

ENGINEERING TECHNOLOGY (TECHNICAL AND INDUSTRIAL DIVISION)

ENGTE-105 DRAFTING PRINCIPLES (9 cr.) Includes line work, lettering, applied geometry, dimensioning, orthographic projection, and the use of drafting tools. Emphasis on various methods of drafting views of objects including auxiliary views, revolutions, intersections, developments, technical illustration, precision dimensioning, working drawings and reproductions of drawings. Traditional and CAD drafting tools used.

ENGTE-130 COMPUTER AIDED MACHINE DRAFTING (9 cr.) Application of computer aided drafting skills using AutoCAD software on increasingly complex drawings. Emphasis is on drafting technician's position as a designer and detailer for support of engineered and manufactured products. Techniques of dimensioning and tolerancing detail drawings for manufacturing covered. Current manufacturing techniques and engineering product design processes also covered. Pre-requisite: ENGTE 105.

ENGTE-135 APPLIED PHYSICS (4 cr.) Combines lectures, classroom discussion and problem solving to teach fundamentals of physics. Topics include uniform linear and circular motion, uniform acceleration, projectiles, Newton's First, Second, and Third Laws of Motion, curvilinear motion, forces in rotation, elasticity, friction, work, momentum, rotational motion, mechanical properties of materials, vibrations and waves, sound and fluid mechanics, energy, and properties of materials. Pre-requisite: MTHPT 137.

ENGTE-154 INTRODUCTION TO COMPUTER (4 cr.) Teaches basic computer skills using various CAD software. Learning centers around these components and how they send and receive information. Basic understanding of computer hardware, software, and disk operating systems. Uses basic drafting skills learned from traditional drafting courses to create simple dimensioned drawings.

ENGTE-204 BASIC SURVEY TECHNOLOGY (9 cr.) Covers basics of mapping including contours, symbols, topography, curve geometry, and curve data. Methods of calculating angles, bearings, distances, areas, quantities, and grades studied. Maps drawn from survey field notes. Practical problems given in cross-sections and profiles, cuts and fills, grades, earthwork, and horizontal and vertical curve layout. CAD used for some projects. Use and maintenance of survey equipment. Concepts of survey, leveling procedures, stadia work, traverse closures and areas, triangulation, construction surveys, computations by various methods, and route surveying studied. Mastery of correct methods of note-taking and drafting surveys from these field notes. Pre-requisite: ENGTE 105, ENGTE 154, and MTHPT 137.

ENGTE-205 SURVEY DRAFTING & DESIGN (5 cr.) The student will learn fundamental civil drafting and design techniques and electronic survey data management functions.

ENGTE-208 ARCHITECTURAL AND STRUCTURAL DRAFTING (9 cr.) Fundamental architectural drafting methods taught. Site plans, foundation plans, floor plans, elevations, construction details, lighting and wiring, stair details, floor and roof framing plans, interior elevations drafted, and window and door schedules developed. Prepares students to draft structural steel, precast and poured-in-place concrete, and structural wood projects. Includes engineering drawings and shop drawings. Pre-requisite: ENGTE 154 or instructor permission.

ENGTE-209 SURVEYING (5 cr.) The student will learn and use fundamental surveying concepts and practices utilizing electronic, land-based, surveying equipment to solve real world surveying problems.

ENGTE-225 3-D CAD MODELING (5 cr.) This is a study in advanced CAD concepts and procedures to develop three-dimensional wireframe models. Emphasis will be on the creation and use of 3-D primitives, surface modeling, basic solids modeling, shading techniques, and the use of rendering and animation software. Pre-requisite: ENGTE 154 or instructor permission.

ENGTE-227 CAD/CAM PROJECT (5 cr.) This course will be a "senior" project class where the students will work in teams to design and build a project. The projects will be based on real world problems from local area businesses that require assistance in implementing solutions to their production problems due to a lack of time/ability. Typically, 1/2 of the semester focuses on the CAD design of the project with the last 1/2 of the semester focusing on the CAM fabrication of that project.

ENGTE-246 CONSTRUCTION AND MANUFACTURING TECHNOLOGY (2 cr.) This course provides the student with a broad understanding of processes used to produce marketable goods. The purpose of this course is to understand how something is constructed or manufactured so that future designs and drawings reflect producible results. Manufacturing processes included various casting & molding, forming, conditioning, machining, finishing and other practices as they are applied to metal, polymer and ceramic materials. The construction portion of this course will allow the student to investigate construction methods, materials and machinery for future drafting and design considerations as well.

