Cybersecurity

Course Description

This is a full year course for students in 9th grade and above. It is designed to foster interest in Information Technology and networking careers. Students taking this course will develop the knowledge and skills required to identify and explain the basics of computing, IT infrastructure, applications, software development, database use, and security concepts. This will prepare students taking this course to take the CompTIA Tech+ (formerly ITF+) certification exam.

Course Objectives

- Identify and understand the purpose of computer components
- Understand how to implement the best IT and security practices
- Define and identify basics
- Compare and contrast different connector types
- Compare and contrast operating systems and their functions and features
- Define and identify basic security threats
- Perform proper steps to set up a basic workstation
- Prepare, take and pass the CompTIA Tech+ exam

Assessing Performance

Formative assessment includes worksheets, interactive activities, and quizzes for each lesson. Summative assessment includes projects and tests for each unit, with a final exam.

Equipment	Cost/Unit
Consumable Material, Reusable Material	$0
Classroom set of computers/Chromebooks	$0 if you already have, $500-$600 per device if you need to purchase
CompTIA Exam	$150

First Semester	
Unit 0: Introduction, Certification & Careers	Course introduction, explanation of certification exams and their importance in IT, career options
Unit 1: IT Concepts & Technology	Basics of computing, notational systems, units of measure, troubleshooting methodology
Unit 2: What is Cybersecurity?	Why cybersecurity matters and is needed
Unit 3: Applications & Operating Systems	Purpose of operating systems, OS components, purpose and proper use of software, web browsers, artificial intelligence
Unit 4: Risk, Adversity & Trust	Importance of trustworthiness in cyberspace
Unit 5: Cryptology	Codes
Unit 6: Software Development Concepts	Programming language categories, programming concepts
Unit 7: Hardware & Software Configuration	Internal computing components, storage types, peripheral devices, input/output devices and interfaces
Unit 8: Threats, Vulnerabilities & Attacks	Attacks and threat sources

Second Semester	
Unit 9: Data & Database Fundamentals	Value of data and information, database concepts, structures
Unit 10: Data Security	Data in cyberspace
Unit 11: Security	Fundamental security concepts and frameworks, best practices, encryption, wireless network installation
Unit 12: Malware & Digital Forensics	Malicious software and digital forensics
Unit 13: Introduction to Networking	Virtualization and cloud technologies, internet service types, networking concepts, authentication, authorization and accounting
Unit 14: States, Statelessness, Sovereignty & Cybersecurity	National Security Council, social values and ideologies
Unit 15: Final & Tech+ Certification Prep	Exam review and practice certification tests