

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

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

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.

Program Requirements

Beginning with students admitted in the fall of 2026, all students pursuing on-ground master's degree programs must complete a university-level experiential learning requirement. This requirement may be fulfilled through the curriculum, co-op, or other work- or industry-integrated learning experiences.

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.		16
Any fundamental course not used to meet the fundamental course requirement can be used toward the concentration course requirement.		
Electives		
Students may complete a maximum of 8 semester hours from either the concentration course list or a maximum of 8 semester hours from the elective course list.		8

PROJECT OPTION

Code	Title	Hours
Project		
EECE 7945	Master's Project	
Concentration Courses		
Complete 12 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.		12
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	1
ENCP 6964	Co-op Work Experience	0
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	

Program Credit/GPA Requirements

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

Minimum 3.000 GPA required

Course Lists

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

CONCENTRATION COURSES

Code	Title	Hours
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	
EECE 5552	Assistive Robotics	
EECE 5640	High-Performance Computing	
EECE 5643	Simulation and Performance Evaluation	
EECE 5698	Special Topics in Electrical and Computer Engineering (Cyber-Physical Security of IoT Systems in the Age of AI)	
EECE 5698	Special Topics in Electrical and Computer Engineering (Field Programmable Gate Arrays in the Cloud)	
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	
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 7440	Electrical and Computer Engineering Leadership Challenge Project 1	

Elective Courses

Code	Title	Hours
The following course codes at the 5xxx level and above are eligible as electives:		
CS, CY, EECE, IE, ME (excepting excluded courses)		

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