s): MTH 244.

MTH 261 Linear Algebra

4 Quarter Hours

Introduces students to linear algebra including algebra of matrices, vectors in space, vector spaces and subspaces, eigenvalues, linear transformations, and the applications of matrix methods to find solutions to systems of linear equations and linear programming problems.

Prerequisite(s): MTH 143.

MTH 315A Algebraic Thinking and Proportional Reasoning

4 Quarter Hours

Builds algebraic thinking through examination of patterns and relationships, logic, and functions as well as developing appropriate symbolic forms to represent and analyze mathematical situations and structures. Multiple representations of situations are used and the interrelationships of these representations are stressed. Attention is given to developing proportional reasoning by investigating number theory, ratio and proportion, and decimals and percents as extensions of the whole number system.

Prerequisite(s): MTH 112A, MTH 211A.

MTH 331 Geometry for Elementary Teachers

4 Quarter Hours

Introduces a variety of materials, activities, physical models, manipulatives, and dynamic software as learning tools. This course analyzes characteristics and properties of two and three dimensional geometric objects and their measurement using different representational systems; it also analyzes mathematical situations and uses visualization and spatial reasoning to solve problems both within and outside mathematics.

Prerequisite(s): MTH 211A.

MTH 340 Discrete Mathematics

4 Quarter Hours

Focuses on the applications of discrete mathematics in computer science. This course includes set theory, propositional logic, relations, Boolean algebra, and minimization of equations.

Prerequisite(s): MTH 124.

MTH 351 Modern Algebra

4 Quarter Hours

Explores the ideas, methods, applications, and questions of modern algebra. Students study the basic properties and theorems related to groups, rings, integral domains, and fields; the familiar number systems serve as models for the abstract systems. This course provides experience in abstract reasoning, making and testing conjectures, and proving theorems.

Prerequisite(s): MTH 142, MTH 261, MTH 340.

MTH 371 Probability and Statistics for Educators

4 Quarter Hours

Introduces students to statistical methods common to educators. Students will learn how to collect, analyze, present, summarize and interpret data using graphical and numerical methods; calculate probability and apply probability distributions; and apply linear regression analysis. (Online only)

Prerequisite(s): MTH 112A.

MTH 401 Statistical Methods

4 Quarter Hours

Focuses on data interpretation and practical application of introductory level statistics. Emphasizes a conceptual understanding of the use of statistics in various fields, including the ability to interpret results. Topics include development and analysis of descriptive statistics, inferential statistics (bivariate), and regression analysis. Students determine appropriate statistical methods, calculate basic statistical values, and analyze/interpret data sets including statistical software study results.

Prerequisite(s): MTH 108 or MTH 111.

MTH 411A Reasoning and Proof for Elementary Educators

4 Quarter Hours

Makes and investigates mathematical conjectures. Develops and evaluates mathematical arguments and proofs. Selects and uses various types of reasoning and methods of proof as appropriate ways to foster systematic thinking, conjecturing, and marshaling of evidence that are precursors to formal mathematical argumentation.

Prerequisite(s): MTH 140, MTH 315A, MTH 340.

MTH 421A Math Technology for Educators

4 Quarter Hours

Uses electronic technologies to help elementary school students understand mathematics. Calculators, graphers, and computers are used in a laboratory setting to investigate patterns; test conjectures; explore and analyze data; connect numerical, symbolic, and graphical representations; visualize geometric concepts; and investigate and solve real-world problems.

Prerequisite(s): MTH 211A.

MTH 431 Foundations of College Geometry

4 Quarter Hours

Familiarizes students with Euclidean geometry, finite geometries, geometric transformations, non-Euclidean geometries, geometric proofs, and application of geometric concepts to real-world

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situations. Uses interactive software.

MTH 451 Introduction to Real Analysis

4 Quarter Hours

Develops a working knowledge of logic and the standard methods of mathematical proof; uses set theory concepts and notations; develops the notion of relation, especially equivalencies relations; explores the basic properties of functions and operations of functions; and the properties of the real number system.

Prerequisite(s): MTH 142, MTH 340.

MTH 493 Senior Seminar: Mathematics

4 Quarter Hours

Familiarizes students with the professional community of mathematics educators as well as with state and national curricula and assessment standards in mathematics. This capstone course for mathematics majors and minors explores the historical development of mathematics. Students are required to demonstrate subject matter knowledge and critical thinking in mathematics.

Prerequisite(s): Senior status, Program Director/Dean approval.

MECHANICAL ENGINEERING

ME 107 Introduction to 3-D Modeling

4 Quarter Hours

Introduces students to 3D computer aided design modeling techniques using industry typical software. Builds on connection between 2D drawings/sketches and 3D solid modeling. Introduces concepts of projects, parts, libraries, catalogs, and other topics related to industry application of CAD programs.

ME 201 Statics

4 Quarter Hours

Introduces the basic principles of mechanics with engineering applications. This course includes the concepts of vectors; moments and couples; equilibrium of particles and rigid bodies; free body diagrams; analysis of trusses, frames, machines, and beams; centroids and moments of inertia.

Prerequisite(s): MTH 141, SCI 215 or SCI 251. Corequisite(s): MTH 142.

ME 211 Solid Mechanics

4 Quarter Hours

Introduces students to the mechanics of deformable solids. This course includes the concepts of stress and strain; ductile and brittle material behaviors; and stress and strain constitutive laws. Axial, torsional, and bending deformations; and shear and moment diagrams in beams are considered. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): ME 201.

ME 281 Materials Science

4 Quarter Hours

Introduces the principles of engineering materials. This course covers the correlation of the internal structure and service conditions with the mechanical, thermal, and electrical properties of metals, polymers, and ceramics. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 247.

ME 299 Design Project

4 Quarter Hours

Provides students with the opportunity to work in teams to solve an engineering design problem. Students will prepare designs, a report, and make a presentation of the solutions. This is a capstone course in the Mechanical Technology Associate's Degree program and should be taken during the last quarter in the program.

Prerequisite(s): Program Director/Dean approval.

ME 301 Introduction to CAE

4 Quarter Hours

Introduces students to the application of computer technology to the engineering design process. Explores new design methodologies and techniques used throughout the design process from a product's conceptual design and simulation through manufacturing. Using 3D solid model software taught in class, students will learn the benefits of solid modeling as it relates to engineering design and the role it plays in the product development process.

Prerequisite(s): ME 107.

ME 305 Introduction to FEA

4 Quarter Hours

Introduces students to finite element theory, problem formulation, and computer analysis. The concepts covered are isoparametric formulation, element stiffness and load matrices, global stiffness matrix, governing equations, boundary conditions, temperature effects, pre- and post-processing, scalar field, deformation and stress analysis, commercial FEA software, and application in 1D-, 2D-, and 3D-models.

Prerequisite(s): ME 211, MTH 261.

ME 306 Intermediate FEA

4 Quarter Hours

Continues the development of the finite element method including a deep dive into applications. Element types and modeling techniques will be explored, followed by analysis types and convergence. Modeling assumptions will be discussed in terms of their effect on solution development and accuracy.

Prerequisite(s): ME 211, ME 305, MTH 261.

ME 311 Biomechanics and Biomaterials

4 Quarter Hours

Introduces students to bioengineering related topics such as biomechanics, and biomaterials used in medical applications. Students will use the principles of kinematics and dynamics to analyze and interpret a variety of human body movements. Includes a survey of biomaterials including properties and specific medical applications.

Prerequisite(s): SCI 215 or SCI 251.

ME 321 Dynamics

4 Quarter Hours

Introduces students to the kinematics and kinetics of particles, systems of particles, and rigid bodies. This course includes energy and momentum principles.

Prerequisite(s): ME 201, SCI 251.

ME 325 Kinematics

4 Quarter Hours

Studies motion without regard to the forces that cause motion. The principles of kinematics are studied and applied to machines to determine positions, displacements, velocities, and accelerations of their parts.

Prerequisite(s): ME 321.

ME 331 Thermodynamics

4 Quarter Hours

Covers classical thermodynamics. This course includes the properties of a pure substance; work, heat, energy, enthalpy, and entropy; first and second laws of thermodynamics; and power and refrigeration systems.

Prerequisite(s): MTH 143, SCI 253.

ME 341A Fluid Mechanics I

4 Quarter Hours

Introduces students to the mechanics of fluids. This course includes fluid properties, kinematics, fluid statics, Bernoulli equation, control-volume and differential forms of the fundamental laws, dimensional analysis, similitude, and fluid/flow phenomena.

Prerequisite(s): ME 321, ME 331. Corequisite(s): MTH 251.

ME 342 Fluid Mechanics II

4 Quarter Hours

Continues the study of fluid mechanics. This course includes the differential forms of the fundamental laws, dimensional analysis, similitude, surface resistance, flow in conduits, flow measurement, turbomachinery, and an introduction to computational fluid mechanics.

Prerequisite(s): ME 341A.

ME 350 Ergonomics for Engineers

4 Quarter Hours

Studies the natural laws of work. This topic deals with the minimization of the hazards and maximization of the efficiency of the work system in which the human is a part. The scope of this system can be as simple as a carpenter and a hammer or as complicated as the control system of a nuclear power plant.

Prerequisite(s): EGR 105, ME 201.

ME 351 Mechanical Design I

4 Quarter Hours

Introduces students to machine design including materials and process considerations. Topics include load determination; stress, strain, and deflection; static, fatigue, and surface failure theories. A design project is required.

Prerequisite(s): ME 211, ME 321, ME 281 or CAD 141.

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ME 352 Mechanical Design II

4 Quarter Hours

Continues the study of machine design including the design of shafts, keys, and couplings; bearings and lubrication; spur, helical, bevel, and worm gears; springs; screws and fasteners; clutches and brakes. This is a capstone course and a design project is required.

Prerequisite(s): ME 351.

ME 361 Dynamic Systems and Control

4 Quarter Hours

Introduces mathematical modeling of mechanical, fluid, and electrical systems in graphical and state equation form. This course includes time and frequency response of linear systems and linear feedback control.

Prerequisite(s): EE 311A, ME 321, MTH 251.

ME 371 Heat Transfer

4 Quarter Hours

Covers the mechanisms of heat transfer including conduction, convection, and radiation. This course also includes the design, analysis, and selection of heat exchangers.

Prerequisite(s): ME 341A, MTH 251.

ME 376 Thermo Systems Lab

2 Quarter Hours

Explores thermal and fluid systems experiments, designs and applications. Design topics may include heat and mass transfer, fluid flow, thermodynamic systems and heat exchangers.

Prerequisite(s): ME 341A, MTH 251. Corequisite(s): ME 371.

ME 381 Mechatronics

4 Quarter Hours

Introduces mechatronics, the integration of mechanical design, electronics, control systems, and computer science to create better products, systems, and processes. Topics include mechanisms, sensors, actuators, microcontrollers, dynamic system modeling, automation, robotics, and other applications. Experimental practices will also be addressed.

Prerequisite(s): EE 311A, ME 361.

ME 421 Vibrations

4 Quarter Hours

Focuses on oscillatory motion including free vibration, harmonically excited vibration, transient vibration, two degree of freedom systems, properties of vibrating systems, and normal mode vibration of continuous systems.

Prerequisite(s): ME 321, MTH 251.

ME 425 Noise, Vibration, and Harshness

4 Quarter Hours

Explores the physics of noise, vibration, and harshness and the relationship between the three, as well as, their implications. This course will also cover development in vehicle and component noise and vibration control, analysis, subjective evaluation acoustic material, and measurement as applied to mobility industry.

Prerequisite(s): ME 421.

ME 491 Engineering Project Management

4 Quarter Hours

Emphasizes project management strategies for planning and assignment of work, estimating hours for project completion, and tracking for progress and change in job requirements. This course includes critical path scheduling, resource allocation, and client/customer interface. Students may not receive credit for both ME491 and ISE491.

Prerequisite(s): EGR 321, ME 341A, ME 352, MTH 251.

Corequisite(s): ME 371.

ME 495 Engineering Topics

4 Quarter Hours

Covers selected topics in engineering.

Prerequisite(s): Program Director/Dean approval.

ME 495A Engineering Topics: CAE with Solidworks

4 Quarter Hours

Covers selected topics in engineering. Students will practice Computer Aided Engineering using the Solidworks software package.

Prerequisite(s): Program Director/Dean approval.

ME 495B Engineering Topics: Alternative Energies

4 Quarter Hours

Covers selected topics in engineering. Students explore the status of various alternative energy strategies and their related engineering ramifications.

Prerequisite(s): Program Director/Dean approval.

ME 498 Senior Design Project I

2 Quarter Hours

Continues the topics in ME491 (Engineering Project Management) and utilizes concepts from mechanical engineering courses to complete a design project and prepare an engineering report on the design. This is a capstone course where students work in teams. Students may not receive credit for both ME498 and ISE498

Prerequisite(s): ME 491.

ME 499A Senior Design Project II

2 Quarter Hours

Continues the topics in ME498 to complete a design project and prepare an engineering report on the design. This is the second course in the capstone design course sequence. Students may not receive credit for both ME499A and ISE499A.

Prerequisite(s): ME 498.

MECHATRONICS

MATT 101 Basic Gauges and Measurements

4 Quarter Hours

Provides students with an introduction to measuring instruments in the manufacturing industry. Addresses scales, micrometers, Johansson Blocks, gauges and angular measurement.

MATT 105 Machine Tool

6 Quarter Hours

Provides students with hands-on knowledge and the practical learning experience in the accident prevention awareness required to perform various tasks utilizing basic power tools such as; power sander, hand drill, and a variety of hand and power tools per outlined in course topics. Then students will develop hands-on knowledge and the practical learning experience in using an engine lathe and component parts per outlined in course topics. Students will also develop knowledge and skill in operating power saws for sawing material to length and drill presses for a variety of drilling operations per outlined in course topics. All students will be required to become proficient in basic measuring tools such as; height measuring systems, calipers, micrometers, surface plates and a variety of measuring tools per outlined in course topics.

This course introduces the safe operation of milling machines in the area of vertical milling machines and addresses the various types of milling machines used in industry, their component parts, and associated safety precautions. It also emphasizes the most common milling operations required by multi-skilled industrial maintenance technicians.

Prerequisite(s): EGR 131, MATT 101, MATT 191.

MATT 111 Electrical Technology

4 Quarter Hours

Introduces electrical fundamentals, including electrical nomenclature, symbols, schematic diagrams, and simple circuits. This course also covers SI units, atomic theory, properties of conductors, current, voltage, conductance and resistance; Ohm's Law, Kirchhoff's Voltage Law, voltage divider and series circuits. Students have the opportunity for hands-on exposure to building circuits using a breadboard and electronic equipment; multi-meter, power supply.

Corequisite(s): EGR 131.

MATT 115 AC/DC Circuits

4 Quarter Hours

Introduces the basic theories of electricity as they relate to Direct Current such as: the electron theory, Ohm's Law, conductors and insulators, series circuits, parallel circuits, series/parallel circuits, magnetism, electromagnetic devices, electrical nomenclature, units of measurement, resistors, graphic and electrical symbols. Practical laboratory exercises are integrated with the theory to acquaint the student with the basic processes of constructing functional circuits and the correct use of basic measuring instruments, such as analog and digital multi-meters. Refer to current schedule of courses for software version(s) and course/lab fees.

Prerequisite(s): MATT 111.

MATT 121 Integrated Systems

4 Quarter Hours

Provides entry-level students with an overview of the technology used in automated integrated systems found in manufacturing. Included is also an overview of the typical plant networks and their associated responsibility. Distributed and local control is examined. Analysis of sequencing machines is completed along with an introduction of how to troubleshoot these systems. Topics include: fluid power components, electrical components, conveyors, part sensing components and an overview of PLC control principles.

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MATT 131 Solid State Devices

4 Quarter Hours

Provide students with the fundamental knowledge of AC single phase and the comparison with direct current. The effects of inductance and capacitance in AC circuits is emphasized and reinforced by problem assignments dealing with phase relationships. The need and methods for power factor correction are explained. Practical lab experiments are integrated with theory to help students analyze and confirm predicted circuit behavior. This includes the correct use of the oscilloscope and wattmeter. Refer to current schedule of courses for software version(s) and course/lab fees.

Prerequisite(s): MATT 115.

MATT 135 Electro-Hydraulics

6 Quarter Hours

Explains automatic control systems and electrical control concepts. It covers the principles of logic elements and functions and assembly of logic circuits. Maintenance techniques and troubleshooting components and systems will be stressed. The course is delivered using Internet accessed instructional resources and hands-on activities. Each major topic area has a post exam. Each subtopic includes a 'Self Review' activity. Hands-on activities are graded using rubrics that address multiple areas of performance. An End of Course Exit Exam and practicum assesses the ability to apply course knowledge to typical industrial scenarios.

Prerequisite(s): MATT 115. Corequisite(s): MATT 131.

MATT 141 Industrial Materials and Processes

4 Quarter Hours

Surveys the chemical, physical and mechanical properties of metals, plastics, and ceramics as well as the processes commonly used by the manufacturing industry.

MATT 151 Mechanical Drives

6 Quarter Hours

Focuses on the fundamentals of "Mechanical Transfer of Power." Basic concepts of mechanical power transmission by addressing the principles of power transmission, calculations of speed and force and how they affect a power transmission systems ability to perform work will be introduced. This course emphasizes the basics of mechanical drawing, safe work practices for working around machinery, common hand tools associated with maintenance work and some of the more common terms and definitions. In addition, students will utilize overlapping instructional models to master the theory, practice, application, and troubleshooting of the three primary systems.

Utilizing a coordinated on-line, classroom and hands-on instructional model students will apply the theory as required while assembling "Belt," "Chain," and "Gear" transmission systems. Safety procedures are taught and reinforced throughout the program. The use of on-line delivery allows for the 'Flipping' of the course content.

Students will gain exposure to theory and concepts, simulate the applications, participate in interactive assessments outside of the traditional classroom. The in-class activities will be focused on 'hands-on' activities that build upon the theory and concepts studied. Student knowledge and skills will be measured by outcome based rubrics during the in class periods.

Prerequisite(s): MATT 121.

MATT 171 Industrial Safety Hoists and Cranes Practicum

2 Quarter Hours

Emphasizes educating the manufacturing industry workforce on MIOSHA and OSHA safety standards and practical safety applications. Students will review general industry and construction standards set forth by MIOSHA and OSHA with emphasis on how to administer safety standards to ensure a safe working environment for all involved. By the conclusion of the course students should be able to recognize potential hazards and identification of the permit required, confined spaces, lockout/tag out procedures, standard rigging applications, basic crane operation, and the ability to apply work-related safety and accident prevention methods. Acknowledge company written policies and procedures for certain working applications and how to administer safe work practices.

MATT 191 Blueprint Reading

4 Quarter Hours

Introduces the fundamental drafting information necessary to retrieve, read, manipulate and understand a mechanical part print. This course requires student to be able to identify different types of prints as well as being able to analyze them.

Corequisite(s): MATT 101.

MATT 211 Industrial Controls and Instrumentation

4 Quarter Hours

Emphasizes the controls and instrumentation and explores automation input and output devices including AC and DC motors, variable speed drives, relays, motor starters and sizing of components for various applications. Typical control circuits are examined along with component selection and control documentation.

Prerequisite(s): MATT 115.

MATT 221 Programmable Controller Application

5 Quarter Hours

Introduces the fundamentals of Programmable Logic Controller (PLC) operations, including symbology and programming techniques. PLC hardware and data structures will be presented. Methods of using the programming interface to troubleshoot applications will be emphasized. Students will write, enter, and execute application programs using the programmable controllers and Human Machine Interface (HMI). The use of the Robotics Lab equipment will give students practical programming and troubleshooting skills used in the maintenance of automated systems.

Prerequisite(s): MATT 211.

MATT 222 Advanced Programmable Controller Application

5 Quarter Hours

Provides students with an understanding of the relationship between "real time" control systems and industrial devices and machines. The advanced instruction set of programmable controllers will be studied relevant to concepts and structures of automated control systems. Various applications will be defined in which students will develop the written programs for each hardware and software specification of the process problems, including field devices, data networks, and Human Machine Interfaces (HMI). The use of the Robotics Lab equipment will give the student practical programming and troubleshooting skills used in the maintenance of automated systems.

Prerequisite(s): MATT 221.

MATT 225 Introduction to Robotics

4 Quarter Hours

Provides an overview of robotic and automated systems technology. Students will be introduced to basic manufacturing techniques, robot terminology, different types of automation, safety, basic robotic programming, interfacing robotic communications, automated work cells, and robotic applications. Robot operations and programming fundamentals will be applied by the students.

Prerequisite(s): MATT 135, MATT 211, MATT 222.

MATT 231 Fundamentals of Pipe Fitting

2 Quarter Hours

Explains the types, construction, and applications of pipe, tube and hose used in fluid systems. Construction and types of connectors will be discussed, as will, securing, hanging and supporting systems.

MATT 235 Introduction to Gas/Arc/Mig/Tig Welding

4 Quarter Hours

Introduces safety rules for the welding lab. This course will also cover the issues with dealing with ultraviolet rays, burns, fumes, and electrical hazards. An introduction to the print symbols and terminology used in fabricating and welding basic joints that are commonly seen on blueprints will also be covered. Students will be introduced to the four basic welding processes: gas (oxyacetylene), arc (shielded metal arc welding), MIG (gas metal arc), and TIG (gas tungsten arc) welding. Students will learn proper set up and operating procedures through classroom demonstrations. Special emphasis is placed on safety principles. Theory and operations of shielded metal arc welding equipment will also be covered. Emphasis is on safety, machine settings, and filler metals. Students will also develop a proficiency in theory and operation of shielded metal arc welding in flat welding position, and horizontal welding position.

Prerequisite(s): MATT 231.

MATT 251 General Preventative/Predictive Maintenance

4 Quarter Hours

Introduces students to various types of principles and practices used within industry for predictive and preventative maintenance of equipment. Topics will include: safety, housekeeping, filter replacement, oil analysis, lubricating, vibration analysis, shaft alignment, balancing, motor current analysis, infrared and ultrasonic analysis, and troubleshooting.

Prerequisite(s): MATT 171.

MATT 271 Shop Floor Networking

4 Quarter Hours

Explores the various types of communication systems used in industrial systems for the transportation and exchange of data. Network topologies and specifications, LAN and field bus

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technologies, used in manufacturing are presented. The data exchange techniques and formats between typical industrial equipment for information and control will be described. Configuration requirements examples of the industrial devices are also presented to show the use in manufacturing applications.

MATT 281 Material Science Practicum

1 Quarter Hour

Provides technically oriented students with a fundamental understanding of material sciences. Topics to be included encompass material selection, heat treating, welding metallurgy and failure analyses. Students would come to learn what materials to select for proper applications, how alloys are heat treated to improve their mechanical properties, what the metallurgical science is behind the different types of welding procedures and lastly why things break. This course is designed to focus on manufacturing shop floor people who are building or repairing electrical and mechanical components on machines. It will take a fundamental approach typically encompassing two half-day sessions beginning with an elemental understanding of what metals really are and progressing towards their uses in modern day manufacturing.

MATT 282 Quality Practicum

1 Quarter Hour

Focuses on the "who, what, when, where and why" of ISO/TS QMS implementation that associates need to understand. This course also explains the associate's roles and responsibilities in an effective ISO/TS 16949:2009 quality management system, the benefits of an effective quality management system for the organization and the ISO/TS 16949:2009 process approach to quality management systems implementation.

MATT 283 Project Management Practicum

1 Quarter Hour

Emphasizes that project management is the process and activity of planning, organizing, motivating, and controlling resources, procedures and protocols to achieve specific goals in scientific or daily problems. A project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end (usually time-constrained, and often constrained by funding or deliverables), undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business as usual (or operations), which are repetitive, permanent, or semi-permanent functional activities to produce products or services. This course also provides an overview of the project management process and implementation.

MATT 299 Capstone Project

4 Quarter Hours

Assesses the participants ability to demonstrate hands-on proficiency, using the training gained in this course of study, to safely implement a typical automation application, described in this document, that the Mechatronic Technician would expect to encounter in nearly any manufacturing facility.

Prerequisite(s): Program Director/Dean approval.

MEDICAL

MED 103 Medical Terminology

4 Quarter Hours

Examines the fundamentals of word analysis by body system and emphasizes the spelling, pronunciation, and definitions of medical terms.

MED 106 Asepsis

1 Quarter Hour

Introduces the concept of medical and surgical asepsis and infection control. This course includes Universal Precautions and OSHA Regulations. 5 hours of lecture and 10 hours of lab are required.

Prerequisite(s): C or better in MED 103, Acceptance in the program.

MED 109 Physician's Office Coding

2 Quarter Hours

Introduces the basic insurance coding skills required of medical office staff. Students will be introduced to proper diagnostic coding of diseases and symptoms and proper procedure coding of medical procedures for billing insurance carriers.

Prerequisite(s): C or better in MED 103, C or better in SCI 100F or C or better in SCI 102C, Acceptance in the program. Corequisite(s): MED 203C.

MED 112 Medical Office Finance

2 Quarter Hours

Introduces the fundamentals of bookkeeping skills required for medical staff. This course includes the pegboard system with ledgers, day sheets, petty cash control, and reconciliation of bank statements. Payments will be posted from patients and insurance companies. Basic collection skills will be addressed.

Prerequisite(s): C or better in MED 103, C or better in MTH 108.

MED 113 Math for Health Occupations

2 Quarter Hours

Introduces students to the metric system and methods of conversion between the standard system and the metric system. Teaches dosage calculations for the administration of medications through various formulas including ratio proportions, fraction proportions, and the formula method. Students will also learn to calculate dosages based on body weight as well as body surface area.

Prerequisite(s): MTH 099E or satisfies developmental math or placement exam.

MED 116 Patient Assessment

2 Quarter Hours

Introduces the basic clinical skills required of medical office staff such as vital signs and assisting with physical examinations. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in MED 103, C or better in SCI 100F or C or better in SCI 102C, Acceptance in the program. Chiropactic Assistant Majors: B- or better in MED 103, B- or better in SCI 100F. Hemodialysis Majors: C or better in MED 103, C or better in SCI 100F. Corequisite(s): MED 106. Chiropactic Assistant Majors: CHI 111. Hemodialysis Majors: HT 101.

MED 126A Nurse Aide Fundamentals and Skills

9 Quarter Hours

Prepares students to work as a nursing assistant in long-term care facilities and other healthcare settings. Based on the State of Michigan Nurse Aide Training Curriculum Model, clinical skills are taught through lecture, lab demonstration and supervised hands-on experience in a long-term care facility. Students are eligible, after successful completion of the coursework, to sit for the Michigan Nurse Aide Competency Evaluation, to receive the designation of CNA (Certified Nurse Aide). This course contains 50 hours of lecture, 40 hours of lab content, and 30 clinical hours. This course is to include 1-credit of BLS-First Aid Training.

Prerequisite(s): Student background check.

MED 171 Electronic Medical Records

4 Quarter Hours

Presents students with an in-depth study of electronic medical records application. Students will be able to use, enter, access and correct medical documentation using an electronic software system. Emphasis will be directed toward understanding the role of computer based content, structure, retrieval and storage as it is used in the medical office. Compliance with HIPPA regulations and confidentiality will be emphasized.

MED 185 Phlebotomy

2 Quarter Hours

Prepares students to properly perform capillary and venipuncture in a professional manner. This course will include a review of the cardiovascular system and the role of the phlebotomist as part of the health care team. Hands-on lab experiences will be included. Students must have Hepatitis B immunization. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in MED 106, C or better in MED 116, C or better in SCI 100F or C or better in SCI 102C. Hemodialysis Majors: B- or better in MED 103, B- or better in SCI 100F, Medical Laboratory Technician Majors: SCI 101C. Corequisite(s): Hemodialysis Majors: HT 111, HT 131. Medical Laboratory Technician Majors: SCI 102C.

MED 186 EKG

2 Quarter Hours

Prepares students to perform an electrocardiogram using a 12-lead and a 3-channel electrocardiograph. This course will include a review of the cardiac cycle, major arrhythmias, and cardiac disorders that may lead to cardiac emergencies. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in SCI 100F or C or better in SCI 102C, C or better in MED 103.

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MED 203C Physician's Office Billing

4 Quarter Hours

Introduces the basic insurance claim form processing and the major sources of health insurance and their billing requirements. Upon completion of the course, students will have generated claim forms for Medicare, Medicaid, Blue Cross/Blue Shield, Tricare, Worker's Compensation and other commercial insurers. Emphasis is placed on the student's ability to use billing references and coding books to accurately verify insurance company rules for proper billing.

Prerequisite(s): Acceptance in the program. Corequisite(s): MED 109.

MED 205D Specialty Examination

4 Quarter Hours

Provides students with the skills needed in an office to prepare patients and to assist the physician with specialty examinations. The specific exams include pediatrics, gynecology, proctosigmoidoscopy, spirometry, and sensory. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in SCI 100F or C or better in SCI 102C.

Corequisite(s): MED 106, MED 116.

MED 207 Medical Office Procedures

4 Quarter Hours

Prepares students in the administrative skills of the medical office. Competency in scheduling and appointment techniques, filing and mail procedures, written communication, transcription skills, and the management of patient records are required. Risk management and facility environments are also discussed. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in MED 103.

MED 208 Minor Office Surgery

2 Quarter Hours

Equips students with the skills necessary to prepare patients and to assist the physician with minor office surgeries. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in MED 106, C or better in MED 116, C or better in SCI 100F or C or better in SCI 102C.

MED 218B Administration of Medications

4 Quarter Hours

Focuses on the basics of pharmacology along with the clinical administration of medications including oral and parenteral routes. Emphasis will be placed on accuracy in calculation and preparation of medications and safety in the laboratory. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in HSC 104, C or better in MED 106, C or better in MED 113, C or better in MED 116, C or better in SCI 100F or C or better in SCI 102C.

MED 220C Physician's Office Laboratory

4 Quarter Hours

Presents advanced clinical laboratory skills for the medical assistant. Emphasis will be placed on patient preparation, accuracy in test performance, and safety in the laboratory according to OSHA guidelines. This course includes theory and procedures for the following: microbiology, urinalysis, hematology, and chemistry. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in SCI 100F or C or better in SCI 102C, C or better in MED 106, C or better in MED 116.

Corequisite(s): MED 185.

MED 236 Introduction to Medical Office Administration

2 Quarter Hours

Introduces the general concepts of administrative procedures and practices that are utilized in medical offices. Through simulated real-world scenarios students will become familiar with 21st century office technologies and the flow of information in the medical office. Upon completion of this course, the student will be able to demonstrate knowledge of the requested professional behaviors and general procedures required in the professional medical setting.

Prerequisite(s): Acceptance in the program.

MED 241 Practice Management

4 Quarter Hours

Develops student's concept of a computerized medical management system using new and up-to-date software with hands-on computerized processing of health insurance claims and practice management reports. 20 hours of lecture and 40 hours of computer lab are required.

Prerequisite(s): C or better in MED 103.

MED 251 Medical Office Administration Seminar

4 Quarter Hours

Provides a comprehensive review of medical office administration focused on preparing students to take the Certified Medical Administrative Specialist (CMAS-AMT) certification exam through American Medical Technologists. This course also covers basic clinical medical office assisting skills such as health histories, charting, measuring vital signs, medical asepsis, standard precautions and patient preparations for exams. This course will emphasize test-taking strategies for the exam.

Corequisite(s): MED 271.

MED 271 Medical Office Administration Practicum

4 Quarter Hours

Requires students to perform a minimum of 160 hours of unpaid fieldwork experience in a medical facility performing administrative and general office duties.

Corequisite(s): MED 251.

MED 291A CMA Review

2 Quarter Hours

Provides a comprehensive review for individuals interested in taking the AAMA certification exam. The review will include the general, administrative, and clinical content areas of the examination.

