Networking Essentials program

- ## Objectives

No matter you want to be a Network and security department or not, everybody need to have a foundational understanding of networking and its important role in our daily lives and the success of businesses of all sizes.

- ## Course Overview

Networking Essentials teaches networking based on application, covering networking concepts within the context of network environments students may encounter in their daily lives – from small office and home office (SOHO) networking Students who complete this course are prepared to begin the CCNA Routing & Switching and IoT curricula.

- ## Benefits

Students will recognize the significant impact of networking in the world and learn skills needed for entry-level home and small business network installation positions. Will also begin to develop skills needed to become network technicians, cable installers, and help desk technicians. This course also serves as a foundation for CCNA ITN course.

- ## Learning Components
  - 9 chapters
  - hands-on labs
  - Cisco Packet Tracer files
  - hands on skill assessment
  - chapter exams, checkpoint exam, practice final exam, final exam
  - Final project

- ## Portfolio Positioning: Foundational

Target Audience: High schools, secondary schools, career and technical schools, community organizations. College and university students studying other non-IT fields
Prerequisites: None
Languages: English.
Course Delivery: online using zoom application
Estimated Time to Complete: 40 hours
Recommended Next Course: CCNA R&S Introduction to Networks, IT Essentials, I2IoT

- **Course outline**

Chapter	Goals/Objectives
Chapter 1. Ever Wonder How it Works?	• Explain how end-user devices and local networks interact with the global Internet. • Explain the concept of network communication. • Explain the roles of devices in a network. • Build a functioning network.
Chapter 2. Networks in Our Daily Lives	• Explain the requirements for network connectivity. • Explain the basic requirements for getting online. • Explain the importance of network representations. • Build an Ethernet cable.
Chapter 3. Communicating on a Local Network	• Build a small network using an integrated network router. • Explain the importance of standards and protocols in network communications. • Explain how protocol model layers represent network functionality. • Explain how communication occurs on Ethernet networks. • Explain why routers and switches are important in a network. • Configure devices on a LAN.
Chapter 4. Network Addressing	• Explain the importance of IP addressing. • Explain the features of an IP address. • Explain the features of the different types of IPv4 addresses. • Configure a DHCP server. • Explain the need for public and private addressing. • Explain the need for IPv6.
Chapter 5. Providing Network Services	• Explain how the protocols of the TCP/IP suite enable network communication. • Explain how clients access Internet services. • Explain how the protocols of the transport layer support network communications. • Explain the function of common Internet client/server applications.
Chapter 6. Building a Home Network	• Configure an integrated wireless router and wireless clients to connect securely to the Internet. • Compare different types of network connections. • Explain how Wi-Fi functions. • Connect wireless PC clients to a wireless router. • Compare the options available for connecting to the ISP. • Configure a wireless LAN device to protect data and the network. • Explain how to configure mobile devices to use various wireless technologies.

Chapter 7. Network Security	• Configure basic network security. • Explain network security threats. • Explain other types of network security threats. • Explain how software tools can mitigate network security threats. • Configure a firewall to control network traffic.
Chapter 8. Configuring Cisco Devices	• Build a simple computer network using Cisco devices. • Explain the basic features of Cisco LAN switches. • Explain the features of a Cisco small business router. • Explain how to use the Cisco IOS. • Use common show commands to view device status. • Build a switch and router network.
Chapter 9. Testing and Troubleshooting	• Troubleshoot common network issues found in home and small business networks. • Explain the steps to take when a new configuration does not work as expected. • Troubleshoot network problems with common network utilities. • Troubleshoot a network connectivity problem. • Explain how to work with customer support.