CONSTRUCTION ENGINEERING TECHNOLOGY (2990)

2990:125 Statics (3 Credits)
Prerequisites: 2030:154 and 3650:160. This course covers forces, resultants, and couples. Equilibrium of force systems. Trusses, frames, centroid, moment of inertia, and friction.

2990:129 Computer Applications in Construction (3 Credits)
This course introduces students to important computing skills for construction managers including software for estimating, scheduling, presentations, general business administration and graphics.

2990:131 Building Construction (2 Credits)
Materials and methods used in construction. Encompasses buildings constructed with wood, steel, concrete or a combination of these materials.

2990:150 Plan Reading (2 Credits)

2990:225 Strength of Materials (3 Credits)

2990:226 Construction Supervision (3 Credits)
Introduction to topics on construction supervision including planning, directing and coordinating onsite activities to build quality defined by drawings and specifications.

2990:234 Elements of Structures (3 Credits)

2990:235 Construction Inspection (3 Credits)
Prerequisite: 2990:131. Fundamentals of total quality management and construction inspection.

2990:237 Materials Testing I (2 Credits)
Prerequisite: 2030:154. Laboratory testing of soils with emphasis on physical properties of soil. Laboratory and field procedures used for quality control.

2990:238 Materials Testing II (2 Credits)
Prerequisite: 2030:154. Mix design of concrete. Laboratory testing of concrete containing ordinary Portland cement and pozzolanic admixtures. Experiments demonstrate physical properties as related to design and quality control.

2990:239 Construction Geomechanics (3 Credits)
Prerequisite: Admission to the Associate of Science program or permission of the program director. This course provides an understanding of the impact of the mechanical behavior and engineering properties of soils and rock related to construction processes and methods. Topics include erosion control, laboratory test methods for engineering design, flood and mass wasting behavior, soil subsidence, and sustainability of engineered coastal structures.

2990:245 Construction Estimating (3 Credits)
Prerequisite: 2030:154 and 2990:150. Quantity takeoffs in construction to include mass excavations, foundation systems, structural steel, residential construction, and various commercial construction methods.

2990:246 Site Engineering (3 Credits)
Prerequisite: 2990:131. The content includes study of the development of a site including surveying, excavation, soil treatment, heavy equipment requirements, storm water management, pavement design, and construction of roadways.

2990:248 Construction Graphics (3 Credits)
Introduction to terminology and drawing basics with a focus on civil/site plans, architectural and structural drawing.

2990:254 Building Codes (3 Credits)
Prerequisite: 2990:131. Students learn fundamental concepts for construction related to the residential building code.

2990:310 Residential Building Construction (3 Credits)
Introduction to building design, wood framing, and mechanical systems as commonly found in residential housing.

2990:312 Neighborhood Revitalization Project (3 Credits)
Residential construction and inspection knowledge used to perform field work, service projects, and written inspection reports.

2990:320 Advanced Materials Testing (3 Credits)
Prerequisite: 2990:241. This course investigates the usage of precision strain gage applications used by technicians in determining stresses in structural elements and mechanical parts.

2990:351 Construction Quality Control (3 Credits)
Prerequisites: Admission into the BCET program or permission of instructor. Overview of quality control concepts and techniques as related to the construction industry including the necessary statistical tools; exposes students to civil, mechanical and electrical inspection requirements.

2990:352 Field Management & Scheduling (2 Credits)
Prerequisites: 2990:245 or permission. Planning, scheduling, and controlling of field work within time and cost constraints. Manual methods and computer software packages studied.

2990:354 Foundation Construction Methods (3 Credits)
Prerequisites: 2990:234 and 2990:237. Soil mechanics and soils exploration as related to construction. Foundation construction methods and practice in the interest of safety and suitable economy.

2990:356 Safety in Construction (3 Credits)
The purpose of this course is to explain what creates hazards and why, and to suggest where to anticipate trouble in each phase of the work as it progresses.

