

MASTER OF SCIENCE IN CYBERSECURITY*

* Indicates that this program is an Incubator Program. Please visit Incubator Programs for more information.

Requirement	Credits
Minimum Degree Credits	30
Minimum Foundational Course Credits	12
Minimum 500-Level / Graduate Law Credits	24
Maximum 400-Level Credits	9

Code	Title	Credit Hours
Foundational Courses		(12)
Master of Cybersecurity students must take at least 1 course in each foundational area.		
CS 528 or CS 558	Data Privacy and Security Advanced Computer Security	3
ECE 518 or ECE 543	Computer Cyber Security Computer Network Security	3
ITMS 548 or ITMS 578	Cyber Security Technologies Cyber Security Management	3
LAW 478 or LAW 252	Computer & Network Privacy Law of Privacy	3
Tracks		(18)
Select 18 credit hours from one of the following tracks:		
COMPUTER ENGINEERING TRACK		
Offered by the Department of Electrical and Computer Engineering		
ECE Cybersecurity Core Courses (select minimum 6 credit hours)		
ECE 420	Analytical Methods for Power System Economics and Cybersecurity	3
ECE 518	Computer Cyber Security (required) ¹	3
ECE 543	Computer Network Security (required) ¹	3
ECE 572	Secure Machine Learning Design and Applications	3
ECE 586	Hardware Security and Advanced Computer Architectures	3
ECE 597	Special Problems	3
ECE Cybersecurity Elective Courses (select minimum 6 credit hours)		
ECE 420	Analytical Methods for Power System Economics and Cybersecurity	3
ECE 503	5G Wireless Network: Architecture, New Radio, and Security	3
ECE 510	Internet of Things and Cyber Physical Systems	3
ECE 517	Modern Wireless Network Protocols and Standards	3
ECE 541	Communications Networks Performance Analysis	3

ECE 543	Computer Network Security	3
ECE 545	Modern Internet Technologies	3
ECE 565	Computer Vision and Image Processing	3
ECE 572	Secure Machine Learning Design and Applications	3
ECE 573	Cloud Computing and Cloud Native Systems	3
ECE 574	Data Science for Engineers	3
ECE 581	Elements of Smart Grid	3
ECE 586	Hardware Security and Advanced Computer Architectures	3
ECE 590	Object-Oriented Programming and Machine Learning	3
ECE 597	Special Problems	3

General Cybersecurity Elective Courses (select 0 to 1 course - advisor approved)

Option to select 0-3 credit hours

LAW 478	Computer & Network Privacy	3
LAW 252	Law of Privacy	3
LAW 379	Blockchain and the Law	2
ITMS 548	Cyber Security Technologies	3
ITMS 578	Cyber Security Management	3
CS 528	Data Privacy and Security	3
CS 558	Advanced Computer Security	3

ECE General Elective Courses (select 0 to 2 courses - advisor approved)

Option to select 0-8 credit hours

ECE 403	Digital and Data Communication Systems	3
ECE 408	Introduction to Computer Networks	3
ECE 437	Digital Signal Processing I	3
ECE 441	Smart and Connected Embedded System Design	4
ECE 460	Introduction to Signals and Systems for Advanced Studies ²	3
ECE 461	Introduction to Probability and Random Variables for Advanced Studies ²	3
ECE 501	Artificial Intelligence and Edge Computing	3
ECE 504	Wireless Communication System Design	3
ECE 508	Video Communications	3
ECE 511	Analysis of Random Signals	3
ECE 513	Communication Engineering Fundamentals	3
ECE 563	Artificial Intelligence in Smart Grid	3
ECE 566	Machine and Deep Learning	3
ECE 569	Digital Signal Processing II	3
ECE 579	Operations and Planning and Distributed Power Grid	3

ECE 580	Elements of Sustainable Energy	3
ECE 582	Microgrid Design and Operation	3
ECE 585	Computer Organization and Design	3
POWER AND ENERGY TRACK		
Offered by the Department of Electrical and Computer Engineering		18
ECE Cybersecurity Power and Energy Specialization Required Courses		
Select 12 credit hours		
ECE 420	Analytical Methods for Power System Economics and Cybersecurity	3
ECE 510	Internet of Things and Cyber Physical Systems	3
ECE 518	Computer Cyber Security (required) ¹	3
ECE 543	Computer Network Security (required) ¹	3
ECE 597	Special Problems	3
ECE Cybersecurity Elective Courses (select minimum 6 credit hours)		
Select 6 credit hours		
ECE 408	Introduction to Computer Networks	3
ECE 460	Introduction to Signals and Systems for Advanced Studies ²	3
ECE 461	Introduction to Probability and Random Variables for Advanced Studies ²	3
ECE 503	5G Wireless Network: Architecture, New Radio, and Security	3
ECE 517	Modern Wireless Network Protocols and Standards	3
ECE 528	Application Software Design	3
ECE 541	Communications Networks Performance Analysis	3
ECE 545	Modern Internet Technologies	3
ECE 563	Artificial Intelligence in Smart Grid	3
ECE 565	Computer Vision and Image Processing	3
ECE 573	Cloud Computing and Cloud Native Systems	3
ECE 581	Elements of Smart Grid	3
ECE 586	Hardware Security and Advanced Computer Architectures	3
ECE 590	Object-Oriented Programming and Machine Learning	3
COMPUTER SCIENCE TRACK		
Offered by the Department of Computer Science		18
CS Security Core Courses		
Select 6 credit hours		
CS 458	Introduction to Information Security	3
CS 527	Software Security	3
CS 528	Data Privacy and Security	3
CS 549	Cryptography and Network Security	3
CS 557	Cyber-Physical Systems Security and Design	3
CS 558	Advanced Computer Security	3

