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IT Network Professional with CompTIA Network+

Format:	Self-Pace Online / eLearning
Program Duration:	6 Months
Course Contact Hours:	375

The IT Network Professional with CompTIA Network+

Computer Technology Industry Association (CompTIA) Network+ training offers midlevel certification to for network professionals. Designed to ensure competency of network technicians in configuring and supporting TCP/IP clients and the OSI model, CompTIA Network+ training and certification ensures students have the skills necessary for hardware setup, network design, cabling, configuration, installation, troubleshooting and support. Earning CompTIA Network+ Certification means that the individual possess the knowledge and skills necessary to be a successful network professional offering a nationally-recognized and industry-recognized credential for experienced network technicians. Indeed, the most widely known technology companies recommend or require CompTIA Network+ Certification for their networking technicians.

The IT Network Professional with CompTIA Network+ Program

The IT Network Professional with CompTIA Network+ program provides comprehensive training that brings CompTIA Network+ exam topics to life through the use of real-world demonstrations, animations, live instruction, and configurations, making learning these foundational networking topics easy and fun. The program walks learners through the full range of topics on the CompTIA Network+ N10-007 exam, including protocol reference models; network devices, topologies, and services; WAN technologies; network cables and connectors; network design; LAN technologies; network addressing and routing; unified communication; virtualization; network security; and network maintenance. This unique program contains multiple types of video presentations, including live instructor whiteboarding, real-world demonstrations, animations of network activity, dynamic KeyNote presentations, doodle videos, and hands-on router and switch CLI configuration and troubleshooting in real lab environments, enabling you to learn both the concepts and the hands-on application. Designed to take students inside Network+ concepts in a unique and interactive way, CompTIA Network+ N10-007 course helps learners to master the foundational networking topics necessary for success both on the exam and on the job.

Education and National Certifications

- Students should have or be pursuing a high school diploma or GED.
- National Certification:

- **CompTIA Network+ (N10-007) Certification Exam from CompTIA®**
- **Microsoft Office Specialist (MOS) Certification Exam.**

Program Objectives

At the conclusion of this program, students will be able to:

- Summarize DNS concepts and its components, and increasingly converged networks
- Fundamental networking concepts, such as protocol reference models, network devices and theory, network topologies, and network services
- WAN technologies including ISDN, Frame Relay, PPP, MPLS, Metro-Ethernet, and more
- How to work with different network cables and connectors
- Network design considerations
- Switch and wireless LAN configuration
- IPv4 and IPv6 addressing
- Routing fundamentals including RIP, OSPF, IS-IS, and BGP routing protocols; HSRP and VRRP; route aggregation; and routing metrics
- Unified communications, Voice over IP (VoIP), video, and Qos
- Virtualized devices, storage area network technologies (SAN), and cloud technologies
- Network security attacks, vulnerabilities, policies, defenses, and counter-measures
- Network monitoring tools and analysis, configuration management, and best practices
- Network troubleshooting

The IT Network Professional with CompTIA Network+ Detailed Student Objectives:

FUNDAMENTAL NETWORKING CONCEPTS

PROTOCOLS AND REFERENCE MODELS

- Protocols and Reference Models
- The OSI Model
- The DoD Model
- IP, ICMP, UDP, and TCP
- Protocol Data Units (PDUs)
- Maximum Transmission Unit (MTU)
- Ports and Protocols

NETWORK DEVICES AND THEORY

- Network devices and theory
- Analog modems
- Hubs, Switches, and Routers
- Collision Domains
- Broadcast Domains
- CSMA/CD vs CSMA/CA
- Wireless Access Points
- Firewalls
- Firewalls with a DMZ
- Intrusion Detection Devices
- VPN Concentrators

- Load Balancers
- Advanced Filtering Appliances
- Network Appliances

NETWORK TOPOLOGIES

- Star, Mesh, Ring, and Bus
- Logical and Physical Topologies
- Point-to-Point
- Point-to-Multipoint
- Hybrid
- Client-Server
- Peer-to-Peer
- LAN, WAN, MAN, CAN, PAN, & WLAN

NETWORK SERVICES

- Virtual Private Networks (VPNs)
- Dynamic Multipoint VPNs
- Web Services
- Voice Services
- DHCP, DNS, NAT, NTP and SDN
- IoT
- SIP Trunks

