

CIVIL ENGINEERING (BS)

CIP: 14.0801

Program Description

The Civil Engineering major prepares graduates to apply knowledge of mathematics through differential equations, calculus-based physics, and chemistry; apply knowledge of four technical areas appropriate to civil engineering: transportation, structures, environment, and project management; conduct civil engineering experiments and analyze and interpret the resulting data; design system, component, or process in more than one civil engineering context; explain basic concepts in management, business, public policy, and leadership; and explain the importance of professional licensure.

Civil Engineering majors study:

- workflow networks
- smart buildings
- unmanned vehicles
- infrastructure security
- organic disaster management networks and sustainable eco-systems
- environmental engineering
- geo-engineering
- structural engineering
- mechanics and materials
- transportation engineering

NYU Abu Dhabi offers six engineering degree programs: General Engineering, Bioengineering, Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering.

Each program is designed to create technological leaders with a global perspective, a broad education, and the capacity to think creatively. The uniqueness of the program lies in the integration of invention, innovation, and entrepreneurship into all phases of study. Students enjoy a learning environment conducive to creativity, which is at the heart of tomorrow's technological innovations and enterprises.

The Civil Engineering program at NYU Abu Dhabi is accredited by the Engineering Accreditation Commission of ABET, <https://www.abet.org> (<https://www.abet.org/>), and the Commission for Academic Accreditation (CAA). Graduates receive a Bachelor of Science degree.

Admissions

New York University's Office of Undergraduate Admissions supports the application process for all undergraduate programs at NYU. For additional information about undergraduate admissions, including application requirements, see [How to Apply \(https://www.nyu.edu/admissions/undergraduate-admissions/how-to-apply.html\)](https://www.nyu.edu/admissions/undergraduate-admissions/how-to-apply.html).

Program Requirements

Course	Title	Credits
General Education Requirements		
Colloquia		8
First-Year Seminar		4
Arts, Design, and Technology		4
Cultural Exploration Analysis		4

Data and Discovery		4
Structures of Thought and Society		4
January Term Courses (3 courses)		12

Science Courses

SCIEN-UH 1101:1104	Foundations of Science 1: Energy & Matter	4
SCIEN-UH 1201:1204		4
ENGR-UH 3130	Quantitative Synthetic Biology	4

Mathematics Courses

MATH-UH 1012Q	Calculus with Applications to Science and Engineering	4
MATH-UH 1020	Multivariable Calculus with Applications to Science and Engineering	4
MATH-UH 1022	Linear Algebra	4
MATH-UH 2010	Ordinary Differential Equations	4
ENGR-UH 2010Q	Probability and Statistics for Engineers	2
ENGR-UH 2027	Introduction to Data Analysis for Engineers	2

Engineering Common Courses

ENGR-UH 1000	Computer Programming for Engineers	4
ENGR-UH 1010	Engineering Ethics	1
ENGR-UH 1021J	Design and Innovation	2
ENGR-UH 2011	Engineering Statics	2
ENGR-UH 2012	Conservation Laws in Engineering	2
ENGR-UH 2013	Digital Logic	2
ENGR-UH 2017	Numerical Methods	2
ENGR-UH 2019	Circuits Fundamentals	2

Civil Engineering Required Courses

ENGR-UH 2210	Engineering Dynamics	2
ENGR-UH 2211	Solid Mechanics	2
ENGR-UH 2212	Fluid Mechanics	2
ENGR-UH 3120	Engineering Materials	2
ENGR-UH 3210	Advanced Solid Mechanics	2
ENGR-UH 3410	Structural Systems	2
ENGR-UH 3411	Environmental Engineering	4
ENGR-UH 3412	Geotechnical Engineering	4
ENGR-UH 3413	Transportation and Traffic Engineering	4
ENGR-UH 3420	Project Management	2
ENGR-UH 4433	Structure and Properties of Civil Engineering Materials	2

