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Computer Learning Centers

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Platinum Learning

Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) V1.4

WHERE GREAT TRAINING HAPPENS EVERYDAY!

Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) V1.4

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) v1.4 training gives you the knowledge and skills needed to configure, troubleshoot, and manage enterprise wired and wireless networks. You'll also learn how to implement security principles, automation, and programmability within an enterprise network, and overlay network design by using Cisco SD-Access and SD-WAN solutions.
This training also earns you 64 Continuing Education (CE) credits toward recertification.

Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) V1.4

How you will benefit

This class will help you:

- Configure, troubleshoot, and manage enterprise wired and wireless networks
- Implement security principles, automation, and programmability within an enterprise network
- Overlay network design by using Cisco SD-Access and SD-WAN solutions
- Prepare for the 350-401 ENCOR v1.1 exam
- Earn 64 CE credits toward recertification

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

Prerequisites

There are no prerequisites for this training. However, the knowledge and skills you are recommended to have before attending this training are:

- Understanding of how to implement enterprise LAN networks
- Basic understanding of enterprise routing and wireless connectivity
- Basic understanding of Python scripting

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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 virtual local area networks (VLANs) and trunking
- Implement redundant switched networks using Spanning Tree Protocol (STP)
- Troubleshoot link aggregation using EtherChannel
- Describe the features, metrics, and path selection concepts of Enhanced Interior Gateway Routing Protocol (EIGRP)
- Implement and optimize Open Shortest Path First (OSPF)v2 and OSPFv3, including adjacencies, packet types, areas, summarization, and route filtering for internet protocol (IP)v4 and IPv6
- Implement External Border Gateway Protocol (EBGP) interdomain routing, path selection, and single and dual-homed networking
- Implement network redundancy using protocols including Hot Standby Routing Protocol (HSRP) and Virtual Router Redundancy Protocol (VRRP)
- Implement 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
- Implement overlay technologies, such as Virtual Routing and Forwarding (VRF), Generic Routing Encapsulation (GRE), virtual private network (VPN), and Location Identifier Separation Protocol (LISP)

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Objectives Cont.

- Describe the components and concepts of wireless networking including radio frequency (RF), antenna characteristics, and define the specific wireless standards
- Describe the various wireless deployment models available, including 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
- Troubleshoot 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

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Objectives Cont.

- 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 Catalyst Center™ Assurance for intent-based networking (IBN), network visibility, proactive monitoring, and application experience
- 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 Representational State Transfer Configuration Protocol (RESTCONF)
- Describe application programming interfaces (APIs) in Cisco Catalyst Center and Cisco Catalyst SD-WAN Manager

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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: Implementing OSPF

Module 7: Optimizing OSPF

Module 8: Explaining EIGRP

Module 9: Exploring EBGP

Module 10: Implementing Network Redundancy

Module 11: Implementing NAT

Module 12: Introducing Virtualization Protocols and Techniques

Module 13: Exploring Virtual Private Networks and Interfaces

Module 14: Examining Wireless Deployment Options

Module 15: Examining Wireless AP Operation

Module 16: Implementing Wireless Client Authentication

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Course Outline Cont.

Module 17: Troubleshooting Wireless Client Connectivity

Module 18: Implementing Network Services

Module 19: Introducing Multicast Protocols

Module 20: Introducing QoS

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: Introducing Network Programmability Protocols

Module 26: Explaining Wireless Principles

Module 27: Exploring Wireless Roaming and Location Services

Module 28: Exploring Enterprise Network Security Architecture

Module 29: Exploring Cisco Catalyst Center—Network Automation and Management

Module 30: Examining the Cisco SD-Access Solution

Module 31: Exploring the Working Principles of the Cisco Catalyst SD-WAN Solution

Module 32: Introducing APIs in Cisco Catalyst Center and Cisco Catalyst SD-WAN Manager

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Lab Outline

Lab 1: Investigate the CAM

Lab 2: Analyze Cisco Express Forwarding

Lab 3: Troubleshoot VLAN and Trunk Issues

Lab 4: Tune STP and Configure RSTP

Lab 5: Configure Multiple STP

Lab 6: Troubleshoot EtherChannel

Lab 7: Implement Multiarea 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: Implement HSRP

Lab 13: Configure VRRP

Lab 14: Implement NAT

Lab 15: Configure and Verify VRF

Lab 16: Configure and Verify a GRE Tunnel

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Lab Outline Cont.

Lab 17: Configure Static 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

Lab 21: Configure and Verify Flexible NetFlow

Lab 22: Configure Cisco IOS 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: Write and Troubleshoot Python Scripts

Lab 29: Explore JSON Objects and Scripts in Python

Lab 30: Use NETCONF Via SSH

Lab 31: Use RESTCONF with Cisco IOS XE Software