Implementing Cisco IP Routing v2.0 (ROUTE)

ID CI-ROUTE  Price US$ 3,595  Duration 5 days

Who should attend

- Network Engineers
- Network Operations Center (NOC) Technical Support Personnel
- Help Desk Technicians
- Network professionals

Course Objectives

- Describe routing protocols, different remote connectivity options, and their impact on routing and implementing RIPng
- Configure EIGRP in IPv4 and IPv6 environments
- Configure OSPF in IPv4 and IPv6 environments
- Implement route redistribution using filtering mechanisms
- Implement path control using policy-based routing and IP SLA
- Implement enterprise Internet connectivity
- Secure Cisco routers according to best practices
- Configure authentication for routing protocols

Prerequisites

You must have the following knowledge and skills before attending the ROUTE course:

- Network fundamentals
- Establish Internet and WAN connectivity (IPv4 and IPv6)
- Basic networking security
- Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree
- Troubleshoot IP connectivity (IPv4 and IPv6)
- Configure and troubleshoot EIGRP and OSPF (IPv4 and IPv6)
- Configure devices for SNMP, syslog, and NetFlow access
- Manage Cisco device configurations, Cisco IOS images, and licenses

It is highly recommended that this course be taken after the following Cisco courses:

- Interconnecting Cisco Network Devices Part 1 (ICND1) and Interconnecting Cisco Network Devices Part 2 (ICND2) or
- Interconnecting Cisco Network Devices: Accelerated (CCNAX)

Course Content

This important course is one of three courses required for the Cisco CCNP Routing and Switching certification. The ROUTE course builds on the routing skills you developed in the CCNA Routing and Switching curriculum. You will learn the advanced routing topics you need to know to implement and manage an enterprise network of a medium or large size enterprise. Through lectures and real world hands-on labs you will learn the skills necessary to deploy and manage the key technologies in a Cisco routed network.

You will learn to correctly implement routing based solutions given a network design using Cisco IOS
services and features, where implementation of routing includes planning, configuring and verification. Also, you will gain the necessary skills to implement and verify the many routing protocols used in enterprise networks.

**Detailed Course Outline**

**Module 1: Basic Network and Routing Concepts**
- Differentiating Routing Protocols
- Network Technologies
- Connecting Remote Locations with the Headquarters
- RIPng

**Module 2: EIGRP Implementation**
- Neighbor Relationships
- Topology Table
- Behavior
- Configuring EIGRP for IPv6
- Named EIGRP Configuration

**Module 3: OSPF Implementation**
- Neighbor Relationships
- Link-State Database
- Behavior
- OSPFv3

**Module 4: Configuration of Redistribution**
- Basic Routing Protocol Redistribution
- Redistribution Using Route Filtering

**Module 5: Path Control Implementation**
- Cisco Express Forwarding Switching
- Path Control

**Module 6: Enterprise Internet Connectivity**
- Planning
- Single-Homed IPv4 Internet Connectivity
- Single-Homed IPv6 Internet Connectivity
- Internet Connectivity Resilience
- Advantages of Using BGP
- BGP Operations
- BGP Attributes and the Path Selection Process
- Controlling BGP Routing Updates
- BGP for IPv6 Internet Connectivity

**Module 7: Routers and Routing Protocol Hardening**
- Securing Cisco Routers
- Routing Protocol Authentication Options
- EIGRP Authentication
- OSPF Authentication
- BGP Authentication

**Labs**
- RIPng
- Basic EIGRP
- EIGRP Topology Table
- EIGRP Stub Routing
- EIGRP Summarization
- EIGRP Load Balancing
- EIGRP for IPv6 Configuration
- Named EIGRP Configuration
- OSPF Configuration Introduction
- Link-State Database
- OSPF Path Selection
- OSPF Route Summarization
- OSPF Stub Areas
- OSPFv3
- Basic Redistribution
- Manipulate Redistribution
- Manipulate Redistribution Using Route Maps
- Cisco Express Forwarding
- PBR
- NAT Virtual Interface
- IPv6 Internet Connectivity
- BGP Configuration
- BGP Path Selection
**DELIVERY METHODS**

- **ILT – Instructor-Led Classroom Training**
  ILT sessions are conducted in a physical classroom environment.

- **ILO – Instructor-Led Online Training**
  ILO sessions are conducted via WebEx in a VoIP environment

- **FLEX Classroom™ – Combined ILT & ILO**
  FLEX Classroom sessions are delivered via ILT and ILO giving you the ultimate flexibility.

- BGP for IPv6
- EIGRP Authentication
- OSPF Authentication