



500 EIGHTH Ave, Suite 1203, New York, NY. 10018



## Troubleshooting IP Routing Protocols Training Course



<b>Course Length:</b>	4 weeks (32ours), Instructor-led
<b>Skill Development:</b>	troubleshoot RIP, EIGRP, OSPF, BGP IP Protocols
<b>Prerequisites:</b>	CCNP certification or CCNP Bootcamp training
<b>Target Audience:</b>	Post-CCNP training, CCIE candidates preparing for the lab exam, those seeking to recertify CCNP certification
<b>Course Objective:</b>	Provide students with the knowledge and skills for CCIE-level training
<b>Lab:</b>	One-year onsite and remote access (via web)

### Topics to be covered:

#### Understanding IP Routing Protocols

- IP Addressing Concepts
- Static and Dynamic Routes
- Dynamic Routing
- Routing Protocol Administrative Distance
- Fast Forwarding in Routers

#### Understanding Routing Information Protocol (RIP)

- Metric; Timers; Split Horizon
- Split Horizon with Poison Reserve
- RIP-1 Packet Format; RIP Behavior
- Why RIP Doesn't Support Discontiguous Networks
- Why RIP Doesn't Support Variable-Length Subnet Masking
- Default Routes and RIP
- Protocol Extension to RIP
- Compatibility Issues

#### Troubleshooting RIP

- Flowcharts to Solve Common RIP Problems
- Troubleshooting RIP Routes Installation
- Troubleshooting RIP Routes Advertisement

#### Understanding EIGRP

- Metrics
- EIGRP Neighbor Relationships
- The Diffusing Update Algorithm
- DUAL Finite-State Machine
- EIGRP Reliable Transport Protocol
- EIGRP Packet Format; EIGRP Behavior
- EIGRP Summarization; EIGRP Query Process
- Default Routes and EIGRP
- Unequal-Cost Load Balancing in EIGRP

#### Understanding Open Shortest Path First (OSPF)

- OSPF Packet Details; OSPF LSA Details
- OSPF Areas; OSPF Media Types; Adjacencies

#### Troubleshooting OSPF

- Flowcharts to Solve Common OSPF Problems
- Troubleshooting OSPF Neighbor Relationships
- Troubleshooting OSPF Route Advertisement
- Troubleshooting OSPF Route Installation
- Troubleshooting Redistribution Problems in OSPF
- Troubleshooting Route Summarization in OSPF
- Troubleshooting CPU/HOG problems
- Troubleshooting Dial-on-Demand Routing Issues in OSPF; Troubleshooting SPF Calculation and Route Flapping; Common OSPF error messages

#### Understanding Border Gateway Protocol 4 (BGP4)

- BGP-4 Protocol Specification and Functionality
- Neighbor Relationships; Advertising Routes
- Receiving Routes; Policy Control
- Scaling IBGP in Large Networks-Route Reflectors and Confederations; Best-Path Calculation

#### Troubleshooting BGP

- Show and debug Commands for BGP-Related Troubleshooting
- Troubleshooting BGP Neighbor Relationships
- Troubleshooting BGP Route-Reflection Issues
- Troubleshooting Load-Balancing Scenarios in Small BGP Networks

#### Understanding IP Protocol Redistributions

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- Troubleshoot redistribution loops

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