Curriculum Information Guide

Construction Management Engineering Technology - BS

What is the Bachelor of Science in Construction Management Engineering Technology?

The Construction Engineering Management Technology program has been designed to respond to the need for skilled professionals possessing the level of sophistication necessary to accommodate state-of-the-art technology which has impacted the construction industry. It will incorporate extensive use of the computer in the technical specialty together with upper level mathematics, economics, and communications.

The Construction Engineering Management Technology program encompasses study in traditional engineering technology offerings (Statics, Strength of Materials, Structural design Materials testing, etc.) The program is complemented with offerings in project control, scheduling, cost control quality control, construction productivity, and economics. It prepares students for employment in an emerging occupation within the construction industry. Graduates will possess expertise in construction and specialized administrative skills commensurate with the requirements dictated by the industry to coordinate and execute the construction of the design created by the engineer and the architect.

This program is accredited by the Engineering Technology Accreditation Commission of ABET, http://www.abet.org.

Program Educational Objectives:
- Graduates will have broad background in one or more areas of infrastructure and building construction, estimating, cost control, project management and technology. Graduates will assume leadership positions in the construction industry.
- Graduates will be creative problem in industry.
- Graduates will be effective communicators in professional setting.
- Graduates will adapt state of the art technologies and processes in industry.
- Graduates will pursue continuing education and professional development opportunities.

Potential Employment:
Employment opportunities include Project Manager, Assistant Project Manager, Construction Manager, and Project Super.

Student club – Architecture and Construction Technology (ACT) Club

Student Outcomes:
- An ability to select and apply the knowledge, techniques, skills, and modern tools of the discipline to broadly-defined engineering technology activities;
- An ability to select and apply a knowledge of mathematics, science, engineering, and technology to engineering technology problems that require the application of principles and applied procedures or methodologies;
- An ability to conduct standard tests and measurements; to conduct, analyze, and interpret experiments; and to apply experimental results to improve processes;
- An ability to design systems, components, or processes for broadly-defined engineering technology problems appropriate to program educational objectives;
- An ability to function effectively as a member or leader on a technical team;
- An ability to identify, analyze, and solve broadly-defined engineering technology problems;
- An ability to function effectively as a member or leader on a technical team;
- An understanding of the need for and an ability to engage in self-directed continuing professional development;
- An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity;
- A knowledge of the impact of engineering technology solutions in a social and global context; and
- A commitment to quality, timeliness, and continuous improvement.

Program of Study

Liberal Arts and Sciences (61 credits)
- EGL 101 Composition I: College Writing (GE) ................................. 3
- EGL 102 Composition II: Writing About Literature ......................... 3
- EGL 310 Technical Writing (GE) .................................................... 3
- MTH 129 Pre-Calculus with Applications (GE) .................................. 4
- MTH 130 Calculus with Applications (GE) ...................................... 4
- MTH 236 Calculus II with Applications ......................................... 3
- MTH 360 Applied Probability and Statistics .................................. 3
- MTH 390 Methods in Operations Research .................................. 3
- PHY 135 Physics I (GE) .............................................................. 4
- PHY 136 Physics II ................................................................. 4
- PHY 232 Modern Physics with Algebra or MTH elective* ............... 3
- ECO 156 Principles of Economics (Macro) (GE) ......................... 3
- ECO 157 Principles of Economics (Micro) .................................. 3
- ECO 321 Engineering Economics .............................................. 3
- The Arts (GE) .............................................................................. 3
- Humanities (GE) ........................................................................ 3
- American/Other World/Western Civilization History (GE) ........... 3
- Foreign Language (GE) ............................................................... 3
- Liberal Arts & Sciences electives ................................................. 3

Please refer to the General Education and Writing Intensive Requirement Sections of the catalog and consult with your advisor to ensure that graduation requirements are satisfied.

*in consultation with department advisor.

