

COURSE SYLLABUS:



NETWORK+



Course Details:

Course Code: IT-2013

Course Title: Network+

Course Hours: 96 (6 Weeks)

Course Prerequisites: None

Method of Delivery: Online

Type of Instruction:

This course is delivered via Remote Mentored Learning (RML). Students view video-based instruction and access course materials from anywhere with a high-speed internet connection and have access to a team of Student Success Specialists, Advisors, and Coordinators who provide ongoing support throughout the course. This course is designed to be completed within a prescribed amount of time, with responsibilities for each course thoroughly outlined to pace the program effectively. Students learn through a variety of media, including video lecture, animations, simulations, games and activities, and more. Students are engaged in skill-building labs and real-world exercises designed to translate what is learned into critical skill-building and preparation for entering a new career. This multi-sensory learning method allows the student to control their learning schedule, the content covered, and the pace of the training while receiving personalized support, guidance, and motivation from a dedicated Student Success team.

Method of Evaluation and Grading:

This MedCerts course is considered PASS/FAIL. At the end of each chapter (lesson), students must pass a mandatory review quiz to proceed to the next chapter, with a final exam at the end of the course. Quiz and final exam grades are available immediately after completion of the quiz/exam. Each may be re-taken until a satisfactory score is achieved. This is to ensure that the student is more easily able to identify difficult/challenging areas where improvement may be needed, re-focus efforts on these areas, and then re-assess for mastery of content. To receive a PASS grade for the course, students must view all video chapters as assigned, access all required activities within the Learning Management System (LMS), and pass each chapter review quiz and the final exam with a minimum score of 80%.

Offline Supplements, Instruction & Review:

This course includes additional learning materials provided as a supplement the core training components. While students are not required to read/review or submit completed activities or assignments that are provided within these supplements, MedCerts strongly encourages students to utilize these additional resources as they will allow for a more comprehensive learning experience and will increase the likelihood of subject matter retention, and better prepare students for certification success.

Instructional Content, Text, and Training Materials:

Network+ (TotalSEM)

Recorded Video-Based Lecture/Instruction

Operating System and Application Training Demonstrations (TotalSEM)

Online Lab/Simulation

Interactive Graphical Windows Exercises (TotalSEM)

Online Lab/Simulation

Interactive Command-Line Windows Exercises (TotalSEM)

Online Lab/Simulation

Interactive Configuration and Identification Exercises (TotalSEM)

Online Lab/Simulation

CompTIA Network+ Certification All-in-One Exam Guide, Ninth Edition (Mike Myers) MedCerts

7th Edition Textbook – Exam N10-007

Course Objectives:

- Manage and troubleshoot a basic network infrastructure.
- Install, operate and configure wired and wireless networks.
- Identify and explain common networking protocols and ports.
- Identify and troubleshoot performance and connectivity issues.
- Install, configure and differentiate between common network devices.
- Describe networking technologies and basic network design principles.

Course Description:

Network + builds on existing user-level knowledge and experience with personal computer operating systems and networks to present fundamental skills and concepts that students will use on the job in any type of networking career. This course is designed to provide network technicians with the foundation-level skills they need to install, operate, manage, maintain, and troubleshoot a corporate network. This course will help prepare students for the CompTIA Network+ N10-007 certification exam. CompTIA recommends students have CompTIA A+ certification, or equivalent experience prior to attempting the N10-007 exam.

Students gain critical hands-on experience through a comprehensive series of Performance Based Exam Prep Simulations. These simulations are a mixture of Operating System and Application Training Demonstrations, Interactive Graphic Windows Exercises, Interactive Command-Line Windows Exercises, and Interactive Configuration and Identification Exercises. The simulations are blended into the training, to provide

reinforcement of topics, as well as to provide the critical “hands-on” learning experience necessary to gain competency.

