



WHAT IS THE BACHELOR OF SCIENCE IN ARCHITECTURAL ENGINEERING TECHNOLOGY?

The Architectural Technology (ARC) program synthesizes the aesthetic, technical and functional elements of building design and construction. The academic thrust of the program is applied technology. The students in this program will be educated in the process of building design from concept to completion.

The purpose of the Architectural Technology program is to prepare students for careers in architectural, structural, and mechanical aspects of the design and construction of buildings. The students will be educated in the process of carrying design projects from schematics through construction. In addition to preparing students for meaningful and rewarding careers at the Bachelor's level, the program will also prepare students for successful entry in the professional and non-professional graduate programs in architecture and other areas.

This program is accredited by the Accreditation Director for Engineering Technology, Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202 (410) 347-7700.

CURRICULUM SUMMARY

Degree Type: **BS**
Total Required Credits: **130**

Admission Requirements

Mathematics: 2 Units of Defined Math
Science: 1 Unit of Laboratory Science

For additional information:

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School of Engineering Technologies

Dean's Office: 631-420-2256
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.

PROGRAM OF STUDY

First Semester (14 credits)..... Cr. Hrs.

CON 101 Intro. to Technology & Applied Programming..	2
CON 111 Graphics I	2
CON 161 Materials & Methods of Construction I	3
MTH 129 Pre Calculus with Applications	4
EGL101 Composition: Rhetoric.....	3

Second Semester (18 credits)

CON 103 Surveying	3
CON 121 Graphics II.....	2
CON 162 Materials & Methods of Construction II.....	3
MTH 130 Calculus with Applications.....	4
EGL102 Composition: Literature.....	3
HIS 126 The West and the World.....	3

Third Semester (16 credits)

CON 106 Statics.....	3
ARC 251 Architectural Design I.....	3
ARC 263 Mech., Elect., Plumbing & Energy Systems in Buildings	3
EGL 209 Technical Communication.....	3
PHY 135 College Physics I.....	4

Fourth Semester (16 credits)

CON 207 Elements of Strength of Materials.....	3
ARC 272 Construction Design.....	3
ARC 253 Architectural Design II.....	3
PHY 136 College Physics II.....	4
Modern Language Elective	3

Fifth Semester (18 credits)

ARC 362 History of Western Architecture	3
Science Elective	3
MTH 236 Calculus II with Applications.....	3
Art Elective.....	3
History Elective (His 121, 122, 125)	3
Social Science Elective	3

Sixth Semester (18 credits)

CON 302 Soils, Foundations & Earth Structures	3
CON 361 Govt. Building & Environmental Codes & Regulations.....	3
CON 356 Estimating Fundamentals for Residential & Commercial Construction	3
ARC 366 Architectural Design III.....	3
MTH Elective (See Dept. list).....	3
Social Science Elective.....	3

Seventh Semester (15 credits)

CON 401 Construction Project Mgmt. & Scheduling..	3
ARC 363 Site Planning & Design.....	3
CON 403 Structures I (Analysis & Concrete).....	3
ARC 350 Arch. Theory & Design Factors.....	3
Humanities Elective (See Gen Ed list).....	3

Eighth Semester (15 credits)

CON 404 Structures II (Steel & Wood)	3
ARC 466 Architectural Design IV.....	3
ECO 321 Engineering Economics	3
MTH Elective (See Dept. list).....	3
ARC 496 Design Capstone Project	3

Total Credits: **130**

CON 101 Introduction to Technology & Applied Programming

A survey of technological concepts, terminology and a brief review of mathematical concepts. This course introduces concepts of vector and its applications. It introduces hands-on programming and its applications, and reviews problem solving techniques with technological applications.

(1,2) 2 credits Fall

CON 103 Surveying

The development of skills in the use of the basic surveying instruments- tape, level, transit. Trigonometric and differential leveling and cross-sectioning. Azimuth, bearing and angle determination by repetition procedures. Angular closures. Stadia and stadia reduction of inclined sights, topographic mapping by transit stadia and plan table methods.

