Information Systems, MSIS—Bridge (Toronto)

The Master of Science in Information Systems—Bridge (https://coe.northeastern.edu/academics-experiential-learning/academic-departments/mgen/ms-insy-bridge/) (MSIS-Bridge) addresses the needs of the digital revolution by preparing students with non–STEM, nontechnical bachelor's degrees to become information systems professionals. MSIS-Bridge students are the link between business users and technologists. As industries launch into a digitized future, professionals with a clear understanding of how technology can be used to address significant societal challenges are in demand. The MSIS-Bridge program closes the gaps between business management, software engineering, and information technology to help students solve complex real-world issues in business and society. It also upskills and reskills to help individuals or businesses identify organizational skills gaps and create a tactical training plan to fill them with new skills and knowledge. Through specially created and selected core courses, students gain the engineering foundation needed to excel in the classroom and in the IT sector.

Program Requirements

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
INFO 5001	Application Modeling and Design	4
INFO 5002	Introduction to Python for Information Systems	4
INFO 5100 and INFO 5101	Application Engineering and Development and Lab for INFO 5100	4

Options

Complete one of the following options:

PROJECT OPTION

Code	Title	Hours
INFO 7945	Master's Project	4
Complete a minimum of 12 semester hours from the Restricted Electives course list below. (p. 1)		12
Complete the remaining 12 semester hours from the Restricted Electives or the Electives course list below. (p. 1)		12

THESIS OPTION

Code	Title	Hours
INFO 7945	Master's Project	4
INFO 7990	Thesis	4
Complete a minimum of 12 semester hours from the Restricted Electives course list below. (p. 1)		12
Complete the remaining 8 semester hours from the Restricted Electives or the Electives course list below. (p. 1)		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.

Restricted Electives

Code	Title	Hours
DAMG 6210	Data Management and Database Design	
INFO 6150	Web Design and User Experience Engineering	
INFO 6205	Program Structure and Algorithms	
INFO 6245	Planning and Managing Information Systems Development	
INFO 6255	Software Quality Control and Management	
INFO 6350	Smartphones-Based Web Development	
INFO 7245	Agile Software Development	
INFO 7385	Managerial Communications for Engineers	

Electives

Code	Title	Hours
CSYE 6200	Concepts of Object-Oriented Design	
CSYE 6205	Concepts of Object-Oriented Design with C++	
CSYE 6225	Network Structures and Cloud Computing	
CSYE 6230	Operating Systems	

CSYE 6305	Introduction to Quantum Computing with Applications
CSYE 7105	High-Performance Parallel Machine Learning and AI
CSYE 7125	Advanced Cloud Computing
CSYE 7200	Big-Data System Engineering Using Scala
CSYE 7215	Foundations of Parallel, Concurrent, and Multithreaded Programming
CSYE 7220	Deployment and Operation of Software Applications
CSYE 7230	Software Engineering
CSYE 7235	Model-Driven Architecture
CSYE 7270	Building Virtual Environments
CSYE 7280	User Experience Design and Testing
CSYE 7374	Special Topics in Computer Systems Engineering
CSYE 7380	Theory and Practical Applications of AI Generative Modeling
DAMG 6105	Data Science Engineering with Python
DAMG 6210	Data Management and Database Design
DAMG 7245	Big-Data Systems and Intelligence Analytics
DAMG 7250	Big Data Architecture and Governance
DAMG 7275	Advanced Database Management Systems
DAMG 7350	Systems and Cybersecurity Fundamentals
DAMG 7370	Designing Advanced Data Architectures for Business Intelligence
DAMG 7374	Special Topics in Data Architecture and Management
INFO 6105	Data Science Engineering Methods and Tools
INFO 6106	Neural Modeling Methods and Tools
INFO 6150	Web Design and User Experience Engineering
INFO 6205	Program Structure and Algorithms
INFO 6215	Business Analysis and Information Engineering
INFO 6245	Planning and Managing Information Systems Development
INFO 6250 and INFO 6251	Web Development Tools and Methods and Lab for INFO 6250
INFO 6255	Software Quality Control and Management
INFO 6350	Smartphones-Based Web Development
INFO 6660	Business Ethics and Intellectual Property for Engineers
INFO 7110	High-Performance Coding for Fintech
INFO 7225	Accounting and Budgetary Systems for Engineers
INFO 7245	Agile Software Development
INFO 7250	Engineering of Big-Data Systems
INFO 7255	Advanced Big-Data Applications and Indexing Techniques
INFO 7260	Business Process Engineering
INFO 7285	Organizational Change and IT
INFO 7374	Special Topics in Information Systems
INFO 7375	Special Topics in Artificial Intelligence Engineering and Applications
INFO 7380	User Experience Design for Healthcare Applications
INFO 7385	Managerial Communications for Engineers
INFO 7390	Advances in Data Sciences and Architecture
INFO 7405	Advances in Engineering Medical Information Systems
INFO 7410	Advanced Medical Device Software Engineering
INFO 7500	Cryptocurrency and Smart Contract Engineering
INFO 7510	Smart Contract Application Engineering and Development
INFO 7520	Engineering of Advanced Cryptocurrency Systems
INFO 7525	Regulatory Aspects of Smart Contract Automation
INFO 7535	Digital Smart Contracts Product Innovations
INFO 7610	Special Topics in Natural Language Engineering Methods and Tools
INFO 7976	Directed Study
TELE 5330 and TELE 5331	Data Networking and Lab for TELE 5330

TELE 5350	Telecom and Network Infrastructure
TELE 5360	Internet Protocols and Architecture
TELE 5600	Linux/UNIX Systems Management for Network Engineers
TELE 6300	Communication and Network Security
TELE 6400	Software-Defined Networking
TELE 6420	Infrastructure Automation Design and Tools
TELE 6500	Machine Learning for IoT Systems
TELE 6510	Fundamentals of the Internet of Things
TELE 6530	Connected Devices
TELE 6550	IoT Embedded System Design
TELE 7374	Special Topics in the Internet of Things

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

40 total semester hours required (41 with optional co-op)
Minimum 3.000 GPA required