COMPUTER SECURITY CONCENTRATION, CYBERSECURITY (MS)

Course Requirements

Introductory Courses

Course	Title	Quarter Hours
CSC 400	DISCRETE STRUCTURES FOR COMPUTER SCIENCE	4
CSC 401	INTRODUCTION TO PROGRAMMING	4
CSC 402	DATA STRUCTURES I	4
CSC 403	DATA STRUCTURES II	4
CSC 406	SYSTEMS I	4
CSC 407	SYSTEMS II	4

Foundation Courses

Course	Title	Quarter Hours
CSC 435	DISTRIBUTED SYSTEMS I	4
SE 450	OBJECT-ORIENTED SOFTWARE DEVELOPMENT	4
NET 477	NETWORK SECURITY (FORMERLY TDC 477)	4
CSEC 440	INFORMATION SECURITY MANAGEMENT (FORMERLY CNS 440)	4
CSEC 450	DIGITAL FORENSIC TECHNIQUES (FORMERLY CNS 450)	4

Advanced Courses

Course	Title	Quarter Hours
CSEC 480	CYBERSECURITY AUTOMATION OPERATIONS	4
Select twelve (12) Credit Hours from the following:		12
CSC 439	COMPUTER SECURITY	
CSC 440	CRYPTOLOGY	
CSC 463	THEORY AND PRACTICE OF SAFE SYSTEMS PROGRAMMING	
CSEC 428	IT RISK MANAGEMENT	
CSEC 477	GOVERNANCE POLICIES IN INFORMATION ASSURANCE (FORMERLY CNS 477)	
NET 560	ADVANCED NETWORK TECHNOLOGIES AND DESIGN (FORMERLY TDC 560)	
NET 577	NETWORK SECURITY II (FORMERLY TDC 577)	
SE 525	SOFTWARE SECURITY ARCHITECTURE	
SE 526	SOFTWARE SECURITY ASSESSMENT	

Major Elective Courses

Students must complete **four (4) credit hours from CSEC courses in the range of 420 or higher or** a course from the list of courses below. That course cannot be used to fulfill a student's CSEC Concentration Area or Foundation Course requirements.

Course	Title	Quarter Hours
DSC 423	DATA ANALYSIS AND REGRESSION	
DSC 424	ADVANCED DATA ANALYSIS	
DSC 433	SCRIPTING FOR DATA ANALYSIS	
CSC 436	WEB APPLICATIONS	
CSC 438	FRAMEWORK FOR WEB APPLICATION DEVELOPMENT	
CSC 439	COMPUTER SECURITY	
CSC 440	CRYPTOLOGY	
DSC 465	DATA VISUALIZATION	
DSC 478	PROGRAMMING MACHINE LEARNING APPLICATIONS	
CSC 536	DISTRIBUTED SYSTEMS II	
CSC 557	FOUNDATIONS OF COMPUTER SECURITY	
CSE 426	CYBER-PHYSICAL SYSTEM SECURITY	
ECT 582	SECURE ELECTRONIC COMMERCE	
IS 444	IT AUDITING	
DSC 441	FUNDAMENTALS OF DATA SCIENCE	
IS 482	LEGAL RESPONSIBILITIES IN INFORMATION TECHNOLOGY	
IS 505	BUSINESS CONTINUITY/DISASTER RECOVERY THEORIES AND STRATEGIES	
IS 506	BUSINESS CONTINUITY/DISASTER RECOVERY MANAGEMENT AND TACTICS	
SE 433	SOFTWARE TESTING AND QUALITY ASSURANCE	
SE 441	CONTINUOUS DELIVERY AND DevOps	
SE 452	OBJECT-ORIENTED ENTERPRISE COMPUTING	
SE 482	REQUIREMENTS ENGINEERING	
SE 525	SOFTWARE SECURITY ARCHITECTURE	
SE 526	SOFTWARE SECURITY ASSESSMENT	
SE 529	SOFTWARE RISK MANAGEMENT	
NET 460	FOUNDATIONS OF NETWORK TECHNOLOGIES (FORMERLY TDC 460)	
NET 511	TELECOMMUNICATIONS PRACTICUM (FORMERLY TDC 511)	
NET 560	ADVANCED NETWORK TECHNOLOGIES AND DESIGN (FORMERLY TDC 560)	
NET 562	COMPUTER-COMMUNICATION NETWORK DESIGN & ANALYSIS (FORMERLY TDC 562)	
NET 563	PROTOCOLS AND TECHNIQUES FOR DATA NETWORKS (FORMERLY TDC 563)	
NET 567	TELECOMMUNICATION SYSTEMS DESIGN AND MANAGEMENT (FORMERLY TDC 567)	
NET 568	NETWORK MANAGEMENT (FORMERLY TDC 568)	
NET 577	NETWORK SECURITY II (FORMERLY TDC 577)	

CDM Open Elective Courses

Students must complete four (4) Credit Hours of advisor-approved graduate courses from the School of Computing in the range of 421-699. Open Elective courses must be within the range of 421-699 and must be chosen among : CSC, CSE, CSEC, DSC, ECT, GAM, HIT, IS, IT, NET, SE.

Capstone Options

Students have the option of completing the Information Security Governance course (4 credit hours) or the Cybersecurity Security Capstone course (4 credit hours) or completing a Master's Research Project (up to 8 credit hours) to fulfill their Capstone requirement. If a student chooses to complete a Master's Research project for 8 credit hours, 4 credit hours of CSC 695 replace one major or open elective course in the M.S. in Cybersecurity program. A student who completes a Master's Research project also has the option of completing a Master's Thesis.

Information Security Governance Course

- CSEC 587

Computer, Information and Network Security Capstone Course

- CSEC 594

Master's Research

- Students interested in a more-in-depth study of a particular area can choose to work with a faculty member (not necessarily their academic advisor) on an independent study or research project. The student will register for up to 8 credit hours of CSC 695. If a student chooses to complete a Master's Research Project for 8 credit hours, 4 credit hours of CSC 695 replace one more or open elective course in the MS in Cybersecurity program.

Master's Thesis

- A student who has made an original contribution to the area (typically, through work done by CSC 695) may choose to complete a Master's Thesis. The student and the student's research advisor should form a Master's Thesis Committee of 3 faculty. The student will need to submit to the committee a thesis detailing the results of the research project. After a public defense, the committee will decide whether to accept the thesis. In that case, the student will be allowed to register for the 0 credit course CSC 698 and the transcript will show the thesis title as the course topic.