(2,3) 3 credits Fall, Spring

CON 106 Statics

A basic course in Statics the main objective course is to provide basic understanding of the principles of statics. Topics such as resultant of a force, equilibrium of forces, moments, couples, analysis of simple trusses, centroids, center of gravity, moments of inertia and friction are covered in this course. (Students completing this course cannot also receive credit for MET 201)

Prerequisite: MTH 129
(2,2) 3 credits Spring

CON 111 Graphics I

To develop student's abilities in lettering, technical sketching, drafting and the use of drafting instruments. The fundamentals of orthographic projection and pictorial drawings develop the student's abilities to visualize and describe objects and structures graphically.

(1,2) 2 credits Fall, Spring

CON 121 Graphics II

Introduction to Computer Aided Drafting (CAD) for architectural and construction drawing. Topics include: commands and drawing strategies for 2-D and 3-D CAD work; architectural plans, sections, elevations, and details; information management; assembly of drawings and scales; and descriptive geometry.

Prerequisite: CON 111 and Computer Competency
(1,2) 2 credits Fall, Spring

CON 161 Materials & Methods of Construction I

An introduction to the engineering properties and the uses of construction materials including soils, concrete, masonry, steel and wood. Classroom testing demonstrations of several materials are included. Conventional construction systems are studied. Orientation to the construction industry, associated professions, and the varieties of employment available.

(3,0) 3 credits Fall, Spring

CON 162 Materials & Methods of Construction II

A continuation of CON 161 extended to include the study of architectural properties of selected materials, methods of construction, and building components. Class work includes technical problem solving using quantitative and graphic analysis of specific building construction systems.

Prerequisite: CON 161
(3,0) 3 credits Spring

CON 207 Elements of Strength of Materials

Introduces the concepts of stress, strain, bending and shear stresses, torsion and deflection of beams including elasticity, shear and moment diagrams for beams, moment of inertia of unsymmetrical sections, and thermal and combined stresses. Discussed are centroids, center of gravity and moments of inertia. Columns are also covered. Several related laboratory experiments are performed.

Prerequisite: CON 106 or MET 201
(2,2) 3 credits Fall

CON 302 Soils, Foundations & Earth Structure

This course introduces soil mechanics, foundation and earth structure to the engineering technology students. It includes soil classification, soil properties, soil stresses, 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: CON 207 or equivalent.
(2,2) 3 credits Spring

CON 356 Estimating Fundamentals for Residential & Commercial Construction

This course focuses on fundamentals of residential and commercial construction estimating. Topics covered range from site work, forms, concrete, metals and masonry to plumbing and electricity. Also covered are wood framing and steel framing. Fundamentals of computer assisted estimating are introduced.

Prerequisite: CON 162
(3,0) 3 credits Spring

CON 361 Governmental Building & Environmental Codes & Regulations

This course studies the concepts in the preparation of an environmental impact statement. It also reviews state and local building and land use controls. Attention will be given to governmental regulations required to obtain building permits for particular construction projects.

Prerequisite: Departmental approval
(3,0) 3 credits

CON 401 Construction Project Management & Scheduling

This course gives an in-depth introduction and orientation to construction project management. This includes 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 Controls, Scheduling, Planning and Control of Operations and Resources, Procurement Quality Assurance, Safety and Health in Construction, Industrial Relations. Computer Applications included.

Prerequisite: CON 162 or equivalent.
(3,0) 3 credits Fall

CON 403 Structures I (Analysis & Concrete)

This course introduces fundamentals of structural analysis for beams, trusses, frames, etc. It includes statically determinate as well as indeterminate structures. This course also introduces fundamentals of reinforced concrete design including strength design for beams, columns, footings, and two way slabs. Computer application included.

Prerequisite: CON 207 or equivalent.
(3,0) 3 credits Fall

CON 404 Structures II (Steel & Wood)

This course introduces fundamentals of structural steel design. This includes design of tension members, compression members, beams, columns, and various connections. This course also teaches the basic principles of wood design, which includes formwork design and frame construction. Computer application is included.