Prerequisite(s): Completion of a CAAHEP accredited medical assisting program for initial certification or a current CMA requiring CEU's or C or better in all major core classes.

MEDICAL INSURANCE

MIS 121A Introduction to Medical Reimbursement

4 Quarter Hours

Defines the role of the medical insurance specialist. Students will be introduced to reimbursement terminology, coding systems, major insurance programs, governmental agencies, and the role of the various members of the healthcare team as related to medical reimbursement. The student will study current events related to medical reimbursement.

Prerequisite(s): MED 103.

MIS 182A Revenue Cycle Management

4 Quarter Hours

Develops knowledge of medical office business operations to include all aspects of the revenue cycle process. Topics in this class include fee schedules, insurance verification, HIPAA, ethics, professionalism, clinician credentialing, patient scheduling, proficiency in practice management software, claim transaction capture and processing, accounts receivable reconciliation, and introduction to medical office management.

Prerequisite(s): B- or better in MIS 121A.

MIS 201C Claims Processing and Adjudication

4 Quarter Hours

Enhances the student's knowledge and expertise in processing claims for the various payer groups, including vouchers, referral forms, and status inquiry. Students will experience CMS 1500 claims processing through case studies.

Prerequisite(s): B- or better in MIS 222.

MIS 211A Facility Billing and Coding

4 Quarter Hours

Focuses on the student's knowledge related to facility (hospital insurance) billing and provides students with expertise from the UB04 Hospital Billing Manual. Students will learn Michigan Insurance billing to Medicare, Medicaid, and Blue Cross related to the UB04 form using ICD-9 diagnosis codes, CPT-4 procedure codes, Revenue codes, Conditions codes, et al, for inpatient and outpatient settings.

Prerequisite(s): B- or better in MIS 182A, B- or better in MIS 222.

MIS 221 Coding I

4 Quarter Hours

Emphasizes the organization of diagnosis codes and the basic ICD-9-CM and ICD-10-CM coding rules. Written descriptions of diseases, disorders, and injuries are translated into ICD-9 and ICD-10 codes to their highest level of specificity and to match the procedure/service performed.

Prerequisite(s): B- or better in HSC 104, B- or better in SCI 100F.

MIS 222 Coding II

4 Quarter Hours

Examines what is needed to be successful at facility billing and provides students experience utilizing UB04 claim forms, ICD-9 (volumes I, II, and III), ICD-10-PCS, CPT-4, revenue codes, condition codes, et al., for inpatient and outpatient facility settings.

Prerequisite(s): B- or better in MIS 221.

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MIS 223 Coding III

4 Quarter Hours

Demonstrate proficiency in data abstraction from medical records to support billing codes for CPT, ICD, and HCPCS.

Prerequisite(s): B- or better in MIS 222.

MIS 251 Reimbursement Ethics and Compliance

4 Quarter Hours

Emphasizes knowledge of legal, regulatory and ethical issues associated with the medical insurance profession.

MIS 291A Medical Insurance Certification Review

4 Quarter Hours

Gives a comprehensive review of medical reimbursement focused on preparing students to take either or both of the medical insurance certification exams, Certified Medical Reimbursement Specialist (CMRS) and Certified Professional Coder (CPC). The course will emphasize test-taking strategies for each exam.

Prerequisite(s): B- or better in MIS 211A, B- or better in MIS 223, B- or better in MIS 251.

MEDICAL LABORATORY TECHNICIAN

MLT 102 Clinical Laboratory Techniques

4 Quarter Hours

Introduces clinical laboratory procedures, instruments, and calculations used by laboratory personnel. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

MLT 201 Immunohematology

4 Quarter Hours

Provides a guide to blood transfusion practices and blood banking, which includes antigen-antibody reactions, compatibility testing and blood group typing. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MLT 205B.

MLT 202 Laboratory Chemistry

4 Quarter Hours

Examines the clinical significance and methods of analysis for a variety of analytes found in components of the blood and other body fluids. Laboratory includes qualitative and quantitative measurements of several analytes. 35 hours of lecture and 10 hours of lab are required.

Prerequisite(s): B- or better in SCI 246, acceptance in the program.

MLT 203A Medical Microbiology

4 Quarter Hours

Studies medically significant bacteria. Methods of isolation, identification, and classification of various microorganisms found in clinical specimens are also studied. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

MLT 204 Hematology

4 Quarter Hours

Introduces basic theories and techniques in the study of blood and their application in a clinical laboratory. The laboratory component will emphasize differentials and other blood tests. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

MLT 205B Immunology/Serology

3 Quarter Hours

Provides a solid understanding of the basic concepts of immunology including procedural theories and disease manifestations.

Prerequisite(s): Acceptance in the program.

MLT 206B Urinalysis

2 Quarter Hours

Introduces basic theories and techniques in urinalysis, body fluids and clinical microscopy. Renal function and body fluid tests are explored and results are correlated to their clinical significance. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

MLT 207 Mycology, Parasitology/Virology

2 Quarter Hours

Introduces students to medically significant viruses, parasites, and fungi. Emphasis will be on media selection and staining of organisms for identification purposes.

Prerequisite(s): Acceptance in the program.

MLT 209 Coagulation

2 Quarter Hours

Provides an introduction to the study of the interactions of the hemostatic process including the structure and function of platelets, the vascular system and plasma coagulation factors. 20 hours of lecture including procedural demonstrations are required.

Prerequisite(s): Acceptance in the program.

MLT 271 Clinical Laboratory I

12 Quarter Hours

Provides the first clinical laboratory experience in a qualified health facility and an opportunity for students to observe procedures and demonstrate competency in selected areas. A rotation through the clinical laboratory areas of hematology, coagulation, urinalysis, microbiology, chemistry, immunohematology, and serology is started. 400 clinical hours are required.

Prerequisite(s): Student background check, Program Director/Dean approval.

MLT 272 Clinical Laboratory II

12 Quarter Hours

Provides the second clinical laboratory experience in a qualified health facility in a continued rotation through the remaining clinical laboratory areas. 400 clinical hours are required.

Prerequisite(s): B- or better in MLT 271.

MLT 291 MLT Capstone Review

2 Quarter Hours

Provides a comprehensive review of previous coursework, professional accountability, preparation for the National Registry Exam, and job seeking skills. This is the capstone course.

Prerequisite(s): B- or better in MLT 271. Corequisite(s): MLT 272.

MICROSOFT NETWORKING PROFESSIONAL

MNP 171A Windows 7 Configuration

4 Quarter Hours

Provides students with the skills and knowledge necessary to install, deploy, and upgrade to Microsoft Windows 7, including ensuring hardware and software compatibility. Additionally, this course covers the skills necessary to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 7, and mobile computing. Students will also learn to maintain systems, including monitoring for and resolving performance and reliability issues. This course will also cover basic Windows PowerShell syntax. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certified Technology Specialist examination, 70-680: Windows 7, Configuring.

Prerequisite(s): NET 102.

MNP 181 Windows 8 Configuration

4 Quarter Hours

Provides students with the skills and knowledge necessary to install, deploy, and upgrade to Microsoft Windows 8, including ensuring hardware and software compatibility. Additionally, this course covers the skills necessary to configure pre-installation and post-installation system settings, Windows security features, network connectivity applications included with Windows 8, and mobile computing. Students will also learn to maintain systems, including monitoring for and resolving performance and reliability issues. This course will also cover basic Windows PowerShell syntax. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-687: Configuring Windows 8.

Prerequisite(s): NET 102.

MNP 201 Microsoft Windows Server Administration I

4 Quarter Hours

Addresses the initial implementation and configuration of core services including Active Directory Domain Services (AD DS), networking services, and Microsoft Hyper-V Server 2012 configuration. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-410: Installing and Configuring Windows Server 2012.

Prerequisite(s): MNP 171A or MNP 181.

MNP 202 Microsoft Windows Server Administration II

4 Quarter Hours

Focuses on the administration tasks necessary to maintain a Windows Server 2012 infrastructure such as implementing server images, user and group management with Active Directory Domain Services(AD DS) and

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group policy, remote access and network policies, data security, monitoring and update management. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-411: Administering Windows Server 2012.

Prerequisite(s): MNP 201.

MNP 203 Microsoft Windows Server Administration III 4 Quarter Hours

Prepares students for advanced configuration of services necessary to deploy, manage and maintain a Windows Server 2012 infrastructure, such as advanced networking services, Active Directory Domain Services (AD DS), identity management, rights management, federated services, network load balancing, failover clustering, business continuity and disaster recovery. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-412: Configuring Advanced Windows Server 2012 Services.

Prerequisite(s): MNP 202.

MNP 211 Configuring Windows Server 2008 Active Directory 4 Quarter Hours

Provides students with the knowledge and skills that are needed to effectively install, configure, administer and support the primary services of a Microsoft Windows Server system such as managing, and supporting user and computer accounts, groups, Domain Name System zones and client settings; group policy objects; the new Active Directory Lightweight Directory Service and Active Directory Rights Management Service; backup and recovery; and communication security. Passage of the corresponding exam 70-640, will count towards completion of the MCITP certifications.

Prerequisite(s): MNP 221.

MNP 221 Configuring Windows Server 2008 Network Infrastructure

4 Quarter Hours

Provides students with the knowledge and skills that are needed to effectively configure remote access, Network Access Protection (NAP), network authentication, IPv4 and IPv6 addressing, and Domain Name System (DNS) replication; capturing performance data and monitoring event logs; and managing file and print services. The course assists in preparation for Microsoft exam #70-642. Passage of the corresponding exam will count towards completion of the MCITP certifications.

Prerequisite(s): MNP 171A.

MNP 231 Administering Windows Server 2008 4 Quarter Hours

Provides students with the knowledge and skills that are needed to effectively configure, manage, and support user and computer accounts, groups, Domain Name System zones, client settings, and group policy objects; the new Active Directory Lightweight Directory Service and Active Directory Rights Management Service; configuring remote access, Network Access Protection, Network Authentication, IPv4 and IPv6 addressing, and Domain Name System (DNS) Replication; creating virtual machines; installing server core; planning server roles; maintaining server security; planning data storage, network load balancing, and server backups; managing software deployment and versioning; and scheduling server deployments. The course assists in preparation for Microsoft exam #70-646. Passage of the corresponding exam will count towards completion of the MCITP certifications.

Prerequisite(s): MNP 221.

MNP 301 Implementing and Maintaining Microsoft SQL Server 4 Quarter Hours

Focuses on teaching individuals how to use SQL Server product features and tools related to implementing and maintaining a database. Topics include installing and configuring SQL Server, manipulating SQL data files and implementing data integrity and security. Content of this course maps to Microsoft's SQL Server certification examination.

Prerequisite(s): CIS 331, MCSE 264 or MNP 211. Corequisite(s): ITS 211.

MNP 311 Configuring Microsoft Office Sharepoint Server 4 Quarter Hours

Provides the student with the skills and knowledge necessary to install, configure, manage and maintain a SharePoint environment for both on-premise and SharePoint Online servers. Additionally, this course covers the skills necessary to deploy and manage applications in a SharePoint environment. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certified Technology Specialist examination, 70-667: TS: Microsoft SharePoint 2010, Configuring.

Prerequisite(s): ITS 211, MNP 301, MCSE 264 or MNP 221.

MNP 321 Configuring Microsoft Exchange Server 4 Quarter Hours

Prepares students to install and manage Microsoft Exchange Server 2007. Topics include managing routing, client access and messaging security, recovering messaging servers and databases, as well as monitor and troubleshoot Exchange Server 2007. Content of this course maps to Microsoft's 70-236 certification examination.

Prerequisite(s): ITS 211, MCSE 264 or MNP 211.

MNP 401 Configuring Windows Server 2008 Applications Infrastructure

4 Quarter Hours

Teaches students how to plan, implement, and support Terminal Services and Internet Information Server 7.0. Content of this course maps to Microsoft's 70-643 certification examination.

Prerequisite(s): ITS 211, MCSE 264 or MNP 221.

MNP 411 Windows Server 2008 Enterprise Administrator 4 Quarter Hours

Introduces students to the role of Enterprise Administrator. The enterprise administrator is responsible for the overall IT environment and architecture, translates business goals into technology decisions, designs mid-range to long-term strategies and is responsible for infrastructure design and global configuration changes. Topics include network infrastructure, directory services, identity management and authentication, security policies, best practices, standards, and service level agreements (SLAs). Content of this course maps to Microsoft's 70-647 certification examination.

Prerequisite(s): MNP 401.

MNP 421 Configuring Microsoft Perimeter Defense 4 Quarter Hours

Provides students with the knowledge and skills to install and configure ISA Server as a cache server and as a firewall. The course topics include the use of authentication for outgoing web requests, configuring access policies, VPN access, and access to selected internal resources. Students will learn how to monitor ISA Server activities by using alerts, logging, reporting, and real time monitoring. Students will also learn how to install and configure ISA Server in an enterprise environment, to explain the role of ISA Server in a small business, in a branch office, and in an enterprise. Content of this course maps to Microsoft's 70-351 certification examination.

Prerequisite(s): ITS 421, MNP 311 or MNP 321, MCSE 264 or MNP 221.

MNP 431 Designing and Implementing a Server Infrastructure

4 Quarter Hours

Presents advanced topics to prepare aspiring IT professionals for planning, designing, and deploying a physical and a logical Windows Server 2012 enterprise Active Directory Domain Services (AD DS) infrastructure including the network services necessary. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-413: Designing and Implementing a Server Infrastructure.

Prerequisite(s): MNP 203 or MNP 231.

MNP 432 Implementing an Advanced Server Infrastructure 4 Quarter Hours

Continues preparation for planning, designing and deploying a physical and logical Windows Server 2012 enterprise and Active Directory Domain Services (AD DS) infrastructures including the network services, virtualization, server monitoring, failover clustering, continuity strategies, public key infrastructure, and information rights management infrastructure. This Microsoft Official Academic Course helps to prepare the student for the Microsoft Certification examination, 70-414: Implementing an Advanced Server Infrastructure.

Prerequisite(s): MNP 431.

NETWORKING TECHNOLOGY

NET 101 Networking Essentials I 4 Quarter Hours

Introduces students to the field of computing. Topics include occupations within the field, terminology, basic computer and networking concepts and database concepts. Basic computer skills are required to be successful in this course.

Prerequisite(s): INF 091 or basic computer skills.

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NET 102 Networking Essentials II

4 Quarter Hours

Focuses on the basic issues related to data communications and networking technologies. Topics include the OSI model, network topologies, protocols, and the fundamentals of internetworking. TCP/IP addressing is also covered.

Prerequisite(s): NET 101. Corequisite(s): CIS 106B.

NET 211 Wireless Networking

4 Quarter Hours

Explores the planning, designing, installing and configuring of wireless LANs. Offers in-depth coverage of wireless networks with extensive coverage of IEEE 802.11 b/a/g/pre-n implementation, design, managing, security, and troubleshooting. Material is reinforced with hands-on projects. This course prepares students for the Certified Wireless Network Administrator (CWNA) certification.

Prerequisite(s): NET 102.

NET 222 Introduction to Routers and Routing

4 Quarter Hours

Provides an introduction to the concepts of routers, the OSI reference model, IP addressing, subnetting, data link and network addresses, and concepts of data encapsulation. Includes hands-on exercises.

Prerequisite(s): NET 102.

NET 224 Advanced Routers and Routing

4 Quarter Hours

Examines router elements, RIP and IGRP routing protocols, router operating system software, configuration and installation, and LAN segmentation using bridges, routers, and switches. Covers the operation of the Spanning Tree protocol. Focus is on Cisco technology. Includes hands-on exercises.

Prerequisite(s): NET 222.

NET 226A Designing Internetwork Solutions

4 Quarter Hours

Covers internetwork design concepts, LAN/WAN technologies, management and security principles, and naming and documentation practices. Includes hands-on exercises.

Prerequisite(s): NET 224.

NET 241 Firewall Architecture and Management I

4 Quarter Hours

Provides an understanding of basic concepts and skills necessary to configure VPN/Firewalls including hands-on administration, configuration of security policies and the management of firewalled networks.

Prerequisite(s): ITS 211.

NET 242 Firewall Architecture and Management II

4 Quarter Hours

Provides students with an understanding of key concepts and skills necessary to install and manage a firewalled network-both internal and external, how to gain maximum security from the firewall, and how to resolve firewall performance issues.

Prerequisite(s): NET 241.

NET 301 Building Multi-Layer Switched Networks

4 Quarter Hours

Provides an in depth explanation of switched networks in a Cisco environment. Students will study using Cisco equipment, but will be given the base knowledge of all topics that can be used on all vendor equipment. This course will assist students in their preparation for the CCNP SWITCH Exam.

Prerequisite(s): CSC 241A or NET 224.

NET 311 Building Scalable Internetworks

8 Quarter Hours

Discusses advanced IP addressing and routing principles, including implementing scalable and secure Cisco ISR routers connected to LAN and WAN networks. This course will assist students in their preparation for the CCNP ROUTE Exam.

Prerequisite(s): CSC 241A or NET 224.

NET 321A Implementing Secure Converged Wide Area Networks

4 Quarter Hours

Presents students with the important knowledge and skills necessary to plan and perform regular maintenance on complex enterprise routed and switched networks and to use technology-based practices and a systematic ITIL-compliant approach to perform network troubleshooting. This course will assist students in their preparation for the CCNP TSHOOT Exam.

Prerequisite(s): CSC 241A or NET 224.

NET 401 Internetwork Troubleshooting

4 Quarter Hours

Provides students with the knowledge and skills necessary to troubleshoot sub-optimal performance in a converged network environment. Covers topics on establishing a baseline, determining an effective troubleshooting strategy, resolving problems at the physical and data link layers, resolving problems at the network layer, and resolving problems at the transport and application layers. Prepares students for the Cisco 642-831 CCNP certification exam.

Prerequisite(s): NET 311, NET 321A.

NET 411A Securing Networks with Firewalls

4 Quarter Hours

Prepares students for implementing advanced security solutions on Cisco firewalls. Covers the fundamentals of firewall and internetwork security, and demonstrates the use of the ASA command-line and ASDM interfaces. This course will assist students in their preparation for the CCNP FIREWALL Exam.

Prerequisite(s): NET 311.

NET 421A Internetwork Design Project

4 Quarter Hours

Integrates the knowledge and skills students have obtained throughout the Routing program in this capstone course. Requires that students implement enterprise-level routing, switching, remote-access, wireless, security, and QoS solutions. Exposes the students to real-world troubleshooting and design scenarios through a series of complex labs.

Prerequisite(s): NET 411A.

NON-PROFIT MANAGEMENT

NPMG 301 Grant Writing

4 Quarter Hours

Emphasizes student understanding of grant writing standards and procedures to plan for writing a grant proposal. The process of developing a grant proposal will be exercised as students write a state, federal, or foundation grant. Exploration of partnerships and alliances will be explored along with the grant budget. Students will understand the grants management process. Students will have an opportunity to review grant applications for the purpose of understanding and improvement.

NPMG 311 Fundamentals of Non-Profit Management

4 Quarter Hours

Focuses on the history of Non-Profits and their role in society. Governance, precisely the role of the board vs. the role of the CEO/President, including planning, ethics, and professional communication will be addressed. Operations management of the Non-Profit vs. the Profit organization and how it is structured will be topics included. Planning for funding is a large part of the Non-Profit coupled with community needs, creativity and innovation, strategic vs. tactical and how the mission of the organization is being followed. The types of funding available for Non-Profits include government grants, corporation grants, donors, and foundations.

NPMG 312 Fundamentals of Non-Profit Management II

4 Quarter Hours

Emphasizes that fund development is the lifeblood of a Non-Profit and how technology, risk assessment, public policy and advocacy play a part will be highlighted. Financial management principles will be addressed as they pertain to philanthropy, government influence, and financial reports. The methodology for fund development will be examined through event planning, fund raising strategies, and the development team. Human Resource management of the Non-Profit is very important in determining a policy manual which addresses the subjects of culture, the volunteer work force, the subject matter expert, and the life-long learner.

Prerequisite(s): NPMG 311.

NPMG 321 Marketing and Communication for Non-Profit Organizations

4 Quarter Hours

Provides students with understanding that the mission of the Non-Profit will be communicated through the marketing principles and strategies. The use of media, technology, social networking, and a marketing plan will promote the ideas of the NP. Since event planning is a large part of the promotion plan, attention to the image, branding, professionalism, ethics, and culture will be the focus. Communication strategies for internal/external stakeholders, media relations, cultural competency, and conflict resolution will be addressed.

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NPMG 331 Fund Development

4 Quarter Hours

Emphasizes the history and trends of philanthropy and the laws that impact fund development. Policies for fund development will be constructed and the role of the Board of Directors vs. staff will be outlined. The opportunity for the use of technology used in the fund development will be discussed along with available resources. As operational tasks in fund development are carried out, ethical and professional standards will be discussed including transparency. The challenges to fund development will be addressed including the results vs. the effort in fund raising, strategies, employee burn out, the economy, skilled staff, etc.

NURSING

NUR 101A Nursing Fundamentals

8 Quarter Hours

Provides nursing students with the basic fundamental knowledge and skills necessary in the delivery of care to the adult patient with a focus on the nursing process. Critical thinking skills and the process of clinical reasoning will be stressed. A Caring philosophy as applied to the holistic care of the adult patient will permeate this course. Students are provided with practical experience in a laboratory setting that stresses the provision of basic nursing skills necessary to give safe and competent patient-centered care through supervised practice of skills and discussion of application to patient care situations.

Prerequisite(s): Acceptance in the program, Student background check.

NUR 105 Introduction to Nursing for the BSN

2 Quarter Hours

This course is provided to students declaring a major in nursing, before acceptance into the professional track. The course will address both the historical and current perspectives of the profession of nursing. Topics to be addressed are the role of nursing in health care, nursing education, various levels and settings of nursing practice, and the importance of safety and quality in patient care. Students will develop a basic understanding of medical terminology. Students will reflect on the role of the registered nurse and reflect on their future career choices.

Prerequisite(s): B- or better in SCI 102C.

NUR 106 Nursing Pharmacology Overview

2 Quarter Hours

Provides a theoretical foundation for the fundamental principles and concepts of pharmacotherapeutics, with a focus on classification, usage, dosage, calculation, and delivery methods.

Prerequisite(s): Acceptance in the program, Student background check. Corequisite(s): NUR 101A.

NUR 111 Health Assessment

2 Quarter Hours

Focuses on a holistic approach to the physical examination and health assessment, an essential element of the nursing process. This course will enable students to develop and demonstrate elementary skills to accomplish the health history and physical examination of the adult client. Threads of caring for the biopsychosocial and spiritual well-being of the client will be emphasized in this learning experience. Health Assessment skills will be practiced in a laboratory setting. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program, Student background check. Corequisite(s): NUR 101A.

NUR 121B Medical/Surgical Nursing I

10 Quarter Hours

Addresses the theoretical application of the nursing process to concepts of patient-centered care. Evidence-based practice, collaborative care, cultural and global awareness, and teamwork/collaboration are explored further. Concepts included in this course are: health promotion and maintenance, principles of pharmacology, correlation of medications to disease processes, nutrition, communication, pain, infection control, and selected health conditions. Allows students to practice application of nursing process concepts of care in a supervised clinical setting. Case studies and simulation scenarios are utilized to promote learning. Provides an opportunity for students to apply the nursing process to medical/surgical nursing care in the acute care clinical setting. Students, under the supervision of a clinical instructor will practice nursing assessment and nursing management skills in the care of the adult client with altered health conditions.

Prerequisite(s): B- or better in NUR 101A, B- or better in NUR 111.

NUR 131 Nursing Strategies Across the Lifespan and Across the Continuum

2 Quarter Hours

Focuses on health promotion throughout life in a variety of community settings. The emphasis is placed on application of the nursing process to wellness and disease prevention for culturally diverse clients.

Prerequisite(s): B- or better in NUR 121B, B- or better in NUR 141. Corequisite(s): NUR 151A, NUR 161A.

NUR 141 Nursing Drug Applications

2 Quarter Hours

Provides nursing students with the knowledge and skills necessary to safely administer medications. Included is an overview of pharmacologic essentials such as: three systems of measurement, abbreviations and symbols, classifications of drugs, and commonly used drugs. In applying the nursing process, the procedures for administration of medications and the importance of safe practice will be stressed. Administration of medication skills will be practiced in a lab setting. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in NUR 101A, B- or better in NUR 106, B- or better in NUR 111.

NUR 151A Maternal Child Nursing

5 Quarter Hours

Introduces students to the developing family during the childbearing time as a focus for nursing. The emphasis is placed on the care of the mother as well as the care of the fetus and newborn. The nursing process is utilized in assessment of all elements and phases of pregnancy, planning, providing and evaluating nursing interventions that promote optimal wellness. The effects of culture, ethnic, and economic influences as well as the interaction with the extended family and/or community will be discussed. In addition, the complications of pregnancy and pregnancy outcomes that threaten the childbearing family will be examined from both physiologic and psychosocial aspects. Assists students in applying theory and developing competence in utilizing the nursing process to provide care for families in the childbearing cycle. The effects of cultural, ethnic, spiritual, and psychosocial factors will be emphasized. This course requires 30 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 121B, B- or better in NUR 141.

NUR 161A Nursing Care of Children and Their Families

5 Quarter Hours

Focuses on issues of children and their families with an emphasis on the application of the nursing process. Personal values, attitudes, and feelings about children and their families will be explored. Common disorders of body systems and the use of pharmacological agents in children are explored. Students will have the opportunity apply knowledge and skills to the care of children and families, through application of the nursing process to this patient population in a variety of settings. Jean Watson's caratas processes will be used to analyze clinical experiences. A multidisciplinary team approach and effective communication is emphasized. This course requires 30 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 121B, B- or better in NUR 141.

NUR 171 Legal Issues in Nursing

2 Quarter Hours

Explores liability and malpractice issues related to nursing as well as the legal basis for the practice of nursing in Michigan. The social context of nursing is emphasized. Personal and professional development are integrated into the content and the process of learning in this course.

Prerequisite(s): Nursing majors: B- or better in NUR 131, B- or better in NUR 151A, B- or better in NUR 161A. Nursing-LPN to ADN Ladder and PN majors: B- or better in NUR 101A, B- or better in NUR 106, and B- or better in NUR 111. Corequisite(s): NUR 201A, NUR 211B.

NUR 201A Mental Health Nursing

5 Quarter Hours

Presents the essential concepts of mental health and mental illness within the context of relationship centered care. Emphasis will be on enhancing mental wellness of individuals, families, or groups through a transpersonal caring model as students apply the nursing process. Theoretical content will focus on therapeutic communication, exploration of therapeutic use of self, major psychiatric disorders, stress and crisis, legal and ethical aspects of practice, and culturally competent care. Students will have opportunities to practice nursing assessment and interventions based on the Standards of Psychiatric/Mental Health Clinical Nursing Practice in a variety of clinical settings across the continuum of care. This course requires 30 theory hours and 60 clinical hours.

Prerequisite(s): Nursing Majors: B- or better in NUR 151A, B- or better in NUR 161A. Nursing - LPN to ADN Ladder Majors: B- or better

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NUR 205 Fundamentals of Nursing for the BSN

9 Quarter Hours

Provides nursing students with the basic fundamental knowledge and skills necessary in the delivery of care to the adult patient with a focus on the nursing process, safety, and quality. Critical thinking skills and the process of clinical reasoning will be stressed. A Caring philosophy as applied to the holistic care of the adult patient will permeate this course. Students are provided with practical experience in a laboratory setting that stresses the provision of basic nursing skills necessary to give safe and quality patient-centered care. Student will apply these concepts in the provision of patient care in the clinical setting.

This course requires 40 theory hours, 40 lab hours and 90 clinical hours.

Prerequisite(s): Acceptance in the program. Corequisite(s): NUR 215.

NUR 211B Medical/Surgical Nursing II

5 Quarter Hours

Focuses on medical/surgical issues of the geriatric and chronically ill populations with an emphasis on health promotion and living fully, even while dying. Personal values, attitudes, and feelings about aging, maturity, and dying will be explored. Common disorders of body systems and the use of pharmacological agents in the aged are emphasized. Hospice care will be explored including history, philosophy, and services provided. The nursing process will be applied to the care of the elderly and terminally ill client. A clinical component will accompany this course in which students will have the opportunity to engage in caring relationships with elderly and/or chronically ill patients.

Prerequisite(s): Nursing Majors: B- or better in NUR 151A, B- or better in NUR 161A. Nursing - LPN to ADN Ladder Majors: B- or better in NUR 151A, B- or better in NUR 161A, B- or better in NUR 201A, B- or better in SCI 131.

NUR 215 Health Assessment for the BSN

5 Quarter Hours

This course will enable students to develop and demonstrate essential knowledge and skills to examine the health of the adult client, including a health history and physical examination. Threads of caring for the biopsychosocial and spiritual well-being of the client will be explored. Community health will be introduced. Health promotion, holistic concepts, and continuum of health and wellness will be emphasized. Student will integrate pre-requisite course knowledge as it applies to health assessment. Health assessment skills will be practiced in a laboratory setting. This course requires 30 theory hours and 20 hours of lab.

Prerequisite(s): Acceptance in the program. Corequisite(s): NUR 205.

NUR 225 Pharmacology and Medication Administration for the BSN

5 Quarter Hours

Provides a theoretical foundation for the fundamental principles and concepts of pharmacotherapeutics, with a focus on classification, usage, dosage, and delivery methods. Provides nursing students with the knowledge, skills, and attitudes (KSAs) necessary to safely administer medications. Included are essentials of safe medication administration such as systems of measurement, abbreviations, symbols, and dosage calculations. Prevention of medical errors is an essential component of this course. Administration of medication skills will be practiced in a lab setting. This course requires 40 theory hours and 20 hours of lab.

Prerequisite(s): B- or better in NUR 205, B- or better in NUR 215. Corequisite(s): NUR 235.

NUR 231C Medical/Surgical Nursing III

10 Quarter Hours

Focuses on comprehensive knowledge and skills gained throughout the nursing program will be applied to medical-surgical, critical care, emergency, and perioperative phases as they occur across the lifespan. The professional growth of the nursing student is realized as one completes this clinical experience in preparation for entry into nursing practice. This course requires 40 hours of theory and 180 hours of clinical.

Prerequisite(s): Nursing Majors: B- or better in NUR 201A, B- or better in NUR 211B. Nursing - LPN to ADN Ladder Majors: B- or better in ENG 102, B- or better in NUR 211B, B- or better in SPK 201.

NUR 235 Medical/Surgical Nursing I for the BSN

10 Quarter Hours

Addresses the application of patient-centered care to the nursing process in the care of the medical surgical patient. Evidence-based practice, collaborative care, and cultural and global awareness are

explored further. Concepts included in this course are: health promotion and maintenance, correlation of medications to disease processes, nutrition, communication, pain, infection control, and selected adult health conditions. Allows students to practice application of nursing process concepts of care in a supervised clinical setting. Case studies and simulation scenarios are utilized to promote learning. Quality and safety are underscored in the provision of care. This course requires 60 theory hours, 20 lab hours and 90 clinical hours.

Prerequisite(s): B- or better in NUR 205, B- or better in NUR 215. Corequisite(s): NUR 225.

NUR 281 Nursing Leadership Seminar

3 Quarter Hours

Prepares students to make the transition from student to entry-level practitioner. Personal qualities of leadership are emphasized. NCLEX review will be conducted.

Prerequisite(s): B- or better in NUR 201A, B- or better in NUR 211B. Corequisite(s): NUR 231C.

