Implementation Cisco Enterprise Network Core Technologies (ENCOR)

Course Duration: 40 Hours   **Course code: ENCOR**

1. Course Overview

This course provides a comprehensive understanding of enterprise networking core technologies. It covers dual-stack architecture (IPv4 & IPv6), virtualization, infrastructure, network assurance, security, and automation. Learners will gain hands-on experience in configuring, managing, and troubleshooting enterprise network environments using Cisco technologies

2. What you'll learn?

By the end of the course, you will be able to:

- Describe enterprise network architecture and design principles
- Configure Layer 2 and Layer 3 connectivity
- Implement VLANs, trunking, and inter-VLAN routing
- Configure routing protocols such as OSPF and EIGRP
- Understand wireless principles and controller-based architectures
- Implement network security concepts and solutions
- Configure network automation using APIs and controllers
- Monitor and troubleshoot enterprise networks
- Understand virtualization technologies in enterprise networks

3. Target Audience

This course is ideal for:

- Network Engineers
- System Engineers
- Network Administrators
- Infrastructure Engineers

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- IT Professionals preparing for CCNP Enterprise

4. Pre-Requisites

Before taking this course, you should have:

- Basic knowledge of networking fundamentals (CCNA level)
- Understanding of IP addressing and subnetting
- Familiarity with network devices like routers and switches
- Basic CLI knowledge of Cisco devices

5. Course content

Module 1: Course Introduction

- Course overview and objectives
- Lab setup and environment
- Certification path overview

Module 2: Enterprise Network Architecture

- Cisco Enterprise Architecture overview
- Two-tier vs three-tier architecture
- Spine-leaf architecture
- Software-Defined Networking (SDN) concepts
- Cloud integration basics

Module 3: Switching Concepts

- VLAN configuration and management
- Trunking protocols (802.1Q)
- Inter-VLAN routing
- EtherChannel configuration
- Spanning Tree Protocol (STP, RSTP, MST)

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Module 4: Routing Concepts

- IP routing fundamentals
- Static routing configuration
- Dynamic routing overview
- Routing table concepts

Module 5: OSPF Implementation

- OSPF concepts and operations
- OSPF configuration (single-area & multi-area)
- OSPF neighbor relationships
- Route summarization and filtering

Module 6: Advanced Routing Technologies

- EIGRP fundamentals and configuration
- Route redistribution
- First Hop Redundancy Protocols (HSRP, VRRP, GLBP)
- Policy-Based Routing (PBR)

Module 7: IP Services

- DHCP configuration
- NAT (Static, Dynamic, PAT)
- NTP configuration
- SNMP and Syslog
- QoS concepts and implementation

Module 8: Wireless Networking Fundamentals

- Wireless standards and concepts
- Wireless architectures (Autonomous vs Controller-based)
- WLAN components
- Wireless security basics

Module 9: Network Security Fundamentals

- Device security (AAA, SSH, ACLs)
- Control Plane Policing (CoPP)
- Port security
- DHCP snooping, DAI, IP Source Guard
- VPN concepts

Module 10: Network Automation and Programmability

- Introduction to network automation
- REST APIs and JSON
- Cisco DNA Center overview
- Python basics for network automation
- Configuration management tools

Module 11: Virtualization in Enterprise Networks

- Network virtualization concepts
- VRF (Virtual Routing and Forwarding)
- GRE and IPsec tunneling
- LISP overview

Module 12: Network Assurance and Monitoring

- Network monitoring tools
- NetFlow and telemetry
- Troubleshooting methodologies
- Debugging and logging

Module 13: Infrastructure Services Integration

- DNS services
- IP SLA

- Application hosting on network devices
- Network performance optimization

Module 14: Troubleshooting Enterprise Networks

- Layer-wise troubleshooting approach
- Common network issues and fixes
- Tools and commands for troubleshooting
- Case studies and real-world scenarios

Module 15: Hands-on Labs and Use Cases

- End-to-end enterprise network setup
- Routing and switching labs
- Security implementation labs
- Automation scripts execution
- Real-world enterprise scenarios

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