

## Cisco® Implementing Cisco® Enterprise Advanced Routing and Services v1.0 (ENARSI)

### Overview

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This course provides the knowledge and skills needed to install, configure, operate and troubleshoot an enterprise network. This course is intended to be a deep dive into advanced routing and infrastructure technologies, which are an expansion of the topics covered in the Implementing and Operating Cisco Enterprise Network Core Technologies (ENCOR) course. This course prepares you to take the CCNP Enterprise exam 300-410 ENARSI. This course includes post class lab access- a total of 60 hours of labs over a 90 day period.

### Prerequisite Comments

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Before taking this course, you should have:

- General understanding of network fundamentals
- Basic knowledge of how to implement LANs
- General understanding of how to manage network devices
- General understanding of how to secure network devices
- Basic knowledge of network automation

### Target Audience

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- Enterprise network engineers
- System engineers
- System administrators
- Network administrators

### Course Objectives

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After taking this course, you should be able to:

- Configure classic Enhanced Interior Gateway Routing Protocol (EIGRP) and named EIGRP for IPv4 and IPv6
- Optimize classic EIGRP and named EIGRP for IPv4 and IPv6
- Troubleshoot classic EIGRP and named EIGRP for IPv4 and IPv6
- Configure Open Shortest Path First (OSPF)v2 and OSPFv3 in IPv4 and IPv6 environments
- Optimize OSPFv2 and OSPFv3 behavior
- Troubleshoot OSPFv2 for IPv4 and OSPFv3 for IPv4 and IPv6
- Implement route redistribution using filtering mechanisms
- Troubleshoot redistribution
- Implement path control using Policy-Based Routing (PBR) and IP service level agreement (SLA)
- Configure Multiprotocol-Border Gateway Protocol (MP-BGP) in IPv4 and IPv6 environments
- Optimize MP-BGP in IPv4 and IPv6 environments
- Troubleshoot MP-BGP for IPv4 and IPv6
- Describe the features of Multiprotocol Label Switching (MPLS)
- Describe the major architectural components of an MPLS VPN
- Identify the routing and packet forwarding functionalities for MPLS VPNs
- Explain how packets are forwarded in an MPLS VPN environment
- Implement Cisco Internetwork Operating System (IOS®) Dynamic Multipoint VPNs (DMVPNs)
- Implement Dynamic Host Configuration Protocol (DHCP)

Describe the tools available to secure the IPV6 first hop  
Troubleshoot Cisco router security features  
Troubleshoot infrastructure security and services

## Course Outline

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### 1 - Course Outline

- Implementing EIGRP
- Optimizing EIGRP
- Troubleshooting EIGRP
- Implementing OSPF
- Optimizing OSPF
- Troubleshooting OSPF
- Implementing Internal Border Gateway Protocol (IBGP)
- Optimizing BGP
- Implementing MP-BGP
- Troubleshooting BGP
- Configuring Redistribution
- Troubleshooting Redistribution
- Implementing Path Control
- Exploring MPLS
- Introducing MPLS L3 VPN Architecture
- Introducing MPLS L3 VPN Routing
- Configuring Virtual Routing and Forwarding (VRF)-Lite
- Implementing DMVPN
- Implementing DHCP
- Troubleshooting DHCP
- Introducing IPv6 First Hop Security
- Securing Cisco Routers
- Troubleshooting Infrastructure Security and Services

## 2 - Lab Outline

Configure EIGRP Using Classic Mode and Named Mode for IPv4 and IPv6  
Verify the EIGRP Topology Table  
Configure EIGRP Stub Routing, Summarization, and Default Routing  
Configure EIGRP Load Balancing and Authentication  
LAB: Troubleshoot EIGRP Issues  
Configure OSPFv3 for IPv4 and IPv6  
Verify the Link-State Database  
Configure OSPF Stub Areas and Summarization  
Configure OSPF Authentication  
Troubleshoot OSPF  
Implement Routing Protocol Redistribution  
Manipulate Redistribution  
Manipulate Redistribution Using Route Maps  
Troubleshoot Redistribution Issues  
Implement PBR  
Configure IBGP and External Border Gateway Protocol (EBGP)  
Implement BGP Path Selection  
Configure BGP Advanced Features  
Configure BGP Route Reflectors  
Configure MP-BGP for IPv4 and IPv6  
Troubleshoot BGP Issues  
Implement PBR  
Configure Routing with VRF-Lite  
Implement Cisco IOS DMVPN  
Obtain IPv6 Addresses Dynamically  
Troubleshoot DHCPv4 and DHCPv6 Issues  
Troubleshoot IPv4 and IPv6 Access Control List (ACL) Issues  
Configure and Verify Control Plane Policing  
Configure and Verify Unicast Reverse Path Forwarding (uRPF)  
Troubleshoot Network Management Protocol Issues: Lab 1  
Troubleshoot Network Management Protocol Issues: Lab 2

## Related Courses, Certifications, Exams

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- Cisco® Implementing and Operating Cisco® Enterprise Network Core Technologies v1.1 (ENCOR)