NUR 305 Mental Health Nursing for the BSN

6 Quarter Hours

Presents the essential concepts of mental health and mental illness within the context of patient-centered care. Emphasis will be on enhancing mental wellness of individuals, families, or groups through a transpersonal caring model as students apply the nursing process. Theoretical content will focus on therapeutic communication, exploration of therapeutic use of self, major psychiatric disorders, stress and crisis, legal and ethical aspects of practice, and culturally competent care. Students will have opportunities to practice nursing assessment and interventions based on the Standards of Psychiatric/Mental Health Clinical Nursing Practice in a variety of clinical settings across the continuum of care. This course requires 40 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 225, B- or better in NUR 235.

NUR 311 Fundamentals of Professional Nursing Practice

4 Quarter Hours

Focuses on the registered nurses role transition to a professional baccalaureate nurse with emphasis on leadership, management, and issues influencing nursing education and practice. Students will explore the history of nursing, and how society views the nursing profession including contemporary issues that affect the profession of nursing. Students will integrate prior learning experience and skills with the theory and practice focus of baccalaureate education.

Prerequisite(s): Acceptance in the program. Corequisite(s): COL 112.

NUR 321 Nursing Assessment for the Registered Nurse

4 Quarter Hours

Builds on the registered nurses knowledge and skills in health assessment. Emphasis is placed on review of body systems, physical examination techniques, and documentation of findings. Students are also expected to identify and apply pathophysiological principles to selected health issues across the lifespan.

Prerequisite(s): Acceptance in the program.

NUR 331 Health Promotion and Vulnerable Populations

4 Quarter Hours

Focuses on the role of the experienced professional nurse in promoting optimal health, with special emphasis on the rehabilitative populations. Risk factors for illness and injury will be explored and strategies for treatment, health promotion through physical, psychological and spiritual intervention, will be addressed.

Prerequisite(s): B- or better in NUR 311, B- or better in NUR 341.

NUR 335 Medical/Surgical Nursing II for the BSN

7 Quarter Hours

Focuses on medical/surgical issues of the older adult population and support system with an emphasis on health promotion. Personal values, attitudes, and feelings about aging, transitions, and dying will be explored. Common disorders of body systems and the use of pharmacological agents in the aged are emphasized. Hospice care will be explored including history, philosophy, and services provided. Special needs of the care giver will be addressed. A clinical component will accompany this course in which students will have the opportunity to engage in caring relationships with older adult population. This course requires 40 theory hours and 90 clinical hours.

Prerequisite(s): B- or better in NUR 305. Corequisite(s): NUR 345.

NUR 341 Nursing Theory and Research

4 Quarter Hours

Explores various nursing theorists and provides an overview of evidence-based practice with an emphasis on improved quality of care. Examines the role of research in the application of the nursing

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process and its contribution to the development of nursing as a science. Students will be challenged to critically evaluate research and how it applies to the nursing profession and explore ethical issues inherent in the research process.

Prerequisite(s): C or better in MTH 401, B- or better in NUR 311.

NUR 345 Evidence Based Practice for the BSN

4 Quarter Hours

Explores various nursing theorists and provides an overview of evidence-based practice with an emphasis on improved quality of care. Examines the role of research in the application of the nursing process and its contribution to the development of nursing as a science. The student will be challenged to critically evaluate research and how it applies to the nursing profession and explore ethical issues inherent in the research process.

Prerequisite(s): B- or better in MTH 401, B- or better in NUR 235.

NUR 355 Maternal/Child Nursing for the BSN

6 Quarter Hours

Introduces students to the developing family during the childbearing time as a focus for nursing. The emphasis is placed on the care of the mother as well as the care of the fetus and newborn. The nursing process is utilized in assessment of all elements and phases of pregnancy, planning, providing and evaluating nursing interventions that promote optimal wellness. The effects of culture, ethnic, and economic influences as well as the interaction with the extended family and/or community will be discussed. In addition, the complications of pregnancy and pregnancy outcomes that threaten the childbearing family will be examined from both physiologic and psychosocial aspects. Assists students in applying theory and developing competence in utilizing the nursing process to provide care for families in the childbearing cycle. This course requires 40 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 335, B- or better in NUR 345.

NUR 365 Child and Family Nursing for the BSN

6 Quarter Hours

Focuses on issues of children and their families with an emphasis on the application of the nursing process. Normal growth and development, common disorders of body systems and the use of pharmacological agents in children are explored. Students will have the opportunity to apply knowledge and skills to the care of children and families, through application of the nursing process to this patient population in a variety of settings. A multidisciplinary team approach and effective communication is emphasized. This course requires 40 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 355.

NUR 411 Community Health Nursing

4 Quarter Hours

Examines the core functions and current organization of community health nursing as part of the larger healthcare system. Concentration is placed on achievement of optimal health outcomes for target populations and selected vulnerable subgroups within the community. The role of nursing will be examined in relation to public policy and emergency response and management.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331, B- or better in NUR 341.

NUR 412 Community Health Nursing Practicum

4 Quarter Hours

Focuses on the application of community health and nursing principles in the care of individuals, families, and selected vulnerable subgroups within a variety of community health settings. Nurses serve as advocates, caregivers, leaders and teachers as they apply the nursing process to communities with a focus on epidemiology, environmental health, and emergency response and management.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331, B- or better in NUR 411, Professional Liability Ins.

NUR 415 Community Nursing for the BSN

6 Quarter Hours

Examines the core functions and current organization of community health nursing as part of the larger health care system. Concentration is placed on achievement of optimal health outcomes for target populations and selected vulnerable subgroups within the community. The role of nursing will be examined in relation to public policy and emergency response and management. The clinical experience focuses on the application of community health and nursing principles in the care of individuals, families, and selected vulnerable subgroups within a variety of community health settings. Nurses serve as advocates, caregivers, leaders, and teachers as they apply to nursing process to communities with a focus on epidemiology, environmental health, and emergency response and management. This course requires 40 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NUR 365. Corequisite(s): NUR 425.

NUR 421 Nursing Leadership and Management

4 Quarter Hours

Emphasizes further development of the professional nurse role by exploring contemporary trends in leadership and management of human and financial resources. Focus is on the importance of communication in the development of effective management and leadership skills. Personal leadership styles and values will be identified, and students will enhance leadership competencies by examining self in relation to professional standards, the nursing code of ethics, and leadership theories and models.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331, B- or better in NUR 341.

NUR 422 Nursing Leadership and Management Practicum

4 Quarter Hours

Focuses on the development of the role of the professional nurse leader through the application of effective communication, leadership and management theory. Communication skills, various management and leadership theories, economic considerations, scope of practice standards and ethics will be integrated into leadership and management of others in the provision of health care.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331, B- or better in NUR 421, Professional Liability Ins.

NUR 425 Nursing Leadership for the BSN

5 Quarter Hours

Emphasizes further development of the professional nursing role by exploring contemporary trends in leadership and management. Important concepts are covered such as quality and safety measures, financial factors, effective leadership concepts, and decision-making techniques. Personal leadership styles and values will be identified, and students will enhance leadership competencies by examining self in relation to professional standards, the nursing code of ethics, effective communications, and leadership theories and models. This course requires 40 theory hours and 30 clinical hours.

Prerequisite(s): B- or better in NUR 365. Corequisite(s): NUR 415.

NUR 431 Global Health

4 Quarter Hours

Introduces students to the main concepts of global health and the link between global health and socio-economic development. This course will focus on measurement of health status, burden of disease, risk factors, and vulnerable populations.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331.

NUR 435 Medical/Surgical Nursing III for the BSN

7 Quarter Hours

Applies comprehensive knowledge and skills gained through the nursing program to medical-surgical, critical care, emergency, and perioperative phases as they occur across the healthcare continuum. Understanding of the role of the professional nurse expands to include multidisciplinary teamwork and collaboration. Advanced assessment skills are used in the clinical setting to recognize the complex, changing needs of adult patients with multiple health issues. Students will apply leadership and management skills to delegate and facilitate safe quality care at a complex level. This course requires 40 theory hours and 90 clinical hours.

Prerequisite(s): B- or better in NUR 415, B- or better in NUR 425.

NUR 441 Pathophysiology for the Registered Nurse

4 Quarter Hours

Examines alterations in functions affecting individuals across the lifespan. Students will examine pathophysiological concepts utilizing biology, microbiology, and physiological sciences as a basis for nursing practice. The scientific approach will be utilized to increase understanding of the disease process from the cellular to the multi-system level.

Prerequisite(s): B- or better in NUR 321, B- or better in NUR 331.

NUR 482 Nursing Seminar

4 Quarter Hours

Allows students to synthesize information obtained in this program to explore how the professional nurse can impact healthcare policy as well as how healthcare policy impacts nursing science, practice and education. Students will analyze nursing policy and position statements; political, environmental, and cultural issues; changing nursing roles; and the delivery of quality nursing care in an evolving world. Students will need to identify a preceptor, who holds a minimum of a BSN degree, to assist with the course project.

Prerequisite(s): B- or better in NUR 412, B- or better in NUR 422, B- or better in NUR 431 or B- or better in NUR 441, Program Director/Dean approval, Professional Liability Ins.

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NUR 485 Nursing Synthesis for the BSN

6 Quarter Hours

Provides nursing students with the opportunity to demonstrate achievement of program outcomes. Under the direction and supervision of course faculty and individual clinical preceptor students begin the transition to independent practitioner. Emphasis is placed on self-directed learning and evaluation in selected clinical areas. This course requires 10 theory hours and 150 clinical hours
Prerequisite(s): B- or better in NUR 435.

NURL 151B Maternal Child Nursing

6 Quarter Hours

Introduces students to the developing family during the childbearing time as a focus for nursing. The emphasis is placed on care of the mother, fetus and newborn as well as assisting children to attain an optimal state of wellness. The nursing process is utilized in assessment of all elements and phases of pregnancy, planning, providing and evaluating nursing interventions that promote optimal wellness. The effects of culture, ethnic and economic influences as well as the interaction with the extended family and/or community will be discussed. The complications of pregnancy and pregnancy outcomes that threaten the childbearing family will be examined from both physiologic and psychosocial aspects. Assists students in applying theory and developing competence in utilizing the nursing process to provide care for families in the childbearing cycle. The effects of cultural, ethnic, spiritual, and psychosocial factors will be emphasized. Requires 37 theory hours and 67.5 clinical hours.
Corequisite(s): B- or better in NUR 121B, B- or better in NUR 141.

NURL 161B Pediatric Nursing for the ADN

4 Quarter Hours

Focuses on issues of children and their families with an emphasis on the application of the nursing process. A continuation of the care of children presented in NURL151B, this course will further explore the personal values, attitudes, and feelings about children and their families. Common disorders of body systems and the use of pharmacological agents in children are explored. Students will have the opportunity to apply knowledge and skills to the care of children and families through application of the nursing process to this patient population in a variety of settings. Jean Watson's caritas processes will be used to analyze clinical experiences. A multidisciplinary team approach and effective communication is emphasized. This course requires 20 theory hours and 60 clinical hours.

Prerequisite(s): B- or better in NURL 151B, B- or better in NUR 171, B- or better in NUR 131. Corequisite(s): NUR 201A.

OCCUPATIONAL THERAPY

OCC 101 Introduction to Occupational Therapy

4 Quarter Hours

Introduces students to the concepts of the profession including the Practice Framework and the threads of the curriculum (client-centered, occupation-based intervention, and professional ethics). The various levels of the profession are explained as well as the credentialing process. The application for the program is distributed in this course and it is a prerequisite for acceptance. This is the first course in occupational therapy offered in the curriculum and is therefore a foundation course.

OCC 201B Therapeutic Use of Occupation I

5 Quarter Hours

Provides students with an understanding of activities and their historical implications in the practice of occupational therapy. Activity analysis will be explored in detail. Analysis opportunities will occur in areas like activities of daily living/self-care and leisure skills. Crafts and the use of mediums will be presented to assist students with understanding the importance of being able to teach life tasks. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in OCC 101, B- or better in SCI 271A.

OCC 202B Therapeutic Use of Occupation II

5 Quarter Hours

Reviews purposeful activity in occupational therapy. Activity analysis, adapting, and grading activities for therapeutic purposes are covered in detail. Students are introduced to sensory, neuromotor, cognitive, and psychosocial dimensions of performance. The client interview process will be introduced. Clinical reasoning and the teaching of an activity will be covered. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 201B.

OCC 205 Range/Muscle Testing

2 Quarter Hours

Focuses on range of motion assessment and applying manual muscle testing techniques in a laboratory-based setting. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in OCC 101, B- or better in SCI 271A.

OCC 221A Level I Fieldwork (Children)

2 Quarter Hours

Provides field observation of children of varying ages and needs. Students have the opportunity to observe and consider the implication a disability has on development. A weekly seminar provides the instructor with the opportunity to tie the observations to the occupational therapy process. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 202B, Student background check, DHS clearance. Corequisite(s): OCC 241.

OCC 231 Assessment of Occupational Performance

4 Quarter Hours

Introduces the concepts of occupational therapy assessment. This course includes a discussion of the processes involved for choosing assessment tools and types of assessments; the relation of the assessment process to the performance areas of self-care, work, play, and leisure skill areas; and a discussion of the assessment of sensory, neuromotor, cognitive and psychosocial performance components. An overview of the physiologic dimensions of activity and assessment is provided. Students are required to use hands-on experience in using assessment in a simulated test situation. Recent literature on assessment is reviewed. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 202B.

OCC 241 Child Development and the Implications of Pathology/Conditions

4 Quarter Hours

Examines child development from birth through 18. This course covers reflexes and motor and sensory development through age 5 in detail. Pathology/conditions and their implications to development are discussed thoroughly.

Prerequisite(s): PSY 221. Corequisite(s): OCC 221A.

OCC 302 Mental Health Conditions and Occupational Dysfunction

4 Quarter Hours

Outlines conditions and disorders including etiology and clinical progression from adulthood to late adulthood. The impact on performance and implication to independent functioning will be discussed.

Prerequisite(s): C or better in OCC 332.

OCC 313 Personal and Environmental Adaptations

4 Quarter Hours

Includes designing and restructuring the physical environment to assist self-care, work, play, and leisure performance. Emphasis is on architectural barriers and utilization of wheelchairs and other equipment. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 231.

OCC 314A Introduction to Documentation in the Healthcare System

4 Quarter Hours

Provides students, in a laboratory-based setting, with hands-on opportunity to develop documentation skills centered around a problem-based format.

Prerequisite(s): Acceptance in the program.

OCC 322B Occupational Therapy and Case Management

2 Quarter Hours

Students will investigate services that assist people in regaining performance/independence. A weekly seminar provides the instructor with the opportunity to tie community services to the occupational therapy process. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 221A.

OCC 323A Level I Fieldwork (Late Adulthood)

2 Quarter Hours

Provides field observation in settings that offer services for the older adult. Students consider implications of the aging process and the need to retain skills/performance. A weekly seminar provides the instructor with the opportunity to tie the observations to the occupational therapy process. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 332.

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OCC 331 Evaluation of Occupational Performance

4 Quarter Hours

Provides students a clinically-based approach to apply occupational therapy evaluation/assessment to individuals with physical dysfunction. Students will determine an individual's abilities and capacities to carry out occupational function. This course will build on concepts from assessment of occupational performance, ROM, and MMT. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 205, C or better in OCC 231.

OCC 332 Occupational Therapy Theory/Frames of Reference

4 Quarter Hours

Introduces students to the development of theory and the relationship of theory to current professional practice. This course utilizes current occupational therapy theory to examine practices in both psychosocial and physical disabilities.

Prerequisite(s): C or better in OCC 231, SCI 311.

OCC 341 Disease/Injury and Occupational Dysfunction

4 Quarter Hours

Studies disease/injuries, including etiology and clinical progression from young through late adulthood. The impact on performance and implication to independent functioning will be discussed. This is a continuation of OCC241.

Prerequisite(s): SCI 311.

OCC 351 The Aging Process and the Implications of Pathology/Conditions

4 Quarter Hours

Completes the study of conditions that impact normal development and performance. The aging process as well as specific diseases/conditions commonly experienced by the older adult are presented. Current concepts addressing prevention are explored.

Prerequisite(s): PSY 221.

OCC 402A Program Planning/Intervention Strategies (Early/Middle Adulthood)

5 Quarter Hours

Emphasizes application of theory to practice with an adult population. Intervention strategies to assist people with regaining performance are covered. Consideration is also given to conditions seen frequently in practice settings. This course requires students to prioritize needs and demonstrate proficiency with common modalities. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): OCC 341.

OCC 403A Program Planning/Intervention Strategies (Late Adulthood)

5 Quarter Hours

Explores assessment, treatment planning, and development of intervention strategies with the older adult. Strategies designed to enhance/retain performance with emphasis on quality of life are presented. Performance areas including activities of daily living, work, and play or leisure are analyzed as applied to this population. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): OCC 351, C or better in OCC 402A.

OCC 406 Complementary Therapies, Wellness and Occupation

4 Quarter Hours

Focuses on the basic concepts, evolution, utilization, and legislative issues surrounding wellness, complementary, and integrative therapies used in treatment. Students will experience the use of complementary/integrative therapies to enhance personal wellness and clinical skills.

Prerequisite(s): B- or better in SCI 271A, C or better in OCC 402A.

OCC 413 Roles of Occupation and Psychosocial Treatment Interventions

4 Quarter Hours

Introduces the organization, administrative structure, and functions of occupational therapy service programs. Emphasis is on communication techniques, differentiating the levels of functions of staff and legal implications of service delivery. In addition, exploration of practice settings will occur (ie work-ergonomics). Development of positions in existing and new practice settings will be emphasized. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 332.

OCC 414 Return to Work and Functional Adaptation

4 Quarter Hours

Explores the role in work related services including principles of wellness, ergonomics, work hardening, work site, and job analysis. Students will be exposed to evaluating, designing, and restructuring

the work environment to enhance participation in productive activities. Additionally, students will participate in team-based assignments with other disciplines. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 313.

OCC 415 Community-Based Occupational Therapy

4 Quarter Hours

Explores a variety of roles for the occupational therapist in community-based settings. Students will learn to apply the philosophical roots of occupational therapy to contemporary practice. In addition, students will gain an overview of funding sources, governmental policies, and documentation needs relevant to community-based practice. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OCC 331.

OCC 416 Applied Assessment and Documentation

4 Quarter Hours

Provides students a clinically-based approach to apply occupational therapy evaluation/assessment. Students will determine an individual's abilities and capacities required to carry out occupational function.

Prerequisite(s): C or better in OCC 231.

OCCUPATIONAL THERAPY ASSISTANT

OTA 111 Introduction to Occupational Therapy Assisting

2 Quarter Hours

Introduces students to the foundations, history, philosophy, and development of occupational therapy. The scope of occupational therapy practice and organizations will be defined. Delineation between the roles and functions of the registered occupational therapist and occupational therapy assistant will be emphasized. Initial observation experiences in at least two different occupational therapy settings are required.

Prerequisite(s): B- or better in HSC 111.

OTA 120 Elements of Therapeutic Media

3 Quarter Hours

Introduces OTA students to therapeutic activity and various forms of media utilized in occupational therapy treatment settings. Students develop and apply critical thinking and problem-solving skills to identify, analyze, and adapt purposeful activities in the areas of self-care, work, and leisure. Extensive activity analysis and application to various patient care areas are emphasized. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the BRS or OTA program.

OTA 141A Fundamentals of Occupational Therapy Assistant Practice

3 Quarter Hours

Focuses on fundamental practice issues in occupational therapy, including standards of practice, COTA supervision, the therapeutic intervention process, medical documentation, team interaction, and management of therapy service. Professional ethics, legal aspects, insurance reimbursement, and quality assurance are introduced. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the BRS or OTA program.

OTA 171A OTA Level I Fieldwork A

1 Quarter Hour

Provides clinical observation of client services in various community and clinical settings. Observation skills, individual and group interaction, and documentation are emphasized and integrated into the occupational therapy process with concurrent OTA coursework. 40 hours of clinical are required.

Prerequisite(s): Acceptance in the BRS or OTA program, Student background check or Fingerprinting. Corequisite(s): HSC 211, OTA 211B.

OTA 172A OTA Level I Fieldwork B

1 Quarter Hour

Provides clinical observation of client services in the area of physical dysfunction. Observation skills, treatment implementation, and documentation are emphasized and integrated into the occupational therapy process with concurrent OTA coursework. 40 hours of clinical are required.

Prerequisite(s): C or better in OTA 211B. Corequisite(s): OTA 221A.

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OTA 201B OTA Clinical Techniques in Mental Health

2 Quarter Hours

Emphasizes occupational therapy therapeutic skills and techniques such as patient observation, interview skills, group dynamics, process, and interaction skills/techniques. Students will participate in the selection, analysis and implementation of therapeutic activities for daily living and leisure/play tasks specific to the mental health setting. Content encompasses the role of group dynamics and process applications in mental health occupational therapy intervention.

Prerequisite(s): Acceptance in the BRS or OTA program.

Corequisite(s): OTA 211B.

OTA 202B OTA Clinical Techniques in Physical Dysfunction

2 Quarter Hours

Provides OTA students with an opportunity to study, integrate, apply, and practice therapeutic skills and activities utilized in the area of physical dysfunction throughout the lifespan.

Prerequisite(s): C or better in OTA 201B. Corequisite(s): OTA 221A.

OTA 211B OTA Principles and Applications in Mental Health

4 Quarter Hours

Introduces OTA students to the role of occupational therapy in the mental health setting and discusses mental disorders commonly seen in occupational therapy. Provides the foundation for instruction in the therapeutic use of activities and treatment from acute to chronic care. The scope of the lecture primarily deals with adolescence through adult; however a section on childhood psychiatric disorders will be included.

Prerequisite(s): Acceptance in the BRS or OTA program.

Corequisite(s): OTA 201B.

OTA 221A OTA Principles and Applications in Physical Dysfunction

4 Quarter Hours

Focuses on the role of occupational therapy in the evaluation, assessment, and treatment intervention for physical dysfunction. The scope of the course ranges from acute care through long-term rehabilitation, with a primary emphasis from adolescence through adulthood. Therapeutic skills and techniques for program planning and implementation are heavily incorporated into the course.

Prerequisite(s): C or better in OTA 211B. Corequisite(s): OTA 202B.

OTA 231C OTA Principles and Applications in Pediatrics

3 Quarter Hours

Introduces students to the implementation of occupational therapy in the developmental disability setting with a primary emphasis on ages birth through 26 years. Students will review the following aspects of childhood developmental disabilities: etiology, symptomatology, prognosis, and deviations from normal development. This course discusses the basic objectives of occupational therapy treatment procedures, medical, and safety precautions. A section of this course focuses on the developmentally disabled adult as well.

Prerequisite(s): C or better in HSC 211.

OTA 251 OT in Specialty Areas

2 Quarter Hours

Explores the role of occupational therapy and introduces the occupational therapy assistant to the specialty areas of orthopedics, industrial rehabilitation, pain management, and aquatics. Observation and beginning level skills, strategies, applications, and goal planning will be emphasized. 15 hours of lecture and 10 hours of lab are required.

Prerequisite(s): C or better in HSC 211.

OTA 252 Geriatric Patient Care

3 Quarter Hours

Explores the psychosocial and physical aspects of aging and the role of occupational therapy with the older adult. Treatment planning, application, and preventative strategies are explored in the performance areas of activities of daily living, leisure, and work.

Prerequisite(s): C or better in HSC 211.

OTA 261 OTA Professional Preparation

1 Quarter Hour

Provides OTA students with the preparation for the Level II Fieldwork experience. The areas reviewed are: ethical and professional behavior, liability, communication skills, reinforcement of academic knowledge, and treatment selection/application. This course provides OTA students with case study applications, in-servicing, and clinical preparation. Bloodborne pathogen training is required as part of the course content.

Prerequisite(s): C or better in OTA 171A. Corequisite(s): OTA 172A.

OTA 262 OTA Fieldwork Integration

1 Quarter Hour

Provides a seminar-style format for this course offered between Level II Fieldwork experiences. Students will present a comprehensive case study at the completion of this course allowing further integration of Level II clinical education.

Corequisite(s): OTA 271B, OTA 272B.

OTA 271B OTA Level II Fieldwork A

6 Quarter Hours

Provides an unpaid affiliation in the clinical setting, performing the delivery of occupational therapy services under the supervision of an occupational therapy practitioner. Students must complete a minimum of 320 hours (or the equivalent of eight weeks, full-time) for this Level II Fieldwork. The clinical site will assess clinical competency including clinical decision-making skills and professionalism.

Prerequisite(s): C or better in OTA 261. Corequisite(s): OTA 262, OTA 272B.

OTA 272B OTA Level II Fieldwork B

6 Quarter Hours

Provides an unpaid affiliation in the clinical setting, performing the delivery of occupational therapy services under the supervision of an occupational therapy practitioner. Students must complete a minimum of 320 hours (or the equivalent of eight weeks, full-time) for this Level II Fieldwork. The clinical site will assess clinical competency including decision-making skills and professionalism.

Corequisite(s): OTA 262, OTA 271B.

OTA 291 OTA Board Review

1 Quarter Hour

Provides the OTA student with a comprehensive review in preparation for the National Board Certification in Occupational Therapy (NBCOT) examination. This review will include all domain areas of the examination. Students will be required to satisfactorily complete a mock certification examination. This is a capstone course.

Prerequisite(s): C or better in OTA 221A.

OPTICIANRY

OP 101 Introduction to Opticianry

4 Quarter Hours

Introduces students to the eye-care field and the profession of opticianry. Emphasis is placed on the scope of activities performed by opticians in the ophthalmic profession. This course will also identify the other professionals that work in the ophthalmic arena.

OP 111 Ocular Anatomy, Physiology, and Pathology

4 Quarter Hours

Emphasizes the anatomical structure of the eye and its adnexa. An overview of common pathologies and pharmacology of the eye, as well as the function of the parts of the eye as they relate to vision and the fitting of spectacles and contact lenses will be presented.

Prerequisite(s): C or better in OP 101.

OP 121A Optical Laboratory Theory

3 Quarter Hours

Introduces students to the terminology, instruments, lenses, frames, and materials used in the optical laboratory to fabricate prescription eyewear.

Prerequisite(s): C or better in OP 101.

OP 211 Optical Theory I

3 Quarter Hours

Examines the nature of light and details the behavior of light when it encounters various refractive and reflective surfaces. Examines lens power, indices, and prisms. Establishes the foundation for advanced optical applications.

Prerequisite(s): C or better in OP 111, C or better in OP 121A.

OP 212 Optical Theory II

3 Quarter Hours

Continues the study of Optical Theory I, including prism notation, vertical imbalance and methods of correcting for it, vertex power, illuminance, reflection and absorption, diffraction, third-order lens aberrations and lens tilt, anisometropia, and spectacle magnification.

Prerequisite(s): C or better in OP 211.

OP 221A Optical Dispensing I Theory

3 Quarter Hours

Provides fundamental knowledge for frame selection and dispensing techniques.

Prerequisite(s): C or better in OP 111, C or better in OP 121A.

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OP 222A Optical Dispensing II Theory

3 Quarter Hours

Provides more in-depth study into dispensing techniques for low vision, sports vision, and geriatric vision.

Prerequisite(s): C or better in OP 221A.

OP 226 Ophthalmic Procedures

4 Quarter Hours

Presents the basic fundamentals, terminology, instrumentation, and practical procedures used in evaluating the visual system. Basic information is presented on theory and use of ophthalmic instruments. Various problems associated with vision will also be presented.

Prerequisite(s): C or better in OP 111, C or better in OP 121A.

OP 231 Introduction to Contact Lenses

2 Quarter Hours

Introduces students to the history of contact lens, contact lens materials, contact lens fitting philosophies, selection of lens, inspection and verification, follow-up care, lens care and storage, and regulations regarding contact lens.

Prerequisite(s): C or better in OP 101, C or better in OP 111, C or better in OP 121A.

OP 232 Contact Lenses

4 Quarter Hours

Allows students to apply the knowledge gained from Introduction to Contact Lenses to expand their knowledge base to the fitting philosophies of current contact lens designs. Students will have 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in OP 231.

OP 241 Opticianry Management

2 Quarter Hours

Covers basic management and leadership skills necessary for a successful eye care office. Teaches the Emphasizes basic management and leadership skills necessary for a successful eye care office. Teaches the analysis, creative thinking, judgment, planning strategy, and implementation skills necessary for today's optical business challenges.

Prerequisite(s): C or better in OP 101, C or better in OP 111, C or better in OP 121A.

OP 251 Current Trends in Opticianry

4 Quarter Hours

Provides, in this capstone course, a comprehensive review that will prepare students to take the national certification exams for both spectacles and contact lens as well as current developments in lens materials, lens designs, and government regulations as they affect opticians.

Prerequisite(s): C or better in OP 212, C or better in OP 222A.

OP 261 Optical Dispensing Laboratory

3 Quarter Hours

Provides students, in this hands-on course, the opportunity to develop the technical skills that they will need to become opticians. 60 hours of in-house laboratory clinical.

Prerequisite(s): C or better in OP 121A.

OP 271 Opticianry Externship

8 Quarter Hours

Provides students with the real-world optical dispensing experience. Externships will allow students to experience the different settings in which an optician may work. 240 hours of externship are required.

Prerequisite(s): Program Director/Dean approval, minimum GPA 2.50, all professional track Opticianry courses with a grade of C or better.

ORTHOTIC/PROSTHETIC TECHNICIAN

OPT 101 Introduction to Orthotic/Prosthetic Technology

5 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of orthotics and prosthetics. Students will acquire a working knowledge of the materials and equipment involved in the fabrication of orthotic and prosthetic devices. Fabrication of plastic, aluminum, and steel projects will be completed by students in the lab portion of this course.

Prerequisite(s): B- or better in HSC 111, B- or better in SCI 100F.

OPT 201A Foot and Ankle Orthotics

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of diabetic foot care, foot orthoses, and shoe modifications. Students will acquire a working knowledge of bony and soft tissue anatomy and

landmarks of the foot and ankle. Fabrication of the UCBL, foot orthoses and shoe modifications will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): OPT 221, OPT 233.

OPT 203 Lower Extremity Plastic Orthotic Systems

6 Quarter Hours

Introduces the orthotic/prosthetic technology students to the history of lower extremity orthotics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the lower extremity. Fabrication of various plastic and hybrid lower extremity orthoses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 201A, C or better in OPT 221, C or better in OPT 233. Corequisite(s): OPT 211A, OPT 212A.

OPT 204 Lower Extremity Metal Orthotic Systems

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of lower extremity orthotics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the lower extremity. Fabrication of various metal lower extremity orthoses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 203, C or better in OPT 211A, C or better in OPT 212A. Corequisite(s): OPT 213A, OPT 241B, OPT 291.

OPT 211A Partial Foot and Symes Prosthetics

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of partial foot and Symes prosthetics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the foot and ankle. Fabrication of partial feet, and Symes prostheses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 201A, C or better in OPT 221, C or better in OPT 233. Corequisite(s): OPT 203, OPT 212A.

OPT 212A Trans-tibial Prosthetics

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of transtibial prosthetics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the below-knee amputee. Fabrication of exoskeletal and endoskeletal prostheses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 201A, C or better in OPT 221, C or better in OPT 233. Corequisite(s): OPT 203, OPT 211A.

OPT 213A Trans-femoral Prosthetics

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of transfemoral prosthetics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the above-knee amputee. Fabrication of above-knee prostheses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 203, C or better in OPT 211A, C or better in OPT 212A. Corequisite(s): OPT 204, OPT 241B, OPT 291.

OPT 221 Upper Extremity Orthotics

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of upper extremity orthotics. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the upper extremity. Fabrication of hand, wrist, and humeral fracture orthoses will be completed by students in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): OPT 201A, OPT 233.

OPT 233 Upper Extremity Prosthetics

6 Quarter Hours

Introduces the Orthotic/Prosthetic Technology student to the history of transradial and transhumeral prosthetics. The student will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the below and upper-elbow upper amputee. Fabrication of body powered below and upper elbow prostheses will be completed by the student in the lab portion of this course. 40 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): OPT 201A, OPT 221.

