# TechyEdz Solutions

Training | Consulting | Developement | Outsourcing


## CCNA + CCNP

9032803832

9032803832

contact@techyedz.com

www.techyedz.com

# CCNA + CCNP Combo Course

- **Course Overview:**

Cisco Certified Network Associate (CCNA), is the basic level certification course in networking offered by Cisco Systems which covers basics of Cisco Networking security, automation and programmability. You learn Network fundamentals, Network access, IP connectivity, IP services, Security fundamentals, and Automation & programmability technologies in CCNA training.

CCNP Certification course is professional level certification for the candidates who wish to become certified enterprise networking technologies competent.

We have introduced combo course program of CCNA and CCNP to ,make you are eligible for Sr. Network Engineer or Network Administrator job role. This Combo course will the best option for you to pursue if you're looking forward to establish your career in networking technology with a vast scope and growth.

This is one of the most popular combination training among networking professionals. The new revamped curriculum incorporated by Cisco for CCNA R&S is enhanced to ensure delivery of updated knowledge to professionals in this domain. This combo course consists of the trainings of both CCNA and CCNP latest version modules developed by Cisco. Considering that these certifications are supporting the new generation of the Cisco Networking job roles and meeting industry requirement. CCNA equips the professional to configure, install, operate and troubleshoot medium-sized routers and switches. While CCNA is the beginners level and CCNP is the intermediate levels of Cisco certification career path.

After the completion of CCNA and CCNP Enterprise/R&S training, a candidate will be able to install, configure and troubleshoot Cisco devices for small to medium-sized networks.



- **Course Outline:**

## CCNA

**Network Fundamentals**

**1. Explain the role and function of network components**

- Routers
- L2 and L3 switches
- Next-generation firewalls and IPS
- Access points
- Controllers (Cisco DNA Center and WLC)
- Endpoints
- Servers

**2. Describe characteristics of network topology architectures**

- 2 tier
- 3 tier
- Spine-leaf
- WAN
- Small office/home office (SOHO)
- On-premises and cloud

**3. Compare physical interface and cabling types**

- Single-mode fiber, multimode fiber, copper
- Connections (Ethernet shared media and point-to-point)
- Concepts of PoE

4. Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)
5. Compare TCP to UDP
6. Configure and verify IPv4 addressing and subnetting
7. Describe the need for private IPv4 addressing
8. Configure and verify IPv6 addressing and prefix

**9. Compare IPv6 address types**

- Global unicast
- Unique local
- Link local
- Anycast
- Multicast
- Modified EUI 64

10. Verify IP parameters for Client OS (Windows, Mac OS, Linux)

**11. Describe wireless principles**

- Nonoverlapping Wi-Fi channels
- SSID
- RF
- Encryption

12. Explain virtualization fundamentals (virtual machines)

**13. Describe switching concepts**

- MAC learning and aging
- Frame switching
- Frame flooding
- MAC address table

## Network Access

**1. Configure and verify VLANs (normal range) spanning multiple switches**

- Access ports (data and voice)
- Default VLAN
- Connectivity

**2. Configure and verify interswitch connectivity**

- Trunk ports
- 802.1Q
- Native VLAN

3. Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)
4. Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)

5. Describe the need for and basic operations of Rapid PVST+ Spanning Tree Protocol and identify basic operations

- Root port, root bridge (primary/secondary), and other port names
- Port states (forwarding/blocking)
- PortFast benefits

6. Compare Cisco Wireless Architectures and AP modes
7. Describe physical infrastructure connections of WLAN components (AP,WLC, access/trunk ports, and LAG)

8. Describe AP and WLC management access connections (Telnet, SSH, HTTP,HTTPS, console, and TACACS+/RADIUS)
9. Configure the components of a wireless LAN access for client connectivity using GUI only such as WLAN creation, security settings, QoS profiles, and advanced WLAN settings

## IP Connectivity

**1. Interpret the components of routing table**

- Routing protocol code
- Prefix
- Network mask
- Next hop
- Administrative distance
- Metric
- Gateway of last resort

**2. Determine how a router makes a forwarding decision by default**

- Longest match
- Administrative distance
- Routing protocol metric

**3. Configure and verify IPv4 and IPv6 static routing**

- Default route
- Network route
- Host route
- Floating static

**4. Configure and verify single area OSPFv2**

- Neighbor adjacencies
- Point-to-point
- Broadcast (DR/BDR selection)
- Router ID

5. Describe the purpose of first hop redundancy protocol

## IP Services

- Configure and verify inside source NAT using static and pools

- Configure and verify NTP operating in a client and server mode
- Explain the role of DHCP and DNS within the network
- Explain the function of SNMP in network operations
- Describe the use of syslog features including facilities and levels
- Configure and verify DHCP client and relay
- Explain the forwarding per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, shaping
- Configure network devices for remote access using SSH
- Describe the capabilities and function of TFTP/FTP in the network

