

5-Week CCNA Course Outline

Cisco Certified Network Associate (CCNA)

Week 1: Networking Fundamentals & Concepts

Goal: Build a strong foundation in networking basics

Topics Covered:

- What is Networking?
- Types of Networks (LAN, WAN, MAN, PAN)
- Network Topologies (Star, Bus, Ring, Mesh)
- OSI Model (7 Layers – Functions & Examples)
- TCP/IP Model
- Data Encapsulation
- Network Devices:
 - Hub, Switch, Router
 - Modem, Firewall, Access Point
- Introduction to Cisco IOS & CLI

Practical Labs:

- Cisco Packet Tracer installation & overview
- Identify network devices in Packet Tracer
- Basic CLI navigation commands

Week 2: IP Addressing & Subnetting

Goal: Understand how devices communicate using IP addresses

Topics Covered:

- IPv4 Addressing Basics
- Binary & Decimal Conversion
- Network vs Host Portion
- Classes of IP Addresses (A, B, C)
- Private vs Public IP Addresses

- Subnetting Fundamentals
- CIDR Notation
- Calculating Subnets (Beginner-friendly approach)
- IPv6 Introduction & Basics

Practical Labs:

- Assigning IP addresses in Packet Tracer
- Basic subnetting exercises
- Testing connectivity using ping and tracert

Week 3: Switching & VLANs

Goal: Learn how switches forward traffic efficiently

Topics Covered:

- Ethernet & MAC Addresses
- Switch Operations
- ARP (Address Resolution Protocol)
- VLAN Concepts
- VLAN Benefits
- Access vs Trunk Ports
- Inter-VLAN Routing (Conceptual)
- Introduction to STP (Spanning Tree Protocol)

Practical Labs:

- Creating VLANs
- Assigning VLANs to switch ports
- Configuring trunk ports
- Verifying VLAN configurations

Week 4: Routing & WAN Technologies

Goal: Understand how data moves between networks

Topics Covered:

- Routing Fundamentals
- Router Components
- Static Routing
- Default Routing
- Introduction to Dynamic Routing
 - RIP (concept)
 - OSPF (basic overview)
- WAN Technologies:
 - PPP
 - HDLC
 - Leased Lines
- NAT (Network Address Translation)

Practical Labs:

- Configuring static routes
- Default route configuration
- Basic router-to-router communication
- NAT configuration (Static & PAT)

Week 5: Network Security, Wireless & Final Review

Goal: Secure networks and prepare for CCNA exam

Topics Covered:

- Network Security Fundamentals
- Common Network Attacks
- Access Control Lists (ACLs)
- Port Security
- Firewalls (Conceptual)
- Wireless Networking Basics

- WLAN Standards (802.11 a/b/g/n/ac/ax)
- Wireless Security (WPA2, WPA3)
- Network Troubleshooting
- CCNA Exam Preparation & Tips