WAN TECHNOLOGIES

- Packet Switched vs. Circuit Switched Networks
- Cellular Technologies
- Frame Relay
- ATM
- Satellite
- DSL
- Cable
- PPP & PPPoE
- Leased Lines
- ISDN
- MPLS
- Metro-Ethernet

NETWORK CABLES AND CONNECTORS

- Copper Cables and Connectors
- Fiber Cables and Connectors
- Media Converters
- Transceivers
- Termination Points
- Cabling Tools
- EIA-TIA 568 Standards
- Straight-Through vs. Crossover Cables
- Ethernet Standards

LAN TECHNOLOGIES

ETHERNET SWITCH OPERATION

- VLAN Theory
- Trunking Theory
- Power over Ethernet
- Spanning Tree Protocol
- Port Mirroring
- Distributed Switching
- Jumbo Frames

WIRELESS LAN OPERATIONS

- WLAN Antennas
- Wireless Range Extenders
- WLAN Frequencies and Channels
- WLAN Standards
- SOHO Wireless Router Setup

NETWORK ADDRESSING & ROUTING

NETWORK ADDRESSING & ROUTING

- Network Addressing
- MAC Addresses
- IPv4 Addresses
- IPv6 Addresses
- Strategies to Support both IPv4 and IPv6

ROUTING FUNDAMENTALS

- Routing Protocols
- Packet Flow in a Routed Network
- RIP
- OSPF
- EIGRP
- BGP
- Route Redistribution

ADVANCED NETWORKING CONCEPTS

UNIFIED COMMUNICATION FUNDAMENTALS

- Voice over IP
- Video over IP
- Unified Communications

- Quality of Service (QoS)

VIRTUALIZATION FUNDAMENTALS

- Virtualized Devices
- Virtual IP
- Storage Area Network (SAN) Technologies
- Using InfiniBand for SANs
- Cloud Technologies
- Accessing Cloud Services

NETWORK SECURITY

- General Security and Availability Issues
- Common Network Attacks
- Unauthorized Access Attacks
- Common Defense Strategies
- Switch Port Defense
- Access Control Lists
- Wireless Security Options
- AAA
- User Authentication
- Physical Security
- Forensic Concepts
- Device Hardening
- Mitigating Network Threats

NETWORK MAINTENANCE

NETWORK MONITORING TOOLS & ANALYSIS

- Device Monitoring Tools
- SNMP
- Remote Access Methods
- Environment Monitoring
- Wireless Networking Monitoring
- Power Management

NETWORK BEST PRACTICES

- Safety Procedures
- Wiring Management
- Power Management
- Rack Management
- Change Control
- High Availability
- Disaster Recovery
- Standards, Policies, and Rules
- Documentation

NETWORK TROUBLESHOOTING

- 7-Step Troubleshooting Methodology
- CLI Troubleshooting Utilities
- Common LAN Issues
- Common Wireless LAN Issues
- Common Network Service Issues

MICROSOFT OFFICE

- Use an integrated software package, specifically the applications included in the Microsoft Office suite
- Demonstrate marketable skills for enhanced employment opportunities
- Describe proper computer techniques for designing and producing various types of documents
- Demonstrate the common commands & techniques used in Windows desktop
- List the meaning of basic PC acronyms like MHz, MB, KB, HD and RAM
- Use WordPad and MSWord to create various types of documents
- Create headings and titles with Word Art
- Create and format spreadsheets, including the use of mathematical formulas
- Demonstrate a working knowledge of computer database functions, including putting, processing, querying and outputting data
- Define computer terminology in definition matching quizzes
- Use the Windows Paint program to alter graphics
- Use a presentation application to create a presentation with both text and graphics
- Copy data from one MS Office application to another application in the suite
- Use e-mail and the Internet to send Word and Excel file attachments
- Demonstrate how to use the Windows Taskbar and Windows Tooltips
- Explain how copyright laws pertain to data and graphics posted on the Internet
- Take the college computer competency test after course completion
- Follow oral and written directions and complete assignments when working under time limitations

Note: Although the Microsoft Office Module is not required to successfully complete this program, students interested in pursuing free Microsoft MOS certification may want to consider completing this Microsoft Office Module at no additional cost.