**Security Fundamentals**

- Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)
- Describe security program elements (user awareness, training, and physical access control)
- Configure device access control using local passwords
- Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)
- Describe remote access and site-to-site VPNs
- Configure and verify access control lists
- Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)
- Differentiate authentication, authorization, and accounting concepts
- Describe wireless security protocols (WPA, WPA2, and WPA3)
- Configure WLAN using WPA2 PSK using the GUI

**Automation and Programmability**

- Explain how automation impacts network management
- Compare traditional networks with controller-based networking
- Describe controller-based and software defined architectures (overlay, underlay, and fabric)
- Separation of control plane and data plane
- North-bound and south-bound APIs
- Compare traditional campus device management with Cisco DNA Center enabled device management
- Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding)

- Recognize the capabilities of configuration management mechanisms Puppet, Chef, and Ansible
- Interpret JSON encoded data

# CCNP

**Course Outline:**

## Implementing Cisco IP Routing (ROUTE)

1. Describing Routing Protocols
2. Implementing RIPng
3. Implementing EIGRP
4. Configure EIGRP for IPv6
5. Discovering Named EIGRP Configuration
6. Establishing OSPF
7. Optimizing OSPF Behavior
8. Configuring OSPFv3
9. Configuring Redistribution
10. Implementing Path Control
11. Establishing Internet Connectivity
12. Implementing BGP
13. Implementing BGP for IPv6
14. Securing Cisco Routers
15. Configuring EIGRP Authentication
16. Configuring OSPF and BGP Authentication



## Implementing Cisco IP Switched Networks (SWITCH)

1. SWITCH Introduction
2. Switch Architecture Concepts
3. Spanning Tree Protocol
4. First-Hop Redundancy and High Availability Features
5. Security Features
6. VLANs and Trunking
7. Services

## Troubleshooting and Maintaining Cisco IP Networks (TSHOOT)



**Maintain and monitor network performance**

- Develop a plan to monitor and manage a network
- Perform network monitoring using IOS tools
- Perform routine IOS device maintenance
- Isolate sub-optimal internetwork operation at the correctly defined OSI Model layer

**Troubleshoot Multi Protocol system networks**

- Troubleshoot EIGRP
- Troubleshoot OSPF
- Troubleshoot eBGP
- Troubleshoot routing redistribution solution
- Troubleshoot a DHCP client and server solution
- Troubleshoot NAT
- Troubleshoot first hop redundancy protocols

- Troubleshoot IPv6 routing
- Troubleshoot IPv6 and IPv4 interoperability
- Troubleshoot switch-to-switch connectivity for the VLAN based solution
- Troubleshoot loop prevention for the VLAN based solution
- Troubleshoot Access Ports for the VLAN based solution
- Troubleshoot private VLANS
- Troubleshoot port security
- Troubleshoot general switch security
- Troubleshoot VACLs and PACLs
- Troubleshoot switch virtual interfaces (SVIs)
- Troubleshoot switch supervisor redundancy
- Troubleshoot switch support of advanced services (i.e., Wireless, VOIP and Video)
- Troubleshoot a VoIP support solution
- Troubleshoot a video support solution
- Troubleshoot Layer 3 Security
- Troubleshoot issues related to ACLs used to secure access to Cisco routers
- Troubleshoot configuration issues related to accessing the AAA server for authentication purposes

Troubleshoot security issues related to IOS services (i.e.,finger, NTP, HTTP, FTP, RCP etc.)



## Prerequisites

Before taking this course, you should have:

- Basic computer literacy
- Basic PC operating system navigation skills
- Basic Internet usage skills
- Basic IP address knowledge

- Prior to CCNA course, the applicants have to know Networking Technologies and Computer Hardware A+ Certification.

**Who can Attend:**

- This course is designed for anyone seeking CCNA certification. The course also provides foundational knowledge for all support technicians involved in the basic installation, operation, and verification of Cisco networks.
- The job roles best suited to the material in this course are:
- Entry-level network engineer
- Network administrator
- Network support technician
- Help desk technician

**Certification:**

**Implementing and Administering Cisco Solutions (CCNA) v1.0**

**300-101 ROUTE**

**300-115 SWITCH**

**300-135 TSHOOT**



**Number of Hours: 80hrs**

**Key Features:**

- One to One Training
- Online Training
- Fastrack & Normal Track
- Resume Modification
- Mock Interviews
- Video Tutorials

- Materials
- Real Time Projects
- Virtual Live Experience
- Preparing for Certification