
Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) V1.3

***WHERE GREAT TRAINING
HAPPENS EVERYDAY!***



Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) V1.3

Course Duration

5 Days

Course Price

\$4,295.00

43 CLCs

Methods of Delivery

In-Person ILT

Virtual ILT

Onsite ILT

About this Class

The Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) v1.3 training gives you the knowledge and skills needed to install, configure, operate, and troubleshoot an enterprise network and introduces you to overlay network design by using SD-Access and SD-WAN solutions. You'll also learn to understand and implement security principles and automation and programmability within an enterprise network.

This course helps you prepare to take the 350-401 Implementing Cisco® Enterprise Network Core Technologies (ENCOR) exam

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This course helps you prepare to take the 350-401 Implementing Cisco® Enterprise Network Core Technologies (ENCOR) exam, which is part of four new certifications:

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

How you will benefit

This class will help you:

- Configure and implement identified solutions by applying planned implementation processes using Cisco IOS Software commands and applications.
- Verify appropriate show and debug commands and applications to ensure correct solution implementation and performance.
- Troubleshoot appropriate show and debug commands and applications to identify the cause of basic-level network issues and correctly implement a solution that ensures that the network is performing as desired.

Why Attend with Current Technologies CLC

- Our Instructors are the top 10% rated by Cisco
- Our Lab has a dedicated 1 Gig Fiber Connection for our Labs
- Our Labs run up to Date Code for all our courses

Who Should Attend

The job roles best suited to the material in this course are:

- Entry to Mid-level Network Engineers
- Network Administrators
- Network Support Technicians
- Help Desk Technicians

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Objectives

After taking this course, you should be able to:

- Illustrate the hierarchical network design model and architecture using the access, distribution, and core layers
- Compare and contrast the various hardware and software switching mechanisms and operation, while defining the Ternary Content Addressable Memory (TCAM) and Content Addressable Memory (CAM), along with process switching, fast switching, and Cisco Express Forwarding concepts
- Troubleshoot Layer 2 connectivity using VLANs and trunking
- Implementation of redundant switched networks using Spanning Tree Protocol
- Troubleshooting link aggregation using Etherchannel
- Describe the features, metrics, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP)
- Implementation and optimization of Open Shortest Path First (OSPF)v2 and OSPFv3, including adjacencies, packet types, and areas, summarization, and route filtering for IPv4 and IPv6
- Implementing External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking
- Implementing network redundancy using protocols including Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)
- Implementing internet connectivity within Enterprise using static and dynamic Network Address Translation (NAT)
- Describe the virtualization technology of servers, switches, and the various network devices and components
- Implementing overlay technologies such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), VPN, and Location Identifier Separation Protocol (LISP)
- Describe the components and concepts of wireless networking including Radio Frequency (RF) and antenna characteristics, and define the specific wireless standards

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Objectives Cont.

- Describe the various wireless deployment models available, include autonomous Access Point (AP) deployments and cloud-based designs within the centralized Cisco Wireless LAN Controller (WLC) architecture
- Describe wireless roaming and location services
- Describe how APs communicate with WLCs to obtain software, configurations, and centralized management
- Configure and verify Extensible Authentication Protocol (EAP), WebAuth, and Pre-Shared Key (PSK) wireless client authentication on a WLC
- Troubleshoot wireless client connectivity issues using various available tools
- Troubleshooting Enterprise networks using services such as Network Time Protocol (NTP), Simple Network Management Protocol (SNMP), Cisco Internetwork Operating System (Cisco IOS®) IP Service Level Agreements (SLAs), NetFlow, and Cisco IOS Embedded Event Manager
- Explain the use of available network analysis and troubleshooting tools, which include show and debug commands, as well as best practices in troubleshooting
- Configure secure administrative access for Cisco IOS devices using the Command-Line Interface (CLI) access, Role-Based Access Control (RBAC), Access Control List (ACL), and Secure Shell (SSH), and explore device hardening concepts to secure devices from less secure applications, such as Telnet and HTTP
- Implement scalable administration using Authentication, Authorization, and Accounting (AAA) and the local database, while exploring the features and benefits
- Describe the enterprise network security architecture, including the purpose and function of VPNs, content security, logging, endpoint security, personal firewalls, and other security features
- Explain the purpose, function, features, and workflow of Cisco DNA Center™ Assurance for Intent-Based Networking, for network visibility, proactive monitoring, and application experience

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Objectives Cont.