CS 559	Biometrics	3
CSP 544	System and Network Security	3
CS Security Elective Courses		
Select 3 credit hours		
CS 458	Introduction to Information Security	3
CS 520	Data Integration, Warehousing, and Provenance	3
CS 522	Advanced Data Mining	3
CS 525	Advanced Database Organization	3
CS 527	Software Security	3
CS 528	Data Privacy and Security	3
CS 544	Computer Networks II: Network Services	3
CS 549	Cryptography and Network Security	3
CS 550	Distributed Systems	3
CS 551	Operating System Design and Implementation	3
CS 556	Decentralized Machine Learning Systems	3
CS 557	Cyber-Physical Systems Security and Design	3
CS 558	Advanced Computer Security	3
CS 559	Biometrics	3
CS 562	Virtual Machines	3
CS 579	Online Social Network Analysis	3
CS 584	Machine Learning	3
CS 586	Software Systems Architectures	3
CS 589	Software Testing and Analysis	3
CSP 544	System and Network Security	3
CS Electives		
Select 9 credit hours of 400-level and above CS or CSP courses ³		
Students without a prior degree in computer science may be required to take some or all of the following courses: CS 201, CS 401, CS 402, and any other necessary prerequisites. This will likely increase the duration of the degree for such students.		
CYBERSECURITY MANAGEMENT TRACK		
Offered by the Department of Information Technology and Management		18
Select the following Foundational Course		
ITMS 578	Cyber Security Management	3
Select 15 credit hours		
ITMS 514	Programming for Cybersecurity Analytics	3
ITMS 518	Coding Security	3
ITMS 527	AI for Cybersecurity	3
ITMS 534	Human Factors in Cybersecurity	3
ITMS 557	Introduction to Cyber Warfare	3
ITMS 564	Cloud Computing Security	3
ITMS 579	Topics in Information Security	3-9
ITMS 584	Governance, Risk, and Compliance	3
ITMS 588	Incident Response, Disaster Recovery, and Business Continuity	3

ITMM 537	Vendor Management and Service Level Agreements	3
ITMM 585	Legal and Ethical Issues in Information Technology	3
ITMM 586	Information Technology Auditing	3
Select 3 credit hours of Cybersecurity or Cybersecurity-related elective courses		
Graduate courses from the College of Computing, Armour College of Engineering or Chicago-Kent College of Law		
CYBERSECURITY TECHNOLOGY TRACK		
Offered by the Department of Information Technology and Management 18		
Select the following Foundational Course		
ITMS 548	Cyber Security Technologies	3
Select 15 credit hours		
ITMS 514	Programming for Cybersecurity Analytics	3
ITMS 527	AI for Cybersecurity	3
ITMS 528	Database Security	3
ITMS 534	Human Factors in Cybersecurity	3
ITMS 546	Active Cyber Defense	3
ITMS 549	Cyber Security Technologies: Projects & Advanced Methods	3
ITMS 558	Operating Systems Security	3
ITMS 564	Cloud Computing Security	3
ITMM 585	Legal and Ethical Issues in Information Technology	3
ITMO 517	Shell Scripting for System Administration	3
ITMO 556	Introduction to Open Source Software	3
Select 3 credit hours of Cybersecurity or Cybersecurity-related elective courses		
Graduate courses from the College of Computing, Armour College of Engineering or Chicago-Kent College of Law		
DIGITAL FORENSICS TRACK		
Offered by the Department of Information Technology and Management 18		
Select the following Foundational Courses		
ITMS 548	Cyber Security Technologies	3
LAW 478	Computer & Network Privacy	3
Required Courses		
ITMS 538	Cyber Forensics	3
ITMS 555	Mobile Device Forensics	3
ITMS 583	Digital Evidence	3
Select 6 credit hours		
ITMS 534	Human Factors in Cybersecurity	3
ITMS 539	Steganography	3
ITMS 543	Vulnerability Analysis and Control	3
ITMS 557	Introduction to Cyber Warfare	3
ITMS 579	Topics in Information Security	3-9
ITMM 585	Legal and Ethical Issues in Information Technology	3
ITMO 517	Shell Scripting for System Administration	3

ITMO 556	Introduction to Open Source Software	3
Select 3 credit hours of Cybersecurity or Cybersecurity-related elective courses		
Graduate courses from the College of Computing, Armour College of Engineering or Chicago-Kent College of Law		
LAW AND POLICY TRACK		
Offered by Chicago-Kent College of Law 18		
Select 12 credit hours		
LAW 215	E Commerce	2,3
LAW 231	AI and the Law: Future of Law Practice	2
LAW 248	Emerging Technologies	2
LAW 252	Law of Privacy	3
LAW 379	Blockchain and the Law	2
LAW 478	Computer & Network Privacy	3
LAW 493	Legal Analytics 2	2
LAW 496	Programming for Lawyers	1,2
LAW 660	Privacy Rights in Employment	2
Select 6 credit hours of Cybersecurity or Cybersecurity-related elective courses		
Graduate courses from the College of Computing, Armour College of Engineering or Chicago-Kent College of Law		
Total Credit Hours		30

¹ ECE 518 or ECE 543 will be counted towards Foundational ECE courses

² Credit will be given only to students without the background of Computer or Electrical Engineering

³ This excludes: CS 401, CS 402, CS 403, CS 406, CS 491, CS 497, CS 591, CS 691 and CS 695.

All foundational and security elective courses must be satisfied by courses taken at Illinois Institute of Technology. Courses transferred from other universities can be used only as electives.

Some tracks have required foundational course selections.

Students without a prior degree, significant coursework, or certifications in computing may be required to take some or all of the following courses: CS 201, CS 401, CS 402, ECE 407, ECE 408, ITMD 504, ITMO 503, and any other necessary prerequisites. This will likely increase the duration of the degree for such students.