Cyber-Physical Systems, MS (Toronto)

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 the project option.

The Master's Project option 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 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
TELE 7945	Master's Project	4
Complete two out of the following three:		8
CSYE 6200	Concepts of Object-Oriented Design	
or INFO 5100 and INFO 5101	Application Engineering and Development and Lab for INFO 5100	
TELE 6500	Machine Learning for IoT Systems	
or INFO 6150	Web Design and User Experience Engineering	
TELE 6550	IoT Embedded System Design	

Electives

Code	Title	Hours
Complete 12 semester hours from the following options:		12
CSYE 6225	Network Structures and Cloud Computing	
CSYE 7230	Software Engineering	
CSYE 7280	User Experience Design and Testing	
DAMG 6210	Data Management and Database Design	
DAMG 7275	Advanced Database Management Systems	
INFO 6205	Program Structure and Algorithms	
INFO 6250 and INFO 6251	Web Development Tools and Methods and Lab for INFO 6250	
INFO 6660	Business Ethics and Intellectual Property for Engineers	
INFO 7390	Advances in Data Sciences and Architecture	
TELE 5330 and TELE 5331	Data Networking and Lab for TELE 5330	

| TELE 5360 | Internet Protocols and Architecture |
| TELE 7374 | Special Topics in the Internet of Things |

Program Credit/GPA Requirements

32 total semester hours required
Minimum 3.000 GPA required