Required: Construction Management (69 credits)
- CON 101 Introduction to Technology & Applied Programming .......... 2
- CON 103 Surveying ................................................................. 3
- CON 106 Statics ......................................................................... 3
- CON 111 Graphics I ............................................................... 2
- CON 121 Graphics II ............................................................. 2
- CON 161 Materials & Methods of Construction I ......................... 3
- CON 162 Materials & Methods of Construction II ......................... 3
- CON 207 Elements of Strength of Materials .................................. 3
- ARC 263 Mechanical, Electrical, Plumbing & Energy Systems in Buildings .... 3
- ARC 272 Construction Design .................................................. 3
- CON 302 Soils, Foundations & Earth Structures .......................... 3
- CON 303 Hydraulics ................................................................... 3
- CON 350 Introduction to Construction Engineering ....................... 3
- CON 357 Quantity Surveying and Costing .................................. 3
- ARC 364 Site Design and Construction ........................................ 3
- CON 401W Construction Project ................................................. 3
- Mgmt. & Scheduling .................................................................. 3
- CON 402 Civil Engineering Materials ......................................... 3
- CON 403 Structures I (Analysis & Concrete) .................................. 3
- CON 404 Structures II (Steel & Wood) ........................................ 3
- CON 406 Advanced Project Planning and Scheduling ................. 3
- CON xxx Technical Elective I ..................................................... 3
- CON xxx Technical Elective II ..................................................... 3
- CON xxx Technical Elective III ..................................................... 3
- CON 496 Capstone Project ......................................................... 3
- Total Credits ............................................................................. 130

Curriculum Summary

Degree Type: BS
Total Required Credits: 130

For additional Information:
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631-420-2024

School of Engineering Technology
Dean’s Office: ... 631-420-2115
Office of Admissions: 631-420-2200

Admission to Farmingdale State College - State University of New York is based on the qualifications of the applicant without regard to age, sex, marital or military status, race, color, creed, religion, national origin, disability or sexual orientation.

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ARC 272 Construction Design
This design is a tech Prigogy-based design studio emphasizing a methodological approach to the assembly of the building's envelope, materials and components. This integration of building code requirements, life safety, accessibility, building energy systems, structure, construction, and materials are central to effectively achieving project goals. Knowledge from Materials and Method of Construction I and II, Energy in Buildings and Graphics are applied to specific drawing assignments. A residential Type V construction, and a commercial Type II or Type III construction, building project will be advanced resulting in a set of construction documents.
Prerequisite(s): ARC 263 and CON 121 or 162 and 261
(3,0) Credits: 3

CON 302 Soils, Foundations and Earth Structure
This course introduces soil mechanics, foundation and earth structure to the engineering technology students. It includes soil classification, soil properties, soil stiffness, earth pressures, bearing capacity, slope stability. It also discusses principles of foundation analysis and design, retaining walls, etc. Laboratory experiments to test behavior of soils included.
Prerequisite(s): CON 201
Corequisite(s): CON 300L
(2,2) Credits: 3

CON 303 Hydraulics
This course provides a broad understanding of the basic principles of engineering hydraulics and hydrology. The emphasis is on application of the theories. It involves basic principle of hydraulics, flow in closed conduits, flow in open channels, hydraulic structures, principles of hydrology, groundwater hydraulic theory, and related laboratory experiments.
Computer application included.
Prerequisite(s): CON 207 or PHY 136
Corequisite(s): CON 303L
(2,2) Credits: 3

CON 350 Introduction to Construction Engineering
This course introduces construction engineering principles and methods and equipment used in heavy and commercial construction. It includes earthmoving, excavating, loading and hauling, rock excavation, compressed air and water systems, tunneling, and some selected topics from building construction.
Prerequisite(s): CON 162 and CON 207
(3,0) Credits: 3

CON 357 Quantity Surveying and Costing
This course focuses on fundamentals of quantity survey and costing of residential and commercial facilities. Quantification of materials from construction drawings is covered in this course. Topics also covered range from site work, forms, concrete, metals and masonry, plumbing and electrical to wood framing and steel framing. The course also introduces fundamentals of computer assisted estimating.
Prerequisite(s): CON 162
(3,0) Credits: 3

ARC 364 Site Design and Construction
This is an advanced course in the utilization of architectural and architectural principles from concept through the construction techniques of traditional and sustainable site development. Site planning techniques, municipal land development requirements, zoning regulations, soil stabilization techniques, erosion control parameters, stormwater management practices, and site construction details are applied to a site design project. Computer-aided programs in site design and survey data management will be introduced.
Prerequisite(s): CON 103
(2,2) Credits: 3

CON 401W Construction Project Management and Scheduling (Writing Intensive)
This course gives an in-depth introduction and orientation to construction project management. This course introduces professional construction management in practice and methods in professional construction management. Some of the areas this course will cover are: Bidding and Award Application of Cost Scheduling, Planning and Control of Operations and Resources, Procurement Quality Assurance, Safety Health in Construction, Industrial Relations. Computer Applications included. This is a writing-intensive course.
Prerequisite(s): CON 162 and EGL 101 with a C or higher
(3,0) Credits: 3