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OPT 241B Spinal Orthotics

4 Quarter Hours

Introduces orthotic/prosthetic technology students to the history of spinal orthoses. Students will acquire a working knowledge of bony and soft tissue anatomy and landmarks of the neck and torso. Fabrication of spinal orthoses will be completed by students in the lab portion of this course. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in OPT 203, C or better in OPT 211A, C or better in OPT 212A. Corequisite(s): OPT 204, OPT 213A, OPT 291.

OPT 251 Orthotics/Prosthetic Clinical Externship

6 Quarter Hours

Introduces orthotic/prosthetic technology students to the public and private practice. Students will acquire a working knowledge of the orthotic and prosthetic lab and participate in the fabrication of orthoses and prostheses devices for patients. This is the externship portion of the program.

Prerequisite(s): Program Director/Dean approval.

OPT 291 Orthotic/Prosthetic Technology Review

2 Quarter Hours

Focuses on the didactic lectures and mock reviews which review the subject matter needed to successfully complete the American Board For Certification Technician examinations. The course will consist of a review of already acquired knowledge and technical skills. Students' areas of test weaknesses and strengths will be identified through practice exams with instructor feedback.

Prerequisite(s): C or better in OPT 203, C or better in OPT 211A, C or better in OPT 212A. Corequisite(s): OPT 204, OPT 213A, OPT 241B.

PARALEGAL

PAR 101 Law, Legal Profession, and Terminology

4 Quarter Hours

Provides a basic understanding of the procedural and practical aspects of being a paralegal. Emphasis is on legal terminology, legal concepts, skills needed to perform paralegal tasks, and the ethical considerations involved.

PAR 111 Legal Writing, Research, and Analysis I

4 Quarter Hours

Provides students with a general understanding of the nature of legal research including book research and legal citation forms using specific techniques and methodologies. Students will develop research strategies that will enable them to begin drafting and analyzing a variety of legal documents. The mechanics of the construction of documents will be examined. Must complete with a C (73%) or better.

Prerequisite(s): ENG 101 or acceptable English essay or placement exam.

PAR 112 Legal Writing, Research, and Analysis II

4 Quarter Hours

Consists of advanced legal drafting and writing. Students will continue to review and analyze case law and legal materials in the preparation of writing court briefs, pleadings, and memorandums. Unique problems of legal research will be explored. Students will be introduced to online legal research tools. Must complete with a C (73%) or better.

Prerequisite(s): PAR 111.

PAR 113A Legal Writing, Research, and Analysis III

4 Quarter Hours

Provides a capstone experience for the legal research and writing series in the paralegal program. This course will reinforce and continue to develop the high level research skills necessary for today's paralegals. Manual and CALR methods will be expounded upon for further skill refinement, written and oral communications will continue to be a focus as students demonstrate their proficiency in this area through an extensive legal research project that requires them to produce the applicable legal documentation and then present their findings as they would in the legal setting. Must complete with a C (73%) or better.

Prerequisite(s): PAR 112.

PAR 131A Law Office Technology and Ethics

4 Quarter Hours

Introduces basic legal software and computer technology utilized in an office. Topics include billing, time slips, electronic filing, calendaring and the ethical implications of each.

Corequisite(s): INF 112.

PAR 201 Torts

4 Quarter Hours

Introduces students to tort law, including intentional torts such as assault and battery; torts based on the failure to use reasonable care such as negligence; and strict liability torts, which make the actor liable without any fault for dangerous activities such as mining and blasting operations. In the introduction of negligence, students will become familiar with the four elements of all negligence lawsuits, duty, breach of duty, proximate causation, and damages. Major areas of tort litigation will be examined including products liability.

Prerequisite(s): PAR 101.

PAR 211 Criminal Law and Procedures

4 Quarter Hours

Introduces students to the various offenses that constitute a crime as well as the general principles of culpability and justification. Constitutional safeguards and procedures necessary from arrest through the trial, sentencing, and punishment will be examined. The First, Fourth, Fifth, Sixth, and Eighth Amendments will be examined.

Prerequisite(s): PAR 101.

PAR 221 Business Organizations

4 Quarter Hours

Covers the different forms of business organizations, including the advantages and disadvantages of doing business as a sole proprietorship, partnership, corporation or limited liability corporation. The rights, duties, and powers of partners will be explored and how a partnership can be terminated will be examined. Students will learn the basic characteristics of a corporate entity, the processes to form a corporation, the effects of improper incorporation, dissolution of a corporation, and the differences between stocks and bonds. The duties of corporate directors and officers, and the rights and liabilities of shareholders are explained. Students will become familiar with limited liability companies and how they operate.

Prerequisite(s): PAR 101.

PAR 231A Wills, Trust, and Probate Administration

4 Quarter Hours

Familiarizes students with the basic elements of a will, types of wills as well as the responsibilities of a personal representative. Classes of trusts and rules governing trusts will be examined. Discussion will include the purposes of estate planning, probate forms and procedures, and guardianships. Students will assess and analyze tax ramifications of estate plans as well as the different classifications of property.

Prerequisite(s): PAR 101.

PAR 241 Contract Law

4 Quarter Hours

Introduces students to the fundamental principles and practices associated with contract law. Topics include the elements of a binding legal contract, such as the offer, acceptance, and consideration, the distinction between the common law of contracts and the Uniform Commercial Code (UCC) treatment of contracts, the study of sales transactions and commercial contracts, an analysis of the concept of performance and the legal remedies available for breach of contract, and the preparation of valid contractual agreements.

Prerequisite(s): PAR 101.

PAR 291 Civil Litigation

4 Quarter Hours

Introduces students to the stages of a lawsuit, including pretrial, trial, and post-trial procedures. Preparation of pleadings, motions, and subpoenas will be examined. This course will familiarize students with the fundamentals of discovery including interviewing techniques and case investigations. The Michigan Court Rules will also be examined. Must complete with a C (73%) or better.

Prerequisite(s): PAR 101, PAR 113A, PAR 201.

PAR 321 Family Law

4 Quarter Hours

Introduces students to the areas of law related to marriage, divorce, separation, annulment, guardianship, and adoption. Topics discussed may include custody, child support, alimony, property distribution, and domestic partnerships, as well as the role of the attorney and paralegal in interviewing, determining jurisdiction, counseling, investigating, drafting, serving and filing of legal papers.

Prerequisite(s): PAR 101.

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PAR 335 Healthcare and Insurance Law

4 Quarter Hours

Provides an overview of the current issues in healthcare and insurance law. Topics may include malpractice by physicians and hospitals, tort reform and its impact on the health system, a discussion of insurance coverage, including private health insurance policies, Medicare, Medicaid, disability, long-term care and no-fault insurance, issues relating to access to healthcare as well as access to records, HIPAA and confidentiality of patient information, and advance directives.

Prerequisite(s): PAR 101, PAR 201.

PAR 341 Elder Law

4 Quarter Hours

Provides an overview of the legal issues facing our aging population. Topics covered may include estate planning, health and personal care planning, advance directives, financial powers of attorney, availability of benefits including Social Security, Supplemental Security Income, Veterans, Medicare and Medicaid, alternative housing arrangements such as assisted living facilities and nursing homes, elder abuse and neglect, and ethical issues inherent in the area of elder law.

Prerequisite(s): PAR 101, PAR 231A.

PAR 345 Alternative Dispute Resolution

4 Quarter Hours

Provides an overview of Alternative Dispute Resolution (ADR) as an alternative to traditional litigation. The basic methods of ADR, including binding as well as non-binding arbitration, mediation and negotiation, will be discussed. Students will learn the main areas where disputes often arise, how one or more methods of ADR apply, and how to determine the most appropriate method for resolving a matter. Topics covered may include the various forms of ADR, the application of ADR to specific disputes in various areas of the law, sources of ADR services, and the role of the paralegal in ADR.

Prerequisite(s): PAR 101.

PAR 351 Property and Real Estate Law

4 Quarter Hours

Exposes students to the practical side of real property transactions, emphasizing the residential process. Students will learn about preparing and recording documents for transfer of title, including purchase and sale agreements, mortgages and deeds, financing, the closing process, and landlord-tenant relationships.

Prerequisite(s): PAR 101.

PAR 361 Employment and Labor Law

4 Quarter Hours

Provides an overview of the laws that deal with the employment relationship, such as hiring and firing, wages and benefits, hours and overtime, and working conditions. Topics covered may include the various types of discrimination, federal wage and hours regulation, the concept of at-will employment, labor law, privacy laws, harassment in the workplace, workplace injuries and remedies, and employee handbooks.

Prerequisite(s): PAR 101.

PAR 371 Debtor/Creditor Law (Bankruptcy)

4 Quarter Hours

Introduces and familiarizes students with the legal issues, rights and remedies involving debtors and creditors. Topics covered may include Chapter 7 bankruptcy liquidation, Chapter 11 bankruptcy reorganization, and Chapter 13 wage-earner plans, as well as the areas of receivership, garnishments, secured creditors, and liens.

Prerequisite(s): PAR 101.

PAR 421 Administrative Law

4 Quarter Hours

Provides an overview of administrative law, namely those rules and regulations set forth by agencies of government whether at the state, local or federal level. We will address the function of administrative agencies, as well as how these agencies operate. Topics may include rule-making, constitutional and statutory limitations on agency operation, and specific administrative policies. The course will also discuss the role of the paralegal and the possibility of paralegal representation during administrative hearings.

Prerequisite(s): PAR 101.

PAR 431 Legal Technology and Software

4 Quarter Hours

Provides students with practical application of specialized legal software and computer technology in the legal setting. Topics may include a discussion of technology and software options for time

management, billing, calendaring and docketing, document management, word processing, legal research, litigation support, and specialty areas of law. Electronic filing and discovery, as well as the paperless office, will also be examined.

Prerequisite(s): PAR 101, PAR 113A, PAR 131A.

PAR 435 Immigration Law

4 Quarter Hours

Provides an overview of the structure of immigration law, practice and procedure. Students will learn how to recognize the legal issues, prepare petitions and applications, and learn when, why, and where filings should be made. Students will gain a basic understanding of the history of immigration law, as well as the general procedures, terminology, and agencies that are involved in this area of law. Topics may include completing standard immigration forms, researching immigration law, and accessing government and other online materials relating to this field.

Prerequisite(s): PAR 101, PAR 113A.

PAR 445 Intellectual Property Law

4 Quarter Hours

Covers the field of intellectual property law, including the areas of copyrights, trademarks, trade secrets and patents. Students will gain a basic background in intellectual property law and will be introduced to the skills that are required of an intellectual property paralegal. Topics may include ownership of works, the fair use doctrine, registration of copyrights, trademarks and patents, infringement of rights, trade secrets, and use of online research tools in the area of intellectual property.

Prerequisite(s): PAR 101.

PAR 491 Evidence (Litigation II)

4 Quarter Hours

Provides an overview of general evidentiary principles and application in the trial process. Topics may include relevancy of evidence, judicial notice, presumptions, weight and sufficiency of evidence, burden of proof, competency of witnesses, objections to evidence, admissibility, and rules relating to examination and cross-examination of witnesses, including the concept of hearsay and its exceptions. This course will also discuss the role of the paralegal in the litigation process and emphasize the skills necessary for a litigation paralegal. Must complete with a C (73%) or better.

Prerequisite(s): PAR 291.

PHARMACY TECHNICIAN

PHT 101B Introduction to Pharmacy Technology

4 Quarter Hours

Provides an introduction to the pharmacy profession. This course will focus on the role of pharmacy technicians in various work settings, medical and pharmaceutical terminology, prefixes, suffixes, symbols, abbreviations used to interpret prescription orders, and the legal and ethical issues specific to pharmacy. Procedures for national certification are introduced.

PHT 111A Pharmacy Technology I

4 Quarter Hours

Introduces the basic concepts of pharmacology and drug references. Explores drugs and diseases associated with various body systems.

Prerequisite(s): C or better in SCI 100F, C or better in PHT 101B.

PHT 112A Pharmacy Technology II

4 Quarter Hours

Explores drugs and diseases associated with various body systems. This course is a continuation of PHT111A.

Prerequisite(s): C or better in PHT 111A.

PHT 121 Interpretation of Medication Orders

4 Quarter Hours

Provides students the skills needed to correctly fill medication orders. Students will learn to interpret medication orders, understand manufacturers' labels, calculate drug dosages, and translate prescriptions.

Prerequisite(s): C or better in MED 103, C or better in PHT 101B, C or better in MTH 108 or C or better in MTH 111.

PHT 211B Hospital Pharmacy

4 Quarter Hours

Applies basic pharmacy principles and procedures to the hospital environment. Focuses on aseptic technique and sterile product preparation. Proper procedures for IV admixtures and parenteral

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administrations are discussed and practiced. Introduces students to pharmacy calculations involving parenteral dosages, dosages measured in units, and IV flow rates. 40 hours of lecture with laboratory demonstrations.

Prerequisite(s): C or better in PHT 121, C or better in PHT 111A.

PHT 212B Community Pharmacy

4 Quarter Hours

Applies basic pharmaceutical principles and procedures to the community setting. Identifies the various ambulatory pharmacy settings. Focuses on proper preparation of a prescription with regards to product selection, label construction, measuring, mixing, and compounding. Students will be introduced to the use of computers in preparing a prescription. Basic components of third party insurance companies will be discussed. Inventory, marketing, monetary policies, and customer relations will be addressed. Commercial calculations involving selling price, cost, and mark-up are also introduced. 40 hours of lecture with laboratory demonstrations.

Prerequisite(s): C or better in PHT 121, C or better in PHT 111A.

PHT 231 Compounding

4 Quarter Hours

Introduces students to the preparation of various compound items such as suspensions, solutions, emulsions, creams, ointments, suppositories, lozenges, and emollients. Students will practice the preparation of compounding of these dosage forms. Students are expected to complete 20 hours of lecture and 40 hours of lab.

Prerequisite(s): C or better in MTH 108, C or better in PHT 121.

PHT 241 Pharmacy 3rd Party Billing

4 Quarter Hours

Introduces students to reimbursement terminology, governmental agencies, and major insurance programs as they relate to pharmaceutical claims. Students will exercise critical thinking and problem resolution related to claims including prior authorization, rejected claims, and pharmacy overrides. Students are expected to complete 20 hours of lecture and 40 hours of (computer) lab.

Prerequisite(s): C or better in PHT 111A, C or better in PHT 121.

PHT 251 Pharmacy Clinical I

4 Quarter Hours

Provides students a minimum of 160 hours of supervised work experience in a community and/or institutional setting designed to provide them with the opportunity to apply the skills acquired in the pharmacy technician program. Students will gain insight from day-to-day pharmacy operations and interactions with patients and practitioners. This is the first of two clinical courses. See Program Director for details.

Prerequisite(s): C or better in PHT 112A, C or better in PHT 212B.

PHT 252 Pharmacy Clinical II

4 Quarter Hours

Provides students a minimum of 160 hours of supervised work experience in a community and/or institutional setting designed to provide them with the opportunity to apply the skills acquired in the pharmacy technician program. Students will gain insight from day-to-day pharmacy operations and interactions with patients and practitioners. This is the second of two clinical courses. See Program Director for details.

Prerequisite(s): C or better in PHT 251.

PHT 261 Pharmacy Technician Capstone Review

4 Quarter Hours

Provides a comprehensive review of previous coursework, professional accountability, preparation for the PTC (Pharmacy Technician Certification) exam and job seeking skills. This is a Capstone Course.

PHLEBOTOMY

PHL 101 Introduction to Phlebotomy

2 Quarter Hours

Introduces students to Phlebotomy and the healthcare organization. This course is designed for students pursuing a career as a Phlebotomist. This course is intended to give the entry-level pursuing phlebotomist insight into the career, protocols, policies, and standards applicable to the Phlebotomist career and other allied health personnel.

PHL 111 Phlebotomy Lab Skills

3 Quarter Hours

Introduces students to venipuncture skills and laboratory and patient protocols as practiced by the phlebotomist in healthcare facilities.

PHL 201 Phlebotomy Laboratory Integration

2 Quarter Hours

Focuses on students learning additional laboratory procedures and tests that the phlebotomist may be asked to perform using CLIA waived diagnostic testing tools and equipment.

Prerequisite(s): B- or better in PHL 111. Corequisite(s): PHL 202, PHL 225.

PHL 202 Phlebotomy Exam Review

2 Quarter Hours

Provides help for entry-level graduating phlebotomist to successfully prepare for the American Society for Clinical Pathology (ASCP) or the National Center for Competency Testing (NCCT) as a credentialed phlebotomist.

Prerequisite(s): B- or better in PHL 111. Corequisite(s): PHL 201, PHL 225.

PHL 225 Phlebotomy Externship/Internship

3 Quarter Hours

Requires students to successfully complete 120 hours of the clinical lab practicum either in an inpatient or outpatient phlebotomy drawing station or laboratory environment. Additionally, they must acquire 120 laboratory draws. This is the Phlebotomy program capstone and clinical lab practicum.

Prerequisite(s): ENG 101, B- or better in PHL 111, minimum GPA 2.50. Student background check, Program Director/Dean approval.

Corequisite(s): PHL 201, PHL 202.

PHOTONICS AND LASER TECHNOLOGY

PLT 211 Geometrical Optics

4 Quarter Hours

Presents the ray theory of light and its applications in imaging and optical instruments. Reflection, refraction, dispersion, image formation, and aberrations will be illustrated in laboratory experiments using mirrors, lenses, prisms, and complex instruments. 30 hours of lecture and 30 hours of lab are required.

Prerequisite(s): MTH 124. Corequisite(s): EET 251.

PLT 221 Wave Optics

4 Quarter Hours

Presents electromagnetic radiation, coherence, interference, diffraction, and polarization of light. Introduces holography. Lab experiments will include diffraction gratings, polarizers, filters, and introduce measurement techniques using instruments such as interferometers and spectrometers. 30 hours of lecture and 30 hours of lab are required.

Prerequisite(s): EET 251.

PLT 231 Laser Fundamentals

4 Quarter Hours

Addresses the theory of laser light, laser properties, spatial and temporal characteristics, and laser resonator configurations. Various types of lasers including gas, solid-state, and semiconductor lasers will be presented. Students will learn to align, operate and test a variety of lasers. Laser safety is emphasized throughout the entire course and program. 30 hours of lecture and 30 hours of lab are required.

Prerequisite(s): EET 251.

PLT 235 Laser Systems

4 Quarter Hours

Advances the study of laser systems. Devices used for laser beam manipulation and measurement will be introduced, including photodetectors and power/energy detectors, beam expanders and collimators, holographic devices, electro-optic and acousto-optic devices. Laboratory experiments will focus on techniques for detection and characterization of laser light, including troubleshooting techniques. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): PLT 231.

PLT 241 Optical Systems Analysis

4 Quarter Hours

Presents imaging systems, detection, and measurement. Image processing techniques, use of instruments such as spectrometers and spectrum analyzers, monochromators, interferometers, and use of computer software for analysis and design will be covered. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): PLT 231.

PLT 251 Photonics Applications

4 Quarter Hours

Introduces a variety of photonics and laser applications such as material processing, laser ranging, alignment and tracking, metrology, laser based non-destructive testing, medical and surgical laser applications, spectroscopy, and others.

Corequisite(s): PLT 231.

PLT 271 Capstone Project

4 Quarter Hours

Presents students with the opportunity to design, build, test, and demonstrate an electro-optical system based on the knowledge of optical principles and hands-on skills acquired throughout their program. Students will demonstrate communications skills by writing a final project report and giving an oral presentation of their project.

Corequisite(s): PLT 235, PLT 241.

PHYSICAL THERAPIST ASSISTANT

PTA 111 Introduction to PTA

2 Quarter Hours

Introduces physical therapist assistant students to the foundations and principles of the profession and the American Physical Therapy Association. Basic theories and practices of physical therapy are emphasized, with a detailed analysis of the boundaries between the physical therapist and the assistant. Ethical standards in practice and legislation governing the utilization of the PTA are also covered in detail. Scientific research design, psychological reactions to disability, and other issues relating to the profession and patient care are also discussed.

PTA 112 Therapeutic Documentation for the PTA

1 Quarter Hour

Introduces medical documentation for rehabilitation professionals.

Prerequisite(s): Acceptance in the program.

PTA 171A Clinical Education I

2 Quarter Hours

Provides a part-time, unpaid, practical, work experience at a clinical setting, performing under the supervision of a licensed physical therapist. Clinical experience time is integrated with ongoing academic coursework to facilitate the transition from classroom to clinic. Clinical competencies, as expected of a developing clinician, will be assessed by the student's clinical instructor. Students are expected to complete assignments as scheduled. 60 clinical hours are required.

Prerequisite(s): C or better in HSC 211, C or better in HSC 285, C or better in PTA 112, C or better in PTA 231B, C or better in PTA 281, Student background check.

PTA 172A Clinical Education II

2 Quarter Hours

Provides a part-time, unpaid, practical, work experience at a clinical setting, performing under the supervision of a licensed physical therapist. Clinical experience time is integrated with ongoing academic coursework to facilitate the transition from classroom to clinic. Clinical competencies, as expected of a developing clinician, will be assessed by the student's clinical instructor. Students will complete assignments per clinical instructor availability and clinical site hours. 60 clinical hours are required.

Prerequisite(s): C or better in PTA 171A.

PTA 211 PTA Techniques I

4 Quarter Hours

Begins the student's experience with patient care. Patient preparation and monitoring of vital signs are reviewed. Assessment techniques of goniometry and muscle screening and treatment techniques of massage are learned in lecture and laboratory experiences. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the BRS or PTA program.

PTA 212 PTA Techniques II

4 Quarter Hours

Includes theory, principles of application, and development of technical skills with a variety of physical therapy treatments. Traction, superficial thermal agents, circulatory assistive devices, and electrotherapy agents are presented with basic competencies evaluated in laboratory experiences. Functional anatomy and basic patient handling skills are emphasized. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): C or better in PTA 211.

PTA 221B Therapeutic Exercise I

5 Quarter Hours

Covers kinesiological principles as applied to the human body. Exercise physiology in rehabilitation, tissue regeneration, and basic isotonic, isometric, and isokinetic exercise are learned. Students will also be instructed in methodology of basic fitness testing and basic terminology and techniques of extremity manual therapy. Joint assessment and a problem-solving approach to therapeutic exercise prescription are utilized. Joints of the extremities and the trunk are systematically reviewed by analyzing pathological conditions and orthopedic management. 20 hours of lecture and 60 hours of lab are required.

Prerequisite(s): Acceptance in the BRS or PTA program.

PTA 222B Therapeutic Exercise II

5 Quarter Hours

Introduces advanced exercise and rehabilitation techniques using the clinical problem-solving approach to patient care. All professional level coursework is integrated into this course with the introduction of clinical neuroanatomy, developmental sequencing, and a variety of neurological approaches. Common neurological pathologies and their clinical manifestations are discussed. Laboratory participation and the case study approach to patient care decision making is emphasized. 20 hours of lecture and 60 hours of lab are required.

Prerequisite(s): C or better in PTA 221B.

PTA 231B Functional Mobility

4 Quarter Hours

Describes the levels of independence along the mobility spectrum addressing safety, positioning, and guarding techniques for each level. Bed mobility, wheelchair utilization, assistive device training, and transfers, using proper body mechanics are learned. Normal gait patterns are studied and deviations are reviewed. Basic orthotics and prosthetics are presented. The primary objective of this course is to familiarize students with methods to optimize patient mobility. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): Acceptance in the BRS or PTA program.

PTA 241C Acute and Long-Term Care

3 Quarter Hours

Provides an in-depth study to analyze the unique physical therapy challenges of the geriatric and acute care patient populations. Topics covered in detail include burn and open wound management, cardiac rehabilitation, multiple trauma, circulatory assistive devices, postsurgical management, and orthopedic and neurological conditions common to the elderly.

Prerequisite(s): C or better in PTA 211.

PTA 258 Special Topics in Physical Therapy

3 Quarter Hours

Presents a focused study of the special rehabilitation needs of patient groups including athletes, adults with neurological disorders, children, and industrial workers. Topics covered include patient education, injury prevention, special rehabilitation techniques, and other specific information for each group. A variety of areas may be covered including: aquatic exercise programs, sports medicine for the athlete, industrial rehabilitation, treatment and positioning of the pediatric patient, adult neurological rehabilitation, and other current topics in physical therapy. Assessment and treatment of common diagnoses in these groups are addressed.

Prerequisite(s): C or better in PTA 211.

PTA 261B Professional Preparation I

1 Quarter Hour

Focuses on professionalism, the role of the interdisciplinary health care team, effective communication skills, and patient interviewing techniques. Also described in detail are the critical nature of self-assessment, recognition of stressors, and utilization of appropriate coping mechanisms. This course will also orient students to the part-time clinical experience process.

Prerequisite(s): Acceptance in the BRS or PTA program.

PTA 262A PTA Capstone

1 Quarter Hour

Provides PTA students with a capstone experience to assimilate previous didactic and clinical material in preparation for sitting for the licensure examination including academic review and application process. Requirements of this course include submission of written case study, submission of portfolio, and sitting for a timed practice licensure examination.

Prerequisite(s): Program Director/Dean approval.

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PTA 263 Professional Preparation II

1 Quarter Hour

Presents an overview of the organizational structure in a physical therapy department and orientation to management/supervisory styles. Also described in detail are operational issues impacting the PTA in today's healthcare arena, including documentation guidelines, billing and insurance issues, and total quality improvement. This course will also orient students to the full-time clinical affiliation process.

Prerequisite(s): C or better in PTA 261B.

PTA 271D Clinical Education III

8 Quarter Hours

Provides a six-week, unpaid, practical, learning experience at a clinical setting, performing under the supervision of a licensed physical therapist. In-services may be required by the clinical site. Clinical competencies will be assessed by the student's clinical instructor. Students are expected to complete 240 hours.

Prerequisite(s): C or better in PTA 222B.

PTA 272D Clinical Education IV

8 Quarter Hours

Provides a six-week, unpaid, practical, work experience at a clinical setting, performing under the supervision of a licensed physical therapist. In-services may be required by the clinical site. Clinical competencies will be assessed by the student's clinical instructor. A greater emphasis on independence, professional confidence, and competent decision making will be expected in this final clinical experience. Students are expected to complete 240 hours.

Prerequisite(s): Program Director/Dean approval.

PTA 281 Neurological Foundations of Motor Control for the PTA

3 Quarter Hours

Focuses on the neuroanatomy of the central and peripheral nervous systems as it relates to normal motor control and sensory integration. The neurological foundations of therapeutic exercise principles are introduced.

Prerequisite(s): Acceptance in the program.

POLITICAL SCIENCE

POL 201A American Political Systems

4 Quarter Hours

Studies the functions of government at the national, state, and local levels. Particular emphasis is placed on the effects of government policies on individuals and businesses. The areas of study include the Constitution, federalism, interest groups, courts, the bureaucracy, the economy, congress, the Presidency, and political parties.

POL 401 International Relations

4 Quarter Hours

Includes the study of international relations theory, development, and communications as well as American and comparative foreign policy analysis, international law, comparative politics, and peace studies, including conflict resolution and arms control.

POLYSOMNOGRAPHIC TECHNOLOGY

PST 101 Introduction to Polysomnography

4 Quarter Hours

Introduces students to the profession of polysomnographic technology. Topics include the history and an overview of sleep medicine. Additionally, this course will discuss the skills necessary to evaluate and assess the patient and their medical record for information that is pertinent to appropriate data acquisition, patient care, and therapeutic acquisition.

Prerequisite(s): B- or better in ENG 102, B- or better in HSC 111, B- or better in MED 103, B- or better in SCI 100F, B- or better in MTH 109 or B- or better in MTH 112A. Corequisite(s): PST 111.

PST 111 Polysomnographic Seminar I

1 Quarter Hour

Presents a series of discussions by professionals about the field of polysomnography. Weekly lectures include insight into the profession from various medical specialties and the relationship that sleep studies have on the human body.

Corequisite(s): PST 101.

PST 112 Polysomnographic Seminar II

1 Quarter Hour

Presents a continuous series of discussion by professionals on current topics in polysomnography and other related areas of medicine. Weekly lectures include insight into the profession about individual clinical problems.

Prerequisite(s): B- or better in PST 111, B- or better in PST 121, B- or better in PST 131, B- or better in PST 201, B- or better in PST 261.

PST 121 Patient Preparation

2 Quarter Hours

Focuses on general patient assessment, communication skills, and basic techniques in patient handling. Skill sets will include; vital signs, lead placement, interview and documentation techniques, the administration of pre- and post-procedure questionnaires and follow-up processes as well as patient safety precautions.

Prerequisite(s): Acceptance in the program. Corequisite(s): PST 131, PST 201, PST 261.

PST 131 Professional Management and Legal Issues

2 Quarter Hours

Prepares students to recognize the appropriate interactions between technologists, patients, and other health professionals as it relates to legal and ethical principles of patient care. Current trends in confidentiality, behavioral observations and documentation will be included. In addition, the day to day operational functionality and management of the facility will be explored.

Prerequisite(s): Acceptance in the program. Corequisite(s): PST 121, PST 201, PST 261.

PST 201 Electronic Theory and Instrumentation Monitoring

4 Quarter Hours

Provides students with an introduction to general electrical theory, safety and amplification. Students will learn to calculate calibration signals required by electrophysiologic monitoring devices and summarize the process of measuring the electromechanical functions of the human body. Proficiency in equipment evaluation and troubleshooting skills will be key outcomes for this course.

Prerequisite(s): Acceptance in the program. Corequisite(s): PST 121, PST 131, PST 261.

PST 211 Therapeutic Interventions

4 Quarter Hours

Introduces students to the organization and study of the international classification of sleep disorders. Emphasis will be on etiology and epidemiology as it relates to all classifications of sleep disorders. Other areas of inquiry will include; symptomology, indicated test procedures, and appropriate therapeutic modalities for disorders of sleep.

Prerequisite(s): B- or better in PST 121, B- or better in PST 131, B- or better in PST 201, B- or better in PST 261.

PST 221A Neuroanatomy and Pathology

2 Quarter Hours

Explores basic EEG and reviews the anatomy and physiology of the nervous and cardiopulmonary systems with emphasis on abnormalities during sleep and wake. Topics include; the anatomy of the upper airway, pulmonary and cardiac systems, pulmonary ventilation mechanics, and pulmonary blood flow. Discussions will include the structure and function of the brain, its relationship to the generation of sleep and benefits of normal sleep architecture and consequences of sleep deprivation as well as the mechanism of breathing.

Prerequisite(s): B- or better in PST 121, B- or better in PST 131, B- or better in PST 201, B- or better in PST 261.

PST 231 Cardiorespiratory Pharmacology

2 Quarter Hours

Explores the treatment options for sleep apnea syndrome to include; CPAP, Bi-level, humidification, surgical, oral/dental, positional therapies, pharmacology, sleep hygiene, and nutrition. Other topics that will be discussed include the affects common drugs have on the polysomnogram and recognizing and responding to emergency situations.

Prerequisite(s): B- or better in PST 121, B- or better in PST 131, B- or better in PST 201, B- or better in PST 261.

PST 241 Sleep Analyzing Computers

4 Quarter Hours

Focuses on learning the computer systems used for the collection, analysis, and archiving of sleep studies. Evaluation of computer hardware, software, in-lab and portable digital systems and database management will be discussed. Windows and Windows NT based programs

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will be emphasized. The computer technology used in monitoring human sleep will introduce students to software programs designed to specifically record EEG, EMG, ECG, airflow, respiratory effort, oximetry, snoring, ETCO₂ as well as other possible parameters of sleep. Students will develop skills in patient data entry, creating and managing patient databases and printing reports. Other areas include; biomedical or IS support, warranties, extended service plans, and software updates. 20 hours of lecture and 40 hours of lab are required.

