

Civil & Environmental Engineering

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Chair, Department of Civil and Environmental Engineering

Vision Statement

The Civil and Environmental Engineering Department will be nationally recognized for producing leaders in the fields of civil and environmental engineering.

The Civil and Environmental Engineering Department will continue to develop and enrich the educational experience of its students. This is accomplished by providing specialized courses in a variety of sub-disciplines such as structural, environmental, geotechnical, transportation, and water resources engineering. This objective is also accomplished through the Master's degree programs in civil engineering, construction management, and environmental engineering and the strong research programs at both the undergraduate and graduate levels which provide unique opportunity for enrichment of student experience. Students pursuing a master's degree in environmental may choose between an M.E. and an M.S. degree

Program Educational Objectives

Graduates of the undergraduate Civil Engineering program will be recognized for their:

- Technical skills in civil & environmental engineering
- Ethical practices and moral character
- Leadership, achievement, and involvement in engineering and engineering-related professions
- Dedication to furthering the engineering profession through continuous self-improvement
- Commitment to engineering as a service-to-humanity profession through practicing sustainable engineering for New York and the world.

Student Outcomes

The Civil Engineering program uses the standard set of ABET, Inc., Student Outcomes (1) through (7) as described above under Engineering.

Civil Engineering Program

Mission Statement

The mission of the undergraduate Civil Engineering program is to develop an educational plan for each of our students so upon graduation they are prepared to continue their graduate studies or enter into the civil engineering profession.

The goal is to prepare students to function professionally as responsible members of the global engineering community dedicated to life-long learning and collaborative practice,

discovery and sharing a breadth of knowledge. The program puts particular emphasis on introducing the students to the broad range of civil engineering disciplines.

Civil engineers use mathematics , along with the basic sciences and engineering sciences, in the study of the structural, geotechnical, transportation, environmental, and water resources engineering disciplines. These disciplines allow a civil engineer, working to improve the environment, to plan, design and construct the industrial plants of the world, the great public works, the housing, the bases for space exploration and the transportation networks.

Structural engineering deals with the analysis, design and construction of buildings, bridges, ships, aircraft, and other structures. Environmental engineering allows a civil engineer to analyze and model the environment, assess the effects of human activities on it, and design control facilities to ensure improvement and protection of environmental resources. Geotechnical engineering focuses on soil behavior and the subsequent design of adequate supports for all structures resting on the earth. Transportation engineering emphasizes the planning, design, and construction of efficient transportation infrastructure such as highways, airports, railways, seaports, and public transport. Water resources engineering focuses on water usage and distribution across networks as well as the design and construction of infrastructure that control bodies of water, such as rivers, lakes, reservoirs, and oceans.

Students obtain strong technical knowledge by taking at least two required courses in each of the above disciplines. Students also choose from a wide range of elective courses, where they can concentrate on specific topics in their areas of interest.

All undergraduate students in the department pursue a four-year degree in civil engineering. The program also accommodates students who wish to pursue a minor in environmental engineering, in addition to their civil engineering major.

Four-Year Program in Civil Engineering

The curriculum for the first year is common for all the majors in engineering. Students take the foundational courses in the sophomore year. The junior and senior years allow for concentrated studies in the areas of structural, environmental, geotechnical, transportation, and water resources engineering. A representative program is shown below.

First Year

Fall	Credits	Spring	Credits
MATH 185 ¹		4 MATH 186 ¹	4
CHEM 101/103 or PHYS 101/191 ¹		4 CHEM 101/103 or PHYS 101/191	4
ENGS 115		3 ENGS 116	3
ENGL 110 or RELS 110		3 ENGL 110 or RELS 110	3
General Education Elective ⁴		3 General Education Elective ⁴	3
17		17	

