

# SCIENCE, TECHNOLOGY, ENGINEERING & MATH (STEM)

## CAREER CLUSTER

PROGRAM OF STUDY:

### CYBER SECURITY

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology <u>OR</u>	1.0	1	8	Jr High
Introduction to Computer Science <u>OR</u> Computer Science I	1.0 1.0	1 1	9-12 9-12	Home Campus Home Campus
<u>OR</u> AP Computer Science Principles <i>Prerequisite: Algebra I</i>	1.0	1	9-12	Home Campus
<u>OR</u> AP Computer Science A <u>OR</u> <i>Prerequisite: Algebra I</i> <i>Successful completion of this course awards one advanced math credit and one language other than English credit</i>	1.0	1	9-12	Home Campus
Computer Technician <u>OR</u> Network Engineering I & Lab <i>Prerequisite: Principles of Information Technology* or Intro to Computer Science* or Computer Science I* or AP Computer Science Principles* or AP Computer Science A* or Computer Technician*</i> <i>*The Classes of 2025 and 2026 are waived from the prerequisite requirement for Network Engineering.</i> <i>Note: Students must have completed Algebra II or be concurrently enrolled in Algebra II</i>	2.0 2.0	2 2	11-12 11-12	MCTC MCTC
Cyber Security I & II <i>Prerequisite: Principles of Information Technology, or Introduction to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A or Computer Technician or Network Engineering I &amp; Lab</i>	2.0	2	11-12	MCTC



## 8678V CYBER SECURITY I - FALL SEMESTER

## 8679V CYBER SECURITY II - SPRING SEMESTER

**Grades: 11-12 1 Credit Each Course**

*Prerequisite: Either Principles of Information Technology or Introduction to Computer Science or Computer Science I or AP Computer Science Principles, or AP Computer Science A or Computer Technician (formerly Computer Maintenance) or Cisco Network Engineering I/Lab.*

This course provides an understanding of cybersecurity concepts, system vulnerabilities, common cyber-attack mechanisms and tools, intrusion detection systems, and methods to mitigate cybersecurity risks. Simulated and hands-on labs provide experience in various areas including firewall, router, and switch security, cryptography, encryption, VPNs, virtualization, steganography, hashing, security design principles, and social engineering.

## EXPECTATIONS OF STUDENTS

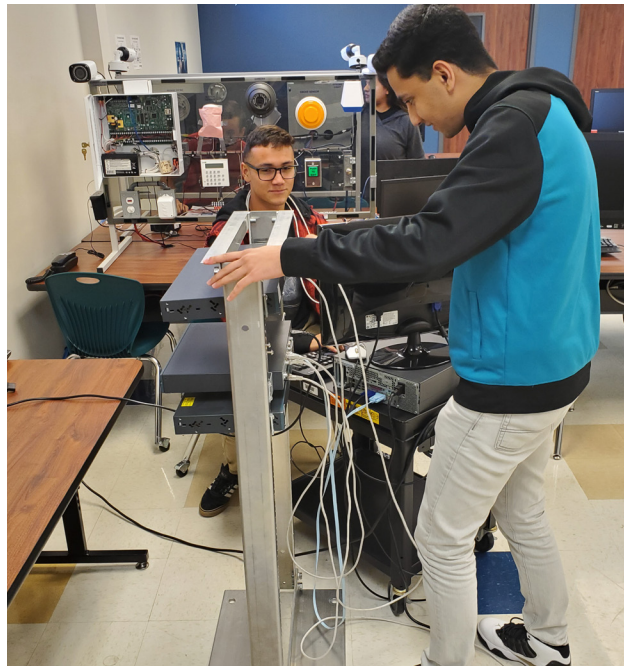
- Ability to learn theory through both lecture and the computer-based lab area.
- Exhibit ability to work independently during lab time.
- Ability to apply learned skills on various simulators including programmable logic controls (PLC), electronics, pneumatics/hydraulics, and computer numerical controls (CNC).

## PROGRAM EXPERIENCES

Many day-to-day functions and activities are shifting globally to an online or virtual setting, including shopping, payment methods, hospital record keeping, office meetings and even classroom instruction. While there are benefits to embracing the digital age, one potential major issue is the security of personal and confidential information. The Cyber Security field is rapidly growing as we find ways to protect people's privacy online. This course provides students knowledge and experience through hands-on lab time, including projects in ethical hacking, cryptography practice, digital forensics, Raspberry Pi projects, and risk management. Students will also have the opportunity to be exposed to several potential job options within the Cyber industry.

## CERTIFICATION OPPORTUNITIES

After completion of this course, students will be prepared to take the CompTIA Security+ certification exam, which is an entry level industry certification. It lays the foundation for a career in the Cyber Security field.



## CAREER POSSIBILITIES

- Chief Information Officer
- Cryptography
- IT Security Consultant
- IT Security Engineer
- Junior IT Auditor/Penetration Tester
- Network Administrator