

MASTER OF ENGINEERING IN WIRELESS COMMUNICATIONS AND COMPUTER NETWORKS

Wireless communications and computer networks are a rapidly-growing field which requires state-of-the-art engineering skills including wireless network protocols and standards, energy-efficient networking, modeling and performance analysis of distributed and mobile network computing, and cognitive radio networks. In this program, students will be exposed to the core of network communications, gain latest applied computer network techniques including data security and privacy, ability to design embedded system architecture for wireless communication systems and applications, and fundamentals of wireless radio communications and signal analysis.

Requirement	Credits
Minimum Credits Required	30
Maximum 400-Level Credit	12
Minimum 500-Level+ Credit	18
Maximum 700-Level Credit	4
Maximum Transfer Credit	9

Code	Title	Credit Hours
Core Courses (12-13)		
Select minimum 4 courses 12-13		
ECE 403	Digital and Data Communication Systems	3
or ECE 513	Communication Engineering Fundamentals	
ECE 408	Introduction to Computer Networks	4
or ECE 407	Introduction to Computer Networks with Laboratory	
ECE 517	Modern Wireless Network Protocols and Standards	3
or ECE 544	Wireless and Mobile Networks	
ECE 401	Communication Electronics	3
or ECE 525	RF Integrated Circuit Design	
ECE 503	5G Wireless Network: Architecture, New Radio, and Security	3
or ECE 504	Wireless Communication System Design	
Communication Elective (3-4)		
Select minimum 1 course from the following: 3-4		
ECE 403	Digital and Data Communication Systems	3
ECE 406	Wireless Communications Systems	3
or ECE 504	Wireless Communication System Design	
ECE 421	Microwave Circuits and Systems	3-4
or ECE 423	Microwave Circuits and Systems with Laboratory	
ECE 503	5G Wireless Network: Architecture, New Radio, and Security	3
ECE 511	Analysis of Random Signals	3
ECE 513	Communication Engineering Fundamentals	3
ECE 514	Digital Communication Principles	3

ECE 515	Modern Digital Communications	3
ECE 516	Coding for Distributed Storage Systems	3
ECE 519	Coding for Reliable Communications	3
ECE 520	Information Theory and Applications	3
Computer Networks Elective (3-4)		
Select minimum 1 course from the following:		3-4
ECE 407	Introduction to Computer Networks with Laboratory	3-4
or ECE 408	Introduction to Computer Networks	
ECE 517	Modern Wireless Network Protocols and Standards	3
ECE 541	Communications Networks Performance Analysis	3
ECE 543	Computer Network Security	3
ECE 544	Wireless and Mobile Networks	3
ECE 545	Modern Internet Technologies	3
Communication Electronics Elective (3-4)		
Select minimum 1 course from the following:		3-4
ECE 401	Communication Electronics	3
ECE 421	Microwave Circuits and Systems	3
or ECE 423	Microwave Circuits and Systems with Laboratory	
ECE 425	Analysis and Design of Integrated Circuits	3
ECE 525	RF Integrated Circuit Design	3
ECE 570	Fiber-Optic Communication Systems	3
ECE 576	Antenna Theory	3
ECE 578	Microwave Theory	3
ECE 589	Computer-Aided Design of Analog IC	3
Computer and Embedded Computing Elective (3-4)		
Select minimum 1 course from the following:		3-4
ECE 441	Smart and Connected Embedded System Design	4
ECE 510	Internet of Things and Cyber Physical Systems	3
ECE 518	Computer Cyber Security	3
ECE 528	Application Software Design	3
ECE 584	VLSI Architecture for Signal Processing and Communication Systems	3
ECE 585	Computer Organization and Design	3
ECE 586	Hardware Security and Advanced Computer Architectures	3
ECE 587	Hardware/Software Codesign	3
ECE 590	Object-Oriented Programming and Machine Learning	3
Electrical and Computer Engineering Elective (6-10)		
Select 2 to 3 courses from the following:		6-10
ECE 429	Introduction to VLSI Design	4

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ECE 501	Artificial Intelligence and Edge Computing	3
ECE 529	Advanced VLSI Systems Design	3
ECE 563	Artificial Intelligence in Smart Grid	3
ECE 565	Computer Vision and Image Processing	3
ECE 566	Machine and Deep Learning	3
ECE 569	Digital Signal Processing II	3