

# Telecommunication Networks, MS

For program contact information, please visit this website (<https://coe.northeastern.edu/academics-experiential-learning/academic-departments/mgen/ms-tnet/>).

The Master of Science in Telecommunication Networks is designed for professionals currently in the telecommunications or networking field who either wish to enhance their technical skills and credentials or who wish to make a transition to the business side of telecommunications or networking. We also welcome applications from prospective students with limited industry experience. This program, which may be pursued on a full- or part-time basis, is one of only a very few master's programs in telecommunications and networking in the United States that is truly multidisciplinary, giving students the flexibility to tailor the curriculum to their specific interests, backgrounds, and career goals.

## Degree Requirements

The program requires that a mix of core required courses and elective courses be taken—16 semester hours of core course work and a minimum of 16 semester hours of elective course work. Although there are some dependencies among the core courses, the program may be started in either the fall or spring semester. The four core courses each carry 4 semester hours of credit.

The technical electives include courses on network and communications technology and on the development of software systems and applications. The business electives are focused on engineering management and entrepreneurship. Electives come from approved lists of courses supplied by the colleges of engineering, business, and computer sciences. Students may take elective course work outside these lists only with the prior approval of the program director.

It is expected that students beginning this program will have an adequate background in the following areas: C, C++, or Java programming languages; probability and statistics; and differential and integral calculus.

Special topics courses, as well as other courses from outside the program, may be used as electives with prior approval of the program director.

Independent Study, usually 1 or 2 semester hours, or a Master's Project must be carried out under the supervision of a professor and must have prior approval of the program director. Proposals for Independent Study or a Master's Project need to be submitted at least one month before the start of the semester.

Directed Study, also for 1 or 2 semester hours, is sometimes available for students. For directed study projects, a student follows a prescribed curriculum, usually with some form of an exam at the end 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/>).

### **GORDON INSTITUTE OF ENGINEERING LEADERSHIP**

#### ***Master's Degree in Telecommunication Networks with Graduate Certificate in Engineering Leadership***

Students may complete a Master of Science in Telecommunications Networks 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 32-semester-hour degree and certificate require 12 hours of technical core courses from the telecommunication networks program and 4 hours from the technical course list provided for this program.

## Program Requirements

Complete all courses and requirements listed below unless otherwise indicated. Students may not register for more than 10 semester hours in the fall and spring terms and 4 semester hours in each of the three summer terms. Any exceptions must be approved by the program director.

### Core Requirements

Code	Title	Hours
TELE 5330 and TELE 5331	Data Networking and Lab for TELE 5330	4
TELE 5340	Telecommunications Public Policy and Business Management	4
TELE 5350	Telecom and Network Infrastructure	4
TELE 5360	Internet Protocols and Architecture	4

**Electives**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
Complete a minimum of 16 semester hours from the course lists below. At least one elective course must be taken from the technical course list. (p. 2)		16

**BUSINESS COURSE LIST**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
EMGT 5220	Engineering Project Management	
EMGT 6225	Economic Decision Making	
EMGT 6305	Financial Management for Engineers	
ENTR 6212	Business Planning for New Ventures	
ENTR 6218	Business Model Design and Innovation	
ENTR 6219	Financing Ventures from Early Stage to Exit	
ENTR 6240	Emerging and Disruptive Technologies	
ENTR 6241	Entrepreneurial Marketing and Selling	
ENTR 6250	Lean Design and Development	
ENTR 6300	Managing a Technology-Based Business	
HRMG 6200	Managing People and Organizations	
INFO 6245	Planning and Managing Information Systems Development	
INNO 6200	Enterprise Growth and Innovation	
MGMT 6214	Negotiations	
MKTG 6200	Creating and Sustaining Customer Markets	

**TECHNICAL COURSE LIST**

<b>Code</b>	<b>Title</b>	<b>Hours</b>
CS 5520	Mobile Application Development	
CS 6710	Wireless Network	
CY 5150	Network Security Practices	
CY 6740	Network Security	
CSYE 6200	Concepts of Object-Oriented Design	
CSYE 6225	Network Structures and Cloud Computing	
EECE 5155	Wireless Sensor Networks and the Internet of Things	
EECE 5576	Wireless Communication Systems	
EECE 7364	Mobile and Wireless Networking	
INFO 6205	Program Structure and Algorithms	
INFO 6350	Smartphones-Based Web Development	
TELE 5600	Linux/UNIX Systems Management for Network Engineers	
TELE 6350	Unified Communications and Collaboration	
TELE 6400	Software-Defined Networking	
TELE 6420	Infrastructure Automation Design and Tools	
TELE 6510	Fundamentals of the Internet of Things	
TELE 6603	Special Topics—Networking	

**Program Credit/GPA Requirements**

Minimum of 32 total semester hours required

Minimum 3.000 GPA required