Civil Engineering with Concentration in Transportation, MSCivE (Boston)

This program is designed for students with career goals in transportation engineering and transportation planning. The degree requirements include core courses from the Department of Civil and Environmental Engineering (https://cee.northeastern.edu/academics/graduate-studies/ms-cive/), complemented by electives in civil and environmental engineering and by related courses in applied mathematics, engineering, economics, policy, and management.

Degree Requirements	With Project	With Thesis	Coursework Only
Required core courses	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	
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 (https://catalog.northeastern.edu/graduate/engineering/graduate-certificate-programs/).

GORDON INSTITUTE OF ENGINEERING LEADERSHIP

Master's Degree in Civil Engineering with Concentration in Transportation with Graduate Certificate in Engineering Leadership

Students may complete a Master of Science in Civil Engineering with Concentration in Transportation in addition to earning a Graduate Certificate in Engineering Leadership (https://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 fulfillment of the 12-semester-hour core curriculum and 8 semester hours of restricted electives from the transportation concentration coursework. For students who concurrently enroll in the Graduate Certificate in Engineering Leadership, 4 semester hours of the certificate coursework may be applied to the restricted elective requirement and 12 semester hours of the certificate coursework may be applied to the unrestricted elective requirement of this program's coursework option.

The Department of Civil and Environmental Engineering encourages students pursuing a GIEL certificate to complete their MS coursework requirements in their first year and their GIEL certificate requirements in their second year. Students who prefer to complete their GIEL certificate requirements in their first year are asked to speak with their MS degree advisor beforehand.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
CIVE 5373	Transportation Systems: Analysis and Planning	4
CIVE 5376	Traffic Engineering and Sustainable Urban Street Design	4
IE 6200	Engineering Probability and Statistics	4

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
Complete 12 semester hours from the restricted electives list below. (p. 2)		12
Complete 8 semester hours from the other electives list below. (p. 2)		8

REPORT OPTION

Code	Title	Hours
CIVE 7945	Master's Project	4
Complete 8 semester hours from the restricted electives list below. (p. 2)		8
Complete 8 semester hours from the other electives list below. (p. 2)		8

THESIS OPTION

Code	Title	Hours
CIVE 7945	Master's Project	4
CIVE 7990	Thesis	4
Complete 8 semester hours from the restricted electives list below. (p. 2)		8
Complete 4 semester hours from the other electives list below. (p. 2)		4

In addition to completing the thesis course, students must successfully complete the thesis submission process, including securing committee and Graduate School of Engineering signatures and submission of an electronic copy of their MS thesis to ProQuest.

Optional Co-op Experience

Code	Title	Hours
Complete the following (students must complete ENCP 6100 to qualify for co-op experience):		
ENCP 6100	Introduction to Cooperative Education	1
ENCP 6964	Co-op Work Experience	0
or ENCP 6954	Co-op Work Experience - Half-Time	
or ENCP 6965	Co-op Work Experience Abroad	
or ENCP 6955	Co-op Work Experience Abroad - Half-Time	

Program Credit/GPA Requirements

32 total semester hours required (33 with optional co-op)
Minimum 3.000 GPA required

RESTRICTED ELECTIVES LIST

Code	Title	Hours
CIVE 6566	Sustainable Urban Transportation: Netherlands	
CIVE 7150	Data-Driven Decision Support for Civil and Environmental Engineering	
CIVE 7151	Urban Informatics and Processing	
CIVE 7380	Performance Models and Simulation of Transportation Networks	
CIVE 7381	Transportation Demand Forecasting and Model Estimation	
CIVE 7382	Advanced Traffic Control and Simulation	
CIVE 7385	Public Transportation	
CIVE 7387	Design Aspects of Roadway Safety	
IE 7215	Simulation Analysis	
IE 7280	Statistical Methods in Engineering	

OTHER ELECTIVES LIST

Code	Title	Hours
Any restricted elective not used to meet the restricted elective requirement can be used as another elective. Courses outside this list may be taken as electives with advisor approval.		
DAMG 6210	Data Management and Database Design	
IE 7275	Data Mining in Engineering	
IE 7290	Reliability Analysis and Risk Assessment	
MATH 7343	Applied Statistics	
OR 6205	Deterministic Operations Research	
OR 7230	Probabilistic Operation Research	
OR 7245	Network Analysis and Advanced Optimization	
PPUA 5263	Geographic Information Systems for Urban and Regional Policy	