Virginia Western Community College
ITN 101
Introduction to Network Concepts

Prerequisites

Course Description

Provides instruction in networking media, physical and logical topologies, common networking standards and popular networking protocols. Emphasizes the TCP/IP protocol suite and related IP addressing schemes, including CIDR. Includes selected topics in network implementation, support and LAN/WAN connectivity.

Semester Credits: 3   Lecture Hours: 3   Lab/Clinical/Internship Hours: 0

Required Materials

Textbook:
Network+ Guide to Networks 7th Edition by West, Dean, and Andrews, 7th, Cengage, 9781305090941

Other Required Materials:
none

Course Outcomes

At the completion of this course, the student should be able to:

- Describe common networking protocols and media types)
- Explain the features and purpose of network technologies c)
- Implement defined network architecture with basic network security
- Configure, maintain, and troubleshoot network devices using appropriate network tools

Topical Description

1.0 Networking Concepts
1.1 Compare the layers of the OSI and TCP/IP models.
1.2 Classify how applications, devices, and protocols relate to the OSI model layers.
1.3 Explain the purpose and properties of network addressing.
1.4 Explain the purpose and properties of routing and switching.

1.5 Explain the function of common networking protocols.
1.6 Summarize name resolution concepts and protocols.
1.7 Explain network troubleshooting methodology.
1.8 Identify virtual network components.

2.0 Network Installation and Configuration
2.1 Install and configure routers and switches.
2.2 Install and configure a wireless network.
2.4 Troubleshoot common wireless problems.
2.5 Troubleshoot common router and switch problems.
2.6 Plan and implement a basic SOHO network.

3.0 Network Media and Topologies
3.1 Categorize standard media types and associated properties.
3.2 Categorize standard connector types based on network media.
3.3 Compare and contrast different wireless standards.
3.4 Categorize WAN technology types and properties.
3.5 Describe different network topologies.
3.6 Troubleshoot common physical connectivity problems.
3.7 Compare and contrast different LAN technologies.
3.8 Identify components of wiring distribution.

4.0 Network Management
4.1 Explain the purpose and features of various network appliances.
4.2 Use appropriate hardware tools to troubleshoot connectivity issues.
4.3 Use appropriate software tools to troubleshoot connectivity issues.
4.4 Use the appropriate network monitoring resource to analyze traffic.
4.5 Describe the purpose of configuration management documentation.
4.6 Explain different methods and rationales for network performance optimization.

5.0 Network Security
5.1 Implement appropriate wireless security measures.
5.2 Explain the methods of network access security.
5.3 Explain methods of user authentication.
5.4 Explain common threats, vulnerabilities, and mitigation techniques.
5.5 Install and configure a basic firewall.
5.6 Categorize different types of network security appliances and methods

Notes to Instructors

- This course maps to the CompTia Networks+ certification