

# 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 two courses from the following for a total of 4 semester hours:		
EECE 7400	Special Problems in Electrical and Computer Engineering	1
INNO 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 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
<b>Courses in College of Engineering</b>		
<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 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 (Wireless Network Systems and Applications)
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 (Terahertz Communications)
EECE 7398	Advanced Special Topics in Electrical and Computer Engineering (Advances on Deep Learning)
<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***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 6760 Wireless and Mobile Systems Security

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

INNO 6200 Enterprise Growth and Innovation

INNO 6222 Competing in Dynamic, Innovation-Driven Markets

*Management*

MGMT 6280 Innovation for Next-Generation Products and Systems

*Entrepreneurship Technological*

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***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

**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

POLS 7441 Cyberconflict

*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