Prerequisite(s): B- or better in PST 112, B- or better in PST 211, B- or better in PST 221A, B- or better in PST 231, B- or better in PST 262.

PST 261 Polysomnography Clinical I 2 Quarter Hours

Provides students with the first on site laboratory practicum experience in sleep study technology. Participants will gain insight from day-to-day sleep laboratory operations and interactions with patients and practitioners. The number of hours in the laboratory practicum is 40 hours. The students experience will begin developing the technical and patient skills needed to actively participate in sleep study activities.

Prerequisite(s): Acceptance in the program. Corequisite(s): PST 121, PST 131, PST 201.

PST 262 Polysomnography Clinical II 2 Quarter Hours

Integrates the student's practicum application of knowledge with their ability to perform Polysomnographic testing. Skills include; patient interaction, setup and monitoring of equipment, continuous positive airway pressure (CPAP) and Bi-level titrations. The laboratory practicum will include documentation and completion of studies to include; tear down and clean-up. Scoring of the various sleep monitoring events will be explored. 40 practicum hours are required.

Prerequisite(s): B- or better in PST 121, B- or better in PST 131, B- or better in PST 201, B- or better in PST 261.

PST 271 Polysomnography Internship 4 Quarter Hours

Requires students to participate in a 160 hour clinical experience with patients and technologists at an approved sleep disorder center or hospital. This internship will include all aspects involved in a polysomnologist's responsibilities. Students must be prepared and willing to participate on any shift that may be required to complete this 160 hour internship experience.

Prerequisite(s): Program Director/Dean approval, B- or better in PST 112, B- or better in PST 211, B- or better in PST 221A, B- or better in PST 231, B- or better in PST 262.

PST 281 Advanced Polysomnography 4 Quarter Hours

Emphasizes advance techniques and integration of all the components of sleep medicine technology will be addressed in this course. Evaluation and assessment techniques, scoring, quality control, and facility protocols.

Prerequisite(s): B- or better in PST 112, B- or better in PST 211, B- or better in PST 221A, B- or better in PST 231, B- or better in PST 262.

PST 291 Polysomnography Registry Review 2 Quarter Hours

Focuses on didactic lectures and mock reviews which review the subject matter needed to successfully complete the Board of Registered Polysomnographic Technologist (BRPT) examination. The course will consist of a review of already acquired technical and clinical skills. Students' areas of test weaknesses and strengths will be identified through practice exams with instructor feedback.

Prerequisite(s): PST 231, PST 221A, PST 262, PST 112, PST 211. Corequisite(s): PST 281, PST 271, PST 241.

PRACTICAL NURSING

PN 121B Medical/Surgical Nursing for the PN 9 Quarter Hours

Addresses the theoretical application of the nursing process to concepts of care. Concepts incorporated in this course include: health promotion and maintenance, principles of pharmacology, correlation of medicines to disease processes, nutrition, communication, pain, infection control, and selected health conditions. The focus of this course will be on the care of patients with chronic illnesses and recurring health problems in the adult and

geriatric populations. Allows opportunity for students to apply practical nurse processes to care of the adult patient in both acute and chronic patient care settings. This course requires 60 hours of theoretical instruction and 90 hours of clinical instruction.

Prerequisite(s): B- or better in NUR 101A, B- or better in NUR 106, B- or better in NUR 111. Corequisite(s): NUR 141.

PN 131C Maternity and Pediatric Nursing for the Practical Nurses

4 Quarter Hours

Provides an exploration of practical nursing care for women in the prenatal, labor/delivery, and post-partum phases of pregnancy, including wellness care and care of complications. Exploration of practical nurse care for newborns, infants, and children will include wellness, common childhood illness, and immunizations. Students, under the supervision of a clinical instructor, will observe and apply basic nursing assessment and nursing management skills in the care of the pregnant client, and the pediatric client in a health care setting.

Prerequisite(s): B- or better in NUR 141, B- or better in PN 121B. Corequisite(s): NUR 131, NUR 171, PN 171A.

PN 171A Practical Nurse Seminar

1 Quarter Hour

Integrates the previously acquired knowledge and skills necessary to begin a career in nursing. Topics include delegation, leadership, dealing with conflict, career growth, as well as resume and interview techniques. Standardized testing with remediation will occur in this course. The portfolio project will be completed in this course.

Prerequisite(s): B- or better in NUR 141, B- or better in PN 121B, Sophomore status. Corequisite(s): NUR 131, NUR 171, PN 131C.

PROJECT MANAGEMENT AND PLANNING

PPM 301 Project Management

4 Quarter Hours

Introduces students to the five processes of project management: initiating, planning, executing, controlling, and closing. Topics include an overview of the evolution of project management, tools and techniques, and the project life cycle. Students will gain experience with the basic techniques of project planning, scheduling, execution, and closure.

Prerequisite(s): Junior status.

PPM 311 Project Planning

4 Quarter Hours

Expands on student's knowledge of project planning. Topics include project and scope definition, feasibility studies, activity sequencing, and identification of measures of success. Students will learn how to create, plan and effectively use planning tools, including project management software to work with subtasks, assign resources, and resolve time and resource conflicts.

Prerequisite(s): Junior status, WPG 098 or high school typing/proficiency.

PPM 321 Negotiation Strategies

4 Quarter Hours

Provides students with complete coverage of the knowledge, attitude, and skills necessary for success in negotiation. Topics include strategies and techniques for negotiation, different forms of negotiation, ethical and unethical behavior, conflict resolution, and mediation. Students will practice these principles to increase their negotiating ability.

Prerequisite(s): Junior status.

PPM 401 Project Cost and Budget Management

4 Quarter Hours

Introduces students to accounting concepts and principles necessary for developing project budgets and monitoring budget costs. This course also covers cost estimation techniques. Students will practice developing a project budget, tracking costs, and reporting financial cost information. Also addresses issues related to risk analysis, risk minimization, risk control, and risk management.

Prerequisite(s): Junior status, MTH 091 or satisfies developmental math or placement exam.

PPM 411 Leading Project Teams

4 Quarter Hours

Addresses effective utilization of human resources in project management. Provides an understanding of project leadership techniques, authority and power, motivation, team development, as

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well as problem solving, decision making, and interpersonal skills. Students will develop an understanding of effective communication techniques for communicating project status as well as recruitment of project team members.

Prerequisite(s): Junior status.

PPM 421 Contracting and Procurement for Project Managers

4 Quarter Hours

Explains the contracting and procurement process and the roles and responsibilities of the project manager in successful contracting to meet a project's objectives. Topics include procurement planning and management, preparing statements of work, proposal requests, contractor selection, and types of contracts. Introduces principles of contract and subcontract administration and reviews the differences between government and private purchasing processes.

Prerequisite(s): Junior status.

PPM 499 Senior Design Project in Project Management

4 Quarter Hours

Provides students with an opportunity to demonstrate mastery of the nine areas of the project management body of knowledge: scope, quality, time, cost, risk, human resources, procurement, communications, and integration management. This is a capstone course that integrates the content of the other project management and planning courses. Taught in a guided self-study format, students will complete a comprehensive project and prepare for certification tests by taking a practice test.

Prerequisite(s): Program Director/Dean approval.

PSYCHOLOGY

PSY 101 Human Relations

4 Quarter Hours

Provides a foundation for understanding human relations with applications to both personal and professional growth. Focus is on examining the basic dynamics of human relations, how social influences shape thought and behavior, effective ways to develop skills of human relations, and the importance of multicultural competency within human relations.

PSY 111 General Psychology

4 Quarter Hours

Provides a foundation of knowledge in psychology examining key topics related to understanding human thoughts and behavior. Topics include an exploration of factors that influence thoughts and behavior, psychology as a science, sensation/perception, motivation, emotion, memory, cognition, personality, as well as key figures, research, and theories within psychology. Applying concepts to real-life settings is a focus throughout the course.

PSY 121 History of Psychology

4 Quarter Hours

Explores the history and development of psychology as a discipline. Compares and contrasts important theories and their historical roots. Selected content areas within psychology and their occupational potential are discussed. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 111.

PSY 201A Cognitive-Behavior Therapy

4 Quarter Hours

Examines the background, theoretical underpinnings, and process of cognitive behavior therapy. Topics include maladaptive thought patterns and cognitive behavior therapy solutions, several expressions of cognitive behavior therapy, and cognitive behavior therapy applications to common problems such as fear, anger, addiction, and depression.

Prerequisite(s): PSY 111.

PSY 211 Psychology of Death and Dying

4 Quarter Hours

Equips students with a psychological foundation of theory related to death, dying, and bereavement. Prepares students who are entering a helping profession to work with others to understand and cope with death, dying, and bereavement.

Prerequisite(s): PSY 101 or PSY 111.

PSY 221 Developmental Psychology

4 Quarter Hours

Examines changes that occur across the human life span, from conception to old age and death. Topics include physical, perceptual, cognitive, personality, social, and emotional changes.

Prerequisite(s): PSY 111.

PSY 231 Organizational Psychology

4 Quarter Hours

Explores selection, placement, and evaluation of personnel, work motivation, leadership, worker well-being, group organization, and processes in the workplace.

Prerequisite(s): PSY 101 or PSY 111.

PSY 241 Theories of Counseling

4 Quarter Hours

Provides a foundation for understanding the field of counseling. This course examines what counselors do; the qualities of effective counseling; and basic concepts of the most influential theories of modern counseling, considering the strengths and weaknesses of each. It also examines legal, ethical, and cross-cultural issues.

Prerequisite(s): PSY 111.

PSY 251 Cognitive Psychology

4 Quarter Hours

Explores the psychology of thought, including reception of information, short- and long-term storage, perception, memory, concept formation, language acquisition, problem solving, imagination, and creativity. Students explore how people acquire, process, store, and use information. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 121, PSY 221.

PSY 271 Sports Psychology

4 Quarter Hours

Surveys research and theories related to maximizing the potential of healthy individuals with a focus on improving athletic performance both mentally and physically. Assisting athletes to achieve their potential is examined. Students explore career options and requirements in the field of sports psychology. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 121.

PSY 281 Stress Management

4 Quarter Hours

Develops a personal understanding of stress and a proactive approach for confronting negative stressors and reactions to stress through a variety of learning opportunities.

PSY 311 Abnormal Psychology

4 Quarter Hours

Examines the symptomatology, diagnosis, and causes of various forms of psychopathology. Topics include current theory and research; ethical and social issues; and historical and current approaches to treatment of mental illness.

Prerequisite(s): PSY 101 or PSY 111.

PSY 321 Psychology of Disability

4 Quarter Hours

Explores types of disabilities from the individual, family, and caregiver perspectives. Topics include stereotypes and myths, legal issues/laws, coping with disability, and models of practice. Common challenges and solutions associated with disability across various social contexts are discussed.

Prerequisite(s): PSY 111.

PSY 331 Human Development I

4 Quarter Hours

Focuses on theories and research in human development from conception to puberty. Selected topics include physical, language, intellectual, moral, personality, and socio-emotional development.

Prerequisite(s): PSY 111.

PSY 332 Human Development II

4 Quarter Hours

Examines the theories and research in human development from adolescence to old age and death. Topics covered include physical, cognitive, personality, and socio-emotional development, as well as identity development, relationships, education/careers, and retirement. The concept of stability and change throughout adulthood will be discussed.

Prerequisite(s): PSY 111.

PSY 335 Human Sexuality

4 Quarter Hours

Analyzes the anatomical, psychological, cultural, and social aspects of a wide range of topics in the area of human sexuality. Course emphasis is on developing understanding and appreciation of variations of sexual expression and the role of sexuality throughout the various phases of the life cycle.

Prerequisite(s): PSY 101 or PSY 111.

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PSY 336 Psychology of Gender

4 Quarter Hours

Explores the bio-cultural influences that contribute to gender differences. Theories, myths, and stereotypes related to gender are reviewed. Topics include historical trends, role conflicts, impact of life events, identity development, and employment. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 221.

PSY 350 Child Psychology

4 Quarter Hours

Explores human development from conception through late childhood, with an emphasis on mental, social, and emotional growth. Developmental processes of socialization, cognition, emotional growth, and personality development are examined. Theories about child development are assessed. Research findings on disorders common to children are considered.

Prerequisite(s): PSY 221.

PSY 351 Adolescent Psychology

4 Quarter Hours

Studies the nature of adolescent behavior and its underlying dynamics. This course focuses on the understanding adolescents in our society. The emphasis is on behavior development in establishing skills necessary to work with this group. This includes physical, emotional, social, and intellectual growth of adolescents.

Prerequisite(s): PSY 111.

PSY 355 Personality Psychology

4 Quarter Hours

Surveys major studies of personality and theories related to personality development. Examines how interpersonal behavior is influenced by individual differences. Students are provided opportunities to analyze the results of personality indicators. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 121, PSY 221.

PSY 366 Research Methods I

4 Quarter Hours

Provides a foundation for understanding research in the field of psychology. Students explore and gain understanding of the tools needed to critically read and evaluate research. Students gain knowledge of and develop research design skills and explore the scientific methods of inquiry, APA standards, and the ethical considerations of research. Knowledge of quantitative research design methodology by studying and critically analyzing the foundations, strategies, and practice of research in the field of professional psychology are investigated and applied. Reliability and validity of measures are evaluated and the process and various approaches of quantitative research are explored. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): MTH 401, PSY 121.

PSY 367 Research Methods II

4 Quarter Hours

Examines the qualitative methods of conducting research in a continuation of PSY366 Research Methods I. Knowledge of qualitative research design methodology is investigated and applied by studying and critically analyzing the foundations, strategies, and practice of research in the field of professional psychology. Students continue to gain knowledge and demonstrate appropriate use of research tools, research planning and design, methodologies, and communication of results using APA standards. Analytical procedures for data analysis methods are explored and applied. The steps of qualitative research are examined and reliability and validity of measures are evaluated. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 366.

PSY 381 Cross-Cultural Psychology

4 Quarter Hours

Examines the influence of culture on the individual. Illustrates commonalities and differences in behavior in a variety of cultures. Some topics covered include perception, gender, emotions, cognition, verbal and nonverbal communication, sexual orientation, and socialization. Multicultural views and cultural adaptation are addressed. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 221, PSY 366.

PSY 391 Bio-Chemical/Neural Psychology

4 Quarter Hours

Includes the study of primate brain activity, bio-chemical and electrical processes, and neural patterns that underlie behavior. Students develop an understanding of brain functions in relation to behavior. Normal brain activity is compared and contrasted with abnormal brain activity. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 221, PSY 366.

PSY 401 Social Psychology

4 Quarter Hours

Presents a study of individuals in the social context in which they live. Topics such as attitudes and attitude change, altruism, effects of being in a group, conformity, obedience, persuasion, and interpersonal attraction are studied.

Prerequisite(s): PSY 111.

PSY 402 Gerontology

4 Quarter Hours

Explores aging from the individual, family, and caregiver perspectives. Focuses on physical, cognitive, personality, and social development in late adulthood. Topics include stereotypes and myths, legal issues/laws, common psychological and physical disorders, end of life decisions, relationships, and careers, as well as the dying process, and bereavement.

Prerequisite(s): PSY 221 or PSY 332.

PSY 405 Psychopharmacology

2 Quarter Hours

Studies the history and development of psychopharmacological agents, their effects on the biochemistry of the human being, the legitimate use of medications, and their importance for treatment. Topics include a review of the classes of psychotropic drugs, drug overdose, the side effects and interactions of psychotropic drugs, and drug tolerance.

Prerequisite(s): PSY 311.

PSY 411 Clinical Methods in Mental Health

4 Quarter Hours

Examines the multiple careers and settings associated with mental health treatment. Topics include assessment, interviewing, types of counseling, treatment of different populations, legal issues, and ethical considerations within the mental health treatment setting. Treatment interventions, least restrictive options, and prevention will also be discussed.

Prerequisite(s): PSY 241, PSY 311.

PSY 431 Physiological Psychology

4 Quarter Hours

Provides an opportunity to study the physiological bases for behavior and human development. Students explore the relationship among brain function, physiological processes, and behavior. Other topics include sensory motor activities and the influence of hormones on behavior. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 391.

PSY 441 Sensation and Perception

4 Quarter Hours

Provides an overview of the five senses (vision, hearing, touch, taste, and smell) with a specific concentration on vision and hearing. Students develop an understanding of how humans distinguish the use of these senses in interpreting the world. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 391.

PSY 442 Learning and Memory

4 Quarter Hours

Surveys issues related to learning and retention of learning among various species, including Homo sapiens. Major theories about memory are evaluated. Topics of classical and operant conditioning, cognitive learning theory, information processing, attention, and models of short- and long-term memory are assessed. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 441.

PSY 445 Motivation and Emotion

4 Quarter Hours

Explores the biological and physiological bases that control instinctive drives. Additional emphasis is placed on curiosity, aggression, and emotional responses to external information, as well as the history of motivation. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 391.

PSY 451 Psychopharmacology for Psychology Majors

4 Quarter Hours

Surveys psychopharmacology, psychotropic drugs, and drug therapy, with an emphasis on the influence of drugs on mental capacity, performance, and tolerance. Examines current and possible drug treatments for psychopathological symptoms. Addictive drugs, over medicating, substance abuse, over diagnosing, and alternative methods are evaluated. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): PSY 311, PSY 391.

PSY 491 Senior Seminar: Psychology

4 Quarter Hours

Reflects the capstone course and allows students to demonstrate competency of knowledge from prior courses in the program. This course integrates knowledge, foundational concepts, and skills used in psychological research. This course is exclusive to the Bachelor of Science in Psychology Program (Online only).

Prerequisite(s): Senior status, Program Director/Dean approval.

RADIATION THERAPY

RDT 171 Introduction to Radiation Therapy

4 Quarter Hours

Provides students with an overview of the foundations in radiation therapy and the practitioner's role in the health care delivery system. Principles, practices and policies of the educational program, health care organizations, radiation and health safety and professional responsibilities of the radiation therapist will be discussed and examined. This course description is from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): Dean's approval.

Prerequisite(s): Program Director/Dean approval.

RDT 221 Imaging and Processing in Radiation Oncology

5 Quarter Hours

Establishes a knowledge base in factors that govern and influence the production and recording of radiographic images for patient simulation, treatment planning, and treatment verification in radiation oncology. Radiation oncology imaging equipment and related devices will be emphasized. 40 hours of lecture and 20 hours of lab are required. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): Acceptance in the program.

Prerequisite(s): Acceptance in the program.

RDT 231 Patient Care Management

2 Quarter Hours

Provides radiation therapy students with foundation concepts of patient care, chemotherapy protocols, agents and side effects, routine and emergency care as well as psychological aspects of the cancer patient that will confront students in the medical setting. Emphasis on the total patient is presented with regard to the patient's physical, psychological, social, and spiritual needs. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014.

Prerequisite(s): Acceptance in the program.

RDT 261 Radiobiology

2 Quarter Hours

Presents basic concepts and principles of radiation biology. The interactions of radiation with cells, tissues and the body as a whole and resultant biophysical events will be presented. Discussion of the theories and principles of tolerance dose, time-dose relationships, fractionation schemes and the relationship to the clinical practice of radiation therapy will be discussed, examined and evaluated. This course description is derived from the ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): Acceptance in the program.

Prerequisite(s): Acceptance in the program.

RDT 311 Radiation Therapy Physics I

4 Quarter Hours

Establishes a basic knowledge of physics pertinent to developing an understanding of radiations used in the clinical setting. Fundamental physical units, measurements, principles, atomic structure and types of radiation are emphasized. Also presented are the fundamentals of x-ray generating equipment, x-ray production and its interaction with matter. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014.

Prerequisite(s): Acceptance in the program.

RDT 312 Radiation Therapy Physics II

4 Quarter Hours

Reviews and expands concepts and theories presented in Radiation Therapy Physics I. Detailed analysis of the structure of matter, properties of radiation, nuclear transformations, x-ray production and interactions of ionizing radiation are emphasized. Also presented are treatment units used in external radiation therapy, measurement and quality of ionizing radiation produced, absorbed dose measurement, dose distribution and scatter analysis. Additionally the basic principles of radiation protection and safety for the radiation therapist are reviewed along with the radiation health and safety requirements of federal and state regulatory agencies, accreditation agencies and health care organizations are incorporated. Specific responsibilities of the radiation therapist are discussed, examined, performed and evaluated. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): B or better in RDT 311.

Prerequisite(s): B- or better in RDT 311.

RDT 321A Sectional Anatomy

4 Quarter Hours

Introduces students to medical imaging methods currently used in the field of radiation therapy including principles related to computed tomography (CT). Students will identify normal anatomical structures via a variety of imaging formats. Basic anatomical relationships will be compared using topographical and cross-sectional images. This course description is derived from the ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): B or better in RDT 341.

Prerequisite(s): B- or better in RDT 341.

RDT 331 Introduction to Clinical Practicum I

5 Quarter Hours

Introduces students to the various treatment machines, recordkeeping mechanisms, treatment planning processes, etc., in the clinical education center. This course is a hands-on laboratory conducted at the clinical education center(s) for 160 hours. Some evening labs may be required. Prerequisite(s): B or better in RDT 231 and student background check.

Prerequisite(s): B- or better in RDT 231 and student background check.

RDT 332 Introduction to Clinical Practicum II

5 Quarter Hours

Continues students experience with the various treatment machines, recordkeeping mechanisms, treatment planning processes, etc., in the clinical education center. This course is a hands-on laboratory conducted at the clinical education center(s) for 160 hours. Some early morning or evening labs may be required. Prerequisite(s): B or better in RDT 331.

Prerequisite(s): B- or better in RDT 331.

RDT 341 Principles and Practice of Radiation Therapy I

5 Quarter Hours

Provides an overview of cancer and the specialty of radiation therapy as the second of two courses. The historic and current aspects of cancer treatment will be covered. The roles and responsibilities of the radiation therapist will be discussed. In addition, treatment prescription, techniques and delivery will be covered. Examines and evaluates the management of neoplastic disease using knowledge in arts and sciences, while promoting critical thinking and the basis of ethical clinical decision making.

The epidemiology, etiology, detection, diagnosis, patient condition, treatment and prognosis of neoplastic disease will be presented, discussed and evaluated in relation to histology, anatomical site and patterns of spread. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to the skills required to analyze complex issues and make informed decisions while appreciating the scope of the profession. 40 hours of lecture and 20 hours of lab are required. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014.

Prerequisite(s): Acceptance in the program.

RDT 342 Principles and Practice of Radiation Therapy II

5 Quarter Hours

Provides an overview of cancer and the specialty of radiation therapy as the second of two courses. The historic and current aspects of cancer treatment will be covered. The roles and responsibilities of the radiation therapist will be discussed. In addition, treatment prescription, techniques and delivery will be covered. Examines and evaluates the management of neoplastic disease using knowledge in arts and sciences, while promoting critical thinking and the basis of ethical clinical decision making.

The epidemiology, etiology, detection, diagnosis, patient condition, treatment and prognosis of neoplastic disease will be presented, discussed and evaluated in relation to histology, anatomical site and

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patterns of spread. The radiation therapist's responsibility in the management of neoplastic disease will be examined and linked to the skills required to analyze complex issues and make informed decisions while appreciating the scope of the profession. 40 hours of lecture and 20 hours of lab are required. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014.

Prerequisite(s): B or better in RDT 341.
Prerequisite(s): B- or better in RDT 341.

RDT 421 Dosimetry I 5 Quarter Hours

Establishes factors that influence and govern clinical planning of patient treatment as the first of two courses, encompassing isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized along with particle beams. Stereotactic and emerging technologies are presented. 40 hours of lecture and 20 hours of lab are required. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): B or better in RDT 321.

Prerequisite(s): B- or better in RDT 312.

RDT 422 Dosimetry II 5 Quarter Hours

Establishes factors that influence and govern clinical planning of patient treatment as the second of two courses, encompassing isodose descriptions, patient contouring, radiobiologic considerations, dosimetric calculations, compensation and clinical application of treatment beams. Optimal treatment planning is emphasized along with particle beams. Stereotactic and emerging technologies are presented. 40 hours of lecture and 20 hours of lab are required. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): B or better in RDT 421.

Prerequisite(s): B- or better in RDT 421.

RDT 451 Senior Seminar I 1 Quarter Hour

Provides students with the chance to express his/her knowledge of the principles of oncology management, normal/abnormal cytology, pathology, radiation reactions, and patient care, for specific anatomical sites. This is the first course in a series of independent study courses. Students will state the multidisciplinary modality treatments and rationale for these treatments based on the anatomical site of interest. All objectives are based on knowledge previously acquired in the radiation therapy didactic courses and clinical practicums. This is a 9 week course.

Prerequisite(s): Program Director/Dean approval.

RDT 452 Senior Seminar II 2 Quarter Hours

Provides students the chance to express his/her knowledge of principles of oncology management, normal/abnormal cytology, pathology, radiation reactions, and patient care for specific anatomical sites. This is the second in a series of four independent study courses. Students will state the multidisciplinary modality treatments and rationale for these treatments based on the anatomical site of interest. All objectives are based on knowledge previously acquired in the radiation therapy technology didactic courses and clinical practicums.

Prerequisite(s): B- or better in RDT 451.

RDT 453 Senior Seminar III 2 Quarter Hours

Provides students the chance to express his/her knowledge of oncology management. This is the third in a series of four independent study courses. The emphasis shifts to specific case histories for which students will be required to analyze the contents of the history and define the expected treatment/outcome.

Prerequisite(s): B- or better in RDT 452.

RDT 454 Senior Seminar IV 2 Quarter Hours

Provides students the chance to express his/her knowledge of oncology management. This is the fourth and final course in a series of four independent studies. The emphasis continues on specific case histories for which students will be required to analyze the contents of the history and define the expected treatment/outcome.

Prerequisite(s): B- or better in RDT 453.

RDT 461 Quality Management and Operational Issues in Radiation Therapy 4 Quarter Hours

Focuses on the components of quality improvement (QI) programs in radiation oncology. Topics will include developing a culture of safety through quality control and assurance checks for the clinical

aspects of patient care, medical records, treatment delivery and localization equipment and treatment planning equipment. The role of the various radiation therapy team members in continuous quality improvement will be discussed as well as the legal and regulatory implications for maintaining appropriate quality care.

Additionally will cover various radiation therapy operational issues. Continuous quality improvement (CQI) project development and evaluation and assessment techniques will be emphasized. Human resource concepts and regulations impacting the radiation therapist will be examined. Accreditation agencies and the radiation therapist's role in the accreditation process will be emphasized. Billing and reimbursement issues pertinent to the radiation therapy department will be presented. The students will develop and use problem solving and critical thinking skills in discussion of the sources of law, causes of action and litigation processes related to the professional practice of radiation therapy. The inter-relatedness of standards of care, law, ethical standards and competence will be examined. This course description is derived from ASRT Radiation Therapy Professional Curriculum 2014. Prerequisite(s): B or better in RDT 422.

Prerequisite(s): B- or better in RDT 422.

RDT 471 Clinical Practicum I 8 Quarter Hours

Provides hands-on opportunities at clinical education centers. This is the first in a series of four courses. Students actively participate/observe simulation, treatment planning, custom block making, treatments, and patient care procedures. Students will also attend tumor and other relevant conferences to enhance their knowledge of cancer and its processes, which in turn allows them to procure the skills/competencies necessary to become a radiation therapist. All objectives are competency based. This is a 9 week course.

Prerequisite(s): Program Director/Dean approval.

RDT 472 Clinical Practicum II 8 Quarter Hours

Provides students with hands-on experience in a radiation oncology center. This is the second in a series of four courses. Students will continue to actively participate in all aspects of radiation therapy with an emphasis on competency-based objectives. 240 clinical hours are required.

Prerequisite(s): B- or better in RDT 471.

RDT 473 Clinical Practicum III 8 Quarter Hours

Provides students with hands-on experience in a radiation oncology center. This course is the third in a series of four courses. Students will continue to actively participate in all aspects of radiation therapy with an emphasis on competency-based objectives. 240 clinical hours are required.

Prerequisite(s): B- or better in RDT 472.

RDT 474 Clinical Practicum IV 8 Quarter Hours

Provides students the opportunity to actively participate in all aspects of radiation therapy with an emphasis on competency-based objectives. This is the fourth and final course. Students are expected to perform all assignments at the level of an entry-level radiation therapist. 240 clinical hours are required.

Prerequisite(s): B- or better in RDT 473.

RADIOLOGIC TECHNOLOGY

RAD 131 Introduction to Radiographic Practice 2 Quarter Hours

Introduces an overview of the foundations in radiography and the role of the radiographer as a member of the health care team. Principles, practices and policies of the healthcare organization are examined and discussed in addition to the professional responsibilities of the radiographer. The history of radiography will be presented along with legal and ethical issues related to the profession. Radiation protection will be introduced.

Prerequisite(s): Acceptance in the program. Corequisite(s): RAD 151, RAD 141.

RAD 141 Patient Care in Radiography 5 Quarter Hours

Exposes radiography students to basic concepts of patient care that will confront them in the medical setting. Theory and practice will include such areas as infection control, microbiology, history taking, vital signs, dealing with emergencies, and patient

DESCRIPTIONS OF UNDERGRADUATE COURSES

positioning and transfer methods. Emphasis on the total patient is presented with regards to the patient's physical, psychological, social, and spiritual needs. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): RAD 151, RAD 131.

RAD 151 General Imaging I 5 Quarter Hours

Explores the diverse field of diagnostic imaging equipment used in radiographic/fluoroscopic machines and generators. Radiographic film processing, types of film, and equipment problems will be investigated. Various image receptions will be analyzed. Emphasizes the concepts and tools used to generate exposures and create images. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program. Corequisite(s): RAD 131, RAD 141.

RAD 152 General Imaging II 5 Quarter Hours

Explores the diverse field of diagnostic imaging equipment used in radiographic/fluoroscopic machines and generators. Radiographic film processing, types of film, and equipment problems will be investigated. Various image receptions will be analyzed. Emphasizes the concepts and tools used to evaluate images and modify exposures. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in RAD 161, C or better in RAD 211, C or better in RAD 221, C or better in RAD 231. Corequisite(s): RAD 241, RAD 212.

RAD 161 Digital Imaging Concepts 2 Quarter Hours

Imparts an understanding of the components, principles and operation of digital imaging systems found in diagnostic radiology. Factors that impact image acquisition, display, archiving and retrieval are discussed. Principles of digital system quality assurance and maintenance are presented.

Prerequisite(s): C or better in RAD 151, C or better in RAD 131, C or better in RAD 141. Corequisite(s): RAD 211, RAD 221, RAD 231.

RAD 211 Radiographic Positioning I 5 Quarter Hours

Applies anatomical knowledge of structure and terminology of the chest, abdomen, upper and lower extremities to the production of diagnostic x-ray images. Positioning devices and techniques will be introduced. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in RAD 151, C or better in RAD 131, C or better in RAD 141. Corequisite(s): RAD 161, RAD 221, RAD 231.

RAD 212 Radiographic Positioning II 5 Quarter Hours

Applies increasing anatomical knowledge of structure and terminology of the thorax, spine, abdomen, and skull to the production of diagnostic x-ray images. The optimal use of positioning devices and techniques will be reinforced in this course. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in RAD 161, C or better in RAD 211, C or better in RAD 221, C or better in RAD 231. Corequisite(s): RAD 152, RAD 241.

RAD 213 Radiographic Positioning III 5 Quarter Hours

Applies knowledge of structure, function, and terminology of oral and intravenous contrast studies. Positioning devices, immobilization techniques, and trauma radiography will be included along with emphasis on radiation protection during fluoroscopy. Special considerations related to pediatric radiography will be introduced. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): C or better in RAD 152, C or better in RAD 241, C or better in RAD 212. Corequisite(s): RAD 251.

