

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

- Concentrations and course offerings may vary by campus and/or by program modality. Please consult with your advisor or admissions coach for the course availability each term at your campus or within your program modality.
- Certain options within the program may be *required* at certain campuses or for certain program modalities. Please consult with your advisor or admissions coach for requirements at your campus or for your program modality.

Fundamental 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 7398	Advanced Special Topics in Electrical and Computer Engineering (Deep Learning and Edge Computing in Wireless Networks)	
Complete one of the following:		4
EECE 7244	Introduction to Microelectromechanical Systems (MEMS)	
EECE 7368	High-Level Design of Hardware-Software Systems	
Complete one of the following for a total of 4 semester hours:		4
EECE 5698	Special Topics in Electrical and Computer Engineering (Spectrum Policy Issues for Wireless Communications Innovators)	
INNO 6230 and EECE 7400	Platform Innovation and Advanced Special Problems in Electrical and Computer Engineering	
MGMT 6280 and EECE 7400	Innovation for Next-Generation Products and Systems and Advanced Special Problems in Electrical and Computer Engineering	
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 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 concentration course list below. (p. 2)	4

MASTER'S PROJECT OPTION

Code	Title	Hours
EECE 7945	Master's Project	4

Concentration Course List

Any course in the following list will fulfill the coursework option, provided the student satisfies prerequisites and program requirements. Students can take courses outside this list with prior approval from the program director.

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 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 Systems	
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 5698	Special Topics in Electrical and Computer Engineering (Networked XR Systems)	
EECE 5698	Special Topics in Electrical and Computer Engineering (Spectrum Policy Issues for Wireless Communications Innovators)	
EECE 5698	Special Topics in Electrical and Computer Engineering (Terahertz Communications)	
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	Advanced Special Topics in Electrical and Computer Engineering (Advances on Deep Learning)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Advances in Communication Electronics)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Advances in Wireless Communications)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (An Experimental Approach to Wireless Communications)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Deep Learning and Edge Computing in Wireless Networks)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Wireless Network Systems and Applications)
<i>Bioengineering</i>	
BIOE 5250	Regulatory and Quality Aspects of Medical Device Design
<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	
<i>Computer Science</i>	
CS 5700	Fundamentals of Computer Networking
CS 6140	Machine Learning
CS 7150	Deep Learning
<i>Cybersecurity</i>	
CY 5120	Applied Cryptography
CY 5150	Network Security Practices
CY 5240	Cyberlaw: Privacy, Ethics, and Digital Rights
CY 6740	Network Security
CY 6760	Wireless and Mobile Systems Security
D'Amore-McKim School of Business	
<i>Entrepreneurship and Innovation</i>	
INNO 6200	Enterprise Growth and Innovation
INNO 6222	Competing in Dynamic, Innovation-Driven Markets
<i>Management</i>	
MGMT 6280	Innovation for Next-Generation Products and Systems
<i>Entrepreneurship Technological</i>	
ENTR 6240	Emerging and Disruptive Technologies
ENTR 6300	Managing a Technology-Based Business
ENTR 6340	The Technical Entrepreneur as Leader
Bouvé College of Health Sciences	
<i>Health Informatics</i>	
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

NRS 6306	Health Informatics
----------	--------------------

College of Arts, Media and Design*Communication Studies*

COMM 6605	Youth and Communication Technology
-----------	------------------------------------

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
-----------	--

Public Policy and Urban Affairs

PPUA 5262	Big Data for Cities
-----------	---------------------

Political Science

POLS 7341	Security and Resilience Policy
-----------	--------------------------------

POLS 7346	Resilient Cities
-----------	------------------

Philosophy

PHIL 5005	Information Ethics
-----------	--------------------

College of Science*Physics*

PHYS 5116	Network Science 1
-----------	-------------------

Program Credit/GPA Requirements

32 total semester hours required

Minimum 3.000 GPA required