# **CYBERSECURITY: NETWORKING AND SECURITY OPERATIONS - DEGREE**

#### Associate of Applied Science Degree Program

### **Faculty Advisers**

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Cybersecurity is the act of protecting computer networks, devices, and data from unauthorized access or criminal use. It also helps ensure the confidentiality, integrity and availability of information. It is assumed that almost all computer careers by the end of the decade will require some level of cybersecurity training.

Students in this program will learn hardware and software repair, how to prepare and build networks, security, defense, and cryptography (the art of writing or solving codes); business continuity and disaster recovery, and "ethical hacking". Students will also be able to compete in teams against other colleges nationwide.

Students may prepare for certifications such as: CCNA, CompTIA, EC-Council, and others.

Please note: All core (CIS, ISTM) courses must be completed within 5 years of starting the program.

For success in this program, entering students are recommended to be proficient in basic computer skills. Students without computer experience or who want to brush up on computer skills before beginning this program are encouraged to enroll in BCS090 Computer Basics for College Success, a FREE course offered through the Learning Success Center.

## **Program Outcomes**

At the completion of this program, students should be able to:

- · Perform preventative hardware and software maintenance
- · Troubleshoot and correct computer hardware and software problems
- Conceptualize, design and diagram possible solutions for a given networking environment
- · Work with others as part of a computer security team
- · Assemble, reconfigure and upgrade personal computers
- Perform basic network and operating system administration, configuration and system security for both wired and wireless networks
- Configure and troubleshoot access to resources, hardware devices and drivers, storage use and network connections
- Analyze Internet security issues and apply them to network design problems
- · Design a disaster recovery plan for a real-world scenario

- Communicate effectively and professionally in the information technology environment
- Perform necessary "white hat" attacks on a network to assess vulnerabilities
- · Perform basic computer forensics on a variety of storage medium
- Design an appropriate risk analysis for a given business in a particular environment

## General education courses (such as math, writing, health, etc.) can be taken during any term, or before starting the program.

First Quarter		
Fall		Credits
CIS151	Introduction to Networks	4
ISTM100A	Preparation For An Education in I.T. and Cybersecurity 1 🖈	1
ISTM183C	Fundamentals of CyberSecurity	3
WR121Z	Composition I ★	4
Human Relations degree-certificate	Requirement (https://catalog.mhcc.edu/ -requirements/aas/#human)	3-4
	Credits	15-16
Second Quarter		
Winter		
CIS125SS	Spreadsheets 🖈	3
CIS152	Switching, Routing and Wireless Essentials	4
ISTM100B	Preparation For An Education in I.T. and Cybersecurity 2 $\bigstar$	1
ISTM183A	Preparation for A+ Essentials	3
ISTM133P	Introduction to Python 🛧	4
ISTM283A	Fundamentals of Disaster Recovery and Business Continuity 🖈	3
	Credits	18
Third Quarter Spring		
CIS153	Enterprise Networking, Security, and Automation	4
ISTM100C	Preparation For An Education in I.T. and Cybersecurity 3 $\bigstar$	1
ISTM140L	Preparation for Linux 🖈	4
ISTM171	Introduction to Cloud and Virtualization Technologies $\bigstar$	3
ISTM183B	Preparation for A+ Practical Application 🚖	3
Health and PE Re degree-certificate	quirement (https://catalog.mhcc.edu/ -requirements/aas/#health)	3
	Credits	18
Fourth Quarter Fall		
CIS276	SQL	4
CIS279S	Windows Server OS	4
or ISTM279A	or Windows Server (Azure)	
ISTM189	Wireless Security ★	3
ISTM283CC	Cyber Competition	3
	Credits	14

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### Fifth Quarter

	Total Credits	96-100
	Credits	15-17
MTH065 or MTH05	Beginning Algebra II 🚖 (or higher) 8 or Quantitative Reasoning I	4-6
ISTM283F	Practical Digital Forensics	3
ISTM233P	Python for Cyber Security 🖈	4
Sixth Quarter Spring Select a coulist to complete CIS297 or WE280 or WE280 or WE280 or wE280 or wE280	r rse or combination of courses from the following ete a minimum of 4 credits: Capstone Project Development or Coop Ed-Computer Applications CAA or Coop Ed-Computer Applications or Coop Ed-Computer Applications CAB or Coop Ed-Computer Applications CAC CAD	4
	Credits	16-17
ISTM235	MA Mobile Apps 1: Introduction to iOS Mobile Applications Development	
CS161	Computer Science I	
CIS197CS	P Web Authoring: Client-Side Programming ★ (offered only in fall)	
CIS125GA	Beginning Game Programming 🚖	
Select one p	rogramming elective from the following:	3-4
ISTM284E	Ethical Hacking	3
ISTM283CO	Cyber Operations	3
ISTM283B	Firewall Implementation	3
CIS284S	Prenaration for Security+	4

<sup>1</sup> Students planning to transfer to a four-year university should take CIS297 Capstone Project Development, while those planning to enter the workforce after graduation should take WE280CAD Coop Ed-Computer Applications.

 <sup>2</sup> While not required, students are highly encouraged to take courses over the summer to help reduce some of the larger term loads. Students should speak with a department advisor about which courses are offered in the summer.