Prerequisite: CON 403.
(3,0) 3 credits Spring

ARC 251 Architectural Design I

Studies the principles of form, space and order that underlie architectural design. Concepts include: mass void modeling, volume and space construction, enclosing planes, circulation, organization, hierarchy, and structure. The diagram and sketch model are introduced as methods of understanding design. Concepts are explored in both three dimensional and graphic form.

Prerequisite: CON 111, CON 121
(2,3) 3 credits

ARC 253 Architectural Design II

Continuation of Architectural Design I. Emphasis is placed on the process by which design decisions are made and the methods of analysis in context to the existing environment. Topics include: structure, form and function, building in context, light and construction.

Prerequisite: ARC 251
(2,3) 3 credits

ARC 263 Mechanical, Electrical, Plumbing and Energy Systems in Buildings

An overview of mechanical, electrical and plumbing (MEP) aspects of buildings. Intended to develop students' ability to analyze energy requirements of buildings and various methods of energy conservation and thermal efficiency. Topics covered include heat flow, system and equipment for heating and cooling. Also included are water supply and wastewater treatments for buildings.

Prerequisite: CON 162
(3,0) 3 credits

ARC 272 Construction Design

Construction Design is a technology-based design studio emphasizing a methodological approach to the assembly of the building's envelope, materials and systems. The integration of building code requirements, life safety, accessibility, building energy systems, structure, construction, and materials are central to effectively achieving design intent. Knowledge from Materials and Methods 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: CON 121, CON 162, & CON 261 or ARC 263
(2,2) 3 credits

ARC 350 Architectural Theory and Design Factors

This course will examine a series of architectural theories and design factors that attempts to explain, predict or influence design decisions that result in the built environment. Topics include: historical theory, form and aesthetics; architectural technology; the urban, natural and human environment; economic, zoning and code factors; the social and behavioral implications of architecture, the design process itself and the architectural profession.

Prerequisite: ARC253 and ARC362
(3,0) 3 credits Fall

ARC 362 History of Western Architecture

A study of the development of building design from the Ancient Egyptians and Greeks through the major historical periods to the present. Emphasis is on the evolution of the forms derived from indigenous technologies of the period surveyed. NOTE: Students completing this course may not receive credit for CON 362.

Prerequisite: Departmental approval
(2, 3) 3 credits

ARC 363 Site Planning & Design

An advanced course in utilization of engineering and architectural principles from the concept through the construction techniques of site development. Computer aided programs in site design and survey data management will be introduced. Drainage, soil stabilization and erosion control parameters, and design techniques are applied to site designs. Safety and geometric standards for roadway design and construction are incorporated into the course.

Prerequisite: CON 103
(2, 2) 3 credits

ARC 366 Architectural Design III

Continuation of Architectural Design II. Emphasis is placed on the urban and natural environment. The role of aesthetics, symbols, and the use of historical elements in the making of places, spaces and communicating meaning are explored. Topics include: building on Main Street, the making of an urban space and a cemetery or park design.

Prerequisite: ARC 253
(2,3) 3 credits Fall

ARC 466 Architectural Design IV

This course is the culmination of the Architectural Design sequence. A single project will be given that integrates principles of architectural design and includes elements of building systems, structural and site design, zoning and building codes, etc. on an actual site in the area. Students will present their final project to the faculty at the end of the semester.

Prerequisite: ARC 366
(2,3) 3 credits Spring

ARC 496 - Design Capstone Project

This capstone course integrates several architectural and engineering design philosophies and methodologies into a comprehensive studio project. This course introduces very little new material; rather it is to synthesize knowledge learned in the following areas of design and analysis: architectural, structure, construction, site, energy (mechanical/electrical) and building systems and cost estimating. This multidisciplinary project uses a student design team approach.

Prerequisite: ARC 466 Minimum Grade: D and ARC 363 Minimum Grade: D and CON 404 Minimum Grade: D
(2,2) 3 credits