2990:358 Advanced Estimating (3 Credits)
Prerequisite: 2990:245. This course focuses on estimating and bidding for public and private construction. Includes heavy/highway, residential and building construction with use of computer software to facilitate bid preparation.

2990:359 Construction Cost Control (3 Credits)
Prerequisites: 2420:211 or 6200:201. Course develops a practical understanding of the latest managerial accounting principles and practices as they apply to the construction business.

2990:361 Construction Formwork (3 Credits)
Prerequisite: 2990:234 or permission. Introduction to design and construction of formwork and temporary wood structures.
2990:362 Advanced Elements of Structures (3 Credits)
Prerequisite: 2990:234. This course examines advanced topics in structural engineering and is an extension of Elements of Structures.

2990:371 Green & Sustainable Building Practices (3 Credits)
This course is designed to provide an understanding of sustainable construction practices and their importance on environmental issues.

2990:453 Legal Aspects of Construction (2 Credits)
Prerequisite: Admission into the BCET program or permission. Study of business of contracting and subcontracting and legal problems therein such as breach, partial performance, payment, insolvency, subsurface. Review of standard contracts and construction industry rules of arbitration.

2990:455 Computerized Precision Estimating (3 Credits)
Prerequisite: 2990:245. Students will explore sophisticated software programs utilized by the construction industry to prepare estimates and bid packages.

2990:462 Mechanical Service Systems (3 Credits)
Introduction to materials and equipment used in mechanical heating, ventilating, air conditioning, water and waste systems.

2990:463 Electrical Service Systems (3 Credits)
Introduction to materials and equipment in electrical systems of buildings. Includes illumination, electrical sources, materials and distribution. Emphasis of fire safety.

2990:465 Heavy Construction Estimating (3 Credits)
Prerequisite: 2990:245. Quantity takeoffs and cost analysis to include methods, systems, and equipment relevant to heavy highway and civil infrastructure projects.

2990:466 Hydraulics (3 Credits)
Prerequisite: 2030:356. Introduction to hydrology. Flow in closed conduits and open channels, distribution, systems, storage requirements and basic concepts of hydraulic structures. Basic concepts of seepage and working knowledge of pumps.

2990:468 Construction Management (3 Credits)
Prerequisites: 2990:352 and 2990:358. Construction Management takes established construction practices, current technological advances, and latest management methods and makes them into an efficient, smooth working system.

2990:469 Contracts and Specifications (2 Credits)
Prerequisite: Admission to BCET program or permission. This course studies the principles and applications of construction specifications, contracts, processes for managing professional risk and increasing economic performance of the construction process.

2990:471 Understanding LEED Guidelines (3 Credits)
Prerequisite: 2990:371. Provides an understanding of LEED guidelines and requirements and help prepare the student for the LEED associate exam.

2990:479 CPC Seminar (3 Credits)
Prerequisite: Must be of senior level status towards a B.S. Degree in Construction Engineering Technology or permission. This course prepares students for the content and format of the Certified Professional Constructor’s Examination.

2990:489 Special Topics in Construction (1-3 Credits)
Prerequisite: Permission of instructor. (May be repeated for up to six credits.) Special lecture/laboratory courses offered once or only occasionally in areas where no formal courses exist.

2990:490 Workshop in Construction (1-3 Credits)
Prerequisites: Permission. Group studies of special topics in construction. May not be used to meet undergraduate major requirements in construction. May be used for elective credit only. (May be repeated for up to six credits)

2990:497 Honors Project (1-3 Credits)
Prerequisite: Senior standing in Honors College and permission of supervising faculty in student's degree field and pursuit of major in CET. Individual Senior Honor's Project relevant to student's major field of study. Specific projects are approved and supervised by a designated member of the faculty in the student's degree field.

2990:498 Independent Study in Construction (1-3 Credits)
Prerequisite: Permission. Directed study in a special field of interest chosen by student in consultation with instructor. (May be repeated for up to six credits)