

2009 Network + Course Objectives

Defining Networking

The student will be able to

- Describe the birth of networking
- Explain the goal of networking
- Explain the difference between a server and a client system
- Define a network resource

Building a Network with OSI

The student will be able to

- Explain the major functions of network hardware
- Describe the functions of network software
- Define each of these functions as part of the OSI Seven-layer Model

Hardware Concepts

The student will be able to

- Explain the various types of network topology
- Describe the various types of network cabling
- Describe and distinguish between the 802.2, 802.3, 802.5, and 802.11 IEEE networking standards

Ethernet Basics

The student will be able to:

- Describe the concept of Ethernet
- Define Ethernet cabling systems
- Explain the functions of repeaters and bridges

Modern Ethernet

The student will be able to:

- Define the characteristics, cabling, and connectors used in 10BaseT and 10BaseFL
- Explain how to connect multiple Ethernet segments
- Define the characteristics, cabling, and connectors used in 100Base and Gigabit Ethernet

Non-Ethernet Networks

The student will be able to:

- Define the characteristics, cabling, and connectors used in Token Ring

- Describe the characteristics, cabling, and connectors used in ARCNET and LocalTalk
- Explain the characteristics, cabling, and connectors used in FDDI and ATM

Installing a Physical Network

The student will be able to

- Recognize and describe the functions of basic components in a structured cabling system
- Explain the process of installing structured cable
- Install a network interface card
- Perform basic troubleshooting on a structured cable network

Wireless Networking

The student will be able to

- Explain wireless networking hardware and software requirements and configure wireless networking hardware
- Define wireless networking IEEE standards and FCC operation frequencies
- Define wireless network operation modes, limits, and methods
- Configure wireless networking security
- Describe troubleshooting techniques for wireless networks

Protocols

The student will be able to

- Understand the concept of protocols
- Learn about the NetBIOS/NetBEUI protocol suite
- Learn about the IPX/SPX protocol suite
- Learn about the TCP/IP protocol suite
- Learn about AppleTalk and other protocols

TCP/IP

The student will be able to:

- Describe properly formatted IP addresses
- Explain the function of subnet mask and default gateway
- Define and calculate classfull and classless subnets
- Explain the function of DNS, DHCP and WINS
- Describe the port numbers and the functions of popular TCP, UDP and ICMP applications
- Describe the need for IPv6 and recognize properly formatted IPv6 addresses

Network Operating Systems

The student will be able to

- Define the concepts of resource-, server-, and organization-based network models and place any operating system into the proper model
- Describe in detail how different operating systems perform networking
- Configure a Windows client to connect to any version of Windows Server

Sharing Resources

The student will be able to

- Explain the naming of shared resources
- Describe permissions in many network operating systems
- Describe sharing resources in many network operating systems
- Explain how to access shared resources in many network operating systems

Going Large with TCP/IP

The student will be able to:

- Describe the function and capabilities of DNS
- Explain the function and capabilities of DHCP
- Describe the function and capabilities of WINS
- Use common TCP/IP utilities to diagnose problems with DNS, DHCP, or WINS

TCP/IP and the Internet

The student will be able to

- Explain how routers work using routing tables
- Define static and dynamic routers and name the various dynamic routing standards
- Explain network address translation (NAT) and proxy serving
- Define HTTP, HTTPS, e-mail (SMTP, POP3, and IMAP), FTP, and Telnet

Remote Connectivity

The student will be able to:

- Describe the various types of SOHO connections such as dial-up, ADSL, and cable modems
- Describe the various types of higher-capacity connections such as T1/T3, OC1/OC3, Frame Relay, and ATM, commonly used for WAN connectivity
- Explain how to set up and use clients and servers for remote access
- Troubleshoot basic remote access problems

Protecting Your Network

The student will be able to

- Define the various types of network threats and how they are caused
- Explain how firewalls, NAT, port filtering, packet filtering, encryption, and authentication protect a network from threats
- Explain how to implement these levels of protection on various types of networks

Interconnecting Network Operating Systems

The student will be able to

- Describe the issues involved with interconnecting Windows 9x, NT, 2000, XP, and 2003 with other network operating systems
- Define the issues involved with interconnecting NetWare with other network operating systems
- Explain the interconnection issues of Macintosh with other network operating systems
- Describe the issues involved with interconnecting Unix/Linux with other network operating systems

The Perfect Server

The student will be able to

- Explain the methods and hardware used for protecting data
- Describe server-specific hardware for boosting speed
- Explain the methods and hardware used for server reliability

Art of Network Support

The student will be able to

- Describe troubleshooting tools
- Explain the troubleshooting process
- Analyze troubleshooting scenarios