Course Outline:

WEEK 1

Chapter 1: Network Models

- Meet the Frame
- The MAC Address
- Broadcast vs. Unicast
- Hubs vs. Switches
- Introduction to IP Addressing
- Packets and Ports
- What is a Model?
- OSI Model vs. TCP/IP Model
- OSI and TCP/IP Model Walkthroughs

Chapter 2: Cabling and Topology

- Coaxial Cabling
- UTP and STP Cabling
- Fiber Optic Cabling

Chapter 3: Ethernet Basics

- What is Ethernet?
- Early Ethernet
- The Daddy of Ethernet - 10BaseT

Chapter 4: Modern Ethernet

- Modern Ethernet, Switches, and Duplex
- Connecting Switches
- Gigabit Ethernet and 10 Gigabit Ethernet
- Switch Backbones

WEEK 2

Chapter 5: Installing a Physical Network

- Introduction to Structured Cabling
- Crimping Cables
- Punchdown Blocks
- MDF, IDF, Dmarc, and the Equipment Room
- Testing Cable
- Troubleshooting Structured Cabling, pt. 1
- Troubleshooting Structured Cabling, pt. 2
- Using a Toner and Probe

Chapter 6: TCP/IP Basics

- Introduction to IP Addressing and Binary
- Introduction to ARP
- Subnet Masks
- Classful Addressing
- Subnetting with CIDR
- More CIDR Subnetting Practice
- Dynamic and Static IP Addressing
- Rogue DHCP Servers
- Special IP Addresses

Chapter 7: Routing

- Introducing Routers
- Understanding Ports
- Network Address Translation
- Implementing NAT
- Port Forwarding
- DMZ, Port Range Forwarding, and Port Triggering
- Tour of a SOHO Router
- Introduction to Routing Protocols
- RIP
- OSPF
- BGP

Chapter 8: TCP/IP Applications

- Introduction to TCP and UDP
- ICMP and IGMP
- Introduction to Wireshark
- Introduction to netstat
- Web Servers
- FTP
- E-mail Servers and Clients
- Telnet and SSH

WEEK 3

Chapter 10: Network Naming

- The Domain Name System (DNS), Pt. 1
- The Domain Name System (DNS), Pt. 2
- The HOSTS File
- nbtstat
- Dynamic DNS
- DNS Troubleshooting
- Securing TCP/IP
- Symmetric Encryption
- Asymmetric Encryption
- Cryptographic Hashes
- Access Control
- AAA
- Kerberos/EAP
- Cryptographic Tunnels with SSH
- Network Time Protocol

Chapter 11: Advanced Networking Devices

- Client/Server vs. Peer-to-Peer
- Virtual Private Networks (VPNs)
- Introduction to VLANs
- InterVLAN Routing
- Interfacing with Managed Switches
- Port Bonding
- Port Mirroring
- Quality of Service
- IDS vs IPS

Chapter 12: IPv6

- Introduction to IPv6 Addressing
- Advanced IPv6 Addressing
- IPv6 Tunnels

Chapter 13: Remote Connectivity

- Telephony Technologies
- Optical Carriers
- Packet Switching
- Connecting with Dial-up
- Digital Subscriber Line
- Connecting with Cable Modems
- Connecting with Satellites
- Cellular WAN
- ISDN and BPL
- Remote Connectivity

WEEK 4

Chapter 14: Wireless Networking

- Introduction to Wi-Fi and Wireless Access Points
- 802.11 Standards
- Power Over Ethernet (PoE)
- Wireless Security Standards
- Implementing Wireless Security
- Threats to Your Wireless Network
- Retro Threats
- Wi-Fi Protected Setup (WPS)
- Wireless Problem Scenarios
- Planning and Installing a Wireless Network

Chapter 15: Virtualization and Cloud Computing

- Virtualization Basics
- Your First Virtual Machine
- Infrastructure as a Service (IaaS)
- Platform as a Service (PaaS)
- Software as a Service (SaaS)
- Cloud Ownership

Chapter 16: Mobile Networking

WEEK 5

Chapter 17: Building a Real-World Network

Network Types
Network Design
SCADA and ICS
Unified Communications

Chapter 18: Managing Risk

What is Risk Management
Security Policies
Social Engineering
Access Control
Testing Network Security
Mitigating Network Threats
Introduction to Firewalls
Firewalls
DMZ

Chapter 19: Protecting Your Network

Protecting Your Network

WEEK 6

Chapter 20: Network Monitoring

SNMP
Documenting Logs

Chapter 21: Network Troubleshooting

MTU Problems
Bad Connection Solutions
Titanium Tech

Conclusion

Course Recap

Course Final Exam