

Internet of Things, MS

The Master of Science in Internet of Things is an interdisciplinary program administered by the Institute for the Wireless Internet of Things, the Department of Electrical and Computer Engineering, and the Khoury College of Computer Sciences. This program is aimed at preparing highly qualified researchers and a specialized workforce that will lead the development of a globally interconnected continuum of untethered devices and objects interacting with the physical environment, people, and each other. The program will provide students with the necessary knowledge and skills to understand, design, and implement autonomous wireless networked systems of tomorrow operating in uncertain, challenging, extreme environments, through a combination of coursework, master project research, and/or industry experience.

Program Requirements

Core Requirements

Code	Title	Hours
EECE 5155	Wireless Sensor Networks and the Internet of Things	4
Complete one of the following:		4
EECE 5576	Wireless Communication Systems	
EECE 7364	Mobile and Wireless Networking	
Complete one of the following:		4
CS 5800	Algorithms	
CS 7800	Advanced Algorithms	
EECE 7205	Fundamentals of Computer Engineering	
Complete one of the following:		4
CS 6140	Machine Learning	
EECE 5612	Statistical Inference: An Introduction for Engineers and Data Analysts	
EECE 5644	Introduction to Machine Learning and Pattern Recognition	
EECE 5698	Special Topics in Electrical and Computer Engineering	
Complete one of the following:		4
EECE 7244	Introduction to Microelectromechanical Systems (MEMS)	
EECE 7368	High-Level Design of Hardware-Software Systems	
Complete 2 courses from the following for a total of 4 semester hours:		
EECE 7400	Special Problems in Electrical and Computer Engineering	1
ENTR 6230	Platform Innovation	3
or MGMT 6280	Innovation for Next-Generation Products and Systems	
Complete one of the following:		4
CY 5120	Applied Cryptography	
CY 5150	Network Security Practices	
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights	
CY 6740	Network Security	
CY 6750	Cryptography and Communications Security	
CY 6760	Wireless and Mobile Systems Security	
EECE 5641	Introduction to Software Security	
EECE 5699	Computer Hardware and System Security	

Options

COURSEWORK OPTION

Code	Title	Hours
Complete 4 semester hours from the course list below. (p. 1)		4

MASTER'S PROJECT OPTION

Code	Title	Hours
EECE 7674	Master's Project	4

COURSE LIST

Code	Title	Hours
Courses in College of Engineering		
<i>Electrical and Computer Engineering</i>		

EECE 5360	Combinatorial Optimization
EECE 5550	Mobile Robotics
EECE 5554	Robotics Sensing and Navigation
EECE 5606	Micro- and Nanofabrication
EECE 5638	Compilers for Modern Computer Architectures
EECE 5639	Computer Vision
EECE 5640	High-Performance Computing
EECE 5641	Introduction to Software Security
EECE 5642	Data Visualization
EECE 5643	Simulation and Performance Evaluation
EECE 5645	Parallel Processing for Data Analytics
EECE 5649	Design of Analog Integrated Circuits with Complementary Metal-Oxide-Semiconductor Technology
EECE 5652	Microwave Circuits and Networks
EECE 5666	Digital Signal Processing
EECE 5693	Electromagnetic Devices for RF and Wireless Communications
EECE 5697	Acoustics and Sensing
EECE 5698	Special Topics in Electrical and Computer Engineering (GNSS Signal Processing)
EECE 5698	Special Topics in Electrical and Computer Engineering (Network Programming)
EECE 5699	Computer Hardware and System Security
EECE 7150	Autonomous Field Robotics
EECE 7200	Linear Systems Analysis
EECE 7201	Solid State Devices
EECE 7202	Electromagnetic Theory 1
EECE 7204	Applied Probability and Stochastic Processes
EECE 7205	Fundamentals of Computer Engineering
EECE 7240	Analog Integrated Circuit Design
EECE 7242	Integrated Circuits for Mixed Signals and Data Communication
EECE 7245	Microwave Circuit Design for Wireless Communication
EECE 7247	Radio Frequency Integrated Circuit Design
EECE 7275	Antennas and Radiation
EECE 7310	Modern Signal Processing
EECE 7323	Numerical Optimization Methods
EECE 7336	Digital Communications
EECE 7337	Information Theory
EECE 7345	Big Data and Sparsity in Control, Machine Learning, and Optimization
EECE 7346	Probabilistic System Modeling and Analysis
EECE 7352	Computer Architecture
EECE 7370	Advanced Computer Vision
EECE 7374	Fundamentals of Computer Networks
EECE 7390	Computer Hardware Security
EECE 7397	Advanced Machine Learning
EECE 7398	Special Topics (Wireless Network Systems and Applications)
EECE 7398	Special Topics (An Experimental Approach to Wireless Communications)
EECE 7398	Special Topics (Terahertz Communications)
EECE 7398	Special Topics (Advances on Deep Learning)
<i>Bioengineering</i>	
BIOE 5250	Design, Manufacture, and Evaluation of Medical Devices
<i>Civil and Environmental Engineering</i>	
CIVE 5280	Remote Sensing of the Environment
CIVE 7150	Data-Driven Decision Support for Civil and Environmental Engineering
CIVE 7151	Urban Informatics and Processing
CIVE 7380	Performance Models and Simulation of Transportation Networks

