

Civil Engineering with Concentration in Structures, MSCivE

This program is designed for students with career goals in structural engineering and structural design. The program includes courses in structural analysis and design, structural mechanics, dynamics of structures, earthquake engineering, wind engineering, and structural health monitoring. The degree requirements include core courses from the Department of Civil and Environmental Engineering, complemented by electives in civil and environmental engineering, as well as electives from other departments such as mechanical and industrial engineering and mathematics.

Degree Requirements	With Report	With Thesis	Course Work Only
Required core courses	8 SH	8 SH	8 SH
Restricted electives	12 SH	12 SH	12 SH
Other electives	8 SH	4 SH	12 SH
Master of Science report/thesis	4 SH	8 SH	
Minimum semester hours required	32 SH	32 SH	32 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 Civil Engineering with Concentration in Structural Engineering with Graduate Certificate in Engineering Leadership

Students may complete a Master of Science in Civil Engineering with Concentration in Structural Engineering in addition to earning a Graduate Certificate in Engineering Leadership. 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 32-semester-hour degree and certificate will require 16 hours of advisor-approved structural engineering technical courses.

Engineering Leadership (<http://catalog.northeastern.edu/graduate/engineering/leadership/engineering-leadership-graduate-certificate/#text>)

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
CIVE 7330	Advanced Structural Analysis	4
CIVE 7331	Structural Dynamics	4

Options

Complete one of the following options:

COURSE WORK OPTION

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

REPORT OPTION

Code	Title	Hours
CIVE 8674	Master's Report	4
	Complete 12 semester hours from the Restricted Elective List below.	12
	Complete 8 semester hours from the Other Elective List below.	8

THESIS OPTION

Code	Title	Hours
CIVE 7990	Thesis	8
	Complete 12 semester hours from the Restricted Elective List below.	12
	Complete 4 semester hours from the Other Elective List below.	4

Course Lists

RESTRICTED ELECTIVE LIST

Code	Title	Hours
CIVE 5520	Structural Systems	
CIVE 5522	Structural Systems Modeling	
CIVE 5525	Prestressed Concrete Design	
CIVE 5699	Special Topics in Civil Engineering (Vibration-based Structural Health Monitoring)	
CIVE 7340	Seismic Analysis and Design	
CIVE 7341	Structural Reliability	
CIVE 7350	Behavior of Concrete Structures	
CIVE 7351	Behavior of Steel Structures	
CIVE 7354	Wind Engineering	
CIVE 7355	Advanced Bridge Design	
CIVE 7357	Advanced Structural Mechanics	
CIVE 7388	Special Topics in Civil Engineering (Random Data and Processing)	
CIVE 7388	Special Topics in Civil Engineering (Informatics in Civil Engineering)	
CIVE 7388	Special Topics in Civil Engineering (Dynamics and Control of Infrastructure Systems)	

OTHER ELECTIVE LIST

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

Code	Title	Hours
CIVE 5275	Life Cycle Assessment of Materials, Products, and Infrastructure	
CIVE 7301	Advanced Soil Mechanics	
CIVE 7302	Advanced Foundation Engineering	
CIVE 7311	Soil and Foundation Dynamics	
CIVE 7312	Earthquake Engineering	
CIVE 7388	Special Topics in Civil Engineering (Urban Informatics Processing)	
MATH 7241	Probability 1	
MATH 7342	Mathematical Statistics	
MATH 7343	Applied Statistics	
MATL 7365	Properties and Processing of Electronic Materials	
ME 5240	Computer Aided Design and Manufacturing	
ME 5650	Advanced Mechanics of Materials	
ME 5655	Dynamics and Mechanical Vibration	
ME 5657	Finite Element Method	
ME 5659	Control Systems Engineering	
ME 6200	Mathematical Methods for Mechanical Engineers 1	
ME 6201	Mathematical Methods for Mechanical Engineers 2	
ME 7205	Advanced Mathematical Methods for Mechanical Engineers	
ME 7210	Elasticity and Plasticity	
ME 7232	Theory of Plates and Shells	
ME 7238	Advanced Finite Element Method	
ME 7245	Fracture Mechanics and Failure Analysis	
ME 7255	Continuum Mechanics	
SBSY 5100	Sustainable Design and Technologies in Construction	
SBSY 5200	Sustainable Engineering Systems for Buildings	

Program Credit/GPA Requirements

32 total semester hours required

Minimum 3.000 GPA required