

# Environmental Engineering, MSEnvE

This program integrates the study of physical, chemical, and biological processes and fundamental principles for water and wastewater treatment and disposal, hazardous waste management, surface water and groundwater quality, water resources management, and air quality management. Successful graduates will have the ability to develop and implement technologies for various environmental applications with the goal to improve and protect the environment and human health. It includes required core courses from the Department of Civil and Environmental Engineering (<https://cee.northeastern.edu/academics/graduate-studies/ms-envi/>) (CEE), complemented by electives in civil and environmental engineering, mechanical and industrial engineering, earth and environmental sciences, and mathematics.

Degree Requirements	With Report	With Thesis	Coursework Only
Required core electives	12 SH	12 SH	12 SH
Restricted electives	8 SH	8 SH	12 SH
Other electives	8 SH	4 SH	8 SH
Master of Science report/thesis	4 SH	8 SH	

## Graduate Certificate Options

Students enrolled in a master's degree have the opportunity to also pursue one of the many engineering graduate certificate options in addition to or in combination with the MS degree. Students should consult their faculty advisor regarding these options (<http://catalog.northeastern.edu/graduate/engineering/graduate-certificate-programs/>).

### GORDON INSTITUTE OF ENGINEERING LEADERSHIP

#### Master's Degree in Environmental Engineering with Graduate Certificate in Engineering Leadership

Students may complete a Master of Science in Environmental Engineering in addition to earning a Graduate Certificate in Engineering Leadership (<http://catalog.northeastern.edu/graduate/engineering/multidisciplinary/engineering-leadership-graduate-certificate/>). Students must apply and be admitted to the Gordon Engineering Leadership Program in order to pursue this option. The program requires fulfillment of the 16 semester-hour curriculum required to earn the Graduate Certificate in Engineering Leadership, which includes an industry-based challenge project with multiple mentors. The integrated 36-semester-hour degree and certificate will require 20 hours of advisor-approved environmental engineering technical courses.

## Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

### Core Requirements

Code	Title	Hours
Complete three of the following:		12
CIVE 7250	Environmental Chemistry	
CIVE 7251	Environmental Biological Processes	
CIVE 7255	Environmental Physical/Chemical Processes	
CIVE 7272	Air Quality Management	

### Options

Complete one of the following options:

#### COURSEWORK OPTION

Code	Title	Hours
Complete 12 semester hours from the Restricted Electives List below.		12
Complete 8 semester hours from the Other Electives List below.		8

#### REPORT OPTION

Code	Title	Hours
CIVE 8674	Master's Report	4
Complete 8 semester hours from the Restricted Electives List below.		8
Complete 8 semester hours from the Other Electives List below.		8

**THESIS OPTION**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
CIVE 7990	Thesis	8
Complete 8 semester hours from the Restricted Electives List below.		8
Complete 4 semester hours from the Other Electives List below.		4

**Course Lists****RESTRICTED ELECTIVES LIST**

Any required core course not used to meet the required core course requirement can be taken as a restricted elective.

<b>Code</b>	<b>Title</b>	<b>Hours</b>
CIVE 5250	Organic Pollutants in the Environment	
CIVE 5261	Dynamic Modeling for Environmental Investment and Policymaking	
CIVE 5271	Solid and Hazardous Waste Management	
CIVE 5275	Life Cycle Assessment of Materials, Products, and Infrastructure	
CIVE 5280	Remote Sensing of the Environment	
CIVE 5300 and CIVE 5301	Environmental Sampling and Analysis and Lab for CIVE 5300	
CIVE 5363	Climate Science, Engineering Adaptation, and Policy	
CIVE 5365	Climate Technologies for Decarbonization, Mitigation, and Adaptation	
CIVE 5366	Air Quality Engineering and Science	
CIVE 5536	Hydrologic and Hydraulic Design	
CIVE 7252	Water Engineering: Planning, Design, and Management	
CIVE 7260	Hydrologic Modeling	
CIVE 7272	Air Quality Management	
CIVE 7278	Air Quality Modeling and Forecasting	
CIVE 7279	Advanced Air Quality	
CIVE 7392	Special Topics in Environmental Engineering (Aquatic Biogeochemistry)	

**OTHER ELECTIVES LIST**

Any required core course not used to meet the required core course requirement can be taken as another elective. Any restricted elective not used to meet the restricted elective requirement can be taken as another elective.

<b>Code</b>	<b>Title</b>	<b>Hours</b>
CIVE 5150	Climate and Atmospheric Change	
CIVE 5260	Environmental Fluid Mechanics	
CIVE 5670	Global Biogeochemistry	
CIVE 7392	Special Topics in Environmental Engineering (Equity in Civil and Environmental Engineering)	
EECE 7204	Applied Probability and Stochastic Processes	
ENVR 5190	Soil Science	
ENVR 5260	Geographical Information Systems	
EEMB 5516	Oceanography	
IE 6200	Engineering Probability and Statistics	
IE 7280	Statistical Methods in Engineering	
IE 7290	Reliability Analysis and Risk Assessment	
MATH 7241	Probability 1	
MATH 7343	Applied Statistics	
MATH 7344	Regression, ANOVA, and Design	

**Program Credit/GPA Requirements**

32 total semester hours required

Minimum 3.000 GPA required