Courses Outside College of Engineering

Khoury College of Computer Science*Computer Science*

CS 5700	Fundamentals of Computer Networking
CS 6140	Machine Learning
CS 7150	Deep Learning

Cybersecurity

CY 5120	Applied Cryptography
CY 5150	Network Security Practices
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights
CY 6720	Machine Learning in Cybersecurity and Privacy
CY 6740	Network Security
CY 6750	Cryptography and Communications Security
CY 6760	Wireless and Mobile Systems Security

D'Amore-McKim School of Business*Entrepreneurship and Innovation*

ENTR 6222	Competing in Dynamic, Innovation-Driven Markets
ENTR 6230	Platform Innovation

Management

MGMT 6280	Innovation for Next-Generation Products and Systems
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Entrepreneurship Technological

TECE 6222	Emerging and Disruptive Technologies
TECE 6300	Managing a Technology-Based Business
TECE 6340	The Technical Entrepreneur as Leader

Bouvé College of Health Sciences*Health Informatics*

HINF 5101	Introduction to Health Informatics and Health Information Systems
HINF 5200	Theoretical Foundations in Personal Health Informatics
HINF 5300	Personal Health Interface Design and Development
HINF 5301	Evaluating Health Technologies
HINF 6400	Introduction to Health Data Analytics

Nursing

NRSG 6306	Health Informatics
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College of Arts, Media and Design*Communication Studies*

COMM 6605	Youth and Communication Technology
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School of Law

LW 6101	Introduction to Legal Studies 1: Law and Legal Reasoning
LW 6102	Introduction to Legal Studies 2
LW 6140	Data Regulation and Compliance
LW 6231	Identifying and Securing Intellectual Property Rights
LW 6232	Intellectual Property and Media
LW 6400	Law, Policy and Legal Argument
LW 7369	Intellectual Property
LW 7669	Law and Technology

College of Social Sciences and Humanities*Law and Public Policy*

LPSC 7312	Cities, Sustainability, and Climate Change
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Public Policy and Urban Affairs

PPUA 5262	Big Data for Cities
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Political Science

POLS 7341	Security and Resilience Policy
POLS 7346	Resilient Cities
POLS 7441	Cyberconflict

Philosophy

PHIL 5005	Information Ethics
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College of Science

Physics

PHYS 5116	Network Science 1
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PHYS 5126	Contagion on Networks
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Program Credit/GPA Requirements

32 total semester hours required

Minimum 3.000 GPA required