Technology Centre for Networking

CCNAv7 - Introduction to Networks

1. Networking Today **(3 Hours)**

    Networks Affect Our Lives-Network Components - Network Representations and Topologies - Common Types of Networks - Internet Connections - Reliable Networks - Network Trends - Network Security - The IT Professional

2. Basic Switch and End Device Configuration **(5 Hours)**

    Cisco IOS Access IOS Navigation - The Command Structure - Basic Device Configuration - Save Configurations - Ports and Addresses - Configure IP Addressing - Verify Connectivity

3. Protocol and Models **(3 Hours)**

    The Rules – Protocols Suites - Standards Organizations - Reference Models - Data Encapsulation - Data Access

4. Physical Layer **(3 Hours)**

    Purpose of the Physical Layer - Physical Layer Characteristics - Copper Cabling - UTP Cabling- Fiber-Optic Cabling - Wireless Media

5. Number Systems **(1 Hours)**

    Binary Number System - Hexadecimal Number System

6. Data Link Layer **(3 Hours)**

    Purpose of the Data Link Layer – Topologies - Data Link Frame

7. Ethernet Switching **(4 Hours)**

    Ethernet Frame - Ethernet MAC Address - The MAC Address Table - Switch Speeds and Forwarding Methods

8. Network Layer **(5 Hours)**

    Network Layer Characteristics - IPv4 & IPv6 Packet – Router Routing Table

9. Address Resolution **(3 Hours)**

    MAC and IP - ARP - Neighbor Discover

10. Basic Router Configuration **(6 Hours)**

    Configure Initial Router Settings - Configure Interfaces - Configure the Default Gateway

11. IPv4 Addressing   (6 Hours)

IPv4 Address Structure - IPv4 Unicast, Broadcast, and Multicast - Types of IPv4 Addresses - Network Segmentation - Subnet an IPv4 Network - Subnet a /16 and /8 Prefix - Subnet to Meet Requirements - Variable Length Subnet Masking - Structured Design

12. IPv6 Addressing   (4 Hours)

IPv6 Addressing - IPv6 Address Types - GUA and LLA Static Configuration - Dynamic Addressing for IPv6 GUAs - Dynamic Addressing for IPv6 LLAs - IPv6 Multicast Addresses - Subnet an IPv6 Network

13. ICMP   (3 Hours)

ICMP Messages - Ping and Traceroute Testing

14. Transport Layer   (5 Hours)

Transportation of Data - TCP Overview - UDP Overview - Port Numbers - TCP Communication Process - Reliability and Flow Control - UDP Communication

15. Application Layer   (5 Hours)

Application, Presentation, and Session - Peer-to-Peer - Web and Email Protocols - IP Addressing Services - File Sharing Services

16. Network Security Fundamentals   (5 Hours)

Security Threats and Vulnerabilities - Network Attacks - Network Attack Mitigation - Device Security

17. Build a Small Network   (6 Hours)

Devices in a Small Network- Small Network Applications and Protocols - Scale to Larger Networks - Verify Connectivity - Host and IOS Commands - Troubleshooting Methodologies - Troubleshooting Scenarios

*Labs	24 hands-on and paper-based labs. Using Packet Tracer Tool. It also uses Cisco 4221 routers and 2960 switches

Total Hours :70

Source : CISCO Networking Academy