Network +
Course Summary

Description
Students will identify and describe all the major networking technologies, systems, skills, and tools in use in modern PC-based computer networks, and learn information and skills that will be helpful as you prepare for the CompTIA Network+ certification examination, 2005 objectives (exam number N10-003).

Objectives
At the end of this course, students will be able to:

- Identify the basic components of network theory.
- Identify the major network communications methods.
- Identify network data delivery methods.
- List and describe network media and hardware components.
- Identify the major types of network implementations.
- Identify the components of a TCP/IP network implementation.
- Identify the major services deployed on TCP/IP networks.
- Identify characteristics of a variety of network protocols.
- Identify the components of a LAN implementation.
- Identify the components of a WAN implementation.
- Identify major issues and technologies in network security.
- Identify the components of a remote network implementation.
- Identify major issues and technologies in disaster recovery.
- Identify major data storage technologies and implementations.
- Identify the primary network operating systems.
- Identify major issues, models, tools, and techniques in network troubleshooting.

Topics

- Network Theory
- Network Communications Methods
- Network Data Delivery
- Network Media and Hardware
- Network Implementations
- Networking with TCP/IP
- TCP/IP Services
- Other Network Protocols
- Local Area Network (LAN) Infrastructure
- Wide Area Network (WAN) Infrastructure
- Network Security
- Remote Networking
- Disaster Recovery
- Network Data Storage
- Network Operating Systems
- Network Troubleshooting

Audience
This course is intended for entry-level computer support professionals with basic knowledge of computer hardware, software, and operating systems, who wish to increase their knowledge and understanding of networking concepts and skills to prepare for a career in network support or administration, or to prepare for the CompTIA Network+ certification, 2005 objectives (exam number N10-003).

Prerequisites
An introductory course in a Windows operating system, or equivalent skills and knowledge, is required. Students can take any one of the following Element K courses: Windows 98: Introduction, Windows Millennium Edition: Introduction, Windows 2000: Introduction, or Windows XP: Introduction.

Duration
Five days

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Course Outline

I. Network Theory
- A. Networking Terminology
- B. Network Building Blocks
- C. Standard Network Models
- D. Network Topologies
- E. Network Categories

II. Network Communications Methods
- A. Transmission Methods
- B. Media Access Methods
- C. Signaling Methods

III. Network Data Delivery
- A. Data Addressing and Delivery
- B. Network Connection Mechanisms
- C. Reliable Delivery Techniques

IV. Network Media and Hardware
- A. Bounded Network Media
- B. Unbounded Network Media
- C. Noise Control
- D. Network Connectivity Devices

V. Network Implementations
- A. The OSI Model
- B. Client Network Resource Access
- C. Ethernet Networks
- D. Token Ring Networks
- E. Fiber Distributed Data Interface (FDDI) Networks
- F. Wireless Technologies and Standards

VI. Networking with TCP/IP
- A. Families of Protocols
- B. The TCP/IP Protocol
- C. Default IP Addresses
- D. Custom IP Addresses
- E. The TCP/IP Protocol Suite

VII. TCP/IP Services
- A. IP Address Assignment Methods
- B. Host Name Resolution
- C. NetBIOS Name Resolution
- D. TCP/IP Utilities
- E. TCP/IP Upper-Layer Services
- F. TCP/IP Interoperability Services

VIII. Other Network Protocols
- A. The NetBEUI Protocol
- B. The IPX/SPX Protocol
- C. The AppleTalk Protocol
- D. The IP Version 6 (IPv6) Protocol

IX. Local Area Network (LAN) Infrastructure
- A. Bridges and Switches
- B. IP Routing Topology
- C. Static IP Routing
- D. Dynamic IP Routing
- E. Controlling Data Movement with Filters and VLANs

X. Wide Area Network (WAN) Infrastructure
- A. WAN Switching Technologies
- B. WAN Transmission Technologies
- C. WAN Connectivity Methods
- D. Voice over Data Systems

XI. Network Security
- A. Network Threats
- B. Virus Protection
- C. Local Security
- D. Network Authentication Methods
- E. Data Encryption
- F. Internet Security

XII. Remote Networking
- A. Remote Network Architectures
- B. Terminal Services Implementations
- C. Remote Access Networking Implementations
- D. Virtual Private Networking

XIII. Disaster Recovery
- A. Planning for Disaster Recovery
- B. Data Backup
- C. Fault Tolerance Methods

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Course Outline (cont'd)

XIV. Network Data Storage

A. Enterprise Data Storage Techniques
B. Clustering
C. Network-Attached Storage (NAS)
D. Storage Area Network (SAN) Implementations
E. Network Operating Systems
F. Microsoft Operating Systems
G. Novell NetWare
H. UNIX and Linux Operating Systems
I. Macintosh Networking

XV. Network Troubleshooting

A. Troubleshooting Models
B. TCP/IP Troubleshooting Utilities
C. Hardware Troubleshooting Tools
D. TSystem Monitoring Tools
E. Network Baselining

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