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Cisco CCNP Routing and Switching Certification

Course outline

ROUTE v2.0 - Implementing Cisco IP Routing

Module 1: Basic Network and Routing Concepts
Lesson 1: Differentiating Routing Protocols
Lesson 2: Understanding Network Technologies
Lesson 3: Connecting Remote Locations with the Headquarters
Lesson 4: Implementing RIPng

Module 2: EIGRP Implementation
Lesson 1: Establishing EIGRP Neighbor Relationships
Lesson 2: Building the EIGRP Topology Table
Lesson 3: Optimizing EIGRP Behavior
Lesson 4: Configuring EIGRP for IPv6
Lesson 5: Discovering Named EIGRP Configuration

Module 3: OSPF Implementation
Lesson 1: Establishing OSPF Neighbor Relationships
Lesson 2: Building the Link-State Database
Lesson 3: Optimizing OSPF Behavior
Lesson 4: Configuring OSPFv3

Module 4: Configuration of Redistribution
Lesson 1: Implementing Basic Routing Protocol Redistribution
Lesson 2: Manipulating Redistribution Using Route Filtering

Module 5: Path Control Implementation
Lesson 1: Using Cisco Express Forwarding Switching

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Lesson 2: Implementing Path Control

Module 6: Enterprise Internet Connectivity
Lesson 1: Planning Enterprise Internet Connectivity
Lesson 2: Establishing Single-Homed IPv4 Internet Connectivity
Lesson 3: Establishing Single-Homed IPv6 Internet Connectivity
Lesson 4: Improving Resilience of Internet Connectivity
Lesson 5: Considering Advantages of Using BGP
Lesson 6: Implementing Basic BGP Operations
Lesson 7: Using BGP Attributes and the Path Selection Process
Lesson 8: Controlling BGP Routing Updates
Lesson 9: Implementing BGP for IPv6 Internet Connectivity

Module 7: Routers and Routing Protocol Hardening
Lesson 1: Securing Cisco Routers
Lesson 2: Describing Routing Protocol Authentication Options
Lesson 3: Configuring EIGRP Authentication
Lesson 4: Configuring OSPF Authentication
Lesson 5: Configuring BGP Authentication

Lab Outline
Discovery 1: Configuring RIPng
Discovery 2: Configuring and Investigating Basic EIGRP
Discovery 3: Building the EIGRP Topology Table
Discovery 4: EIGRP Stub Routing
Discovery 5: EIGRP Summarization
Discovery 6: EIGRP Load Balancing
Discovery 7: EIGRP for IPv6 Configuration
Discovery 8: Discovering the Named EIGRP Configuration
Discovery 9: Basic OSPF Configuration Introduction
Discovery 10: Building the Link-State Database
Discovery 11: OSPF Path Selection
Discovery 12: OSPF Route Summarization
Discovery 13: OSPF Stub Areas
Discovery 14: Implementing OSPFv3
Discovery 15: Basic Redistribution
Discovery 16: Manipulate Redistribution
Discovery 17: Manipulate Redistribution Using Route Maps
Discovery 18: Analyzing Cisco Express Forwarding
Discovery 19: Implementing PBR
Discovery 20: Configuring NAT Virtual Interface
Discovery 21: Basic IPv6 Internet Connectivity
Discovery 22: Basic BGP Configuration
Discovery 23: Influencing BGP Path Selection
Discovery 24: BGP for IPv6

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Discovery 25: Configuring EIGRP Authentication
Discovery 26: OSPF Authentication Configuration
Challenge 1: Configure RIPng
Challenge 2: Configure EIGRP
Challenge 3: Configure and Optimize EIGRP for IPv6
Challenge 4: Implement EIGRP for IPv4 and IPv6 Through Named Configuration
Challenge 5: Configure OSPF
Challenge 6: Optimize OSPF
Challenge 7: Configure OSPFv3
Challenge 8: Implement Redistribution Using Route Filtering
Challenge 9: Implement Path Control
Challenge 10: Configure BGP
Challenge 11: Configure Authentication for EIGRP Routes
Challenge 12: Configure BGP Authentication

SWITCH v2.0 - Implementing Cisco IP Switched Networks

Module 1: Basic Concepts and Network Design
Lesson 1: Analyzing Campus Network Structure
Lesson 2: Comparing Layer 2 and Multilayer Switches
Lesson 3: Using Cisco SDM Templates
Lesson 4: Implementing LLDP
Lesson 5: Implementing PoE

Module 2: Campus Network Architecture
Lesson 1: Implementing VLANs and Trunks
Lesson 2: Introducing VTP
Lesson 3: Implementing DHCP
Lesson 4: Implementing DHCP for IPv6
Lesson 5: Configuring Layer 2 Port Aggregation

Module 3: Spanning Tree Implementation
Lesson 1: Implementing RSTP
Lesson 2: Implementing STP Stability Mechanisms
Lesson 3: Implementing MST

Module 4: Inter-VLAN Routing
Lesson 1: Implementing Inter-VLAN Routing Using a Router
Lesson 2: Configuring a Switch to Route

Module 5: High-Availability Networks
Lesson 1: Configuring Network Time Protocol
Lesson 2: Implementing SNMP Version 3
Lesson 3: Implementing the Cisco IOS IP SLA

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Lesson 4: Implementing Port Mirroring for Monitoring Support
Lesson 5: Verifying Switch Virtualization

Module 6: First Hop Redundancy Protocol Implementation
Lesson 1: Configuring Layer 3 Redundancy with HSRP
Lesson 2: Configuring Layer 3 Redundancy with VRRP
Lesson 3: Configuring Layer 3 Redundancy with GLBP
Lesson 4: Configuring First Hop Redundancy Protocol for IPv6

