

Construction Management

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In any given construction project the disciplines of architecture, engineering, and management converge. Recognizing this fact is a student's first step towards becoming a real-world leader in the fields of project and construction management. The second step is taken by enrolling in Norwich University's Construction Management degree program, where students learn the foundational skills necessary to take projects from the conceptual stage straight through to the grand opening ceremony.

Mission:

- Prepare students to excel in construction management and related fields.
- Make clear to students that above all else, the Construction Management profession is committed to bettering the world.
- Provide fundamental, hands-on education in the construction management field.
- Foster creativity, critical thinking, and problem solving abilities and motivate students to consider the impact of their work on society
- Enable students to be leaders in their profession, community, nation, and the world.

Goals:

Construction Management students are taught to assess, strategize, and execute projects from an interdisciplinary approach in which facets of architecture, engineering, and management are taken into account. Along with business, engineering, and architecture courses, students are required to take Construction Management courses specifically designed to prepare students for situations they may encounter while on the job site and in the office. Additionally, core studies include courses in the humanities, social sciences, mathematics and sciences.

The Goals [Program Educational Objectives (PEOs)] for graduates of the Construction Management Program are to:

- Lead project teams in their chosen field progressively rising to positions of technical or managerial leadership.
- Be respected and recognized for technical and managerial competence in the creation of solutions that balance sustainability, societal and economic issues.
- Become active citizens in their profession, community, the nation and the world.
- Communicate to both technical and non-technical audience.
- Actively engage in continuing education throughout life.

Outcomes:

Students who are awarded the Bachelor of Science in Construction Management, may sit for the Associated Constructors (AC) and/or the Construction Management in Training Exams (CMIT) exams, and have a foundational understanding of:

- Construction project management from pre-design through commissioning;
- project life-cycle and sustainability;
- health and safety, accident prevention, and regulatory compliance;
- law, contract documents administration, and dispute prevention and resolution;
- materials, labor, and methods of construction;
- finance and accounting principles;
- planning and scheduling;
- cost management, plan reading, quantity takeoff and estimating;
- project delivery methods;
- leadership and people management; and
- business and communication skills

Student Outcomes for graduates of the Construction Management Program are an ability to:

- Apply knowledge of science, mathematics, and applied sciences.
- Design and conduct experiments, as well as analyze and interpret data.
- Formulate and design a system, process or program to meet desired needs.
- Function on a multidisciplinary team, and be able to assume leadership roles on the team.
- Identify and solve applied science problems.
- Understand professional and ethical responsibility.
- Communicate effectively.
- Utilize the broad education necessary to understand the impact of solutions in a societal and global context.
- Recognize the need for and demonstrate an ability to engage in lifelong learning.
- Be knowledgeable of contemporary issues.
- Utilize the techniques, skills and modern scientific, and technical tools necessary for professional practice.
- Recognize that with the knowledge that construction changes society, construction managers must understand that they are leaders.

Careers for this Major:

Graduates from this program manage varying job demands and requirements and are capable of adapting to rapidly changing technology. Whether working for a private construction firm, engineering firm, government agency, real estate

developer, or Industry, there are many areas in which construction managers can focus. A few of the major specialties include:

- Construction management
- Construction supervision
- Construction inspection
- Safety inspection
- Project estimation
- Project development

To learn more about employment opportunities in Construction Management, please visit: <http://careers.asce.org>.

Accreditation:

In the Fall of 2016 the Applied Science Accreditation Commission (ASAC) of ABET conducted their review of the B.S. Construction Management Program. ABET will present the results of their program review by the end of August 2017. ABET, <http://www.abet.org>, 415 N. Charles Street, Baltimore, MD 21201, (410) 347-7700.

B.S. in Construction Management - Curriculum Map 2017-2018 Catalog

Print PDF Curriculum Map (http://catalog.norwich.edu/residentialprogramscatalog/collegeofprofessionalschools/thedavidcrawfordschoolofengineering/eleccomp/enginmgmt/const_1499798953416.pdf)

Freshman		
Fall	Cr. Spring	Cr.
CH 103 General Chemistry I or GL 110 (General Education Lab Science)	4 AP 111 Fundamentals of Architecture	4
EG 109 Introduction to Engineering I	3 EG 110 Introduction to Engineering II or EM 101	3
EN 101 Composition and Literature I	3 EN 102 Composition and Literature II	3
MA 107 Precalculus Mathematics (General Education Math)	4 MA 108 Applied Calculus or 121 (General Education Math)	4
	General Education History/Literature/Arts & Humanities (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
Semester Total Credits	14 Semester Total Credits	17
Sophomore		
Fall	Cr. Spring	Cr.
AP 225 Introduction to Passive Environmental Systems	3 AP 325 Materials, Construction, and Design	3
CE 211 Surveying	3 CE 214 Site Development and Engineering	4
CE 264 Specifications and Estimating	1 EM 210 Building Information Modeling and Integrated Practices	4
EC 202 Principles of Economics (Micro) (General Education Social Science)	3 EM 220 Advanced Project Estimating	3
EN 204 Professional and Technical Writing	3 QM 213 Business and Economic Statistics I or MA 232	3
PS 201 General Physics I (General Education Lab Science)	4	
Semester Total Credits	17 Semester Total Credits	17
Junior		
Fall	Cr. Spring	Cr.
AP 327 Active Building Systems I	3 AP 328 Active Building Systems II	3
CE 336 Introduction to Transportation Engineering	3 CE 457 Wood, Steel, and Concrete Structures	4
CE 351 Statics and Mechanics of Materials	4 EM 320 Construction Productivity	3
CE 460 Construction Management	3 EM 322 Construction Safety	3
EG 350 Engineering Economics and Decision Analysis	3 General Education History/Literature/Arts & Humanities (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
Semester Total Credits	16 Semester Total Credits	16
Senior		
Fall	Cr. Spring	Cr.
CE 321 Materials Laboratory	1 EM 480 Construction Management Practices	3
CE 458 Structural Issues for Construction	3 CE 446 Soils in Construction	4
EM 401 Pre-Construction Management	3 MG 310 Production/Operations Management	3
EM 461 Project Management	3 MG 351 Organizational Behavior	3
EM 475 Senior Project Planning	1 General Education History/Literature/Arts & Humanities (http://catalog.norwich.edu/archives/2017-18/residentialprogramscatalog/generaleducationgoals)	3
MG 309 Management of Organizations	3	
MG 341 Business Law I (General Education Ethics)	3	
Semester Total Credits	17 Semester Total Credits	16
Total Credits For This Major: 130		