- Describe the components and features of the Cisco SD-Access solution, including the nodes, fabric control plane, and data plane, while illustrating the purpose and function of the Virtual Extensible LAN (VXLAN) gateways
- Define the components and features of Cisco SD-WAN solutions, including the orchestration plane, management plane, control plane, and data plane
- Describe the concepts, purpose, and features of multicast protocols, including Internet Group Management Protocol (IGMP) v2/v3, Protocol-Independent Multicast (PIM) dense mode/sparse mode, and rendezvous points
- Describe the concepts and features of Quality of Service (QoS), and describe the need within the enterprise network
- Explain basic Python components and conditionals with script writing and analysis
- Describe network programmability protocols such as Network Configuration Protocol (NETCONF) and RESTCONF
- Describe APIs in Cisco DNA Center and Manage

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Course Outline

Module 1: Examining Cisco Enterprise Network Architecture

Module 2: Exploring Cisco Switching Paths

Module 3: Implementing Campus LAN Connectivity

Module 4: Building Redundant Switched Topology

Module 5: Implementing Layer 2 Port Aggregation

Module 6: Understanding EIGRP

Module 7: Implementing OSPF

Module 8: Optimizing OSPF

Module 9: Exploring EBGp

Module 10: Implementing Network Redundancy

Module 11: Implementing NAT

Module 12: Introducing Virtualization Protocols and Techniques

Module 13: Understanding Virtual Private Networks and Interfaces

Module 14: Understanding Wireless Principles

Module 15: Examining Wireless Deployment Options

Module 16: Understanding Wireless Roaming and Location Services

Module 17: Examining Wireless AP Operation

Module 18: Implementing Wireless Client Authentication

Module 19: Troubleshooting Wireless Client Connectivity

Module 20: Implementing Network Services

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Course Outline Cont.

Module 21: Using Network Analysis Tools

Module 22: Implementing Infrastructure Security

Module 23: Implementing Secure Access Control

Module 24: Discovering the Basics of Python Programming

Module 25: Discovering Network Programmability Protocols

Module 26: Implementing Layer 2 Port Aggregation

Module 27: Discovering Multicast Protocols

Module 28: Understanding QoS

Module 29: Exploring Enterprise Network Security Architecture

Module 30: Exploring Automation and Assurance Using Cisco DNA Center

Module 31: Examining the Cisco SD-Access Solution

Module 32: Understanding the Working Principles of the Cisco SD-WAN Solution

IMPLEMENTING AND OPERATING CISCO ENTERPRISE NETWORK CORE TECHNOLOGIES (ENCOR) V1.1

Lab Outline

- **Lab 1:** Investigate the CAM
- **Lab 2:** Analyze Cisco Express Forwarding
- **Lab 3:** Troubleshoot VLAN and Trunk Issues
- **Lab 4:** Tuning Spanning Tree Protocol (STP) and Configuring Rapid Spanning Tree Protocol (RSTP)
- **Lab 5:** Configure Multiple Spanning Tree Protocol
- **Lab 6:** Troubleshoot EtherChannel
- **Lab 7:** Implement Multi-area OSPF
- **Lab 8:** Implement OSPF Tuning
- **Lab 9:** Apply OSPF Optimization
- **Lab 10:** Implement OSPFv3
- **Lab 11:** Configure and Verify Single-Homed EBGP
- **Lab 12:** Implementing Hot Standby Routing Protocol (HSRP)
- **Lab 13:** Configure Virtual Router Redundancy Protocol (VRRP)
- **Lab 14:** Implement NAT
- **Lab 15:** Configure and Verify Virtual Routing and Forwarding (VRF)
- **Lab 16:** Configure and Verify a Generic Routing Encapsulation (GRE) Tunnel
- **Lab 17:** Configure Static Virtual Tunnel Interface (VTI) Point-to-Point Tunnels
- **Lab 18:** Configure Wireless Client Authentication in a Centralized Deployment
- **Lab 19:** Troubleshoot Wireless Client Connectivity Issues
- **Lab 20:** Configure Syslog

IMPLEMENTING AND OPERATING CISCO ENTERPRISE NETWORK CORE TECHNOLOGIES (ENCOR) V1.1

Lab Outline Cont.

- **Lab 21:** Configure and Verify Flexible NetFlow
- **Lab 22:** Configuring Cisco IOS Embedded Event Manager (EEM)
- **Lab 23:** Troubleshoot Connectivity and Analyze Traffic with Ping, Traceroute, and Debug
- **Lab 24:** Configure and Verify Cisco IP SLAs
- **Lab 25:** Configure Standard and Extended ACLs
- **Lab 26:** Configure Control Plane Policing
- **Lab 27:** Implement Local and Server-Based AAA
- **Lab 28:** Writing and Troubleshooting Python Scripts
- **Lab 29:** Explore JavaScript Object Notation (JSON) Objects and Scripts in Python
- **Lab 30:** Use NETCONF Via SSH
- **Lab 31:** Use RESTCONF with Cisco IOS XE Software