CISCO Certified Network Associate-II(CCNA-II):

Course Objectives	- Configure and secure Cisco switches and routers, emphasizing initial setup and security measures. - Implement VLANs and trunking for network segmentation and efficiency management. - Explain the operation and configuration of network redundancy protocols, ensuring seamless failover and high availability. - Deploy and secure wireless LANs, focusing on setup, security, and reliability enhancements. - Configure and troubleshoot static routing to ensure efficient data transmission and network connectivity.
Course Outcomes	- Configure and secure Cisco switches and routers, including initial settings, port configurations, remote access security, and network connectivity verification. - Implement and manage VLANs and trunking, including VLAN configuration, VLAN trunks, and Dynamic Trunking Protocol. - Configure network redundancy protocols, including STP operations, EtherChannel configuration, and troubleshooting. - Deploy and secure wireless LANs, including WLAN component configuration, CAPWAP management, WLAN security, and troubleshooting. - Configure and troubleshoot static routing for IPv4 and IPv6, including path determination, packet forwarding,and static route configurations.

Course Duration: 45 Hours

Course Curriculum:

Unit 1: Basic Networking and Switching Concepts

Basic Device Configuration: Configure a Switch with Initial Settings, Configure Switch Ports, Secure Remote Access, Basic Router Configuration, Verify Directly Connected Networks, Switching Concepts, Frame Forwarding, Switching Domains, VLANs. Overview of VLANs: VLANs in a multi-switched environment, VLAN Configuration, VLAN Trunks, Dynamic Trunking Protocol.

Unit 2: Advanced Switching and Routing

Inter-VLAN Routing: Inter-VLAN Routing Operation, Router-on-a-Stick Inter-VLAN Routing, Inter-VLAN Routing using Layer 3 Switches, Troubleshoot Inter-VLAN Routing, STP (Spanning Tree Protocol), Purpose of STP, STP Operations, Evolution of STP, EtherChannel, EtherChannel Operation, Configure EtherChannel, Verify and Troubleshoot EtherChannel.

Unit 3: Dynamic Host Configuration and Addressing

DHCPv4: DHCPv4 Concepts, Configure DHCPv4 Server, Configure DHCPv4 Client, SLAAC and DHCPv6 Concepts, IPv6 Global Unicast Address Assignment, SLAAC (Stateless Address Autoconfiguration), DHCPv6, Configure DHCPv6 Server.

Unit 4: Network Redundancy and Security

FHRP (First Hop Redundancy Protocol) Concepts: First Hop Redundancy Protocol, HSRP (Hot Standby Router Protocol), LAN Security Concepts: Endpoint Security, Access Control, Layer 2 Security Threats, MAC Address Table Attack, LAN Attacks, Switch Security Configuration: Implement Port Security, Mitigate VLAN Attacks, Mitigate DHCP Attacks, Mitigate ARP Attacks, Mitigate STP Attacks.

Unit 5: Wireless Networking and Routing

WLAN Concepts: Introduction to Wireless, Components of WLANs, WLAN Operation, CAPWAP Operation (Control and Provisioning of Wireless Access Points), Channel Management, WLAN Threats, Secure WLANs, WLAN Configuration: Remote Site WLAN Configuration, configure a Basic WLC on the WLC (Wireless LAN Controller), Configure a WPA2 Enterprise WLAN on the WLC, Troubleshoot WLAN Issues, Routing Concepts: Path Determination, Packet Forwarding, Basic Router Configuration Review, IP Routing Table, Static and Dynamic Routing, IP Static Routing: Static Routes, Configure IP Static Routes, Configure IP Default Static Routes, Configure Floating Static Routes, Configure Static Host Routes, Troubleshoot Static and Default Routes: Packet Processing with Static Routes, Troubleshoot IPv4 Static and Default Route Configuration

Test Projects:

Use Cases:

1. Basic Switch Configuration – ILM

2. Configure Basic Router Settings – ILM

3. Configure VLANs and Trunking – ILM

4. Troubleshoot IPv4 and IPv6 Static and Default Routes - ILM

5. Implement VLANs and Trunking - ILM

6. Configure Router-on-a-Stick Inter-VLAN Routing - ILM

7. Troubleshoot Inter-VLAN Routing - ILM

8. Implement Inter-VLAN Routing - ILM

9. Implement Ether channel - ILM

10. Implement DHCPv4 – ILM

11. Configure DHCPv6 - ILM

12. Switch Security Configuration - ILM

13. Configure a Wireless Network - ILM

14. Configure IPv4 and IPv6 Static and Default Routes – ILM

15. HSRP Configuration Guide – ILM

16. WLAN Configuration – ILM

17. Basic Router Configuration Review – ILM

18. Configure IPv4 and IPv6 Static and Default Routes - ILM

19. Implement Port Security – ILM

20. Switch Security Configuration - ILM