Civil Engineering Elective Courses

Select eight credits from the following list of courses:		8
ENGR-UH 3110	Instrumentation, Sensors, Actuators	
ENGR-UH 3111	Analysis of Chemical and Biological Processes	
ENGR-UH 3230	Finite Element Modeling and Analysis	
ENGR-UH 3332	Applied Machine Learning	
ENGR-UH 4112	Engineering Honors Research	
ENGR-UH 4230	Applied Optimization	

ENGR-UH 4423	Production and Logistics Management	
ENGR-UH 4424	Information Management and Modeling for Construction	
ENGR-UH 4460	Selected Topics in Urban Systems	
ENGR-UH 4712	Mechanics of Composite Materials	

Civil Engineering Design Elective Courses¹

Select four credits from the following list of courses: 4

ENGR-UH 3430	Steel Structures Design	
ENGR-UH 3431	Concrete Structures Design	
ENGR-UH 3432	Water and Wastewater Systems Design	
ENGR-UH 3433	Advanced Structural Design and Retrofitting	
ENGR-UH 4431	Foundation Engineering Design	
ENGR-UH 4434	Water Desalination Engineering	

Capstone

ENGR-UH 4011	Senior Design Capstone Project I	2
ENGR-UH 4020	Senior Design Capstone Project II	4
Other Elective Credits		5

Total Credits 140

1

Courses in this list also qualify as Civil Engineering elective courses.

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
ENGR-UH 1000	Computer Programming for Engineers	4
MATH-UH 1012		4
First-Year Seminar		4
Elective Course		4
Credits		16
2nd Semester/Term		
ENGR-UH 1021J	Design and Innovation	4
Credits		4
3rd Semester/Term		
MATH-UH 1020	Multivariable Calculus with Applications to Science and Engineering	4
Colloquium		4
Credits		8
4th Semester/Term		
MATH-UH 1024	Fundamentals of Ordinary Differential Equations	4
MATH-UH 1023	Fundamentals of Linear Algebra	4
Core Courses		4
Colloquium		4
Credits		16
5th Semester/Term		
Elective Course		4
Credits		4
6th Semester/Term		
ENGR-UH 2019	Circuits Fundamentals	4

ENGR-UH 2212	Fluid Mechanics	4
ENGR-UH 2012	Conservation Laws in Engineering	4
ENGR-UH 2210	Engineering Dynamics	4
ENGR-UH 2011	Engineering Statics	4
ENGR-UH 2211	Solid Mechanics	4
Core Courses		4

Credits 28**7th Semester/Term**

ENGR-UH 3210	Advanced Solid Mechanics	4
ENGR-UH 3411	Environmental Engineering	4
ENGR-UH 2017	Numerical Methods	4
ENGR-UH 2010		4
ENGR-UH 3410	Structural Systems	2
Colloquium		4

Credits 22**8th Semester/Term**

Elective Course		4
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Credits 4**9th Semester/Term**

ENGR-UH 3412	Geotechnical Engineering	4
ENGR-UH 3420	Project Management	4
ENGR-UH 3413	Transportation and Traffic Engineering	4
Elective Course		4
Design Elective		4

Credits 20**10th Semester/Term**

ENGR-UH 4010		4
ENGR-UH 2013	Digital Logic	4
ENGR-UH 4011	Senior Design Capstone Project I	2
Core Courses		4
Civil Engineering Elective		4
Design Elective		4

Credits 22**11th Semester/Term**

ENGR-UH 4020	Senior Design Capstone Project II	4
ENGR-UH 2025	Fundamentals of Discrete Math	4
ENGR-UH 3120	Engineering Materials	4
Core Courses		4
Civil Engineering Elective		4

Credits 20**Total Credits** 164

Learning Outcomes

Upon graduation, NYU Abu Dhabi Civil Engineering students will possess:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives

6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Policies

NYU Policies

University-wide policies can be found on the New York University Policy pages (<https://bulletins.nyu.edu/nyu/policies/>).

NYU Abu Dhabi Policies

A full list of relevant policies can be found on NYU Abu Dhabi's undergraduate academic policies page (<https://bulletins.nyu.edu/undergraduate/abu-dhabi/academic-policies/>).