Course Code/Title: Network+

Course Hours: 96 hours

Duration (wks): 6 weeks

1. CompTIA Network+ in a Nutshell
The Case of Multiple Sets of Resources
Studying for the Exam

2. 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

3. Cabling and Topology
Coaxial Cabling
UTP and STP Cabling
Fiber Optic Cabling

4. Ethernet Basics
What is Ethernet?
Early Ethernet
The Daddy of Ethernet - 10BaseT

5. Modern Ethernet
Modern Ethernet, Switches, and Duplex
Connecting Switches
Gigabit Ethernet and 10 Gigabit Ethernet
Switch Backbones

6. 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

7. 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

8. 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

9. 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

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

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

12. IPv6

Introduction to IPv6 Addressing
Advanced IPv6 Addressing
IPv6 Tunnels

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

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

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

16. Building a Real-World Network

Network Types
Network Design
SCADA and ICS
Unified Communications

17. Managing Risk

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

18. Network Monitoring

- SNMP
- Documenting Logs

19. Network Troubleshooting

- MTU Problems
- Bad Connection Solutions
- Titanium Tech