RAD 221 Radiographic Pharmacology 2 Quarter Hours

Provides basic concepts of pharmacology. The theory and practice of basic techniques of venipuncture and administration of diagnostic contrast agents and/or intravenous medications is included. The appropriate delivery of patient care during these procedures is emphasized.

Prerequisite(s): C or better in RAD 151, C or better in RAD 131, C or better in RAD 141. Corequisite(s): RAD 161, RAD 211, RAD 231.

RAD 231 Radiographic Science Theory 2 Quarter Hours

Explores basic concepts in general physics such as energy, power, work, momentum, force velocity, and acceleration. Fundamental theories of photon (quantum) properties are introduced. Analysis of the various interactions of ionizing radiation with matter is emphasized. Sources and measurement of ionizing radiation are discussed.

Prerequisite(s): C or better in RAD 151, C or better in RAD 131, C or better in RAD 141. Corequisite(s): RAD 161, RAD 211, RAD 221.

RAD 241 Radiographic Biology and Protection 2 Quarter Hours

Explores biological principles that are fundamental to understanding radiation safety. The relationship of radiation dose level to somatic, genetic, and stochastic effects are emphasized. The importance of x-ray energy level and area of exposure is reinforced.

Prerequisite(s): C or better in RAD 161, C or better in RAD 211, C or better in RAD 221, C or better in RAD 231. Corequisite(s): RAD 152, RAD 212.

RAD 251 CT and Advanced Procedures 4 Quarter Hours

Expands the knowledge of special radiographic procedures, equipment, and techniques. Attention will be given to the areas of sectional anatomy, computed tomography (CT), angiography, and mammography. Advanced radiographic procedures will also be discussed.

Prerequisite(s): C or better in RAD 152, C or better in RAD 241, C or better in RAD 212. Corequisite(s): RAD 213.

RAD 271 Radiographic Clinical I 12 Quarter Hours

Provides the opportunity for development and application of basic clinical skills in a radiologic practice setting. This is the first of three clinical courses. Requires students to observe, participate, and independently prove competency in radiographic procedures presented in RAD211-213. Students will function under the direct supervision of a registered technologist until competency is proven; then supervision may be indirect. Many of the clinical objectives are outcome based on competency requirements of the ARRT. Other course objectives are outcome based on professional behavior and the continued learning of theoretical material from the prior year of study. Radiographic theory will be reinforced and expanded. This is a 12 week rotation including 472 clinical hours.

Prerequisite(s): C or better in RAD 251, C or better in RAD 213.

RAD 272 Radiographic Clinical II 12 Quarter Hours

Provides the opportunity for development and application of intermediate clinical skills in a radiologic practice setting. This is the second of three clinical courses. Requires students to observe, participate, and independently prove competency in the radiographic procedures presented in RAD211-213. Students will function under the direct supervision of a registered technologist until competency is proven; then supervision may be indirect. Many of the clinical objectives are outcome based on competency requirements of the ARRT. Other course objectives are outcome based on professional behavior and the continued learning of theoretical material from the prior year of study. Radiographic theory will be reinforced and expanded through Web-based instructional tools. This is a 12 week rotation including 472 clinical hours.

Prerequisite(s): C or better in RAD 271.

RAD 273 Radiographic Clinical III 10 Quarter Hours

Provides the opportunity for development and application of advanced clinical skills in a radiologic practice setting. This is the final clinical course for the program. Requires students to observe, participate, and independently prove competency in the radiographic procedures presented in RAD211-213. Students will function under the direct supervision of a registered technologist until competency is proven; then supervision may be indirect. Many of the clinical objectives are outcome based on competency requirements of the ARRT. Other course objectives are outcome based on professional behavior and the continued learning of theoretical material from the prior year of study. Radiographic theory will be reinforced and expanded through Web-based instructional tools. Activities that encourage professional development beyond entry-level will be included. This is a 10 week course including 380 clinical hours.

Prerequisite(s): C or better in RAD 272. Corequisite(s): RAD 291.

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RAD 291 Preparation to Achieve Student Success (PASS)

2 Quarter Hours

Emphasis will be placed on preparing the student to achieve the successful outcome of professional certification by synthesizing knowledge from previous coursework in radiography. Strategies for reinforcement of concepts that summarize cumulative knowledge will be introduced. A simulated radiography registry exam will be administered as a primary test for the graduation candidate. A passing score must be achieved on this test for successful completion of the course. This is the capstone course.

Prerequisite(s): C or better in RAD 272, Program Director/Dean approval. Corequisite(s): RAD 273.

REGISTERED BEHAVIOR TECHNICIAN

RBT 241 Behaviors of Autistic and Special Needs Populations

4 Quarter Hours

Educates students on topics such as what is ASD, what is Applied Behavior Analysis, concepts and teaching strategies used in Applied Behavior Analysis. It is designed for persons currently working with children with autism in the planning and service delivery of Applied Behavioral Analysis or those who would like to work with children with Autism. This course meets the educational requirements for the Registered Behavior Tech (RBT) guidelines outlined by the Behavior Analysis Certification Board (BACB).

Corequisite(s): RBT 271.

RBT 271 Behaviors of Autistic and Special Needs Populations Practicum

4 Quarter Hours

Prepares participants without prior experience with Autism for employment as a behavioral technician with providers implementing the autism benefit. Moreover, parents, relatives, friends and caregivers of children with autism are encouraged to enroll for hands-on experience. There are three locations to meet the needs of the students (Detroit, Novi and Clinton Twp). This course is a field experience course in which students will work in a University Pediatricians Autism Center facility. This course is restricted and students must attend an interview and complete a background check and physical prior to admission.

Corequisite(s): RBT 241.

REHABILITATION STUDIES

RHS 471 Evidence-Based Practice and Clinical Research I

4 Quarter Hours

Culminates the completion of the Bachelor of Rehabilitation Studies coursework in this first of two capstone courses. Students will conduct professional literature reviews and examine evidence-based practice research pertaining to the occupational and physical therapy professions. Areas of study include: neurological rehabilitation, orthopedics, wellness and health promotion, and geriatrics. A professional portfolio containing evidence-based clinical research, literature reviews, clinical observations/discussions, and professional presentations is required.

Prerequisite(s): Program Director/Dean approval.

RHS 472 Evidence-Based Practice and Clinical Research II

4 Quarter Hours

Culminates the completion of the Bachelor of Rehabilitation Studies program in this final capstone course. Students will conduct professional literature reviews and examine evidence-based practice research pertaining to the occupational and physical therapy professions. Areas of study include: acute care and rehabilitation, pediatrics, mental health, and special topics. A professional portfolio containing evidence-based clinical research, literature reviews, clinical observations/discussions, and professional presentations is required.

Prerequisite(s): RHS 471, Program Director/Dean approval.

RESPIRATORY CARE

RSC 201 Respiratory Care Practices and Procedures I

4 Quarter Hours

Provides an introduction to respiratory care as a healthcare profession. This course also provides orientation and lecture to basic practices of respiratory care including gas laws, administrations of medical gases, infection control, essentials of equipment maintenance and sterilization, aerosol, and humidity therapies.

Prerequisite(s): Acceptance in the program. Corequisite(s): RSC 206A.

RSC 202 Respiratory Care Practices and Procedures II

4 Quarter Hours

Provides continuation of lecture for procedures, techniques, and equipment used in respiratory care. Topics include the use of volume expansion therapy, bronchopulmonary hygiene therapy, airway care/management, and resuscitation. Protocols and documentation used in the practices of respiratory care will be emphasized.

Prerequisite(s): B- or better in RSC 201, B- or better in RSC 206A. Corequisite(s): RSC 207A.

RSC 203 Respiratory Care Practices and Procedures III

4 Quarter Hours

Introduces the study of ventilation drive mechanisms, ventilator support devices, and related physical principles. Factors leading to ventilator initiation, dependence, directed weaning protocol, assessment, monitoring and maintenance; discontinuation and documentation for adult care will be discussed.

Prerequisite(s): B- or better in RSC 202, B- or better in RSC 207A. Corequisite(s): RSC 208A.

RSC 204 Respiratory Care Practices and Procedures IV

4 Quarter Hours

Focuses on advanced applications in clinical practice. Covers testing and values related to spirometry, pulmonary function, chest radiography, EKGs, chest tube drainage, and hemodynamic monitoring. Students will be expected to give an oral presentation in this course.

Prerequisite(s): B- or better in RSC 203, B- or better in RSC 262A. Corequisite(s): RSC 241, RSC 263.

RSC 205 Respiratory Care Practices and Procedures V

4 Quarter Hours

Studies pulmonary rehabilitation strategies and smoking cessation and covers homecare equipment, maintenance, procedures, patient assessment, protocols, and documentation. Students may be required to attend a state or local conference or symposium as related to course topics.

Prerequisite(s): B- or better in RSC 204. Corequisite(s): RSC 264A.

RSC 206A Respiratory Care Practices and Procedures Lab I

2 Quarter Hours

Serves as a laboratory counterpart to RSC201. Students will develop pre-clinical skills in storage and administration of medical gases, infection control, essentials of equipment maintenance and sterilization, aerosol, and humidity therapies. This lab includes 40 contact hours.

Prerequisite(s): Acceptance in the program. Corequisite(s): RSC 201.

RSC 207A Respiratory Care Practices and Procedures Lab II

2 Quarter Hours

Serves as a laboratory counterpart to RSC202. Students will continue to develop pre-clinical skills in basic respiratory care procedures including volume expansion therapies, chest physiotherapy, humidity and aerosol treatments, and airway care/management, and resuscitation. The ABG puncture and technique will also be emphasized. This lab includes 40 contact hours.

Prerequisite(s): B- or better in RSC 201, B- or better in RSC 206A. Corequisite(s): RSC 202, RSC 261A.

RSC 208A Respiratory Care Practices and Procedures Lab III

2 Quarter Hours

Serves as a laboratory counterpart to RSC203. Students will begin to develop pre-clinical skills in mechanical ventilatory support. Introduction to assembly, operation, clinical application, monitoring systems, maintenance, and troubleshooting. Clinical documentation will be practiced. This lab includes 40 contact hours.

Prerequisite(s): B- or better in RSC 202, B- or better in RSC 207A. Corequisite(s): RSC 203.

RSC 211 Cardiopulmonary Anatomy and Physiology

4 Quarter Hours

Applies an overview of cardiopulmonary anatomy and physiology with emphasis on fundamental concepts of the cardiopulmonary, neurological, and cardiovascular systems, as related to respiratory care essentials.

Prerequisite(s): Acceptance in the program.

RSC 221 Cardiopulmonary Pathophysiology I

4 Quarter Hours

Explores the fundamentals of respiratory care patient assessment. Laboratory values, blood gases, and radiologic assessment. Basic pulmonary function values are included, as they relate to cardiopulmonary disorders and diseases. The anatomic alteration, etiology, clinical manifestations, and patient care plan will be correlated for each disease process. Development of therapist-driven protocols is emphasized.

Prerequisite(s): B- or better in RSC 211. Corequisite(s): RSC 202, RSC 261A.

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RSC 222 Cardiopulmonary Pathophysiology II

4 Quarter Hours

Expands on the concepts of RSC221, with a continuation of patient assessment in pulmonary restrictive diseases, therapist-driven protocols, and the respiratory care plan. Computer-assisted instruction is included.

Prerequisite(s): B- or better in RSC 221. Corequisite(s): RSC 203, RSC 262A.

RSC 231 Respiratory Care Pharmacology

4 Quarter Hours

Provides an emphasis of pharmacological agents and their effects on the respiratory, circulatory, and nervous systems. Pharmacological therapeutics focusing on dosage, solutions, classifications, indications, mechanism of action, side effects, hazards, and routes of administration are discussed.

Prerequisite(s): Acceptance in the program. Corequisite(s): RSC 201, RSC 211.

RSC 241 Neonatal/Pediatric Respiratory Care

4 Quarter Hours

Introduces students to neonatal and pediatric respiratory care, fetal lung development, anatomy and physiology, neonatal development, supplemental oxygenation, pathology, CPR, acid-base monitoring. Introduction to mechanical ventilation of the newborn and pediatric patient will be discussed. Pre-clinical skills for neonatal and pediatric mechanical ventilation is emphasized. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in RSC 222, B- or better in RSC 262A. Corequisite(s): RSC 204, RSC 263.

RSC 261A Clinical Care I

2 Quarter Hours

Provides students a supervised opportunity to work with a preceptor or clinical instructor, applying the concepts learned in the laboratory and lecture formats. Beginning therapy skills, including oxygen, aerosol and drug delivery, lung expansion therapies, and other modalities will be developed in the patient care setting. This experience consists of 8 contact hours per week, 80 actual contact hours.

Prerequisite(s): B- or better in RSC 206A, B- or better in RSC 211, Student background check. Corequisite(s): RSC 202, RSC 221.

RSC 262A Clinical Care II

4 Quarter Hours

Expands on the concepts learned in laboratory and lecture formats in RSC201 and 202. Basic floor therapy will continue, with an introduction to mechanically ventilated patients, blood gas interpretation, and development of critical thinking skills in the clinical environment. This experience consists of 16 contact hours, 160 actual contact hours.

Prerequisite(s): B- or better in RSC 261A. Corequisite(s): RSC 203, RSC 222.

RSC 263 Clinical Care III

6 Quarter Hours

Expands on a clinical experience in mechanical ventilatory support, airway management, interpretation of laboratory and diagnostic testing, gathering data, and decision making in the critical care environment. This experience consists of 30 contact hours per week (for 8 weeks), 240 actual contact hours.

Prerequisite(s): B- or better in RSC 262A.

RSC 264A Clinical Care IV

6 Quarter Hours

Provides a continued clinical experience using advanced respiratory care equipment in the clinical setting with an emphasis on critical thinking skills, gathering data, and decision making relative to adult critical care, ventilatory mechanics, and airway management. This experience consists of 24 contact hours per week, 240 actual contact hours.

Prerequisite(s): B- or better in RSC 263.

RSC 265 Clinical Care V

6 Quarter Hours

Provides a clinical experience with emphasis on problem solving, critical thinking and decision-making skills in the clinical setting. This clinical provides students with specialty rotations, which may include PFT lab, neonatal/pediatric care, homecare, polysomnography, out-patient clinic, sub-acute care and skilled nursing facilities. This experience consists of 24 contact hours per week, 240 actual contact hours.

Prerequisite(s): B- or better in RSC 264A.

RSC 271 Contemporary Topics in Respiratory Care

4 Quarter Hours

Covers ethical issues and reviews trends and issues related to respiratory care. Topics include review for national board examination preparation (CRT and RRT) and clinical proficiency using computer-assisted instruction and other modalities. Students will take NBRC self-assessment examinations (SAE). This is the capstone course.

Prerequisite(s): B- or better in RSC 264A.

SALES

SAL 201 Professional Sales I

4 Quarter Hours

Delves deeper into the various areas of sales including: ways to sell, how to sell, and the different mediums in sales. Topics include communication skills in various sales settings, current and emerging technologies to communicate with customers. It will introduce mathematical concepts and skills used to create a sales strategy and discuss the importance of product knowledge, understanding your competition, and opening and closing the sale.

SAL 291 Professional Sales Work Experience I

4 Quarter Hours

Provides a learning experience in an actual professional sales environment and is structured to allow students to develop the necessary skills to become a professional salesperson. Students will shadow a sales professional and work directly with a sales manager. Students must take this course in conjunction with or after completion of MKT201 and SAL 201.

SCIENCE

SCI 100F Structure and Function of the Human Body

4 Quarter Hours

Introduces students to the structural organization of body systems. This course is designed for students with limited background in chemistry and biology. This course is intended for allied health students who need an overview of body systems. Students should check specific program requirements for anatomy and physiology before enrolling.

SCI 101C Human Anatomy and Physiology I

5 Quarter Hours

Focuses on the fundamental study of the body with a view toward the structure and function of body parts, organs, and systems and their relationship to the whole body. Laboratory work may include the use of the microscope, experiments/demonstrations in physiologic principles, and the dissection of animal parts. 40 hours of lecture and 20 hours of lab are required.

SCI 102C Human Anatomy and Physiology II

5 Quarter Hours

Emphasizes the structure and function of the various body systems. Laboratory work will include the dissection of mammal organs. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in SCI 101C.

SCI 111 Biology

5 Quarter Hours

Provides an introduction to basic biological concepts. Topics include classification of plants and animals, cell theory, cell structure, plant and animal tissues and organs, nutritional requirements of plants and animals, energy metabolism, and use of basic biology laboratory techniques and equipment. 40 hours of lecture and 20 hours of lab are required.

SCI 121 Physics Concepts

2 Quarter Hours

Introduces various topics in physics. Motion, energy, and the dynamics of particles are investigated. The physical concepts of fluid mechanics, thermodynamics, and wave motion are explored as well as selected topics in atomic and nuclear physics.

Prerequisite(s): MTH 109 or MTH 112, Cardiac Sonography and Vascular Ultrasound Technology majors: Corequisite(s): MTH 112.

SCI 131 Concepts in Microbiology

2 Quarter Hours

Introduces basic theories about the composition of living cells. Structure and function of various microbes will be explored. The human diseases caused by these microbes in addition to their treatments will be presented.

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SCI 211 Pathophysiology

4 Quarter Hours

Examines general disease mechanisms with an emphasis on the disease processes within each body system.

Prerequisite(s): B- or better in SCI 102C.

SCI 215 Integrated Physics

4 Quarter Hours

Introduces the principles of physics. Concepts explored include mechanical, fluid, electromagnetic, and thermal systems.

Prerequisite(s): MTH 124.

SCI 220A Microbiology

5 Quarter Hours

Explores basic concepts of prokaryotic and eukaryotic microorganisms including the basic composition, metabolism, genetics, immunology, and epidemiology of microorganisms. The human diseases caused by these microorganisms in addition to their treatments will be presented. A 20 hour laboratory will be a component of this course; students will perform several experiments to reinforce the material presented in lecture.

SCI 231 Biochemistry

4 Quarter Hours

Provides an overview of biochemical structures and reactions that occur in living systems. Emphasis is placed on the areas of energy, proteins, and catalysis as well as metabolism and molecular genetics.

Prerequisite(s): SCI 246.

SCI 246 Chemistry I

4 Quarter Hours

Introduces students to general chemical principles, particularly emphasizing periodic properties, fundamental chemical calculations, formulas, equations, bonding, and nomenclature. Students develop selected chemistry lab skills through the practical application of techniques and procedures. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MTH 108 or B- or better in MTH 111.

SCI 247 Chemistry II

4 Quarter Hours

Expands the principles of Chemistry I to include an in-depth investigation of quantum numbers and the study of precipitation, neutralization, and redox reactions. Also included is the investigation of molecular structures and the concept of chemical equilibrium. Students are also introduced to electrochemical principles and nuclear chemistry. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 246.

SCI 248 Chemistry III

4 Quarter Hours

Examines the chemistry of solutions and solubility. Students are introduced to concepts in organic chemistry and biochemistry as well as study in-depth concepts involving acids and bases. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 247.

SCI 251 General Physics I

4 Quarter Hours

Analyzes classical mechanics. 30 hours of lecture and 20 hours of lab are required.

Corequisite(s): MTH 141.

SCI 252 General Physics II

4 Quarter Hours

Analyzes electricity and magnetism. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 251. Corequisite(s): MTH 142.

SCI 253 General Physics III

4 Quarter Hours

Analyzes oscillatory motion, heat and thermodynamics, optics, and modern developments. 30 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 251.

SCI 271A Clinical Kinesiology

5 Quarter Hours

Emphasizes advanced human anatomy and physiology as well as the study of movement biomechanics and basic physics principles. Angiology, arthrology, osteology, and myology are explored by anatomical region. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in SCI 102C.

SCI 311 Neuroanatomy

4 Quarter Hours

Gives students a base of knowledge of the organizing principles of human neural structure and function. Upon completion of the course, students should have a good foundation for future clinical or other advanced courses in neuroscience.

Prerequisite(s): B- or better in SCI 102C.

SCI 321 Principles of Astronomy

4 Quarter Hours

Provides a comprehensive introduction to astronomy. Topics include the solar system, stars, galaxies, cosmology, and history of astronomy. Astronomical laboratory investigations are part of the course.

SCI 331 Organic Chemistry

4 Quarter Hours

Introduces students to the field of organic chemistry. Emphasis is placed on nomenclature, structure, and physical and chemical properties of the major functional groups found in organic molecules.

Prerequisite(s): SCI 248.

SCI 332A Advanced Biochemistry

3 Quarter Hours

Explores the anabolic and catabolic pathways in the metabolism of lipids, carbohydrates, and proteins. This course also introduces students to the synthesis and use of DNA and RNA. Emphasis is placed on the clinical implications of metabolic pathways. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 231, SCI 331.

SCI 341 Quantitative Chemical Analysis

3 Quarter Hours

Analyzes the composition of materials using methods of quantitative chemical analysis. Methods using precipitation, chromatography, electrochemical analysis, and various types of spectroscopy are investigated. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 248.

SCI 351 Science Foundations I: Chemistry and Life Science

5 Quarter Hours

Introduces the basic concepts of inorganic chemistry: atoms, molecules, the periodic table, chemical reactions, and chemical equations. This course also introduces the principles of life science: plant and animal cells, ecosystems, human body systems, genetics, evolutionary change, and natural selection. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): MTH 108 or MTH 111.

SCI 352 Science Foundations II: Astronomy, Earth Science, and Physics

5 Quarter Hours

Studies the solar system, the earth's structure, and the laws and forces which govern our planet and the universe as a whole. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): MTH 108 or MTH 111.

SCI 361 Zoology

5 Quarter Hours

Studies zoology from the levels of single-celled organisms to complex organ systems. The course addresses the general principles of modern zoological theory, systematics, evolution, reproduction, development and animal diversity. Students explore the general concepts of zoology and taxonomic classification, characteristics of living organisms, Darwin's principle of evolution, and Mendel's principles of genetics. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 111.

SCI 371 Genetics

5 Quarter Hours

Explores the principles of genetics with application to the study of biological function at the level of molecules, cells, and multi-cellular organisms, including humans. The topics include structure and function of genes, chromosomes and genomes, biological variation resulting from recombination, mutation, and selection, population genetics, use of genetic methods to analyze protein function, gene regulation and inherited disease. 40 hours of lecture and 20 hours of lab are required.

Prerequisite(s): SCI 111.

SCI 451 Environmental Science

4 Quarter Hours

Explores the relationship between man and the environment. Students examine the balance between natural resources including wildlife, their habitats, and the needs of man in the twenty-first century.

DESCRIPTIONS OF UNDERGRADUATE COURSES

SCI 493 Senior Seminar: Biology

4 Quarter Hours

Familiarizes students with the professional community of biology educators and with the state and national curricula standards with a focus on biology. Emphasis is on integration of biological concepts with ecological, environmental, and social issues facing our community in order to gain in-depth knowledge and explore possible solutions.

Prerequisite(s): Senior status, Program Director/Dean approval.

SERVICE MANAGEMENT

SM 311 Industry Trends in Auto/Diesel Service

4 Quarter Hours

Presents the history, and potential future, of the automotive service industry with a global perspective.

Prerequisite(s): Junior status.

SM 316 Industry Trends in HVAC Service

4 Quarter Hours

Presents the history, and potential future, of the heating and cooling service industry with a global and environmental perspective.

Prerequisite(s): Junior status.

SM 321 Introduction to Auto/Diesel Service Operations Planning

4 Quarter Hours

Prepares students for further study of the automotive service industry. An overall view of the industry is examined including career opportunities and the roles and responsibilities of the service manager.

Prerequisite(s): Junior status.

SM 326 Introduction to HVAC Service Operations Planning

4 Quarter Hours

Prepares students for further study of the HVAC service industry. An overall view of the industry is examined including career opportunities and the roles and responsibilities of the service manager.

Prerequisite(s): Junior status.

SM 331 Sales, Marketing, and Public Relations

4 Quarter Hours

Examines the essential marketing aspects of a successful service company. Case studies will be examined and critiqued while strengths and weaknesses are identified.

Prerequisite(s): MKT 111B, SM 311 or SM 316.

SM 401 Human Resources for Service Industries

4 Quarter Hours

Examines employment issues unique to service-oriented businesses. Topics include recordkeeping, certification and licensure maintenance, employee incentives, wage structuring, and professional development and training.

Prerequisite(s): MGT 212, SM 311 or SM 316.

SM 411 Customer Relations Management

4 Quarter Hours

Stresses the critical importance of outstanding customer relations within the service industries. Methods for improving numbers of repeat customers and public image will be examined.

Prerequisite(s): MGT 114, SM 311 or SM 316.

SM 421 Accounting and Finance for Service Industries

4 Quarter Hours

Examines the financial side of a service business. Topics include vendor contracts, warranty issues, payroll, and collections.

Prerequisite(s): ACC 121, SM 311 or SM 316.

SM 441 Auto/Diesel Service Operations Planning I

4 Quarter Hours

Examines all aspects of an automotive service operation with a focus on teamwork and efficient delivery of outstanding customer service.

Prerequisite(s): SM 321. Corequisite(s): SM 421.

SM 442 Auto/Diesel Service Operations Planning II

4 Quarter Hours

Continues coverage of service operations expanding on the previous course.

Prerequisite(s): SM 441.

SM 446 HVAC Service Operations Planning I

4 Quarter Hours

Examines all aspects of a heating and cooling service operation with a focus on teamwork and efficient delivery of outstanding customer service.

Prerequisite(s): SM 326. Corequisite(s): SM 421.

SM 447 HVAC Service Operations Planning II

4 Quarter Hours

Continues coverage of service operations expanding on the previous course.

Prerequisite(s): SM 446.

SKILLED CARE TECHNICIAN

SCT 111 Skilled Care Foundations I

2 Quarter Hours

Introduces students to the various roles of the Skilled Care Technician. Basic concepts of communication, teamwork, patient rights and quality of care will be explored.

Prerequisite(s): Student background check. Corequisite(s): SCI 100F.

SCT 112 Skilled Care Foundations II

4 Quarter Hours

Builds on previously learned knowledge of the various roles of the Skilled Care Technician. Provides opportunity to apply skill and knowledge in simulated real-world scenarios.

Prerequisite(s): C or better in SCT 100F, C or better in SCT 111. Corequisite(s): HSC 151.

SCT 151 Skilled Care Technician Seminar

3 Quarter Hours

Allows students to synthesize information gained in this program to explore how the Skilled Care Technician can impact the health and wellness of patients in long-term care facilities and other health care organizations.

Prerequisite(s): C or better in SCT 112. Corequisite(s): HSC 102, HUC 181.

SMALL ENGINE AND POWER SPORTS TECHNOLOGY

SET 106 Introduction to Small Engine Technology

4 Quarter Hours

Orients students to the Baker College Small Engine and Power Sports Technology environment. Students will receive instruction in procedure, policies, shop safety, and proper tool usage. Students are also introduced to automotive measuring devices, computer usage and the industry as a whole. 30hrs lecture, 20hrs of lab is required.

SET 111 Small Engine Electricity/Electronics I

5 Quarter Hours

Introduces students to small engine electrical/electronic systems including basic theories, electrical/electronic components, wiring and circuit diagrams, circuit protection, switches, relays solenoids and small engine battery fundamentals. This course also focuses on the use of test equipment such as digital multimeters, test lights, jumper wires and logic probes used to diagnose basic electrical/electronic faults. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Corequisite(s): SET 106.

SET 112 Small Engine Electricity/Electronics II

5 Quarter Hours

Emphasizes the fundamentals, diagnostics, and service of the following areas: conventional small engine batteries, advanced battery design, starting systems, starter motors, charging systems, and lighting circuits, as well as, the proper tools and equipment used to perform all diagnostics and service. Emphasis on the major differences between automotive and small engines designs. 20 hours of lecture and 60 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Prerequisite(s): SET 111.

SET 121 Small Engine Repair and Machining I

6 Quarter Hours

Focuses on the theory of operation for the gasoline internal combustion engine. Two and four stroke engines are examined. Fuel, compression, and ignition systems are discussed. Major components of

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each are examined as background to viewing the engine as a system. Coverage of engine failure analysis with a focus on diagnostic procedures. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Corequisite(s): SET 106.

SET 122 Small Engine Repair and Machining II

6 Quarter Hours

Focuses on the repair of small engines, valve refinishing, cylinder honing, and replacement of all internal engine parts for both two and four stroke engines. Students will disassemble and reassemble engines to running condition. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Prerequisite(s): SET 121.

SET 131 Small Engine Performance I

6 Quarter Hours

Focuses on the introduction of ignition systems, fuel systems (carburetors and injection) and the relationship of each on the overall health of the engine. Minor adjustments/modifications to engines will also be discussed and practiced. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Corequisite(s): SET 106.

SET 132 Small Engine Performance II

6 Quarter Hours

Continues the examination of engine fault diagnosis and adjustment or repair emission controls, effects of ignition timing, analysis of exhaust gases, and advanced engine services are studied. Manufacturers differences on the various types of systems used will be discussed. Major diagnostic tools will be discussed and used within the lab setting. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Prerequisite(s): SET 131.

SET 221 Motorcycle/ATV Brakes and Suspension

6 Quarter Hours

Focuses on braking systems, repair and diagnosis of hydraulics, electrical systems, suspension and steering systems. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Prerequisite(s): SET 111.

SET 231 Motorcycle/ATV Transmissions and Drivelines

6 Quarter Hours

Focuses on manual and automatic transmissions, clutches, chains, belt drives, and linkages. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports Technology program.

Prerequisite(s): SET 111.

SET 251 Snowmobile Performance and Drivelines

6 Quarter Hours

Provides students with a working understanding of the uniqueness of snowmobile fuel and driveline systems. 20 hours of lecture and 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Associate Degree program in the Small Engine and Power Sports technology program.

Prerequisite(s): SET 111.

SET 281 Motorcycle/ATV Practicum

4 Quarter Hours

Gives students practical experience on a variety of power sports equipment. Students will be engaged in all stages of repair from customer complaint to diagnosis, repair and invoicing. Students will be prepped for the State of Michigan licensing exam in areas of their choice including electrical systems, engine repair, motorcycle repair and recreational trailer repair. 10 hours of lecture and 60 hours of lab are required.

Prerequisite(s): Program Director/Dean approval.

SOCIOLOGY

SOC 201 Sociology

4 Quarter Hours

Examines social organization, culture, and the relationship between society and the individual. The areas studied are social groups, roles and statuses, institutions, social stratification, socialization, social change, and social policy.

SOC 211 Service Learning Project

2 Quarter Hours

Provides an opportunity for students to work on a service learning project that applies their professional skills in a civic assignment that addresses the needs of the community. The students work with the instructor to design, implement, and evaluate the project.

Prerequisite(s): ENG 102.

SOC 301 Social Problems

4 Quarter Hours

Analyzes social problems of contemporary society: drugs; poverty; environment; delinquency; and gender, race, and ethnic relationships, among others.

Prerequisite(s): SOC 201.

SOC 321 Cultural Diversity

4 Quarter Hours

Examines the social construction of groups based on race, ethnicity and national origin, religion, gender, age, sexual orientation, and able-bodiedness. Sociological (as well as psychological, historical, economic, and anthropological) perspectives are applied to concepts such as prejudice, stereotyping, discrimination, racial and ethnic identity, racial formation, power and privilege, assimilation and pluralism, and tolerance. Emphasis is on increasing knowledge, personal awareness, and sensitivity.

SOC 341 Global Perspectives

4 Quarter Hours

Examines the values and cultural contexts of global professional settings. Emphasis is on analyzing problems and possible solutions in global interactions.

SPANISH

SPN 101 Spanish I

4 Quarter Hours

Introduces the beginning study of Spanish designed for students with minimal or no experience in Spanish. The main goal of this course is to begin to learn to speak, read, write, and comprehend Spanish. Special emphasis is placed on developing communication skills and on increasing awareness of cultures in the Spanish-speaking world.

