

Network+

Duration: (30 Hours)

Session: 3 Hours per Session, 10 minutes break every 1.5 hours

Detailed Contents:

Part 1: Network Fundamentals

- A. Overview of Network Hardware:
 - a. Client and Servers
 - b. Network Wiring
- B. Overview of Network Software
 - a. NIC Driver
 - b. Protocol Driver
 - c. Client and Server Software
- C. Data Packets
- D. The OSI Seven-Layer Model
 - a. Layer 1: Physical Layer
 - b. Layer 2: Data Link Layer
 - c. Layer 3: Network Layer
 - d. Layer 4: Transport Layer
 - e. Layer 5: Session Layer
 - f. Layer 6: Presentation Layer
 - g. Layer 7: Application Layer
- E. Real World Networking
 - a. Network Size
 - b. Network Performance

Part 2: Network Media

- A. Coaxial Cable and Types
- B. Coaxial Connectors
- C. UTP and STP
 - a. UTP Cable Types
 - b. Patch Cables and Premises Cables
- D. UTP Connectors
- E. Optical Fiber
- F. Uses of Fiber
- G. Other Media Types
 - a. Serial Links
 - b. Interbuilding Wireless Links
 - c. 802.11 Wireless Networks
 - d. Wireless Basics
 - i. Standards
 - ii. Frequency
 - e. Wireless Security
 - i. Service Set Identification
 - ii. MAC Address Filtering
 - iii. Data Encryption
 - iv. Laser Links
 - v. Bluetooth

vi. Infrared Wireless Networking

Part 3: Network Topologies and Standards

a. Bus Topology and Ethernet

Star Bus Topology

Ring Topologies

Other Topologies

Part 4: Network Hardware

- a. Network Interface Cards
- b. Repeaters and Hubs
- c. Bridges and Switches
- d. Routers
- e. Gateways
- f. Wireless Access Points

Part 5: Protocols and Protocol Suites

Overview

- i. Protocol Category
- ii. Protocol Suites

Role and Function of NetBEUI

Role and Function of IPX/SPX

Connection-oriented vs. Connectionless Protocols

Core Network Operating System Protocols

Part 6: TCP/IP

The TCP/IP Protocol Suite

Application Protocols

Transport Protocols

Internet Protocols

- 1. IP
- 2. ARP
- 3. Reverse ARP and Proxy ARP
- 4. Internet Control Message Protocol (ICMP)
- 5. Internet Group Management Protocol (IGMP)

RFCs

IP Addressing

Subnet Masks Subnetting

Subnetting Basics

IP version 6

Routing

Static Routing

Dynamic Routing

Switching and Virtual LANS(VLANS)

Transport Layer Protocols

Session Layer Protocols

NetBIOS and Sockets

Name Resolution

Sockets, Applications and DNS
DNS Name Resolution
NetBios Applications and WINS
WINS Name Resolution
DNS vs. WINS
DHCP

TCP/IP Utilities

- iii. ipconfig and ifconfig
- iv. PING
- v. TRACERT
- vi. ARP
- vii. NETSTAT
- viii. NBSTAT
- ix. NSLOOKUP
- x. arping

Part 7: Wide Area Network

Basic Equipment Requirements
PSTN – The Analog Telephone System
ISDN – The Digital Telephone System
Fixed Line(Always-On) Services

Part 8: Remote Access

Defining Remote Connectivity
Dial In Software Requirements
Fixed-point Remote Access
Remote Access Security

Part 9: Network Security

Attack Types
Protecting Your Server
Reliability and Fault Tolerance
Authentication and Authorization
Internet-specific Security
Physical Security
Mitigation Techniques

- xi. Policies and Procedures
- xii. User Training

xiii. Patches and Updates

Part 10: The Complete Network

- a. Network Operating Systems
- b. Network Clients
- c. Specialized Network Devices
- d. Implementing a Wireless Network
- e. Planned Maintenance

Part 11: Troubleshooting Basics

- a. General Network Troubleshooting
- b. Establishing a Baseline
- c. Problem Analysis
- d. Checking System Logs
- e. Hardware Troubleshooting and Safety

Part 12: Configuring and Troubleshooting Software

- a. Troubleshoot Network Media
- b. Configure and Troubleshoot Software
- c. Configure Hardware
- d. Install NICs and Modems
- e. Troubleshoot NICs and Modems
- f. Basic PC Connector Types

*Note that either before or after the session, there will be a mock exam for every subject topic.

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