M.S. in Telecommunications

Background Requirements

The curriculum requires a background knowledge of computer and communications fundamentals such as signals and systems, data structure, computer architecture, computer networking, and basic communication systems. Students without a related background will be required to first take bridge courses from the following list depending on individual background in consultation with the graduate advisor. Bridge courses do not count toward the degree.

Code	Title	Credits
Bridge Courses		
ECE 353	Computer Organization and Architecture	3
CS 505	Programming, Data Structures, and Algorithms	3
ECE 321	Random Signals and Noise	3
ECE 333	Signals and Systems	3
ECE 421	Digital Data Communication	3

Degree Requirements

Candidates must complete a minimum of 30 credits: 15 credits in core courses, 6 credits in specialization courses, and 9 credits in elective courses (including MS Project and/or MS Thesis) in an area of specialization with a minimum overall GPA of 3.0. In addition, a minimum average 3.0 GPA is required in the core courses. Other ECE and non-ECE courses related to telecommunications may be taken as elective courses with the approval of the graduate advisor.

courses only option

Code	Title	Credits
Core Courses		
ECE 601	Linear Systems	3
ECE 644	Wireless Communications: Fundamentals to 5G	3
ECE 673	Random Signal Analysis	3
ECE 683	Cloud and IoT Networking and Security	3
ECE 637	Internet and Higher-Layer Protocols	3
Specialization Courses		
ECE 642	Introduction to Communication Systems: Evolution to 5G and Beyond	3
ECE 645	Design of Wireless Networks: 5G Architecture and Services	3
Electives		
Select three of the following:		
CS 650	Computer Architecture	3
or ECE 690	Computer Systems Architecture	
CS 652	Cognitive Cloud Networking - Architectures and Applications	3
CS 696	Network Management and Security	3
or ECE 698	Selected Topics in Electrical and Computer Engineering	
ECE 783	Computer Communication Networks	3
MGMT 620	Strategic Management of Technological Innovation	3
MGMT 635	Data Mining and Analysis	3

Master's project option

Code	Title	Credits
Core Courses		
ECE 601	Linear Systems	3
ECE 644	Wireless Communications: Fundamentals to 5G	3
ECE 673	Random Signal Analysis	3
ECE 683	Cloud and IoT Networking and Security	3
ECE 637	Internet and Higher-Layer Protocols	3

Specialization Courses		
ECE 642	Introduction to Communication Systems: Evolution to 5G and Beyond	3
ECE 645	Design of Wireless Networks: 5G Architecture and Services	3
Project		
ECE 700B	Master's Project	3
Electives		
Select two of the following:		
CS 650	Computer Architecture	3
or ECE 690	Computer Systems Architecture	
CS 652	Cognitive Cloud Networking - Architectures and Applications	3
CS 696	Network Management and Security	3
or ECE 698	Selected Topics in Electrical and Computer Engineering	
ECE 783	Computer Communication Networks	3
MGMT 620	Strategic Management of Technological Innovation	3
MGMT 635	Data Mining and Analysis	3

Master's thesis option

Code	Title	Credits
Core Courses		
ECE 601	Linear Systems	3
ECE 644	Wireless Communications: Fundamentals to 5G	3
ECE 673	Random Signal Analysis	3
ECE 683	Cloud and IoT Networking and Security	3
ECE 637	Internet and Higher-Layer Protocols	3
Specialization Courses		
ECE 642	Introduction to Communication Systems: Evolution to 5G and Beyond	3
ECE 645	Design of Wireless Networks: 5G Architecture and Services	3
Thesis [1]		
ECE 700B & ECE 701B	Master's Project and Master's Thesis	6
Electives		
Select one of the following:		
CS 650	Computer Architecture	3
or ECE 690	Computer Systems Architecture	
CS 652	Cognitive Cloud Networking - Architectures and Applications	3
CS 696	Network Management and Security	3
or ECE 698	Selected Topics in Electrical and Computer Engineering	
ECE 783	Computer Communication Networks	3
MGMT 620	Strategic Management of Technological Innovation	3
MGMT 635	Data Mining and Analysis	3

1 With permission of their research advisors, MS Telecom students intending to do an MS thesis shall first take 700B MS Project course. They must receive a satisfactory (S) grade in 700B before taking 701B MS Thesis course in the immediate following semester with the same research advisor. The thesis topic should be continuation of the work done in 700B.