# ENVIRONMENTAL ENGINEERING (MS)

Civil and Urban Engineering Department (https://engineering.nyu.edu/academics/departments/civil-and-urban-engineering/)

**NYSED:** 86475 **HEGIS:** 0922.00 **CIP:** 14.1401

## Program Description

Environmental Engineering is a diverse field that focuses on the sustainable use and preservation of natural resources anthropogenic interactions in an increasingly urbanized world. It is a career field in high demand and it was recently ranked as the fifth most valuable college major (Forbes, May 2012). At the Tandon School of Engineering, our program has an urban environmental systems emphasis and it is unique in concentrating on many challenges that New York City and major cities of the world face.

The MS in Environmental Engineering prepares graduates to plan, functionally design, control, operate and manage municipal and industrial pollution-prevention systems. Students are exposed to a learning atmosphere that provides a mix of theory and practical problem-solving approaches. The flexible course options and student research projects offer a variety of opportunities. Areas of research and scholarly activities supported by some of the best faculty in NYC include environmental systems management, monitoring, sensing, and visualization, water security, flood risk management, conflict resolution, river water quality modeling, groundwater modeling, solid and hazardous waste management, contamination remediation, climate change studies, and development of decision support systems and GIS (Geographic Information System) based applications.

## Admissions

To apply for admission to any Tandon graduate program, please contact the Office of Graduate Admissions (https://engineering.nyu.edu/admissions/graduate/).

### Admissions Requirements

To be granted admission to the MS in Environmental Engineering degree program at Tandon School of Engineering, an applicant should holds a BS degree in a related engineering discipline (e.g., environmental, civil, chemical, mechanical, etc.) from an accredited college in the United States or a recognized institution of higher learning abroad and has attained an undergraduate grade point average (GPA) of at least 3.0/4.0. Students holding BS degrees in another engineering discipline, or a physical, chemical or biological science, may be admitted if they have achieved the technical background necessary to pursue advanced work in Environmental Engineering.

### Recommended Educational Background

- Three semesters of calculus, ordinary differential equations
- A semester of college statistics
- A semester of calculus-based physics
- A semester of college chemistry
- A semester of fluid mechanics
- A semester of water resources engineering or hydrology
- Problem-solving work using computers
- Background in environmental process engineering

Students should have completed these requirements prior to applying. However, the requirements of fluid mechanics, water resources engineering or hydrology and exposure to environmental process engineering can be completed by taking the courses below in the first offering of the course after enrollment for the MS degree.

- CE-UY 2213 Fluid Mechanics and Hydraulics
- CE-UY 3223 Fundamentals of Environmental Engineering
- CE-UY 3243 Water Resources Engineering

It is necessary to obtain a grade of "B" or better in each of these courses. None of the courses listed above may be used for graduate credit.

## Program Requirements

The program requires the completion of 30 credits, comprised of the following:

| Course | Title | Credits |
|---|---|---|
| **Core Courses** | | |
| CE-GY 7373 | Environmental Chemistry & Microbiology | 3 |
| CE-GY 7423 | Water & Wastewater Treatment | 3 |
| Select two of the following: [1] | | 6 |
| CE-GY 7223 | Hydrology | |
| CE-GY 7233 | Groundwater Hydrology and Pollution | |
| CE-GY 7673 | Environmental Impact Assessment | |
| CE-GY 7753 | Environmental Systems Management | |
| **Major Courses** | | |
| Select three of the following: [2] | | 9 |
| CE-GY 7353 | Selected Topics in Water Resources and Hydraulic Engineering I | |
| CE-GY 7473 | Modeling Fate and Transport of Surface Water Pollution | |
| CE-GY 7523 | Air Pollution | |
| CE-GY 7573 | Detection and Control of Waterborne Pathogens | |
| CE-GY 7653 | Wetland Design for Water Quality Improvement | |
| CE-GY 7703 | Solid Waste Management | |
| CE-GY 7713 | Selected Topics in Environmental and Water Resources Engineering | |
| CE-GY 7723 | Selected Topics in Environmental and Water Resources Engineering I | |
| CE-GY 7733 | Geomatics and GIS Application in Civil and Environmental Engineering | |
| CE-GY 7913 | Climate Science: Realities & Risks of a Changing Climate | |
| CE-GY 8283 | Risk Analysis | |
| CE-GY 8493 | Environmental Geotechnology | |
| **Electives** | | |
| Select 9 credits of approved engineering and science electives in consultation with the graduate adviser. [3] | | 9 |
| **Total Credits** | | **30** |

[1] Students may choose more than two courses from the core courses list. The additional courses will be counted as electives.

[2] Students may choose more than two courses from the major courses list. The additional courses will be counted as electives.

[3] Students may also select additional courses from the core and major courses lists. Electives may also include up to 3 credits of CE-GY 9963 MS Project in Civil & Urban Engineering Department or up to 6 credits of CE-GY 997X MS Thesis in Civil & Urban Engineering Dept.

# Sample Plan of Study

| Course | Title | Credits |
|---|---|---|
| **1st Semester/Term** | | |
| CE-GY 7373 | Environmental Chemistry & Microbiology | 3 |
| Core Course | | 3 |
| Major Course | | 3 |
| | **Credits** | **9** |
| **2nd Semester/Term** | | |
| CE-GY 7423 | Water & Wastewater Treatment | 3 |
| Core Course | | 3 |
| Major Course | | 3 |
| | **Credits** | **9** |
| **3rd Semester/Term** | | |
| Major Course | | 3 |
| Major Course or Elective | | 3 |
| Major Course or Elective | | 3 |
| | **Credits** | **9** |
| **4th Semester/Term** | | |
| Major Course or Elective | | 3 |
| | **Credits** | **3** |
| | **Total Credits** | **30** |

# Learning Outcomes

Upon successful completion of the program, graduates will:

1. Fundamentally understand the science and engineering of natural and man-made environmental systems.
2. Functionally design air, water and waste treatment systems and components.
3. Control and operate environmental facilities.
4. Understand the modeling and simulation of environmental systems.
5. Participate actively in multidisciplinary teams to solve environmental problems.

# Policies

## NYU Policies

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

## Tandon Policies

Additional academic policies can be found on the Tandon academic policy page (https://bulletins.nyu.edu/graduate/engineering/academic-policies/).