Computer Networking and Security Services Inc
Technical training with a difference; Services you can trust!
Suite 26, American Drywall Building, Vide Boutielle, Castries
Tel:758-452-7999 Mob:758-721-8999 Email:info@cnssinc.com

CompTIA Network + Course Outline

Module 1 / Local Area Networks
Topologies and the OSI Model
• Key Features of Networks
• Network Topologies
• The OSI Model
• Physical Layer
• Data Link Layer
• Network Layer
• Transport Layer
• Upper Layers
• OSI Model Summary
• Labs
• VM Orientation

Ethernet
• Transmission Media
• Media Access Control
• Broadcast Domains
• Ethernet Frames
• Ethernet Deployment Standards
• MAC Addressing
• Address Resolution Protocol (ARP)
• Packet Sniffers
• Labs
• Configuring Ethernet Networking

Hubs, Bridges, and Switches
• Hubs and Bridges
• Switches
• Switch Interface Configuration
• Spanning Tree Protocol (STP)
• Power over Ethernet (PoE)

Infrastructure and Design
• Network Infrastructure Implementations
• Planning an Enterprise Campus Network
• Network Hierarchy and Distributed Switching

- Software Defined Networking
- Planning a SOHO Network
- TCP/IP Protocol Suite

Policies and Best Practices
- Procedures and Standards
- Safety Procedures
- Incident Response Policies
- Security and Data Policies
- Password Policy
- Employee Policies

Module 2 / IP Addressing
Internet Protocol
- IPv4
- IPv4 Address Structure
- Subnet Masks
- IP Routing Basics
- ipconfig / ifconfig
- ICMP and ping
- Labs
- Configuring IPv4 Networking

IPv4 Addressing
- IPv4 Addressing Schemes
- Classful Addressing
- Public versus Private Addressing
- Subnetting and Classless Addressing
- Planning an IPv4 Addressing Scheme
- Public Internet Addressing
- Variable Length Subnet Masks (VLSM)
- Labs
- Configuring IPv4 Subnets

IPv6 Addressing
- IPv6 Address Format
- IPv6 Addressing Schemes
- IPv6 Address Autoconfiguration
- Migrating to IPv6
- Labs
- Configuring IPv6 Networking

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DHCP and APIPA
• IPv4 Address Autoconfiguration
• Configuring DHCP
• DHCPv6
• Labs
• Configuring Address Autoconfiguration

Module 3 / Internetworking
Routing
• Routing Basics
• Routing Algorithms and Metrics
• Dynamic Routing Protocols
• Administrative Distance and Route Redistribution
• IPv4 and IPv6 Internet Routing
• High Availability Routing
• Installing and Configuring Routers
• Routing Troubleshooting Tools
• Labs
• Configuring Routing

TCP and UDP
• Transmission Control Protocol (TCP)
• User Datagram Protocol (UDP)
• TCP and UDP Ports
• Port Scanners
• Protocol Analyzers
• Labs
• TCP and Port Scanning

Name Resolution and IPAM
• Host Names and FQDNs
• Domain Name System
• Configuring DNS Servers
• Resource Records
• Name Resolution Tools
• IP Address Management (IPAM)
• Labs
• Configuring Name Resolution and IPAM

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Monitoring and Scanning
• Performance Monitoring
• Network Monitoring Utilities
• Logs and Event Management
• Simple Network Management Protocol
• Analyzing Performance Metrics
• Patch Management
• Vulnerability Scanning
• Labs
• Performance Testing and Monitoring

Network Troubleshooting
• Troubleshooting Procedures
• Identifying the Problem
• Establishing a Probable Cause
• Establishing a Plan of Action
• Troubleshooting Hardware Failure Issues
• Troubleshooting Addressing Issues
• Troubleshooting DHCP Issues
• Troubleshooting Name Resolution
• Troubleshooting Services

Module 4 / Applications and Security
Applications and Services
• TCP/IP Services
• HTTP and Web Servers
• SSL / TLS and HTTPS
• Email (SMTP / POP / IMAP)
• Voice Services (VoIP and VTC)
• Real-time Services Protocols
• Quality of Service
• Traffic Shaping
• Bottlenecks and Load Balancing
• Multilayer Switches
• Labs
• Configuring Application Protocols

Virtualization, SAN, and Cloud Services
• Virtualization Technologies
• Network Storage Types

- Fibre Channel and InfiniBand
- iSCSI
- Cloud Computing
- Configuring Cloud Connectivity

Network Security Design
- Security Basics
- Common Networking Attacks
- Network Segmentation and DMZ
- Virtual LANs (VLAN)
- VLAN Trunks
- Network Address Translation (NAT)
- Device and Service Hardening .
- Honeypots and Penetration Tests

Network Security Appliances
- Basic Firewalls
- Stateful Firewalls
- Deploying a Firewall
- Configuring a Firewall
- Deploying a Proxy
- Intrusion Detection Systems (IDS)
- Denial of Service
- Labs
- Configuring a NAT Firewall

Authentication and Endpoint Security
- Authentication and Access Controls
- Social Engineering
- Authentication Technologies
- PKI and Digital Certificates
- Local Authentication
- RADIUS and TACACS+
- Directory Services
- Endpoint Security
- Network Access Control
- Labs
- Secure Appliance Administration

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Module 5 / Operations and Infrastructure

Network Site Management

- Network Cabling Solutions
- Distribution Frames
- Change and Configuration Management
- Network Documentation and Diagrams
- Labeling
- Physical Security Devices
- Business Continuity and Disaster Recovery
- Network Link Management
- Power Management
- Backup Management
- Labs
- Network Inventory Management

Installing Cabled Networks

- Twisted Pair Cable (UTP / STP / ScTP)
- Twisted Pair Connectors
- Wiring Tools and Techniques
- Cable Testing Tools
- Troubleshooting Wired Connectivity
- Other Copper Cable Types
- Fiber Optic Cable and Connectors
- Transceivers and Media Converters

Installing Wireless Networks

- Wireless Standards (IEEE 802.11)
- Wireless Network Topologies
- Wireless Site Design
- Troubleshooting Wireless Connectivity
- Wireless Security
- Wi-Fi Authentication
- Extensible Authentication Protocol
- Troubleshooting Wireless Security
- Wireless Controllers

Installing WAN Links

- Wide Area Networks (WAN)
- Telecommunications Networks
- Modern Telecommunications Networks

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- Local Loop Services
- Installing WAN Links
- Wireless WAN Services
- Internet of Things

Configuring Remote Access

- Remote Access Services (RAS)
- MPLS and PPP
- SIP Trunks
- Virtual Private Networks (VPN)
- SSL / TLS / DTLS VPNs
- IPsec
- Internet Key Exchange / ISAKMP
- Remote Access Servers
- Remote Administration Tools
- Managing Network Appliances
- Remote File Access
- Labs • Configuring Secure Access Channels
- Configuring a Virtual Private Network