ENGTE-290 DIRECTED STUDY IN ENGINEERING TECHNOLOGY (1-10 cr.) Opportunity to learn advanced skills in area agreed upon by student and instructor. Objectives developed to complete a specialized project or course of study and a plan to achieve these objectives.

ENGTE-292 SPECIAL TOPICS IN ENGINEERING TECHNOLOGY (1-10 cr.) Offers opportunity to learn advanced skills for students who are progressing at faster than normal pace.

ENGTE-296 COOPERATIVE EDUCATION IN ENGINEERING TECHNOLOGY (1-10 cr.) Work experience in business related to the student's career goal. Student is a paid, part-time employee working under supervision of employer and program coordinator. Registration only with the approval of program coordinator.

ENGTE-305 ADVANCED SURVEYING DRAFTING & DESIGN (5 cr.) Consists of lecture and lab work pertaining to typical highway, bridge, storm drainage, sewer, and land development design. Lab work performed by CAD, field trips made to observe on-going projects. Pre-requisite: ENGTE 204.

ENGTE-310 SURVEYING LAW AND BOUNDARY DESCRIPTIONS (3 cr.) This course was designed to give the student a basic understanding of the different types of boundary descriptions in common use and the correct way to prepare a boundary description. They will acquire basic knowledge in many of the problems they will encounter in description. The student will gain a basic knowledge in Survey Law and how to apply it to their job. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-312 PUBLIC LAND SURVEYING (3 cr.) This course was designed to give the student a basic understanding of the different types of surveys done in the United States. They will cover metes and bounds surveys done by the English, French, and Spanish along with the current Public Land Survey System (PLSS); be able to explain each type of survey and understand where to look for information on the different types of surveys. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-313 SURVEYING AND SOFTWARE APPLICATIONS (3 cr.) This course was designed to give the student a basic understanding of different survey programs and how to use each one. The student will use these programs to develop surveying projects and preparing final drawings. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-314 SURVEYING RESEARCH AND EVIDENCE (3 cr.) This course was designed to give the student a basic understanding of survey research and evidence. Student will become familiar with places to research, where to start, what to collect, how to evaluate what is found and how to evaluate evidence. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-315 SURVEY ADJUSTMENTS (3 cr.) Studies matrix inverse; solution of linear equation by matrices, theory and computation of least squares adjustments, coordinate transformation, error ellipses, and statistical testing. Pre-requisite: AAS degree.

ENGTE-317 SUBDIVISION PLANNING & PLATTING (3 cr.) This course deals with land use planning; governmental regulations and permits as applied to subdivisions; subdivision planning, computations and preparation of subdivision plats. Pre-requisite: AAS degree.

ENGTE-390 DIRECTED STUDY IN ENGINEERING TECHNOLOGY (1-5 cr.) Opportunity to learn advanced skills in area agreed upon by student and instructor. Objectives developed to complete a specialized project or course of study and a plan to achieve these objectives.

ENGTE-409 ADVANCED SURVEYING (5 cr.) Expands on topics taught in the basic survey course. Consists of lectures, lab and field trips. Topics presented on plane surveying, topographics, public land, construction staking, geodetic, hydrographic and land development. Discussion presented on geographics information and global position systems. Pre-requisite: ENGTE 204.

ENGTE-410 PROJECT MANAGEMENT (4 cr.) Lecture and field trips to construction projects. Estimating, contracts, contract administration, construction materials, and equipment management and productions covered.

ENGTE-411 GEODESY (3 cr.) The objective of this course is to give the student an introduction to the principles of geodesy, particularly geometric geodesy, astronomic geodesy and principles of map projections. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-415 SURVEY OFFICE PRACTICE (3 cr.) The student will have a basic understanding of how the business operates and many of the considerations that a business manager must deal with. They will get an appreciation of the problems encountered by the managers and will be able to understand their problems and help make work a better place. Pre-requisite: ENGTE 204, 205, 209.

ENGTE-490 DIRECTED STUDY IN ENGINEERING TECHNOLOGY (1-5 cr.) Opportunity to learn advanced skills in area agreed upon by student and instructor. Objectives

developed to complete a specialized project or course of study and a plan to achieve these objectives.

ENGTE-492 SPECIAL TOPICS IN ENGINEERING TECHNOLOGY (1-5 cr.)

ENGTE-496 COOPERATIVE EDUCATION IN ENGINEERING TECHNOLOGY (1-10 cr.)

Enables Bachelor of Applied Technology Drafting students to attain hands-on field experience that will greatly enhance their employability in the drafting trade.