

Electrical and Computer Engineering with Concentration in Computer Systems and Software, MSECE (Boston)

For program contact information, please visit this website (<https://ece.northeastern.edu/academics/graduate-studies/ms-eeee/>).

The master's degree programs in electrical and computer engineering offer in-depth coursework within the concentration-choice-related areas. The curriculum is integrated and intensive and is built on groundbreaking research, taught by faculty who are experts in their areas.

Excluded Courses for All MSECE Concentrations

Students cannot take excluded courses as part of the MSECE program and may not petition to take these courses, as any petition to take these courses will be automatically rejected. Courses from the following subject areas may not count toward any concentration within the MSECE program: CSYE, DAMG, INFO, TELE. Select CS courses are also excluded from all MSECE concentrations. Please see the program requirements tab and your college administrator for more information.

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 Electrical and Computer Engineering with Concentration in Computer Systems and Software with Graduate Certificate in Engineering Leadership

Students may complete a Master of Science degree in Electrical and Computer Engineering with Concentration in Computer Systems and Software 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 40-semester-hour degree and certificate will require 24 semester hours of advisor-approved computer systems and software technical courses. For students who concurrently enroll in the Graduate Certificate in Engineering Leadership, 8 SH of the certificate project may be applied to this program's thesis requirements.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Fundamental Courses

Code	Title	Hours
Complete at least 8 semester hours from the following:		8
EECE 5640	High-Performance Computing	
EECE 7205	Fundamentals of Computer Engineering	
EECE 7352	Computer Architecture	
EECE 7376	Operating Systems: Interface and Implementation	

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
Concentration Courses		
Complete 16 semester hours from the concentration course list below. Any fundamental course not used to meet the fundamental course requirement can be used toward the concentration course requirement.		16
Electives		
Complete 8 semester hours from either concentration courses or from other concentrations.		8

THESIS OPTION

Code	Title	Hours
Thesis		
EECE 7945	Master's Project	4
EECE 7990	Thesis	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.

Concentration Courses

Complete 8 semester hours from the concentration course list below. Any fundamental course not used to meet the fundamental course requirement can be used toward the concentration course requirement. 8

Electives

Complete 8 semester hours from either concentration courses or from other concentrations. 8

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	
ENCP 6964	Co-op Work Experience	
or ENCP 6954	Co-op Work Experience - Half-Time	
or ENCP 6955	Co-op Work Experience Abroad - Half-Time	
or ENCP 6965	Co-op Work Experience Abroad	

Course Lists

A maximum of three courses may be taken outside of electrical and computer engineering.

CONCENTRATION COURSES

Code	Title	Hours
EECE 5552	Assistive Robotics	
EECE 5640	High-Performance Computing	
EECE 5643	Simulation and Performance Evaluation	
EECE 5698	Special Topics in Electrical and Computer Engineering (Nano-Computing System Design)	
EECE 5699	Computer Hardware and System Security	
EECE 6400	Special Problems in Electrical and Computer Engineering (*For MSECE and PhD-BS students only)	
EECE 7205	Fundamentals of Computer Engineering	
EECE 7352	Computer Architecture	
EECE 7353	VLSI Design	
EECE 7368	High-Level Design of Hardware-Software Systems	
EECE 7376	Operating Systems: Interface and Implementation	
EECE 7390	Computer Hardware Security	
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Advanced Computer Architecture)	
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Compilers)	
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Field Programmable Gate Arrays in the Cloud)	
EECE 7400	Advanced Special Problems in Electrical and Computer Engineering (*For PhD-AE students only)	
CS 5200	Database Management Systems	
CS 5500	Foundations of Software Engineering	
CS 5600	Computer Systems	
CS 6410	Compilers	
CS 6510	Advanced Software Development	
CS 6650	Building Scalable Distributed Systems	

EXCLUDED COURSES FOR ALL MSECE CONCENTRATIONS

Please see your college administrator for more information.

Code	Title	Hours
Courses from the following subject areas may not count toward any concentration within the MSECE program:		
CSYE, DAMG, INFO, TELE		

The following CS courses may not count toward any concentration within the MSECE program:

CS 5010	Programming Design Paradigm
CS 5330	Pattern Recognition and Computer Vision
CS 5340	Computer/Human Interaction
CS 5520	Mobile Application Development
CS 5610	Web Development
CS 5700	Fundamentals of Computer Networking
CS 5800	Algorithms
CS 6140	Machine Learning
CS 6350	Empirical Research Methods

Program Credit/GPA Requirements

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

Minimum 3.000 GPA required