Prerequisite(s): ENG 091 or satisfies developmental writing or placement exam.

SPN 102 Spanish II

4 Quarter Hours

Continues beginning Spanish designed for students who have successfully completed SPN 101. This course continues to develop students ability to speak, read, write and comprehend Spanish. Special emphasis is placed on developing communication skills and on increasing awareness of cultures in the Spanish-speaking world.

Prerequisite(s): SPN 101 or 1 year high school Spanish.

SPN 103 Spanish III

4 Quarter Hours

Continues beginning Spanish designed for students who have successfully completed SPN 102. This course continues to develop the student's ability to speak, read, write and comprehend Spanish. Special emphasis is placed on developing communication skills and on increasing awareness of cultures in the Spanish-speaking world.

Prerequisite(s): SPN 102 or 2 years high school Spanish.

SPECIAL EDUCATION

SED 211 Essential Knowledge of Special Education for Paraprofessionals

4 Quarter Hours

Prepares students with the essential knowledge of special education laws and regulations including the certification process, the areas of disability, the acronyms used in special education, the IEP process, the difference between IDEA and Section 504, the difference between accommodations and modifications, and personal curricula. Minimum of a 'C' or better required.

Prerequisite(s): Student background check.

SED 221 Essential Roles for Paraprofessionals: P-12 Special Education

4 Quarter Hours
 Introduces students to the varied roles and responsibilities expected of paraprofessionals in P-12 special and general education settings. The course provides opportunities for exploring attributes of professionalism and practicing effective communication, incorporating profession related terminology. Students will examine various types of informal assessments: specific usage, effective administration and data interpretation. Implementation of IEP related accommodations and modifications will also be investigated. Includes 10 hours of observation and participation in a P-12 setting. Minimum of a 'C' or better required.
Prerequisite(s): Student background check.

SED 231 Behavior Management

3 Quarter Hours
 Teaches students about different behavior challenges that may be present within the P-12 classroom, as well as behavior management strategies and interventions to use with students who have these challenges. Students will learn how to collect data using various methods as well as explore different positive behavior supports to use with P-12 students to help meet their academic and social needs. Includes 10 hours of observation and participation in a P-12 setting. Minimum of a 'C' or better required.
Prerequisite(s): Student background check.

SED 236 Non-violent Crisis Intervention

1 Quarter Hour
 Provides training that focuses on preventative techniques and principles of non-harmful, physical intervention. Students will be taught proven strategies for safely defusing anxious, hostile, or violent behavior at the earliest possible stage, as well as how to respond appropriately during moments of chaos. Minimum of a 'C' or better required.
Prerequisite(s): Student background check.

SED 241 Low Incidence Disabilities

4 Quarter Hours
 Explores low incidence disabilities including defining and providing characteristics of students with cognitive impairments, Autism Spectrum Disorder, deafness, blindness, physical impairments, health impairments and other severe impairments. This course will also explore different techniques and methods for working with this population using research based strategies to support P-12 students academically, socially, and functionally. Additionally, students will analyze personal and team member characteristics necessary for working with students with high needs. Minimum of a 'C' or better required.
Prerequisite(s): Student background check.

SED 251 Assistive Technology for Special Settings

4 Quarter Hours
 Provide students with the skills necessary to effectively identify, evaluate, and implement assistive technology in the P-12 classroom. Students will experience different types of assistive technology ranging from high-tech to low-tech to be used with P-12 students to aid in adapting curriculum, facilitating communication, integrating effective practices, and assessing and evaluating. By the end of the course, students will be able to implement varying assistive technology devices with the individual and unique needs of P-12 students. Minimum of a 'C' or better required.
Prerequisite(s): Student background check.

SED 271 SED Practicum

4 Quarter Hours
 Prepares candidates to work as paraprofessionals in an educational setting. Includes 90 hours of observation and participation in P-12 classroom settings.
Prerequisite(s): EDU 200A, PSY 111 and student background check.

SPEECH COMMUNICATIONS

SPK 201 Oral Communication

4 Quarter Hours
 Develops confidence and skill in many facets of oral communication. Students explore diverse topics and formats, using both organization and research to support themselves during oral presentations.

SPK 205 Oral Interpretation of Literature

4 Quarter Hours
 Uses expressive reading to elicit listener response to the text using vocal and physical expression. The literature emphasized is prose, poetry, and drama, which is analyzed for meaning, mood, and rhythm.
Prerequisite(s): SPK 201.

SPK 211 Group Dynamics

4 Quarter Hours
 Prepares students to work effectively in groups. Students will collaborate to complete a group project and multiple presentations. Course content covers key concepts of group dynamics such as diversity, group roles, ethical issues, and conflict resolution. Students will hone group communication skills and effectively use technology to communicate with group members.
Prerequisite(s): EDU 312A or PSY 101 or PSY 111, SPK 201.

SPK 401A Professional Speaking

4 Quarter Hours
 Prepares students for 21st century technology-supported professional presentations. Addresses theory and practice of communication, preparation including research-based content development, organization of a message to achieve a desired outcome, audience and context analysis, presentation tools, and delivery. Consideration of diversity, ethics, and relevance to future careers are key components.
Prerequisite(s): SPK 201.

STERILE PROCESSING TECHNICIAN

SPT 101 Introduction to Sterile Processing

2 Quarter Hours
 Introduces students to the profession of sterile processing. In addition to professional and personal liability, other outcomes will include patient bill of rights, consents, surgical conscience, certification, alternate career paths for sterile processing technicians, national and state professional associations, legislation relating to both healthcare and the profession of sterile processing, and the governmental organizations that regulate hospitals and sterile processing departments. Teamwork, customer service, and cultural diversity will also be addressed. A research paper relating to the profession will be required.

SPT 188B Sterile Processing, Distribution, and Materials Management

4 Quarter Hours
 Familiarizes students with the role and function of the sterile processing technician. Particular emphasis is placed on the personal characteristics necessary for the role. Introduces students to the operation of the department, principles, and concepts related to sterilization and distribution, packaging and storage, modes of transmission of common diseases, standard precautions, safety measures in the department, and principles of asepsis.
Prerequisite(s): C or better in MED 103, C or better in SCI 100F, C or better in SPT 101, MTH 091 or satisfies developmental math or placement exam. Corequisite(s): SPT 192.

SPT 192 Surgical Instrumentation, Decontamination, and Sterilization (with Lab)

4 Quarter Hours
 Focuses on various specialties and the instrumentation associated with each. Identification, assembly, care, and handling of surgical instruments and equipment will be introduced. In addition, the basic principles of decontamination, sterilization, packaging, maintaining sterility, and storage will be addressed. Safety considerations and regulations will also be discussed. There is a laboratory component to this course. Students will gain hands-on experience cleaning, packaging, and wrapping surgical instrument sets for processing and distribution. This course consists of 20 hours of lecture and 40 hours of lab.
Prerequisite(s): C or better in MED 103, C or better in SCI 100F, C or better in SPT 101, MTH 091 or satisfies developmental math or placement exam. Corequisite(s): SPT 188B.

SUPPLY CHAIN MANAGEMENT

SCM 231 Transportation Management

4 Quarter Hours
 Provides students with an overview to all the aspects of transportation. Discusses the changes that took place with the Deregulation Act of 1980, JIT competition in the market place, and globalization of business. Also discusses how the transportation industry affects the success of corporations and national economic development. Provides an understanding of how transportation affects natural resources including land, water, and air. Course provides an insight into the career paths and the future for both the transportation industry and logistics managers.

SCM 242 Supply Chain Management

4 Quarter Hours

Provides a basic knowledge of the supply chain strategy and concepts and will give students an understanding of the analytical tools necessary to solve supply chain problems. Three key areas and their interrelationships are addressed which include the strategic role of the supply chain, key drivers of supply chain performance, and the analytical tools and techniques for supply chain analysis. Procurement, outsourcing, inventory models, supply chain distribution strategies, pricing, and revenue management are some of the key topics addressed.

Prerequisite(s): ECN 202.

SCM 251 Logistics Management

4 Quarter Hours

Presents an overview of logistics discussing the development and growth in this field. Further addresses the elements of a logistics system examining areas such as order management, customer service, domestic transportation systems, traffic management, inventory management, distribution centers, warehousing, and international logistics. This course concludes with examining the components used in analyzing, designing, and implementing a logistics system.

SCM 271 Intermodal Transportation

4 Quarter Hours

Offers an examination of the global market for domestic and international logistics and transportation services. This includes the role of shipping and air transportation in intermodal business logistics and their effect on world trade. Also covered are issues in the management of domestic, international, air, maritime, rail, and truck transportation.

Prerequisite(s): SCM 231.

SCM 301 Procurement and Supply Chain Management

4 Quarter Hours

Reviews procurement strategies and supply chain management from many different aspects including the firm's stakeholders and the impact of procurement and supply chain management on the competitive success of the organization. The major areas covered are ethical, contractual and legal issues faced by procurement; introduction to techniques and tools for managing the procurement and sourcing process; supplier selection and relationship management, and special purchasing applications and research.

Prerequisite(s): Junior status.

SCM 321 Manufacturing, Planning, and Control

4 Quarter Hours

Explores production planning, master scheduling, computer-integrated manufacturing, capacity planning and demand management. Just-in-time systems are also reviewed during this course.

Prerequisite(s): CIS 313A, MTH 401, Junior status.

SCM 401 Decision Modeling in Supply Chains

4 Quarter Hours

Reviews standard techniques commonly used within the industry in the development and use of classical inventory models. Advanced techniques utilizing optimization modeling will also be introduced. Students will use modeling to examine supply chain scenarios from case studies to assist them in their ability to make better decision about sourcing, manufacturing, transportation, warehousing, customer service and inventory management. Course assists students in their preparation for the APICS/CPIM certification.

Prerequisite(s): SCM 301 or SCM 321.

SCM 421 Advanced Topics in Supply Chain Management

4 Quarter Hours

Presents a current and future view of industry trends and direction of integrated logistics and supply chain management. Oral and written discussions based on student assessment of the industry in areas such as procurement strategies, strategic outsourcing, mitigation of supply chain risks, strategic allocation of inventories, transportation and distribution issues, scheduling and sequencing issues, and customer service issues will be complemented by guest lectures, webinars etc. in order to address a wide array of current, trending and advanced topics. Course assists students in their preparation for the APICS/CPIM certification.

Prerequisite(s): SCM 401.

SURGICAL TECHNOLOGY

STC 100 Overview of Surgical Services

2 Quarter Hours

Provides insight into the field of surgical technology, the healthcare environment and the values and ethics of the profession. 20 hours of lecture are required. Must complete with a B- or better.

STC 101A Introduction to Surgical Technology with Lab

5 Quarter Hours

Provides the fundamentals of practice for the surgical technologist. They will have a comprehensive knowledge of sterile techniques and asepsis, the instruments and supplies used in surgery, wound healing, and the importance of sterilization. There is a laboratory component within this course to allow students to practice and apply the concepts learned in this course. 40 hours of lecture and 20 hours of lab are required. Must complete with a B- or better.

Prerequisite(s): Acceptance in the program. Corequisite(s): STC 201A.

STC 201A The Surgical Patient

4 Quarter Hours

Provides an introduction to the biological, psychological, social, and cultural needs of the surgical patient during the perioperative experience. 40 hours of lecture are required. Must complete with a B- or better.

Prerequisite(s): Acceptance in the program. Corequisite(s): STC 101A.

STC 211A Surgical Pharmacology

4 Quarter Hours

Introduces students to basic types of anesthesia and the various agents used in the administration of anesthesia. Students will also become familiar with other types of pharmacologic agents that are used in the operating room and those specifically related to perioperative care. 40 hours of lecture are required. A minimum grade of B- or better is required. Must complete with a B- or better.

Prerequisite(s): B- or better in SCI 211, B- or better in STC 101A, B- or better in STC 201 or B- or better in STC 201A.

Corequisite(s): STC 221A, STC 231.

STC 221A Perioperative and Surgical Techniques

3 Quarter Hours

Continues content from STC101A enabling students to develop a foundation of knowledge in instrumentation, perioperative techniques, and intraoperative functions of the surgical technologist. Students will participate in mock procedures and identify specialized skills necessary to function and assist in the operating room. Students will demonstrate competency in perioperative surgical techniques. 60 hours of lab are required. Must complete with a B- or better.

Prerequisite(s): B- or better in SCI 211, B- or better in STC 101A, B- or better in STC 201 or B- or better in STC 201A.

Corequisite(s): STC 211A, STC 231.

STC 231 Surgical Procedures

6 Quarter Hours

Acquaints students with the different surgical sub-specialties which includes general surgery, gynecological and obstetrical surgery, ENT surgery, minor orthopedic and plastic surgery and urogenital surgery. Students will also be introduced to endoscopic, laparoscopic, and technology utilized in surgical procedures. Must complete with a B- or better.

Prerequisite(s): B- or better in SCI 211, B- or better in STC 101A, B- or better in STC 201 or B- or better in STC 201A.

Corequisite(s): STC 211A, STC 221A.

STC 232 Advanced Surgical Procedures and Topics

3 Quarter Hours

Continues the content of STC231 by addressing major orthopedic and plastic surgical procedures; as well as acquainting students with advanced procedures and future trends in surgical technology in the following sub specialties: neurological surgery, ophthalmic surgery, peripheral vascular surgery, cardiovascular surgery, thoracic surgery, and oral/maxillo surgery. Biomedical sciences will be addressed as well as laser surgery. Must complete with a B- or better.

Prerequisite(s): B- or better in STC 211A, B- or better in STC 221A, B- or better in STC 231. Corequisite(s): STC 271.

STC 271 Surgical Clinical Externship I

10 Quarter Hours

Develops clinical skills needed in an operating room. Students will actively participate in and assist with selected surgical procedures under the supervision of qualified personnel (32 clinical hours per week), for a total of 320 hours. Must complete with a B- or better. A student background check must be completed prior to this course STC271.

Prerequisite(s): B- or better in STC 211A, B- or better in STC 221A, B- or better in STC 231, Student background check.

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STC 272 Surgical Clinical Externship II

10 Quarter Hours

Helps students gain mastery of the specialized skills necessary to function in the operating room. Students will actively participate in and assist with a broad range of surgical procedures (32 clinical hours per week), for a total of 320 hours. Must complete with a B- or better.

Prerequisite(s): B- or better in STC 232, B- or better in STC 271. Corequisite(s): STC 291.

STC 291 Professional Preparation

3 Quarter Hours

Provides STC students with the needed preparation to complete the certification exam process. This course reinforces academic knowledge, professional accountability, independent decision making, and the critical nature of self-assessment. Students will explore alternate career options. The completion of a mock certification exam is required. This capstone course prepares the students to sit for the National Certification Exam. Must complete with a B- or better.

Prerequisite(s): B- or better in STC 232, B- or better in STC 271. Corequisite(s): STC 272.

THERAPEUTIC MASSAGE

MSG 101 Massage Therapy I

4 Quarter Hours

Introduces students to the principles and applications of Swedish Massage; along with a fundamental overview of the musculoskeletal system of the human body. Students will demonstrate the massage techniques utilized in Swedish Massage and be able to perform a full body massage. Students will develop a basic understanding of the major muscles of the human body and its skeletal system. 30 hours of lecture and 20 hours of lab are required.

MSG 102A Massage Therapy II

3 Quarter Hours

Broadens the student's experience by introducing more advanced techniques utilized in massage therapy. Students will be acquainted with and understand the essential principles of these bodywork systems. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 101.

MSG 111B Anatomy of Movement I

3 Quarter Hours

Provides an in-depth study of individual surface muscles, muscle groups, and the relationships to their skeletal attachments. Students will develop a high degree of understanding of the kinesthetic processes of the human body. Students will begin to assess clinical problems associated with kinesthetics. 20 hours of lecture and 20 hours of lab are required.

MSG 112A Anatomy of Movement II

3 Quarter Hours

Provides an in-depth study of individual deep muscles, muscle groups, nerves, and the relationships to their skeletal attachments. Students will develop a high degree of understanding of the kinesthetic processes of the human body. Students will begin to assess clinical problems associated with kinesthetics. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 111B.

MSG 121A Energy-Based Massage Techniques

3 Quarter Hours

Explores theories of the flow of energy. Students will be introduced to various energy-based modalities. 20 hours of lecture and 20 hours of lab are required.

MSG 141A Therapeutic Massage Techniques

3 Quarter Hours

Studies additional clinical issues that can be addressed by massage therapy techniques. This course offers a clinical approach to various areas of the body, addressing specific problems that cause pain and dysfunction. Critical thinking skills will be utilized in the assessment and care of musculoskeletal and soft tissue conditions. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 102A, B- or better in MSG 111B.

MSG 152 Business and Ethics for Massage Therapists

4 Quarter Hours

Focuses on the business marketing and ethical practices specifically encountered by massage therapists in the profession. Students will explore and determine the issues and solutions that will enhance

success in their own future professional career. Explores various unique ethical issues typically encountered in therapeutic massage practice. Appropriate personal, professional, social, and client relationships will be discussed.

Prerequisite(s): B- or better in MSG 102A.

MSG 161A Sports/Occupational Massage Techniques

3 Quarter Hours

Focuses on evaluation and care of common injuries and chronic conditions that develop as a result of sports or occupational activities. Students will be prepared to appropriately interact with other health professionals when dealing with clients in these situations. On-site seated massage and event massage will be addressed. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 141A.

MSG 171A Documentation for Therapeutic Massage

3 Quarter Hours

Introduces students to the principles, rationale, and application of professional documentation for the field of therapeutic massage. Legal aspects of proper documentation and effective communication skills with other healthcare professionals will be emphasized.

Prerequisite(s): B- or better in MSG 101.

MSG 201A Integrative Bodywork

3 Quarter Hours

Examines common clinical presentations in various soft tissues. Addresses the effects of diverse modalities when integrated into full body therapeutic massage. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 121A, B- or better in MSG 141A, B- or better in MSG 221B.

MSG 205A Complementary Modalities for the Massage Therapist

3 Quarter Hours

Introduces concepts of nutrition, wellness and natural health practices and explores complementary modalities and current trends in massage therapy. Students will identify how to integrate these modalities, their application and effects into their practice. 20 hours of lecture and 20 hours of lab are required.

Prerequisite(s): B- or better in MSG 121A, B- or better in MSG 141A, B- or better in MSG 221B.

MSG 211C Pathology and Pharmacology for Therapeutic Massage

3 Quarter Hours

Examines pathologies and common drug interactions that massage therapists encounter in professional practice.

MSG 220A Therapeutic Massage Lab I

2 Quarter Hours

Focuses on the introduction to the practice of therapeutic massage. Students will develop and practice the techniques they have learned by performing 20 complete massage therapy sessions on actual volunteer clients throughout the 40 hours of this course.

Prerequisite(s): B- or better in MSG 102A, B- or better in MSG 171A, B- or better in MSG 211C and Student background check.

MSG 221B Therapeutic Massage Lab II

2 Quarter Hours

Expands upon the principles introduced in Therapeutic Massage Lab I. Students will demonstrate more advanced assessment skills. This course continues the use of 30 volunteer clients within the learning process. Students will be supervised by instructors as they work throughout their 40 hours of work.

Prerequisite(s): B- or better in MSG 220A.

MSG 222B Therapeutic Massage Lab III

4 Quarter Hours

Expands upon the principles introduced in Therapeutic Massage Lab II. Students will demonstrate more advanced assessment skills. This course continues the use of 50 volunteer clients within the learning process. Students will be supervised by instructors as they work throughout their 80 hours of work.

Prerequisite(s): B- or better in MSG 221B.

MSG 231C Preparation for Licensure Examination

2 Quarter Hours

Review materials to prepare students for a nationally recognized licensing examination. This course is intended to evaluate student's preparedness for licensing examination.

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MSG 242 Therapeutic Massage Clinical Internship and Capstone

4 Quarter Hours

Continues the development of client interaction skills in a 3CR/90-hour professional clinical setting. A variety of experiential options will be available for students to select from. Students will be evaluated by on-site evaluators as well as massage therapy instructors. 1 credit didactic for capstone.

Prerequisite(s): B- or better in MSG 211C, B- or better in MSG 222B.

TRUCK DRIVING

TRN 101A CDL Preparation I

2 Quarter Hours

Introduces student drivers to the requirements, mandated by the State, that they must achieve prior to earning their Commercial Driver's License (CDL). Prepares students for the first step in achieving their CDL, which is the successful completion of the knowledge tests administered by the State of Michigan prior to the issuing of a Temporary Instructional Permit (TIP). Additional instruction provided for all endorsement knowledge tests with the exception of the "passenger" endorsement.

TRN 111 Basic Operation Procedures

4 Quarter Hours

Introduces student drivers to the basic skills required to operate a "big rig." Develops familiarity with driver techniques most often used in backing, parking, coupling, and uncoupling. This course is a combination of classroom/lecture and driving range instruction.

Prerequisite(s): DOT physical, NIDA 5 drug screen.

TRN 112A Safe Operating Procedures

2 Quarter Hours

Familiarizes students with safe operating practices and the perceptual skills required to operate a commercial vehicle under various driving conditions. Subject areas such as speed and space management, driving techniques for extreme conditions and evasive steering, and emergency braking techniques will be discussed. Students are also introduced to trip planning and life on the road including topics such as time management, personal health, personal budgets, route planning, road rage, and fatigue.

TRN 122 Vehicle Maintenance

2 Quarter Hours

Focuses on the function of key systems through a combination of classroom/lecture and driving range instruction; exposes students to pre-trip, en route and post-trip inspection requirements. Introduces preventive maintenance and vehicle servicing procedures. Prepares student drivers for Part I of the State Administered Skills exam.

Prerequisite(s): DOT physical, NIDA 5 drug screen.

TRN 131 Technology in Transportation

2 Quarter Hours

Exposes students to current innovations in transportation. Focus will be on Information Technology (IT) as it relates to cargo tracking, customer information, and global positioning. Qualcom systems and related hardware/software will be demonstrated. Software peculiar to the industry, such as driver management systems, dispatching programs, log checker and mileage maker will be introduced. Technologies in truck safety will also be discussed.

TRN 151 Practical Application-Behind the Wheel

5 Quarter Hours

Provides instruction in equipment that is comparable in size and power that is the industry norm. Instruction will normally occur on public streets and highways. Any combination of pre-planned routes and forced dispatch routing may be used to satisfy course outcomes. During at least 25% of street instruction the trailer will be loaded with a minimum of 15,000 pounds. Students will learn to use proper visual searches, communication techniques, speed management and space management. Practical basic operational skills will also continue to be addressed such as docking, drop and hooks, shifting, etc. Night operations are required. Majority of time at task is spent behind the wheel however some lab/classroom is involved. Students failing the course will not be eligible for 3rd Party State CDL exam and the PTDI Certificate of Attainment.

Prerequisite(s): TRN 111, current TIP issued by Michigan, USDOT medical exam/drug screen.

TRN 161 Practical Application for Decision Driving

1 Quarter Hour

Provides students with the opportunity to perform emergency/evasive maneuvers within a controlled environment. Students will learn to apply braking techniques, emergency steering, and how to manage skids

and jackknives. Students must meet all performance criteria. Students who fail this course will be disqualified from being eligible for the PTDI Certificate of Attainment. This course is offered off-site in Marshall, Michigan at the Decision Driving Course, commonly referred to as the skid pad.

TRN 201A CDL Preparation II

2 Quarter Hours

Focuses on the final preparation for students prior to sitting for his/her State Third Party CDL Test. This course concentrates on the final development of the walk-around-inspection, basic skills, and road skills required to successfully test for a Commercial Driver's License. A minimum of 10.5 hours behind-the-wheel instruction and 3.5 hours of lab in addition to classroom hours are required. It is also required that students pass all school practical final exams and pass the Third Party State CDL exam to successfully complete the course.

TRN 211 Regulations and Procedures

4 Quarter Hours

Surveys the development of the transportation industry from 1935 to the present day by examining the implementation of rules and regulations throughout the time period by various governmental agencies. Provides a fundamental understanding of the Federal Motor Carriers Safety Regulations from both an employee's and employer's perspective. Introduces proper procedures for completing driver's logs.

TRN 262A Career Experience I

2 Quarter Hours

Consists of a combination of learning experiences within the transportation field. Students may be directed to specific websites for training related to the truck driving field, may attend a defensive driving lecture and/or interview drivers of commercial motor vehicles, and may also be given the opportunity to ride along with a certified instructor in a commercial motor vehicle. Written tests are offered to prepare students for their Temporary Instructional Permit (TIP).

Prerequisite(s): Acceptance in the program.

TRN 263A Career Experience II

2 Quarter Hours

Provides students with additional exposure to the transportation field as a continuation of TRN262A. Students may be offered training on fork trucks, and load securement. Some campuses may offer double trailer training.

Prerequisite(s): Acceptance into the program.

VASCULAR TECHNOLOGY

VAS 101A Peripheral Vascular Procedures

4 Quarter Hours

Provides students with an overview of the fundamentals of noninvasive peripheral vascular testing. Emphasis will be on the basic understanding of various testing modalities, techniques, limitations, and interpretative guidelines used in noninvasive peripheral vascular evaluations. This course will provide students with their first hands-on lab experience.

VAS 106B Introduction to Clinical Practice

4 Quarter Hours

Prepares VAS students for their first clinical rotation by demonstrating competency in completing a basic vascular history, physical examination, and obtain proficiency in basic scanning skills. Theory and practice will include history taking, recognition of signs and symptoms, and palpating pulses. Proper technologist ergonomics will be implemented. Principles learned in course will prepare the student for their first clinical experience.

Prerequisite(s): Acceptance in the program.

VAS 111A Introduction to Vascular Ultrasound

3 Quarter Hours

Introduces the role of the vascular technologist as a member of the health care team. Emphasis is placed on professional growth and development as well as ethical and attitude qualities of the technologist as a medical professional. Occupational health issues related to diagnostic ultrasound, will also be presented. Basic vascular terminology will be introduced.

Prerequisite(s): B- or better in VAS 101A, acceptance in the program.

VAS 121 Vascular Physics and Hemodynamics

4 Quarter Hours

Presents basic principles of ultrasound physics, the Doppler effect, and physical principles related to physiologic (non-imaging) studies. This course focuses on arterial and venous hemodynamics and

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physiologic factors that govern blood flow. Analysis of blood flow characteristics obtained through a variety of imaging and non-imaging studies will provide an assessment of the circulatory system.

Prerequisite(s): B- or better in VAS 111A. Corequisite(s): VAS 201, VAS 231A.

VAS 201 Venous Ultrasound

4 Quarter Hours

Covers diagnostic testing techniques and interpretative guidelines utilized in the evaluation of peripheral venous disease. This course begins with a review of venous anatomy and pathophysiology and incorporates signs and symptoms, risk factors, mechanisms of disease as well as treatment options.

Prerequisite(s): B- or better in VAS 111A. Corequisite(s): VAS 121, VAS 231A.

VAS 211 Carotid Ultrasound

4 Quarter Hours

Provides an understanding of diagnostic testing techniques and interpretative guidelines utilized in the evaluation of extracranial cerebrovascular disease. This course begins with a review of arterial anatomy and pathophysiology and incorporates signs and symptoms, risk factors, mechanisms of disease as well as treatment options.

Prerequisite(s): B- or better in VAS 121, B- or better in VAS 201. Corequisite(s): VAS 232A.

VAS 221 Arterial Ultrasound I

4 Quarter Hours

Covers diagnostic testing techniques and interpretative guidelines utilized in the evaluation of peripheral arterial disease, i.e. non-imaging/physiologic studies. This course begins with a review of arterial anatomy and pathophysiology and incorporates signs and symptoms, risk factors, mechanisms of disease as well as treatment options.

Prerequisite(s): B- or better in VAS 201. Corequisite(s): VAS 211.

VAS 222 Arterial Ultrasound II

4 Quarter Hours

Covers advanced diagnostic testing techniques and interpretative guidelines utilized in the evaluation of peripheral arterial disease, i.e. imaging studies. This course begins with a review of arterial anatomy and pathophysiology and incorporates signs and symptoms, risk factors, mechanisms of disease, and treatment options.

Prerequisite(s): B- or better in VAS 211, B- or better in VAS 221. Corequisite(s): VAS 233A.

VAS 231A Vascular Ultrasound Clinical Experience I

6 Quarter Hours

Provides the opportunity for learning basic skills in performing noninvasive vascular evaluations in the clinical setting. A basic understanding of the operation of a diagnostic facility is also provided. This is the first of three structured clinical courses that directs students through progressive levels of experience: observation, participation under personal supervision, provision of care under direct supervision, and more independent functioning under general supervision. This is a 12 week rotation and includes a minimum of 180 hours of clinical and 40 hours of lab.

Prerequisite(s): B- or better in VAS 111A, Student background check. Corequisite(s): VAS 121, VAS 201.

VAS 232A Vascular Ultrasound Clinical Experience II

6 Quarter Hours

Provides the opportunity for learning more advanced skills in performing noninvasive vascular evaluations in the clinical setting. A more in-depth understanding of the operation of a diagnostic facility is also provided. This is the second of three structured clinical courses that directs students through progressive levels of experience: observation, participation under personal supervision, provision of care under direct supervision, and more independent functioning under general supervision. This is a 12 week rotation and includes a minimum of 180 hours of clinical and 40 hours of lab.

Prerequisite(s): B- or better in VAS 231A. Corequisite(s): VAS 211, VAS 221.

VAS 233A Vascular Ultrasound Clinical Experience III

6 Quarter Hours

Provides the opportunity for learning more advanced skills in performing noninvasive vascular evaluations in the clinical setting. More in-depth scanning skills of the diagnostic facility is also provided. This is the third of three structured clinical courses that directs students through progressive levels of experience: observation, participation under personal supervision, provision of care under direct supervision, and more independent functioning under

general supervision. Students will be expected to apply critical thinking skills and demonstrate mastery level in all areas of vascular ultrasound. A mock registry for vascular technology will be presented, incorporating the major concepts presented in all previous courses. This is a 12 week rotation and includes a minimum of 180 hours of clinical and 40 hours of lab.

Prerequisite(s): B- or better in VAS 232A. Corequisite(s): VAS 222.

VETERINARY TECHNOLOGY

VET 101A Introduction to Veterinary Technology

5 Quarter Hours

Introduces students to the veterinary technology occupation. Emphasis is placed on regulatory and ethical issues, office procedures, handling and restraint of animals, sanitation, breed identification, and laboratory issues. 40 hours of lecture and 20 hours of lab are required for this course.

Prerequisite(s): B- or better in SCI 111.

VET 112 Animal Anatomy and Physiology I

5 Quarter Hours

Introduces students to the fundamentals of chemistry essential for life. Introduces cellular biology and histology. Emphasizes the study of the structure and function of the integumentary system, skeletal system, muscular system, nervous system, and the endocrine system. Medical terminology will be studied throughout this course.

Laboratory work may include the use of a microscope, experiments/demonstrations in physiologic principles and the dissection of animal parts. 40 hours of lecture and 20 hours of lab are required. A grade of B- or better is required in this course for application to the professional track of the veterinary technology program.

Prerequisite(s): B- or better in SCI 111.

VET 113 Animal Anatomy and Physiology II

5 Quarter Hours

Emphasizes the structure and function of the circulatory, lymphatic, respiratory, urinary, digestive, and reproductive systems. The autonomic and endocrine control of these systems and immunity will also be discussed. Medical terminology and laboratory sessions will be a continuation of Animal Anatomy and Physiology I. 40 hours of lecture and 20 hours of lab are required. A grade of B- or better is required in this course for application to the professional track of the veterinary technology program.

Prerequisite(s): B- or better in VET 112.

