

CONSTRUCTION ENGINEERING TECHNOLOGY (CET)

CET 1010 Intro to Constr Eng Technology

[1 credit hour]

An introduction to Construction Engineering by introducing career sectors, current topics, teamwork, safety and the curriculum in order to provide the freshman CET student with building blocks for success within the program.

Term Offered: Fall

CET 1050 Computers for Construction

[3 credit hours]

This course covers fundamental concepts, techniques and the application of microcomputers to the solution of engineering technology problems. This course provides an introduction to microcomputer operating systems and technical productivity software in construction engineering. The course also serves as an introduction to specialized software used in the profession and in future courses with the curriculum, (AutoCAD, WinEst, Microsoft Project, Sketch-Up).

Term Offered: Spring, Fall

CET 1100 Architectural Drafting

[0-3 credit hours]

"This course covers the basics of architectural graphic techniques beginning with fundamental drafting skills and representational processes, and progressing toward the production of a complete construction documentation package, including plans, sections, elevations and detail views of an architectural project. The course will emphasize methods and procedures of hand drafting, while introducing computer aided drafting and design production techniques."

Term Offered: Spring, Fall

CET 1150 Construction Materials And Codes

[3 credit hours]

This course consists of an introduction to terminologies and properties of construction materials and techniques from foundation, floor, wall and roof systems, as well as thermal and moisture protection and finish work. Sources of manufacturer's material information are discussed. An introduction is made into the various building codes and code organizations as related to new and existing buildings.

Term Offered: Spring, Fall

CET 1200 Engineering Mechanics

[4 credit hours]

This course covers the basics of statics, load tracing and analysis of determinate structures. Special attention is paid to the application of the laws of statics and strength of materials as they relate to construction materials, techniques and methods. The course covers the analysis of direct and indirect stresses in structural members: stress, strain, bending moment, shear and deflection; and begins the structural design course progression with the design of beams, columns and structural connections.

Prerequisites: (PHYS 2010 with a minimum grade of D- or PHYS 2070 with a minimum grade of D- or PHYS 2130 with a minimum grade of D-) and (MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-)

Term Offered: Fall

CET 1210 Surveying

[0-3 credit hours]

Study of construction and land surveying techniques, including the use of a steel tape, level, transit and total station. Laboratory will stress surveying measurement and layout techniques. Laboratory exercises will also introduce "AUTOCAD" and associated third party software applications to surveying.

Prerequisites: MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D-

Term Offered: Spring

CET 1250 Building Systems

[3 credit hours]

This course provides an introduction to selected building systems, equipment technologies and their capabilities. These systems include, but are not limited to: HVAC, plumbing, electrical, and other mechanical operations as they relate to building construction and building operations. Fundamentals of designing and sizing these systems will also be covered.

Prerequisites: CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D- and (MATH 1320 with a minimum grade of D- or MATH 1330 with a minimum grade of D- or MATH 1340 with a minimum grade of D- or MATH 1850 with a minimum grade of D- or MATH 2450 with a minimum grade of D-)

Term Offered: Spring, Fall

CET 2010 Construction Safety

[1 credit hour]

Minimum safety requirements are reviewed and discussed in a practical context for immediate application in the construction site. Course material includes review of the OSH Act, recording and reporting requirements, and citation policies.

Prerequisites: CET 1010 with a minimum grade of D-

Term Offered: Fall

CET 2030 Construction Graphics

[3 credit hours]

Computer drafting as related to construction engineering projects such as highways, streets, sanitary and storm sewers, and building sites. The computer drafting portion will use Microstation and associated third party support (e.g. Geopak).

Prerequisites: CET 1100 with a minimum grade of D- and CET 1210 with a minimum grade of D-

Term Offered: Spring, Fall

CET 2060 Construction Estimating

[0-3 credit hours]

This course covers the fundamentals, concepts, and strategies used in the process of estimating construction costs. The organization of construction estimates and the bidding process will be discussed while focusing on materials, construction methods and labor strategies and costs. Use of spreadsheet software, as well as dedicated estimating and takeoff software will be explored in the recitation sections of the course.

Prerequisites: CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D-

Term Offered: Spring, Fall

CET 2110 Materials Testing

[0-3 credit hours]

Design of portland and asphalt cement concrete mixes and associated quality control tests of mortar, aggregates, asphalt cements, portland and asphaltic concrete.

Prerequisites: CET 1150 with a minimum grade of D-

Term Offered: Fall

CET 2220 Soil Mechanics

[0-3 credit hours]

This course covers the characteristics and behavior of soil as it relates to the design and construction of civil engineering projects. The course will focus on identifying types of soils, the methods by which soils act and react under stress and how they can be manipulated and modified. Standard soils testing procedures will be used to produce a basic knowledge of soil and its pertinent properties.

