

Cyber-Physical Systems, MS (Boston)

The Master of Science in Cyber-Physical Systems (<https://coe.northeastern.edu/academics-experiential-learning/academic-departments/mgen/ms-cyps/>) with a concentration in the Internet of Things is designed to prepare our graduates for a world of connected devices. This innovative multidisciplinary program is designed to meet the demand for a new kind of specialist—one who can engineer and develop new interactive services; acquire, fuse, and process the data collected from sensors, actuators, controllers, and other devices; and develop architectures to interconnect these elements as part of larger, more diverse systems. It is expected that careers in this rapidly evolving area will encompass industry sectors ranging from energy, healthcare, transportation, and infrastructure to manufacturing.

This program integrates the study of wireless networking, protocols, sensor networks, security, software development, embedded systems, data analytics, and Big Data to provide students with the knowledge and tools to develop IoT applications, to analyze and design IoT architectures for different application domains, and to develop data analytic tools to analyze the large amounts of data generated by the massive deployment of IoT devices.

Degree Requirements

Students in the program must complete 32 semester hours of approved coursework with a minimum grade-point average of 3.000. Students can complete a master's degree by pursuing any one of the three options: coursework option, project option, and thesis option. Specific degree requirements for each of these options can be found under the Program Requirements tab. Although there are some dependencies among the core courses, the program may be started in either the fall or spring semester.

Master's Project and Thesis options must be carried out under the supervision of a professor and must have prior approval of the program director. Proposals for a Master's Project or a Thesis need to be submitted at least one month before the start of the semester.

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/>).

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
TELE 6510	Fundamentals of the Internet of Things	4
TELE 6530	Connected Devices	4
Complete two of the following:		8
CSYE 6200	Concepts of Object-Oriented Design	
TELE 6500	Machine Learning for IoT Systems	
TELE 6550	IoT Embedded System Design	

Options

Complete one of the following options:

COURSEWORK OPTION

Code	Title	Hours
Complete 16 semester hours from the electives course list below.		16

PROJECT OPTION

Code	Title	Hours
TELE 7945	Master's Project	4
Complete 12 semester hours from the electives course list below.		12

THESIS OPTION

Code	Title	Hours
TELE 7945	Master's Project	4
TELE 7990	Thesis	4
Complete 8 semester hours from the electives course list below.		8

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.

Electives

Code	Title	Hours
Complete courses from any of the following subject codes:		
CSYE		
DAMG		
INFO		
TELE		

Optional Co-op Experience

Code	Title	Hours
Complete the following. Students must complete ENCP 6000 to qualify for co-op experience:		
ENCP 6000	Career Management for Engineers	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