MTA Networking Fundamentals Course

Session 1

Section A: Introduction

- Microsoft Certification Paths
- Taking the Exam
- Exam Prerequisites
- Exam Preparation Tips
- Define a Virtual Lab
- Fundamentals of Networking
- Knowledge Domains
- History of Networking
- Network Defined
- Networking Benefits
- Important Network Components
- Simple Computer Network Diagram

Section B: Internet, Intranet, and Extranet

- Internet Defined
- Intranet Defined
- Extranet Defined
- Securing Network Connectivity
- Virtual Private Networks Defined
- VPN Connection Process
- Network Security Zone
- Firewalls Defined

Section C: Understanding LANs

- Local Area Network Defined
- Perimeter Network
- Addresses
- Viewing Windows IP Addresses
- Reserved Private IP Addresses
- Internet Assigned Numbers Authority
- Internet Connection Sharing

Section D: Wired vs. Wireless LANs

- Wired LANs
- Wired LAN Advantages
- Wired LAN Disadvantages
- Wireless LANs
- Wireless LAN Advantages
- Wireless LAN Disadvantages
- Wireless LAN Types
- Wireless LAN Diagram

Section E: Understanding WANs

- Dial-up Connections
- Integrated Services Digital Network

- Virtual Private Networks
- Wide Area Network Defined
- T1 Defined
- T3 Defined
- E1 Defined
- DSL Defined
- Cable Internet

Section F: Understanding Wireless Networking

- Introduction to the OSI Model
- OSI Model In-Depth
- Wireless Telecommunications Review
- Wireless Defined
- Wireless Modulation
- IEEE
- IEEE Protocols
- 802.11b/g Drawbacks
- Wireless Security Standards
- Wireless Bridging/Switching

Section G: Networking Topologies and Access Methods

- Network Topologies Defined
- Star Topology
- Mesh Topology
- Ring Topology
- Bus Topology

Session 2

Section A: Understanding Switches

- Ethernet
- Transmission Speeds
- Straight-through Cables
- Crossover Cables
- MAC Addresses
- Hubs 101
- Switches 101
- Managed vs. Unmanaged Switches
- Managed Switches
- Unmanaged Switches
- Broadcast vs. Collision Domains
- Virtual LANs

Section B: Switches in Depth

- Layer 2 Switches
- Layer 3 Switches
- Switch Link Redundancy
- MAC Tables
- Circuit Switching
- Packet Switching
- Cell Switching

Section C: Understanding Routers

- Routers Defined
- tracert
- Routing Defined
- Dynamic Routing
- Routing Tables
- IP Addresses
- Routing with Windows

Section D: Network Cabling Part I

- Common Network Media
- Twisted Pair
- Coaxial
- Fiberoptic
- Wireless
- Interference Considerations
- Electromagnetic Interference
- Electronic Interception

Section E: Network Cabling Part II

- Unshielded Twisted Pair Cable
- Types of UTP Cable
- Shielded Twisted Pair Cable
- Coaxial Cable
- Wireless Cable Considerations
- Network Cable Matrix
- EIA Network Wiring Standards

Session 3

Section A: Understanding the OSI Model Part I

- Internetwork
- Terminology
- OSI Reference Model Review
- OSI Communication Process
- Encapsulation
- Protocols Defined

Section B: Understanding the OSI Model Part II

- Layer 2: Frames
- Layer 3: Packets
- Layer 4: Segments
- OSI Communication Process Review
- TCP In-Depth
- The DOD Model
- Common TCP Ports
- UDP In-Depth
- TCP vs. UDP Comparison

Section C: IP Addressing Part I

- IPv4 Addressing
- Static IP Addressing
- Dynamic IP Addressing
- APIPA Addresses
- Classful IP Addressing Concept
- Classful IP Addressing Diagram
- Network Address Breakdown
- Local Loopback Addressing
- IP Configuration Dialog Box

Section D: IP Addressing Part II

- IPv6 Addressing
- IPv6 Dual Stack
- Teredo: IPv4 to IPv6 Tunneling

Section E: Introduction to Name Resolution

- Name Resolution Defined
- Name Resolution Process
- DNS Diagram

Section F: Networking Services and Tools

- Allocating IP Addresses
- Dynamic Host Configuration Protocol
- DHCP Configuration Process
- Understanding IPSec
- TCP/IP Components
- TCP Port Review
- Using the PING Command
- Using the ARP Command
- Using the NETSTAT Command
- Using the TRACERT Command
- Using the IPCONFIG Command
- Using the PATHPING Command
- The Telnet Command Defined