Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) v1.0 - On Demand

Modality: On Demand

Duration: 40 Hours

CLC: 10 Units

Course Information

About this course:

The course provides you complete knowledge and skills required to configure, troubleshoot, and manage wired and wireless networks of enterprises.

It will also develop skills to implement security principles within an enterprise network and how to overlay network design by using solutions such as SD-Access and SD-WAN.

This course is a preparation training for Implementing Cisco Enterprise Network Core Technologies (350-401 ENCOR) exam, which is part of four new certifications:

- CCIE Enterprise Wireless
- Cisco Certified Specialist – Enterprise Core
- CCNP Enterprise
- CCIE Enterprise Infrastructure

Course Objective:

After taking this course, you should be able to:

- Implement internet connectivity within Enterprise using static and dynamic Network Address Translation (NAT)
- Implement overlay technologies such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), VPN, and Location Identifier Separation Protocol (LISP)
- Describe how APs communicate with WLCs to obtain software, configurations, and centralized management
- Illustrate the hierarchical network design model and architecture using the access, distribution, and core layers
- Compare and contrast hardware and software switching mechanisms and operation, while defining the ternary content addressable memory (TCAM) and CAM
- Troubleshoot Layer 2 connectivity using VLANs and trunking
- Configure and verify Extensible Authentication Protocol (EAP), WebAuth, and Pre-shared Key (PSK) wireless client authentication on a WLC
- Troubleshoot Enterprise networks using services such as Network Time Protocol (NTP), Simple Network Management Protocol (SNMP), Cisco IOS IP service level agreements (SLAs), NetFlow, and Cisco IOS Embedded Event Manager

- Implement redundant switched networks using Spanning Tree Protocol
- Describe the features, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP)
- Implement and optimize Open Shortest Path First version 2 (OSPFv2) and OSPFv3
- Implement External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking
- Implement scalable administration using Authentication, Authorization, and Accounting (AAA)
- Explain basic Python components and conditionals with script writing and analysis
- Describe network programmability protocols such as Network Configuration Protocol (NETCONF) and Representational State Transfer Configuration Protocol (RESTCONF)
- Explain the purpose, function, features, and workflow of Cisco Digital Network Architecture (Cisco DNA) Center
- Describe the components and features of the Cisco SD-Access solution
- Define the components and features of Cisco SD-WAN solutions
- Describe the concepts and features of quality of service (QoS)

Audience:

- Mid-level network engineers
- Network administrators and support technicians
- Help desk technicians

Prerequisite:

You should have the following knowledge and skills before taking this course:

- Basic understanding of Python scripting
- How to implement Enterprise LAN networks
- Basic understanding of Enterprise routing and wireless connectivity

Course Outline:

- **Investigate the CAM**
- **Analyze Cisco Express Forwarding**
- **Troubleshoot VLAN and Trunk Issues**
- **Tuning Spanning Tree Protocol (STP) and Configuring Rapid Spanning Tree Protocol (RSTP)**
- **Configure Multiple Spanning Tree Protocol**
- **Troubleshoot EtherChannel**
- **Implement Multi-area OSPF**
- **Implement OSPF Tuning**
- **Apply OSPF Optimization**
- **Implement OSPFv3**
- **Configure and Verify Single-Homed EBGP**
- **Implementing Hot Standby Routing Protocol (HSRP)**
- **Configure Virtual Router Redundancy Protocol (VRRP)**
- **Implement NAT**

- **Configure and Verify Virtual Routing and Forwarding (VRF)**
- **Configure and Verify a Generic Routing Encapsulation (GRE) Tunnel**
- **Configure Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels**
- **Configure Wireless Client Authentication in a Centralized Deployment**
- **Troubleshoot Wireless Client Connectivity Issues**
- **Configure Syslog**
- **Configure and Verify Flexible NetFlow**
- **Configuring Cisco IOS Embedded Event Manager (EEM)**
- **Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug**
- **Configure and Verify Cisco IP SLAs**
- **Configure Standard and Extended ACLs**
- **Configure Control Plane Policing**
- **Implement Local and Server-Based AAA**
- **Writing and Troubleshooting Python Scripts**
- **Explore JavaScript Object Notation (JSON) Objects and Scripts in Python**
- **Use NETCONF Via SSH**
- **Use RESTCONF with Cisco IOS XE Software**