Prerequisites: CET 1200 with a minimum grade of D- and ENGL 1110 with a minimum grade of D- and (ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

Term Offered: Spring

CET 2250 Structural Design

[4 credit hours]

This course covers the principles of statics and strength of materials as applied to structural design of steel and timber products, using applicable codes. Applications of both allowable stress, load factored design and unified design methods will be covered for both spanning and axial elements.

Prerequisites: CET 1200 with a minimum grade of D-

Term Offered: Spring

CET 2980 Special Topics

[1-4 credit hours]

Student performs work on a specialized project of an advanced nature under the supervision of a Construction Engineering Technology faculty member.

Term Offered: Spring, Fall

CET 3010 Architectural CADD

[4 credit hours]

This course is designed as an introduction to digital architectural documentation techniques for design, building and lifecycle building maintenance. The course explores techniques using both traditional CAD approaches as well as BIM and parametric modeling. The course emphasizes methods and procedures of AutoCAD, parametric modeling through Bentley Building and AutoCAD for Architecture and develops greater skills in BIM through Autodesk's Revit.

Prerequisites: CET 1100 with a minimum grade of D-

Term Offered: Spring, Fall

CET 3020 Sustainability for Construction

[3 credit hours]

This course is an introduction to sustainable design, green building and the LEED rating system. Roles of engineers and constructors are examined within the integrated design approach to green building and sustainable design. Topics covered include sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor air quality and innovative design. The course is structured as a way to prepare for the LEED Green Associate exam.

Prerequisites: CET 1150 with a minimum grade of D- and CET 1250 with a minimum grade of D-

Term Offered: Spring

CET 3120 Advanced Construction Materials

[3 credit hours]

This course focuses on the design and construction of ground based structures such as flexible and rigid pavements, floor slabs and buried pipe loading. Coverage of the construction and preparation of soil is also covered in order to provide a quality subgrade upon which to construct the items. Standard industry manuals and procedures are used to complete design problems.

Prerequisites: (CET 2220 with a minimum grade of D- and CET 2110 with a minimum grade of D-)

Term Offered: Spring

CET 3160 Contracts and Specifications

[3 credit hours]

This course includes the review and understanding of construction contract documents and relationship of drawings, specifications, scheduling, and contracts. This course also includes the review and dissemination of construction specifications for purposes of defining scopes of work.

Prerequisites: CET 1100 with a minimum grade of D- and CET 1150 with a minimum grade of D- and (ENGL 1130 with a minimum grade of D- or ENGL 2950 with a minimum grade of D-)

Term Offered: Spring, Fall

CET 3210 Surveying Applications

[0-3 credit hours]

This course covers the study of surveys for construction layout and mapping, including traverses, horizontal and vertical curves and boundaries. The laboratory stresses the organization of projects under actual field conditions using total stations and data collectors. Hand and computer solutions will be used to solve field problems.

Prerequisites: CET 1210 with a minimum grade of D-

Term Offered: Fall

CET 3220 Hydrology And Hydraulics

[3 credit hours]

This course is designed to give an understanding of basic hydraulic principles as they pertain to stormwater management; from estimating runoff volumes, to channeling the stormwater in conduits and open channels, to detaining flows to reduce downstream flooding and reducing the effects of erosion due to concentrated stormwater flow. The course will utilize numerous methods including manual and computer-aided design tools.

Prerequisites: CET 2030 with a minimum grade of D-

Term Offered: Spring

CET 4250 Advanced Structural Design

[4 credit hours]

This course deals with the design of reinforced concrete structural elements as well the principles of masonry design in accordance with applicable standards and codes. The design of temporary structures for use during construction will also be introduced.

Prerequisites: CET 2250 with a minimum grade of D-

Term Offered: Fall

CET 4350 Soils, Foundations And Earth Structures

[3 credit hours]

This course covers the application of advanced soil mechanics topics which allow for proper design and analysis of foundations. Bearing capacity, shallow and deep foundations (both piles and drilled shafts) as well as soil settlement and slope stability are emphasized. Retaining wall design is also covered.

Prerequisites: (CET 2250 with a minimum grade of D- and CET 2220 with a minimum grade of D-)

Term Offered: Spring

CET 4460 Construction Management And Scheduling

[3 credit hours]

The course focuses on learning the basics of producing construction schedules based on cost estimates and work breakdown structures. Different scheduling methods will be investigated along with associated management techniques needed to plan, track, control and adjust schedules to project conditions.

Prerequisites: CET 2060 with a minimum grade of D- and CET 3160 with a minimum grade of D-

Term Offered: Spring, Fall