Second Year

Fall	Credits	Spring	Credits
MATH 285 ¹		4 MATH 286 ¹	3
CHEM 102/CHEM104 ¹		4 ENGS 230 ^{1,5}	3
CIVL 201 or CIVL 202 ¹		3 CIVL 201 or CIVL 202 ¹	3
ENGS 204 ¹		3 Approved Science Elective ²	3
ENGS 206 ^{1,5}		3 RELS Catholic or Contemporary/ Global Studies	3
		Professional Development	1
		17	16

Third Year

Fall	Credits	Spring	Credits
CEEN 303 ^{1,3}		3 CEEN 307 ¹	3
CEEN 304		1 CEEN 308	3
CEEN 314 ³		3 CIVL 309 ¹	3
CIVL 302 ^{1,3}		3 CIVL 310 ¹	3
CIVL 305 ^{1,3}		3 CIVL 311	1
CIVL 306 ³		3 CIVL 312 ¹	3
		Professional Development	1
		16	17

Fourth Year

Fall	Credits	Spring	Credits
CIVL 406 or ENVL 402 ⁶		3 CIVL 411 or ENVL 408 ¹	3
CIVL 410 or ENVL 407 ¹		3 CIVL 412	3
CIVL 409 ^{6,7}		3 CIVL/ENVL Elective	3
CIVL/ENVL Elective		3 CIVL/ENVL Elective	3
General Education Elective ⁴		3 General Education Elective ⁴	3
RELS Catholic Studies or RELS Contemporary/Global Studies	3		
		18	15

Total Credits: 133

¹ These **courses must be passed with a grade of C (2.0) or better.**

² Students are required to take **one** approved science elective in their sophomore or second year of the program. They may take this class either in the fall or in the spring semester. Approved science electives are: BIOL 222 Biology for Engineers and SCI 301 Earth Science for Engineers.

³ Students are not allowed to enroll in any junior level or third year courses before completing all **prerequisite** mathematics, science and engineering science courses.

⁴ Every civil engineering student is required to take an economics course as part of their General Education Elective.

- ⁵ Students are not allowed to repeat the course more than three times. Failure to successfully complete the course in three attempts will lead to dismissal from the program.
- ⁶ *The student must pass these courses with a grade of C (2.0) or better to enroll in CIVL 411 and/or ENVL 408.*
- ⁷ **The C requirement is waived for students in the environmental concentration.**

Environmental Engineering Minor within Civil Engineering

The minor in environmental engineering is open to all engineering majors and consists of 15 credits (5 courses). Required coursework includes ENGS 204 Environmental Engineering Principles and four additional approved environmental engineering courses. Approved courses include: CEEN 314 Water and Wastewater Treatment Processes, CEEN 430 Water Infrastructure Systems Analytics, CEEN 446 Coastal Engineering, CEEN 450 Energy and the Environment, ENVL 402 Environmental Data Analysis and Process Design, ENVL 407 Groundwater (or CIVL 407 Groundwater Resources), ENVL 408 Environmental Engineering Design, ENVL 409 Environmental Chemistry, ENVL 410 Hazardous Waste Design, ENVL 425 Surface Water Quality Modeling, and ENVL 439 Environmental Engineering Projects. Students interested in the environmental engineering minor should contact Dr. Kevin Farley or Dr. Jessica Wilson.

Completing the environmental engineering minor and an approved science elective (currently BIOL 222 or SCI 301) allows engineering students entry into Masters of Science (M.S.) in Environmental Engineering graduate program provided they have a cumulative G.P.A. of 3.0. Students interested in entry to the ABET accredited Master of Engineering (M.E.) in Environmental engineering program have the additional requirement of completing both approved science electives.

In addition, there are numerous opportunities for partial or full financial support for graduate studies including:

- Graduate Internships
- Graduate Fellowships
- Graduate Research Assistantships (GRAs)
- Graduate Laboratory Assistants (GLAs)

Fundamentals of Engineering Examination - Civil & Environmental Engineering Department

All students must take the Fundamentals of Engineering (FE) examination in their fourth year as a requirement to graduate from the program. While students are not required to pass the FE exam, they are required to take the FE exam and document that they have completed the requirement.