

## CCNA (NETWORKING) COURSE

### Module 1:- Basics of Networking

**Learning Objective:** In this Module you will learn about basics of Networking, Common networking model like LAN and WAN and understand how traffic flows from one device to another device following the OSI Model

- What is Networking
- Type of Network
- Local Area Network (LAN)
- Wide Area Network(WAN)
- IP Address and MAC Address
- TCP and UDP
- OSI Model
- Packet Tracer Installation

### Module 2:- Hub/Switch/Router

**Learning Objective:** In this Module you will learn about packet and type of Packet in Networking and you will learn how a Hub/Switch and Router Works

- What is a Packet
- How a Packet is constructed
- Unicast , Multicast and Broadcast Packet
- How Ping and Trace route Works
- Importance of ARP Packet
- How Hub Works
- Disadvantage of using Hub
- How Switch Works
- Switch MAC Table
- How MAC Table can be changed
- MTU in Networking
- Why a Router is Needed
- Router's Routing Table
- How Route Table can be modified
- What is Default Gateway
- Difference between Hub/Switch and Router

## Module 3:- Router/Switch Memory, Booting Process, Access Mechanism and Command Line Configuration

**Learning Objective:** In this Module you will learn about different type of memory in Router/Switch, understand the booting process, learn how to take console and remote access of Router/Switch and do configuration in Router/Switch using command line

- **Need of Memory in Router/Switch**
- **Flash/RAM/ROM/NVRAM Memory**
- **How a Router/Switch Boots**
- **Type of Ports in Router/Switch**
- **How to take Console Access**
- **How to take Remote Access (Telnet/SSH)**
- **User and Privilege Mode in Router/Switch**
- **Commonly used Basic and Advance Commands in Cisco Router/Switch**

## Module 4:- IP Address and SubNetting

**Learning Objective:** In this Module you will learn about Different Class of IP Address, type of IP Address and you will perform Subnetting in depth

- **What is IP Address**
- **Importance of Subnet Mask**
- **Class of IP Address**
- **Private and Public IP Address**
- **Why Subnetting is performed**
- **Practice Subnetting**
- **Subnet calculator**

## Module 5:- Switching →VLAN and VTP

**Learning Objective:** In this Module you will learn why VLAN is created and how to perform inter-VLAN routing and then understand the need of VTP protocol

- What is LAN
- What is VLAN
- Access and Trunk Port
- Creation of VLAN
- Inter-VLAN Routing with L3 Switch
- What is VTP
- Need of VTP
- Server/Client and Transparent VTP Mode

## Module 6:- Switching→STP, RSTP and Ether Channel

**Learning Objective:** In this Module you will learn about a Loop Breaking Protocol known as STP and its advance version known as RSTP and you will learn how Ether channel is configured

- Why STP(Spanning Tree Protocol) is Needed
- How STP works to break loops in Network
- STP Root Bridge Selection and Port State
- Difference between STP and Rapid STP
- Ether Channel Configuration

## Module 7:- Routing →Static and Dynamic Routing

**Learning Objective:** In this Module you will learn about static routing and its disadvantage while using in large network and about dynamic routing protocols

- Need of Routing
- What is Static Routing
- What is AD value in Routing
- Configure Static Routing
- Disadvantages of Static Routing
- What is Dynamic Routing
- Advantages of Dynamic Routing

## Module 8:- Routing → OSPF, EIGRP and BGP

**Learning Objective:** In this Module you will learn about dynamic routing protocols like OSPF, EIGRP and BGP

- What is OSPF
- How OSPF Routing Protocol Works
- What is Area in OSPF
- OSPF operation and configuration
- What is EIGRP
- How EIGRP Routing Protocol Works
- What is AS Number in EIGRP
- EIGRP operation and configuration
- OSPF Versus EIGRP
- Need of BGP
- How BGP Routing Protocol Works
- BGP operation and configuration
- Perform Routing using L3 Switch

## Module 9:- Firewall → Access-List, NAT and VPN

**Learning Objective:** In this Module you will learn how to filter traffic using Access-list and then how to save public IP address by using NAT technology and you will learn how to create a site to site IPsec VPN tunnel between firewall

- Why Access-List is Needed
- Access-List Working
- Configuration of Standard and Extended Access-List
- Why do we need NAT
- Configuration of Dynamic NAT
- What is VPN
- How to create IPsec VPN
- Phase 1 and Phase 2 in VPN
- Creating Site to Site VPN

## Module 10:- SYSLOG, DHCP, HSRP, Port-Security, Wire shark Troubleshooting

**Learning Objective:** In this Module you will create SYSLOG server to save logs and configure a router as DHCP server and you will learn about powerful troubleshooting tool known as wire shark and learn network troubleshooting techniques

- **Need of Syslog**
- **Configuration of Syslog**
- **What is DHCP**
- **Configure Router a DHCP**
- **Need of HSRP**
- **Configure HSRP on Router**
- **Need of Port-Security**
- **Configure Port-Security on Switch**
- **Wire Shark Troubleshooting Tool Usage**
- **Understanding Wire shark Filters**