

# CCNP Routing Switching

## Course Contents

### **learn , Configure and define Layer 2 Technologies**

Configuration and verification of switch administration like SDM templates, Managing MAC address table  
Troubleshoot Err-disable recovery

Describe,implement and Configure and verify Layer 2 protocols like CDP, LLDPand UDLD

Define, Implement and Verify VLANs , Access ports, VLAN database, Normal, extended VLAN, voice VLAN

Configuration and verification of trunking and its features

Configuration and verification of VTPv1, VTPv2, VTPv3, VTP pruning

Define, Implement and Verify dot1Q , Native VLAN and Manual pruning

Configure and verify other LAN switching technologies like SPAN, RSPAN

### **learn , Configure and define EtherChannels**

Describe,implement and Configure LACP, PAgP, manual, Layer 2, Layer 3

Define, Implement and Verify Load balancing in etherChannels

Configuration and verification of EtherChannel misconfiguration guard

### **learn , Configure and define STP and its features**

Define, Implement and Verify PVST+, RPVST+, MST

Define, Implement and Verify Switch priority, port priority, path cost, STP timers

Describe,implement and Configure PortFast, BPDUguard, BPDUfilter

Describe,implement and Configure Loopguard and Rootguard

### **learn , Configure and define Infrastructure Security**

Configure and verify switch security features

Define, Implement and Verify DHCP snooping

Describe,implement and Configure IP Source Guard

Define, Implement and Verify Dynamic ARP inspection

Describe,implement and Configure Port security

Define, Implement and Verify Private VLAN

Describe,implement and Configure Storm control

### **Configure and verify first-hop redundancy protocols**

Configuration and verification of HSRP

Configuration and verification of VRRP

Configuration and verification of GLBP

## **ROUTING:**

### **Network Principles Concepts**

Learn Cisco Express Forwarding concepts like FIB and Adjacency table

Describe the Unicast, Out-of-order packets,Asymmetric routing network Challenges

IP operations Concepts like ICMP Unreachable and Redirects, IPv4 and IPv6 fragmentation, TTL

Learn TCP operation like MTU, MSS, Latency , Windowing, Bandwidth-delay product

### **Learn , Configure and Implement Layer 2 Technologies**

Configuration , Implementation and verification of PPP ,Authentication (PAP, CHAP)

Configuration , Implementation and verification ofPPPoE (client side only)

Define Frame Relay Operations , Point-to-point Configuration , Multipoint Configuration

### **Learn , Configure and Implement Layer 3 Technologies**

Configuration , Implementation of IPv4 addressing and subnetting

Describe Unicast, broadcast, multicast, and VLSM IPv4 Address types

Define IPv4 ARP, IPv4 DHCP relay and server and DHCP protocol operations  
Configuration , Implementation of IPv6 addressing and subnetting  
Describe Unicast , EUI-64,ND, RS/RA , Autoconfig (SLAAC)  
Configuration ,Implementaion and verification of static routing  
Configuration ,Implementaion and verification of default routing  
Describe Various Routing protocols like Distance vector, Link state, Path vector  
Describe administrative distance  
Define passive interfaces  
Configuration ,Implementaion and verification of VRF lite  
Configuration ,Implementaion and verification of filtering with any protocol  
Configuration ,Implementaion and verification of redistribution between any routing protocols or routing sources  
Configuration ,Implementaion and verification of manual and autosummarization with any routing protocol  
Configuration ,Implementaion and verification of policy-based routing  
Configuration ,Implementaion and verification of suboptimal routing  
Configuration ,Implementaion and verification of RIPv2  
Configuration ,Implementaion and verification of RIPv2

### **Learn , Configure and Implement loop prevention mechanisms**

Configuration ,Implementaion and verification of Route tagging and filtering  
Configuration ,Implementaion and verification of Split-horizon  
Configuration ,Implementaion and verification of Route poisoning

### **Learn , Configure and Implement Eigrp and its Features**

Describe about EIGRP packet types  
Configuration ,Implementaion and verification of EIGRP neighbor relationship and authentication  
Configuration ,Implementaion and verification of EIGRP stubs  
Configuration ,Implementaion and verification of EIGRP load balancing like equal and unequal Cost  
Configuration ,Implementaion and optimization EIGRP metrics  
Configuration ,Implementaion and verification of EIGRP for IPv6

### **Learn , Configure and Implement OSPF and its Features**

Configuration ,Implementaion and verification of OSPF neighbor relationship and authentication  
Configuration ,Implementaion and verification of network types, area types, and router types  
Configuration ,Implementaion and verification Point-to-point, multipoint, broadcast, nonbroadcast Network  
Describe LSA types, area type: backbone, normal, transit, stub, NSSA, totally stub  
Describe Internal router, backbone router, ABR, ASBR  
Configuration ,Implementaion and verification of Virtual link  
Configuration ,Implementaion and verification of OSPF path preference  
Configuration ,Implementaion and verification of OSPF operations  
Configuration ,Implementaion and verification of OSPF for IPv6

### **Learn , Configure and Implement BGP and its Features**

Configuration ,Implementaion and verification of BGP peer relationships and authentication  
Configuration ,Implementaion and verification of Peer group  
Configuration ,Implementaion and verification of Active, passive  
Describe BGP States and timers  
Configuration ,Implementaion and verification of eBGP (IPv4 and IPv6 address families)  
Configuration ,Implementaion and verification of BGP attributes and best-path selection

### **Learn , Configure and Implement VPN and its Features**

Configuration ,Implementaion and verification of GRE  
Configuration ,Implementaion and verification of DMVPN (single hub)  
Configuration ,Implementaion and verification of Easy Virtual Networking (EVN)

## **Learn , Configure and Implement Infrastructure Security**

Describe IOS AAA using local database

Configuration ,Implementaion and verification of device security using IOS AAA with TACACS+ and RADIUS

Configuration ,Implementaion and verification of AAA with TACACS+ and RADIUS

Configuration ,Implementaion and verification of Local privilege authorization fallback

Configuration ,Implementaion and verification of Configure and verify device access control Security

Configuration ,Implementaion and verification of Lines (VTY, AUX, console) Security

Configuration ,Implementaion and verification of Management plane protection

Configuration ,Implementaion and verification of Password encryption

Configuration ,Implementaion and verification of router security features

Configuration ,Implementaion and verification of IPv4 access control lists (standard, extended, time-based)

Configuration ,Implementaion and verification of IPv6 traffic filter

Configuration ,Implementaion and verification of Unicast reverse path forwarding

## **Learn , Configure and Implement Infrastructure Services**

Describe and Configure Console and VTY

Describe and Configure Telnet, HTTP, HTTPS, SSH, SCP

Describe FTP and its features

Configuration ,Implementaion and verification of SNMP V2 and v3

Configure and verify Network Time Protocol (NTP)

Configure and verify IPv4 and IPv6 DHCP

Configuration ,Implementaion and verification of IPv4 Network Address Translation (NAT) and its features

Configuration ,Implementaion and verification of IPv6 Network Address Translation (NAT) and its features