Construction Management Minor Curriculum Map 2017-2018 Catalog

Engineering majors may choose this minor. All courses must be completed with a grade of C or higher.

A) Two courses from either one of the following lists:

List of Architecture Courses

AP 211	Architectural Design I	5
AP 212	Architectural Design II	5
AP 221	Site Development and Design	3
AP 222	Human Issues in Design	3
AP 225	Introduction to Passive Environmental Systems	3
AP 311	Architectural Design III	5
AP 312	Architectural Design IV	5

AP 325	Materials, Construction, and Design	3
AP 411	Architectural Design V	5
AP 412	Architectural Design VI	5
List of Civil Engineering Courses		
CE 211	Surveying	3
CE 214	Site Development and Engineering	4
CE 328	Soil Mechanics	4
CE 332	Engineering Hydrology	3
CE 336	Introduction to Transportation Engineering	3
CE 348	Structural Analysis	3
CE 419	Foundation Engineering	3
CE 421	Environmental Engineering	4
CE 422	Waste and Water Treatment	3
CE 442	Design of Steel Structures	3
CE 444	Reinforced Concrete Design	3
B) Plus four courses from the following:		12
EG 350	Engineering Economics and Decision Analysis	3
CE 460	Construction Management	3
EM 210	Building Information Modeling and Integrated Practices	4
EM 220	Advanced Project Estimating (formerly EM 302-Supply Chain Management)	3
EM 320	Construction Productivity	3
EM 322	Construction Safety	3
EM 401	Pre-Construction Management	3
EM 461	Project Management (formerly EM 301-Project Management)	3
Total Cr.		18

Courses

EM 101 Introduction to Construction Project Management 3 Cr.

This course provides a broad overview of the managerial, technological and physical processes that are involved in the creation of the built environment. It specifically focuses on understanding the issues in the management of a construction project. (Prerequisites: none. 3 credit-hours - 2 hours lecture and 3 hours lab).

EM 210 Building Information Modeling and Integrated Practices 4 Cr.

Use of Building Information Modeling technologies for facility design, visualization, quality estimation, cost estimation, scheduling, coordination, construction, operation, management and maintenance. Current BIM technologies will be covered, as well as BIM tools such as Autodesk Revit: Structural, Architectural, and MEP. Creation of 4-D animations using Autodesk NavisWorks and 3-D models created in Autodesk Revit: Structural. Examination of the technical logistics required to set up successful projects using BIM technologies. Classroom 3 hours plus 3 hours lab. Prerequisite: EG 110 and CE 264.

EM 220 Advanced Project Estimating 3 Cr.

The course covers the principles and practices of estimating integrated with supply chain management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of supply chain management, estimating, and purchasing in an environment characterized by inter firm relationships. 3 hours of class time per week. Prerequisite: CE 264. Co-requisite: AP 325.

EM 320 Construction Productivity 3 Cr.

This course focuses on the planning and execution of the construction of vertical and horizontal construction projects. The course emphasizes the means and methods associated with heavy civil projects, earthwork, and the construction of the project's structural elements. Equipment selection and methods will be a major focus. Prerequisites: Junior standing. 3 credit-hours lecture.

EM 322 Construction Safety 3 Cr.

Administration and application of the OSHA Act in the construction industry; includes standards, hazard identification and the development of a safety plan. Fulfills the requirements for the 30-hour OSHA safety training certifications. Classroom 3 hours. Prerequisite: junior or senior status.

EM 399 Special Construction Systems 3 Cr.

EM 401 Pre-Construction Management 3 Cr.

This course addresses the initial phases of the building creation process. It focuses on addressing the owner's design and construction needs and the delivery of value to the owner. Business development, estimating, planning and presentation skills are emphasized. A Design/ Build model is employed to encompass the full spectrum of architecture, engineering and construction (AEC) requirements. Classroom 3 hours. Prerequisites: EM 302 and CE 460.

EM 461 Project Management 3 Cr.

The course covers the principles and practices of project management with particular emphasis on issues related to engineering and construction projects. Students will learn the principles of project management within the firm and in an environment characterized by inter firm relationships. 3 hours of class time per week. Prerequisite: CE 460.

EM 475 Senior Project Planning 1 Cr.

Each student will work with a mentor and together will define and analyze a project so that an efficient design can be completed. The project scope will be developed, tasks will be laid out, and a schedule to complete the project will be created. All of this will be presented orally and in written form in a project proposal. Prerequisite: Senior status. Corequisite: CE 460.

EM 480 Construction Management Practices 3 Cr.

A capstone and practicum course in construction management engineering that explores the processes of management as applied to actual construction projects. Topics will be reviewed in the seminar and students will work in teams to review how these topics were applied in an actual construction project and to design a construction management plan for a proposed project during laboratory. Two 1.5 hour seminar periods and a 3 hour laboratory per week. Prerequisites: EM 220 and EM 461.