

# IP Networking

## (Cisco Certified Network Administrator – CCNA)

Instructor Led Live Virtual or Live Class

Duration: 1 month | Course Number 10A

### Intended Audience

The targeted audience are the people who are interested in working with networks and switches and wants to install and configure latest LAN-WAN Networks. It is specially very useful for the ones trying to understand the concepts of IP Addressing, IPv6 and wireless networking. Also, it can help the people in learning about troubleshooting the networks.

### Course Description

Big enterprises are moving towards controller based architectures. Resultantly, the responsibilities of network engineers are also getting modified and demand latest skills and technologies. To manage the complex networks, optimize the infrastructure and to provide more security the latest knowledge of IP routing, configuration, troubleshooting and wireless technology is required.

### Learning Outcomes

- To provide the network engineers with basic concepts of networking.
- To provide a due knowledge of complex networking.
- Installation and configuration of LAN-WAN networks.
- Handle 100 to 500 or more nodes.
- Management of routers and switches.
- Planning, designing, installation and operation of Ethernet, TCP/IP networks.
- After taking this course, the student will be able to take CCNA (Routing and Switching) or ICND1 and ICND2.

## Course Topics

1. Introduction to Networking
  - a) Components of a network.
  - b) Types of Network.
  - c) Network Requirements.
  - d) Fibre Optics.
  - e) Repeaters, Hub, Switch, Bridge, Topology.
2. OSI Model
  - a) Communication of 7 layers (PDU)
  - b) Broadcast/Collision Domain
  - c) L4-3 way handshake
3. TCP/IP Model and Ipv4 addressing
  - a) All layers of TCP/IP
  - b) Windowing
  - c) IP datagram
  - d) IP Addressing
  - e) Private IP Addressing
4. Subnetting
  - a) Subnet Masks
  - b) Class A, B and C subnetting and problems
5. IPV6
  - a) Introduction
  - b) Host Address Assignment
  - c) Unicast, Multicast
  - d) Configuration of IPv6 Routing
6. IP Routing
  - a) Static Routing
  - b) Default Routing
  - c) Dynamic Routing
  - d) RIP
  - e) EIGRP & OSPF
  - f) IP Standards
  - g) NAT technology
  - h) WAN
  - i) Switching
  - j) Wireless LAN
7. EIGRP Authentication
  - a) Router Authentication
  - b) MD5 Authentication
  - c) MD5 Troubleshooting
8. OSPF Protocol
  - a) Link-State Routing Protocols
  - b) OSPF Area Structure
  - c) OSPF Adjacency Databases
  - d) Calculating the OSPF Metric
  - e) Link-State Data Structures
9. DHCP
  - a) DHCP configuration
  - b) DHCP Relay Service