VET 121A Veterinary Pathology

4 Quarter Hours

Presents a study of veterinary diseases and zoonoses. Emphasis is placed on identification and classification of diseases, diagnosis, methods of transmission, prevention of disease, and treatment modalities. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): Acceptance in the program. Corequisite(s): VET 131A.

VET 131A Introduction to Animal Diagnostic Laboratory Procedures

5 Quarter Hours

Presents an introduction to the principles and procedures for the veterinary practice laboratory. Emphasis is placed on microscopy, interpretation of microscopic observations, laboratory safety, quality control principles and practices, technical skills in hematology, cytology, clinical chemistry, serology, parasitology, and urinalysis. 40 hours of lecture and 20 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): Acceptance in the program. Corequisite(s): VET 121A.

VET 141 Introduction to Animal Surgical Procedures/Nursing

6 Quarter Hours

Provides an orientation to nursing care and surgical procedures in the veterinary practice. Emphasis is placed on the care of the patient and equipment, examination room procedures, pharmacology for animals including drug laws, administration of medications to animals, and surgical procedures including anesthesia. 40 hours of lecture and 40 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): Acceptance in the program.

VET 201 Radiology for Veterinary Technicians

2 Quarter Hours

Prepares students to safely and effectively produce diagnostic radiographic and non-radiographic images. Emphasis will be placed on decision-making abilities such as determining diagnostic quality,

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exercising professional judgment to minimize personnel radiation exposure, understanding the proper anatomical landmarks for positioning patients for diagnostic images, and equipment maintenance. 10 hours of lecture and 20 hours of lab are required.

Prerequisite(s): Acceptance in the program.

VET 211A Advanced Animal Diagnostic Laboratory

5 Quarter Hours

Provides advanced study in the principles and procedures for the veterinary practice laboratory. Emphasis is placed on hematology, cytology, parasitology, urinalysis, microbiology, and prosection. 40 hours of lecture and 20 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 121A, C or better in VET 131A, C or better in VET 201.

VET 221 Large and Small Animal Nursing

6 Quarter Hours

Presents nursing procedures on large and small animals to be performed in clinical, laboratory, or farm settings. Emphasis is placed on preparation and assisting of the physical exam, administering medications including injections, venipuncture, catheterization, collection of laboratory specimens, bandaging techniques, and care of the critical patient. 40 hours of lecture and 40 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 121A, C or better in VET 131A, C or better in VET 141, C or better in VET 201. Corequisite(s): VET 231.

VET 231 Pharmacology for Veterinary Technicians

6 Quarter Hours

Provides further study in the area of veterinary drugs and medicines. Emphasis is placed on classification of drugs and medicines, calculating dosages, administering and dispensing drugs and medicines, legal issues, and recordkeeping. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 121A, C or better in VET 131A, C or better in VET 141, C or better in VET 201. Corequisite(s): VET 221.

VET 241A Laboratory and Exotic Animals

5 Quarter Hours

Provides an overview of the study of exotic animals and animals used in research. Emphasis is placed on the selection and procurement of animals, safety and health considerations, legal regulations, and policies on the care and use of laboratory animals, husbandry, care, and importance of environment. 40 hours of lecture and 20 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 211A, C or better in VET 221, C or better in VET 231.

VET 251 Office Management and Client Relations

5 Quarter Hours

Provides training in the management of veterinary facilities. Emphasis is placed on client relations, records maintenance, obtaining a patient history, medical emergencies, and bereavement. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 211A, C or better in VET 221, C or better in VET 231.

VET 261 Advanced Animal Surgical Procedures/Anesthesiology

6 Quarter Hours

Provides advanced study and practice in surgical assisting, postoperative care, anesthesiology, and dentistry. 30 hours of lecture and 60 hours of lab are required. A grade of C or better must be maintained to satisfactorily complete this course.

Prerequisite(s): C or better in VET 211A, C or better in VET 221, C or better in VET 231.

VET 271A Veterinary Technician Board Review

3 Quarter Hours

Emphasizes the preparation of students for the licensing exam. This class is taken along with the Veterinary Technician Externship course. A grade of C or better must be maintained to satisfactorily complete this course. This is a capstone course.

Corequisite(s): VET 272A.

VET 272A Veterinary Technician Externship

6 Quarter Hours

Requires students to complete a minimum of 240 hours of unpaid work experience in a veterinary facility under the supervision of a veterinarian. Students will perform administrative and clinical

duties that may include but are not limited to: admission and preparation of animals for a veterinary examination, record keeping, administration of medications, performance of routine laboratory procedures, performance of radiologic testing, assisting in surgery, and the maintenance of anesthesia. This occupation-based instruction will be implemented through the use of written individualized training plans, written performance evaluations, and required on-the-job training. A grade of C or better must be maintained to satisfactorily complete this course. This is a capstone course.

Prerequisite(s): C or better in VET 241A, C or better in VET 251, C or better in VET 261. Corequisite(s): VET 271A.

VMWARE CERTIFIED PROFESSIONAL

VCP 201 VMware vSphere: Install, Configure, Manage

4 Quarter Hours

Explores the installation, configuration and management of VMware vSphere. The course is based on ESXi and vCenter Server and gives students practical lab experience in installing vSphere components; configuring and managing ESXi networking and storage using vCenter Server; deploying, managing and migrating virtual machines; monitoring ESXi resources; and using vCenter to manage high availability and data protection of virtual systems. Completion of this course satisfies the prerequisite for taking the VMware Certified Professional 5 certification examination.

Prerequisite(s): LUX 205 or MNP 171A, NET 102.

VCP 202 VMware View: Install, Configure, Manage

4 Quarter Hours

Builds skills in the VMware View suite of products, which includes VMware View Manager, View Composer and VMware ThinApp. Students will gain experience in installing and configuring View components; creating and managing dedicated and floating desktop pools, deploying and managing linked-clone virtual desktops; configuring user profiles with View Persona management; configuring secure access to desktops through a public network; and using ThinApp to package applications

Prerequisite(s): VCP 201.

VCP 211 VMware vSphere: Troubleshooting

4 Quarter Hours

Focuses on providing students with advanced knowledge, skills and abilities to achieve competence in troubleshooting the VMware vSphere virtual infrastructure. Students perform labs teaching them to diagnose and rectify configuration problems with VMware ESXi hosts and vCenter Server. Skills taught include using the VMware vSphere Management Assistant appliance to rectify problems; using a network sniffer to capture and display virtual switch network traffic; and using vSphere Client and command-line tools to troubleshoot VMware vMotion, VMware Storage vMotion, VMware High Availability, VMware Distributed Resource Scheduler and virtual machine power-on problems. Completion of this course satisfies the prerequisite for taking the VMware Certified Professional 5 certification examination.

Prerequisite(s): VCP 201.

VCP 212 VMware vSphere: Manage for Performance and Security

4 Quarter Hours

Combines topics from two VMware courses and gives students additional training in monitoring and managing performance as well as best practices for the secure design, deployment and operation of in the VMware vSphere environment. Skills taught include using vSphere tools to monitor performance of ESXi hosts; diagnose performance problems relating to CPU, memory, network and storage on ESXi hosts; achieving optimal virtual machine configurations; identifying vulnerabilities and recommending corrective actions in the design of a vSphere environment; hardening vSphere components as described in the vSphere Hardening Guide; and recommending configuration and change management policies, processes and systems.

Prerequisite(s): VCP 211.

WATER QUALITY MANAGEMENT

WQ 111 Utility Equipment Operations and Maintenance

4 Quarter Hours

Provides basic knowledge of mechanical equipment and repair techniques used in both water and wastewater plants and distribution systems. Students will learn about pumps, valves, piping systems, chemical feed systems, and controls. Provides students with safety and operational experience on backhoes, skid steer loaders, and forklifts.

Prerequisite(s): MTH 109, SCI 121, SCI 246.

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WQ 121 Water and Wastewater Laboratory Techniques

2 Quarter Hours

Introduces conventional water and wastewater laboratory analytical techniques and instrumentation. Tests will include bacteriological, BOD, Solids (Suspended, Total Dissolved and Volatile), DO, pH, alkalinity, conductivity, Total Residual Chlorine, Temperature and other system related analyses. Students will complete laboratory analyses in each of these areas. 10 hours of lecture and 20 hours of lab required.

Prerequisite(s): MTH 109. Corequisite(s): SCI 121, SCI 246.

WQ 131 Applied Hydraulics and Statics

4 Quarter Hours

Examines the applied hydraulic and statics principles used in water distribution and collection systems. Includes flow measurement, head-loss, pipes, valves, pumps, cross connection controls, corrosion, and metering. Students will examine principles of pressure, hydraulic grade lines, pump curves, and storage. 20 hours of lecture and 40 hours of lab required.

Prerequisite(s): MTH 109, SCI 121, SCI 246.

WQ 141 Water Regulations, Reporting, Compliance

4 Quarter Hours

Addresses the applicable state and federal regulations related to utility operational reporting. The course will focus on compiling and interpreting laboratory analytical information into report format for the agencies as well as methods for determining accuracy of laboratory data (QA/QC) and follow up to incidents of non-compliance with regulations.

Prerequisite(s): WQ 121.

WQ 151 Water Treatment Principles

4 Quarter Hours

Examines conventional drinking water treatment technologies: preliminary treatment, coagulation and flocculation, sedimentation, clarification, filtration and disinfection. Students will complete laboratory analyses in each of these areas. Students will complete laboratory analyses in each of these areas. 20 hours of lecture and 40 hours of lab required.

Prerequisite(s): WQ 121, WQ 131.

WQ 161 Wastewater Treatment Technology

4 Quarter Hours

Addresses the fundamentals of wastewater treatment: screening, grit removal, primary sedimentation, activated sludge, secondary clarification, nutrient removal, disinfection. Includes methods for determining efficiency of unit operations. Students will complete laboratory analyses in each of these areas. 20 hours of lecture and 40 hours of lab required.

Prerequisite(s): WQ 121, WQ 131.

WQ 171 Utility Management

4 Quarter Hours

Focuses on planning, accounting and budgeting, rate structures and billing, staffing, safety, employee relations, interagency communications all related to the overall operation of a water or wastewater utility.

WEB DEVELOPMENT

WEB 111B Introduction to HTML

4 Quarter Hours

Introduces concepts in website development using Hypertext Mark-up Language (HTML) and other components such as Cascading Style Sheets (CSS) and Javascript. Topics will include: evolution of web development, website design concepts, standard HTML techniques, and trends in the field of web Development.

WEB 121A World Wide Web Design

4 Quarter Hours

Instructs students in the creation of a website and in the use of web page development tools. Students apply their skills in the creation of web pages using text, graphics, tables, and frames. This course will enable students to create their own web pages and websites for publishing information on the Internet. Emphasis on effective design and layout of web pages and sites is provided.

Prerequisite(s): Any INF course or WEB 111B.

WEB 131 Web Development I

4 Quarter Hours

Provides a foundation in website development through practice and hands-on activities. Students prepare web-based solutions through thoughtful, structured design with a focus on content structure as

well as presentation. Web pages are developed using current methodology including CSS and HTML5.

Prerequisite(s): WEB 111B.

WEB 132 Web Development II

4 Quarter Hours

Provides professional level website development through practice and hands-on activities. Students prepare professional level web-based solutions for multiple Internet capable devices through thoughtful, structured design with a focus on content structure as well as presentation. Web pages are developed using current enhanced methodology including JavaScript and jQuery.

Prerequisite(s): WEB 131.

WEB 201 Web Multi-Media

4 Quarter Hours

Introduces students to web-development tools for animation. Enables students to produce websites with interactive objects, graphics, and animation.

Prerequisite(s): WEB 111B.

WEB 211 Web Scripting

4 Quarter Hours

Focuses on the skills in utilizing Java-script and HTML. Enables students to integrate Java-script and HTML to create interactive websites that include pop-up windows, pop-up menus, and image rollovers. This course includes working with forms, images, frames, windows and cookies.

Prerequisite(s): WEB 111B, CS 111.

WEB 221 Interactive Web Design

4 Quarter Hours

Enables students to work with CGI/scripts for creating interactive web applications. Students will install and modify scripts as part of site development projects. The course also includes web-database integration.

Prerequisite(s): WEB 211.

WEB 222 Internet Commerce

4 Quarter Hours

Provides students with exposure to how websites are used by businesses. Students will develop retail storefronts, marketing and customer service sites, intranets, and extranets to apply the technical learning from the previous classes and to understand how businesses can use these tools. At the end of this course, students will be able to effectively plan how a website fits a company's strategy and will have developed a portfolio of website designs.

Prerequisite(s): WEB 221.

WEB 231 Server-Side Programming

4 Quarter Hours

Introduces students to the fundamentals of using alternative server-side technology such as PHP to produce interactive websites, site development, and database integration.

Prerequisite(s): WEB 221.

WEB 241 ActionScript Programming

4 Quarter Hours

Provides experienced Flash designers with the knowledge and hands-on practice they need to create event-driven animation and interactive web elements. Introduction of core ActionScript concepts is also included.

Prerequisite(s): WEB 201.

WEB 321 Web Application Development Tools

4 Quarter Hours

Instructs students in the use of Individual Development Environments (IDE) to develop web applications. Students will use development tools to create interfaces to databases.

Prerequisite(s): CIS 351, WEB 121A.

WEB 322 Web Application Development Programming

4 Quarter Hours

Covers the use of programming languages such as Perl, PHP, and Python to interface databases to create interactive web applications. Students will create interfaces to relational databases such as Oracle and MySQL.

Prerequisite(s): WEB 321.

WEB 331 Java Enterprise Edition

4 Quarter Hours

Expands on development of web applications by introducing J2EE technologies including JavaServer Pages (JSP), Servlets, Enterprise Java Beans (EJB), Java Message Service (JMS) API, and other ancillary

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technologies like JDBC and JNDI. Students will use these technologies to create interactive, database-driven web applications.
Prerequisite(s): CS 242.

WEB 361 Web Server Administration 4 Quarter Hours

Provides students with the opportunity to administer a web server. Issues such as selecting server hardware and software will be reviewed. Also, students will learn how to control access to websites, setup e-mail aliases and related services. Students will gain experience in working with and analyzing site statistics. The procedures for the online marketing of websites will also be covered. This course will prepare students to establish and manage a web server.

Prerequisite(s): Acceptance in the BCS, BTS or BWD program.

WEB 411 Web Usability Design 4 Quarter Hours

Provides students with the understanding of usability design and examines usability issues such as architecture, navigation, graphical presentation, and page structure. Explains the steps relevant to incorporating usability into every stage of the web development process, from requirements to tasks analysis, prototyping and mockups, to user testing, revision, and post launch evaluations. Students will demonstrate these skills in the design and redesign of their own projects.

Prerequisite(s): WEB 222.

WEB 421 Web Portals 4 Quarter Hours

Addresses the design, use, and development of web portals. An enterprise portal is a single web location from which many services and communicative systems are accessed. Students will work with web portal technologies to design and implement a web portal.

Prerequisite(s): WEB 331, WEB 361, WEB 411.

WEB 431 Enterprise Web Applications 4 Quarter Hours

Provides students with a capstone class that focuses on using knowledge gained in previous classes to create an enterprise web application.

Prerequisite(s): WEB 421.

WELDING

WELD 101 Welding Principles 4 Quarter Hours

Presents an overview of the welding profession with a focus on basic blueprint reading, basic electrical principles, safety procedures, equipment, and applied mathematics used in welding applications.

Prerequisite(s): MTH 091 or Satisfy Developmental Ess Math or placement exam.

WELD 111A Cutting and Oxy-fuel Welding 5 Quarter Hours

Provides students with the opportunity to safely use equipment to perform Oxy-Acetylene Welding and Cutting (OAW) (OFC-A), and Plasma Arc Cutting (PAC) to cut metal and produce quality welds. 20 hours of lecture and 60 hours of lab are required.

Corequisite(s): WELD 101.

WELD 116 Gas Metal Arc Welding 5 Quarter Hours

Provides students with the opportunity to safely use equipment to perform Gas Metal Arc Welding (GMAW/MIG), and Flux Cored Arc Welding (FCAW) to produce quality welds. 20 hours of lecture and 60 hours of lab are required.

Corequisite(s): WELD 101.

WELD 121 Gas Tungsten Arc Welding 5 Quarter Hours

Provides students with the opportunity to safely use equipment to perform Gas Tungsten Arc Welding (GTAW) to produce quality welds. 20 hours of lecture and 60 hours of lab are required.

Prerequisite(s): WELD 111A.

WELD 126 Shielded Metal Arc Welding 5 Quarter Hours

Provides students with the opportunity to safely use equipment to perform Shielded Metal Arc Welding (SMAW) to produce quality welds. 20 hours of lecture and 60 hours of lab are required.

Corequisite(s): WELD 101.

WELD 131 Metallurgy

4 Quarter Hours

Provides students with a better understanding of the effects of alloying elements on the welding process. Students will gain knowledge of the physical and chemical behavior of metal under various welding conditions. Weld testing methods will be studied as well as specialty welding processes that are used within the welding industry today.

WELD 191 Welding Practicum

4 Quarter Hours

Provides students with the opportunity to use their welding skills to complete various metal projects. 80 hours of lab are required. Must complete with a C (73%) or better in order to count toward the Certificate or Associate Degree program in Welding.

Prerequisite(s): WELD 116, WELD 121, MTH 091 or satisfies developmental essential math concepts or placement exam.

WELD 201 Advanced Welding Principles

4 Quarter Hours

Builds upon the knowledge obtained in WELD101 to include non-destructive testing.

Prerequisite(s): WELD 101.

WELD 211 Advanced Welding and Cutting Processes

5 Quarter Hours

Examines specialty welding processes and techniques including pipe welding and thermal cutting as well as issues of sustainability and other environmental aspects. 10 hours of lecture and 80 hours of lab are required.

Prerequisite(s): WELD 191.

WELD 221 Welding Fabrication Practicum I

4 Quarter Hours

Introduces students to techniques in welding fabrication presenting an opportunity for students to create metal structures from design documents and specifications. Jigs, fixtures, and rigging techniques will be covered. 80 hours of lab are required.

Prerequisite(s): WELD 191.

WELD 222 Welding Fabrication Practicum II

4 Quarter Hours

Continues the practical approach to fabrication introduced in the previous course. Students will fabricate increasingly complex structures while considering costs, materials, and labor in the overall process. 80 hours of lab are required.

Prerequisite(s): WELD 221.

WELD 241 Technical Drawing and Design

4 Quarter Hours

Continues the exploration of blueprint reading and interpretation with a focus on drawing in 2D and 3D formats, cost estimation, vendor selection, project design, project management, and client presentations.

Prerequisite(s): WELD 101, MTH 091 or satisfies developmental essential math concepts or placement exam.

WELD 296 Welding Certification I

1 Quarter Hour

Presents a practicum experience designed to prepare for and obtain welding certification(s) from the American Welding Society (AWS).

Prerequisite(s): Program Director/Dean approval.

WELD 297 Welding Certification II

1 Quarter Hour

Presents a practicum experience designed to prepare for and obtain welding certification(s) from the American Welding Society (AWS).

Prerequisite(s): Program Director/Dean approval.

WELD 298 Welding Certification III

1 Quarter Hour

Presents a practicum experience designed to prepare for and obtain welding certification(s) from the American Welding Society (AWS).

Prerequisite(s): Program Director/Dean approval.

WELD 299 Welding Certification IV

1 Quarter Hour

Presents a practicum experience designed to prepare for and obtain welding certification(s) from the American Welding Society (AWS).

Prerequisite(s): Program Director/Dean approval.

WORK EXPERIENCE

WRK 215 Paralegal Work Experience

4 Quarter Hours

Requires students to perform 120 hours of paid/unpaid work experience in a legal setting. General paralegal duties will be performed.

Prerequisite(s): ENG 102, PAR 101, PAR 113A, PAR 131A, minimum GPA 2.00, Sophomore status, Program Director/Dean approval.

WRK 218 Work Experience Project

4 Quarter Hours

Provides twelve-weeks of intensive career research for Online campus students, who cannot obtain an internship, the opportunity to conduct intensive career research based on their major and career goals.

Students will complete multiple career related research assignments, including two informational interviews. Eligible students must complete a minimum of 48 credit hours and 75 percent of major core requirements prior to requesting enrollment in this course.

Enrollment is allowed by permission from the Online Career Services (OCS) staff. Contact the OCS staff at careerserv-ol@baker.edu for more details.

Prerequisite(s): ENG 102, minimum GPA 2.00.

WRK 221 Medical Assistant Externship

4 Quarter Hours

Requires students to perform a minimum of 180 hours of unpaid work experience in an outpatient medical facility performing clinical and administrative duties. A grade of C or better is required in all core MED classes.

Prerequisite(s): ENG 102, MED 185, MED 208, MED 218B, MED 220C, minimum GPA 2.50, Program Director/Dean approval. Corequisite(s): HSC 102, MED 291A, WRK 291B.

WRK 225 Phlebotomy Externship

4 Quarter Hours

Requires students to perform 120 hours of paid/unpaid work experience, which may combine blood drawing experiences at various sites, including hospital inpatient, hospital outpatient, outreach sites and physician offices under supervision of qualified personnel. Students must perform a minimum of 120 successful blood draws.

Prerequisite(s): ENG 101, B- or better in MLT 111, minimum GPA 2.50, Program Director/Dean approval, Student background check. Corequisite(s): MED 225A.

WRK 227 Sterile Processing Technician Externship

4 Quarter Hours

Requires students to perform 160 hours of paid/unpaid work experience. Provides supervised work experience to enable students to apply the skills acquired in SPT188A and SPT192 in a clinical setting. Students will actively participate in the process of decontamination, sterilization, and distribution of sterile instruments and supplies.

Prerequisite(s): ENG 101, SPT 188B, SPT 192, minimum GPA 2.50, Program Director/Dean approval, Student background check.

WRK 228 Coding Externship

4 Quarter Hours

Provides 180 hours of supervised, paid/unpaid, work experience. This work experience will acquaint students with inpatient and outpatient physician coding and billing practices. Students will apply course room applications relative to reimbursement and coding of inpatient/outpatient records thereby reinforcing and correlating their classroom instruction. Students must complete all MIS and CCP courses prior to externship.

Prerequisite(s): ENG 101, MIS 201A, minimum GPA 2.50, Program Director/Dean approval. Corequisite(s): CCP 261, INF 113, PSY 101 or PSY 111.

WRK 261 Medical Insurance Specialist Externship

4 Quarter Hours

Provides 160 hours of supervised, unpaid work experience. This work experience will acquaint students with outpatient physician billing, outpatient hospital facility billing, durable medical equipment billing, and home health billing and allow students hands-on experience to reinforce their classroom instruction. Students must complete all MIS and MED courses, HSC104 and SCI100E with a C or better prior to completing externship.

Prerequisite(s): ENG 102, MIS 201C, MIS 211A, minimum GPA 2.50, Program Director/Dean approval. Corequisite(s): MIS 291A, WRK 291B.

WRK 265 Kitchen and Bath Design Work Experience

4 Quarter Hours

Requires students to perform a minimum of 160 hours of paid/unpaid, work experience at a kitchen and bath design studio that is a member of the National Kitchen and Bath Association.

Prerequisite(s): Program Director/Dean approval, ENG 101.

WRK 271A Automotive Work Experience

4 Quarter Hours

Consists of a 140-hour minimum paid/unpaid, hands-on experience, working in an automotive repair facility. This work experience will focus on the State of Michigan certification areas and is intended to supplement the hours spent in courses on campus for the purpose of attaining at least minimum competency.

Prerequisite(s): ENG 102 (Associate Degree), ENG 101 (Certificate), minimum GPA 2.00, Program Director/Dean approval.

WRK 273 MOPAR CAP Internship I

4 Quarter Hours

Consists of a 540-hour minimum paid, hands-on experience, working in an automotive repair facility. This work experience will focus on all aspects of automotive service and is intended to supplement the hours spent in courses on campus for the purpose of attaining at least minimum competency.

Prerequisite(s): ENG 101, minimum GPA 2.00, Program Director/Dean approval.

WRK 274 MOPAR CAP Internship II

4 Quarter Hours

Consists of a 540-hour minimum paid, hands-on experience, working in an automotive repair facility. This work experience will focus on all aspects of automotive service and is intended to supplement the hours spent in courses on campus for the purpose of attaining at least minimum competency.

Prerequisite(s): ENG 102, minimum GPA 2.00, Program Director/Dean approval.

WRK 275 Diesel Work Experience

4 Quarter Hours

Consists of a 140-hour minimum paid/unpaid, hands-on experience, working in a diesel repair facility. This work experience will focus on the State of Michigan certification areas and is intended to supplement the hours spent in courses on campus for the purpose of attaining at least minimum competency.

Prerequisite(s): ENG 102 (Associate Degree), ENG 101 (Certificate), minimum GPA 2.00, Program Director/Dean approval.

WRK 280 9-1-1 Fieldwork

1 Quarter Hour

Provides students with an opportunity to observe 9-1-1 dispatch operations for 30 hours as a way to begin integrating the academic experience into practice.

Prerequisite(s): ENG 102, CRJ 101, CRJ 111, minimum GPA 2.50, Student background check, Program Director/Dean approval. Corequisite(s): CRJ 112, WRK 291B.

WRK 291B Professional Career Strategies

1 Quarter Hour

Covers all phases of securing employment in a required seminar. Major topics include resume preparation, interview strategy, job application, job search action planning, personal appearance, and coordination of the graduate's employment search activity with the College Career Services Office. Students in degree programs may complete the seminar requirement any time during their final two quarters. Certificate students should attend in their last quarter.

Prerequisite(s): Sophomore status.

WRK 301 Internship

4 Quarter Hours

Provides a 120-hour bachelor's level, learning experience in a business or technical environment structured to allow students to further develop skills and gain training in their major field.

Prerequisite(s): ENG 102, minimum GPA 2.00, Junior status, Program Director/Dean approval.

WRK 411 Graphic Communications Field Experience

4 Quarter Hours

Provides a senior level paid/unpaid, work experience (minimum of 120 hours) designed to provide students the opportunity to apply the skills acquired in the graphic communications major.

Prerequisite(s): ENG 102, DMD 401, minimum GPA 2.00, Program Director/Dean approval.

WRK 421 Construction Management Field Experience

4 Quarter Hours

Provides students with work experience as interns under the supervision of construction professionals, minimum of 120 hours. Students will become familiar with many phases of construction under actual job conditions which may include; estimating, field engineering, inspecting, scheduling and supervision. Students with

DESCRIPTIONS OF UNDERGRADUATE COURSES

verifiable construction experience of three (3) years or more may receive credit under this course listing. Verification will be through letters of recommendation from employer(s) on company letterhead and documented payroll receipts.
Prerequisite(s): ENG 102, minimum GPA 2.00, Senior status, Program Director/Dean approval.

WRK 431 Service Management Work Experience 4 Quarter Hours

Provides a senior level, paid/unpaid, work experience (minimum of 120 hours) designed to provide students the opportunity to apply the skills acquired in the service management major.
Prerequisite(s): ENG 102, minimum GPA 2.00, Senior status.
Corequisite(s): SM 442 or SM 447.

WRK 441 Health Services Administration Externship 4 Quarter Hours

Provides 120 hours of paid/unpaid experience in a health or health related setting. The primary focus is to provide an opportunity for students to develop/experience activities of planning, directing, coordinating, budget related activities. Students may be required to undergo a criminal background check, drug screening, and provide proof of current immunizations, dependent on the requirements of the externship placement facility.
Prerequisite(s): ENG 102, HSC 315, HSC 402A, minimum GPA 2.50, Program Director/Dean approval. Corequisite(s): HSC 411.

WRK 486A Food and Beverage Management Externship 4 Quarter Hours

Requires students to perform a requirement of 400 hours paid or unpaid work experience in an approved off site food service operation. Provides supervised work experience to enable students to apply skills acquired through the food and beverage program. Students will actively participate in management and operation of a food service operation. Students will maintain a detailed journal logging hours in specific competencies. This course is taken during the final quarter of a student's program after completion of prior program requirements.
Prerequisite(s): ENG 102, FBM 441, FBM 451A, minimum GPA 2.00, Program Director/Dean approval.

WRK 495 Accounting Work Experience 4 Quarter Hours

Requires students to perform a minimum of 120 hours of paid/unpaid, hands-on and supervised work experience in the accounting field. Students may secure work experiences with a CPA firm, within the accounting department of various local businesses (private or public sector), or with accounting services or tax preparation organizations as well as with other approved sites.
Prerequisite(s): ACC 302, WRI 115, minimum GPA 2.00, Program Director/Dean approval.

WRKBS201 Work Experience 4 Quarter Hours

Provides a 120-hour learning experience in an appropriate work environment structured to allow students to develop skills and gain training in their major field. Program completion based on Associate or Bachelor requirements may vary between programs. There may be certain course requirements that require completion prior to enrolling in the work experience course.
Prerequisite(s): ENG 102 (Associate Degrees), ENG 101 (Certificates), minimum GPA 2.00.

WRKCM201A Work Experience 4 Quarter Hours

Requires students to perform 200 hours of unpaid supervised kitchen work experience in The Culinary Institute of Michigan's fine dining restaurant-Courses or other approved location. Students will participate in weekly seminars through Blackboard and demonstrate competencies in required skills. All students will demonstrate competency in requisitioning products, food safety, cost control, multi-tasking, and entry-level management tasks. Baking and Pastry students will demonstrate competencies in required skills including bread and pastry production. Culinary students will demonstrate competencies in required skills including menu development, mise en place, and production. Food and Beverage students will demonstrate competencies in required skills including guest-relations, marketing, food-service accounting, planning, and front-of-the-house management. This course is taken during the final quarter of student's program after completion of prior program requirements.
Prerequisite(s): ENG 102, minimum GPA 2.00, Program Director/Dean approval.

WRKEL201 Experiential Learning Credit for Work Experience 4 Quarter Hours

Experiential Credit is available for students who are currently employed in their field of study for at least one year or were employed in their field of study for at least one year within the past 6 months. Students who are eligible for a Work Experience ELC will enroll in the 10 week online WRKEL201 course where they will complete assignments and provide official documentation of their related employment from their employer. Business owners will need to provide proof of business ownership and tax information. Eligible students will have one quarter to enroll in and complete the WRKEL201 course; if they do not complete the course within one quarter the student will need to reapply with Career Services. For more information and to determine eligibility contact the Career Services department. Students will be charged 25% of the four credit hour tuition fee, and four credits will be applied to the transcript upon completion of the course.

WRKEL201A Experiential Learning Credit for Work Experience 1 Quarter Hour

WRKTC201 Work Experience 4 Quarter Hours

Provides a 120-hour minimum learning experience in an appropriate work environment structured to allow students to develop skills and gain training in their major field.
Prerequisite(s): ENG 102 (Associate Degrees), ENG 101 (Certificates), minimum GPA 2.00.

WRKTC202 Work Experience II 4 Quarter Hours

Provides an additional 120-hour minimum learning experience in an appropriate work environment when paired with WRKTC201 within an undergraduate program.
Prerequisite(s): ENG 102, WRKTC201, minimum GPA 2.00.

WRITING

WRI 115 Workplace Communication 4 Quarter Hours

Addresses professional standards of communication with a focus on 21st century technology. Continues developing students' critical thinking and writing skills to prepare them to be effective communicators in the workplace. Students evaluate the audience before choosing and applying the appropriate communication medium and style. Required elements include an employment portfolio, a group project/presentation, and an exploration of communication in the student's individual career field.
Prerequisite(s): ENG 102.

WRI 301A Report Writing 4 Quarter Hours

Improves students ability to write for business and technical purposes relevant to student's major field or career aspirations. Emphasis is on writing formal reports including research of published technical information and presentation of a formal paper. In addition, less formal aspects of business and technical communications are studied. Students will practice and develop skills for writing and communicating in a professional environment.
Prerequisite(s): WRI 115.