

MONTGOMERY COLLEGE

MASTER COURSE SYLLABUS

NW 254 Cisco Networking 4

COURSE DESCRIPTION:

An examination of Cisco IOS Software management, WAN protocols and technologies, and WAN design. Students configure Point-to-Point Protocol (PPP), Frame Relay, Network Security, Access Control Lists (ACLs), and TCP/IP. In addition, this course is the fourth in a series of four designed to help prepare students for the CCNA certification exam. This course is equivalent to CyberWatch course CW 251. (G only) (CE) PREREQUISITE: NW 253 or completion of Cisco Academy Semester 3 (Exploration 3), or consent of department. Three hours each week.

LEARNING OBJECTIVES

The CCNA certification indicates knowledge of networking for the small-office, home-office (SOHO) market and the ability to work in small businesses or organizations whose networks have fewer than 100 nodes. *Cisco Networking 4* is an integral step towards achieving CCNA Certification. Upon completion of this course, students will be able to:

- a. Install and configure Cisco switches and routers in multiprotocol internetworks using LAN and WAN interfaces.
- b. Provide Level 1 troubleshooting service.
- c. Improve network performance and security.
- d. Perform entry-level tasks in the planning, design, installation, operation and troubleshooting of Ethernet, TCP/IP Networks.
- e. Arranging Network Address Translation (NAT) and Port Address Translation (PAT).
- f. Establishing Dynamic Host Configuration Protocol (DHCP).
- g. Implementing WAN Technologies.
- h. Configuring Point-to-Point Protocol (PPP).
- i. Designing Frame Relay.
- j. Establishing Network Management.
- k. Connecting Optical Networks.

DIVISION OF SUBJECT MATTER

Main Topic

- 1.0 WAN Technologies
- 2.0 Point to Point Protocol (PPP)
- 3.0 Frame Relay
- 4.0 Network Security
- 5.0 Access Control Lists
- 6.0 Teleworker Services
- 7.0 IP Addressing Services
- 8.0 Network Troubleshooting
- 9.0 Testing

DETAILED COURSE OUTLINE

- 1.0 WAN Technologies
 - 1.1 Providing Integrated Services to the Enterprise
 - 1.2 WAN Technology Concepts
 - 1.3 WAN Connection Options
- 2.0 Point to Point Protocol (PPP)
 - 2.1 Serial Point-to-Point Links
 - 2.2 PPP Concepts
 - 2.3 Configuring PPP
 - 2.4 Configuring PPP with Authentication
- 3.0 Frame Relay
 - 3.1 Basic Frame Relay Concepts
 - 3.2 Configuring Frame Relay
 - 3.3 Advanced Frame Relay Concepts
 - 3.4 Configuring Advanced Frame Relay
- 4.0 Network Security
 - 4.1 Introduction to Network Security
 - 4.2 Security Cisco Routers
 - 4.3 Secure Router Network Services
 - 4.4 Using Cisco Security Device Manager (SDM)
 - 4.5 Secure Router Management
- 5.0 Access Control Lists (ACLs)
 - 5.1 Using ACLs to Secure Networks
 - 5.2 Configuring Standard ACLs
 - 5.3 Configuring Extended ACLs
 - 5.4 Configuring Complex ACLs
- 6.0 Teleworker Services
 - 6.1 Business Requirements for Teleworker Services
 - 6.2 Broadband Services
 - 6.3 VPN Technology
- 7.0 IP Addressing Services
 - 7.1 DHCP
 - 7.2 Scaling Networks with NAT
 - 7.3 IPv6
- 8.0 Network Administration and Troubleshooting
 - 8.1 Establishing the Network Performance Baseline
 - 8.2 Troubleshooting Methodologies and Tools
 - 8.3 Common WAN Implementation Issues
 - 8.4 Network Troubleshooting
- 9.0 Additional Reading:
 - 9.1 Reading - NIST 800-12 Ch 14-Security Considerations in Computer Support Operations
See: <http://csrc.nist.gov/publications/nistpubs/800-12/handbook.pdf>