Module 7: Campus Network Security
Lesson 1: Implementing Port Security
Lesson 2: Implementing Storm Control
Lesson 3: Implementing Access to External Authentication
Lesson 4: Mitigating Spoofing Attacks
Lesson 5: Securing VLAN Trunks
Lesson 6: Configuring PVLANs
Lesson 7: Module Summary

Lab Outline
Discovery 1: Investigating the CAM
Discovery 2: Configuring VLANs and Trunks
Discovery 3: VTP Operation
Discovery 4: Exploring DHCP
Discovery 5: Obtaining IPv6 Addresses Dynamically
Discovery 6: EtherChannel Configuration and Load Balancing
Discovery 7: Discovering and Modifying STP Behavior
Discovery 8: Root Guard
Discovery 9: Configuring MST
Discovery 10: Routing with an External Router
Discovery 11: Routing on a Multilayer Switch
Discovery 12: NTP Configuration
Discovery 13: IP SLA Echo Configuration
Discovery 14: Configuring and Tuning HSRP
Discovery 15: Configure VRRP and Spot the Differences from HSRP
Discovery 16: Configure GLBP
Discovery 17: Port Security
Challenge 1: Network Discovery
Challenge 2: Configure DHCP
Challenge 3: Configure DHCPv6
Challenge 4: Configure EtherChannel
Challenge 5: Implement RSTP
Challenge 6: Improve STP Configuration
Challenge 7: Configure MST
Challenge 8: Configure Routing Between VLANs with a Router
Challenge 9: Configure Routing on a Multilayer Switch

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Challenge 10: Configure NTP
Challenge 11: Configure Network Monitoring Using the Cisco IOS IP SLA
Challenge 12: Configure HSRP with Load Balancing
Challenge 13: Configure VRRP with Load Balancing
Challenge 14: Implement GLBP
Challenge 15: Configure HSRP for IPv6
Challenge 16: Control Network Access with Port Security

TSHOOT v2.0 - Troubleshooting and Maintaining Cisco IP Networks

Module 1: Tools and Methodologies of Troubleshooting
Lesson 1: Describing Troubleshooting Methodologies
Lesson 2: Using Troubleshooting Procedures
Lesson 3: Following Recommended Practices During Routine Network Maintenance
Lesson 4: Using Basic Cisco IOS Troubleshooting Tools
Lesson 5: Using Specialized Troubleshooting Tools

Module 2: Troubleshooting at SECHNIK Networking Ltd.
Lesson 1: Debrief of the First Troubleshooting at SECHNIK Networking Ltd.
Lesson 2: Debrief of the Second Troubleshooting at SECHNIK Networking Ltd.
Lesson 3: Debrief of the Third Troubleshooting at SECHNIK Networking Ltd.

Module 3: Troubleshooting at TINC Garbage Disposal Ltd.
Lesson 1: Debrief of the First Troubleshooting at TINC Garbage Disposal Ltd.
Lesson 2: Debrief of the Second Troubleshooting at TINC Garbage Disposal Ltd.
Lesson 3: Debrief of the Third Troubleshooting at TINC Garbage Disposal Ltd.
Lesson 4: Debrief of the Fourth Troubleshooting at TINC Garbage Disposal Ltd.

Module 4: Troubleshooting at PILE Forensic Accounting Ltd.
Lesson 1: Debrief of the First Troubleshooting at PILE Forensic Accounting Ltd.
Lesson 2: Debrief of the Second Troubleshooting at PILE Forensic Accounting Ltd.
Lesson 3: Debrief of the Third Troubleshooting at PILE Forensic Accounting Ltd.
Lesson 4: Debrief of the Fourth Troubleshooting at PILE Forensic Accounting Ltd.
Lesson 5: Debrief of the Fifth Troubleshooting at PILE Forensic Accounting Ltd.

Module 5: Troubleshooting at Bank of POLONA Ltd.
Lesson 1: Debrief of the First Troubleshooting at Bank of POLONA Ltd.
Lesson 2: Debrief of the Second Troubleshooting at Bank of POLONA Ltd.
Lesson 3: Debrief of the Third Troubleshooting at Bank of POLONA Ltd.
Lesson 4: Debrief of the Fourth Troubleshooting at Bank of POLONA Ltd.

Module 6: Troubleshooting at RADULKO Transport Ltd.
Lesson 1: Debrief of the First Troubleshooting at RADULKO Transport Ltd.
Lesson 2: Debrief of the Second Troubleshooting at RADULKO Transport Ltd.

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Lesson 3: Debrief of the Third Troubleshooting at RADULKO Transport Ltd.
Lesson 4: Debrief of the Fourth Troubleshooting at RADULKO Transport Ltd.

Lab Outline
Discovery 1: Maintaining and Documenting a Network
Discovery 2: Troubleshooting Connectivity
Challenge 1: First Troubleshooting at SECHNIK Networking Ltd.
Challenge 2: Second Troubleshooting at SECHNIK Networking Ltd.
Challenge 3: Third Troubleshooting at SECHNIK Networking Ltd.
Challenge 4: First Troubleshooting at TINC Garbage Disposal Ltd.
Challenge 5: Second Troubleshooting at TINC Garbage Disposal Ltd.
Challenge 6: Third Troubleshooting at TINC Garbage Disposal Ltd.
Challenge 7: Fourth Troubleshooting at TINC Garbage Disposal Ltd.
Challenge 8: First Troubleshooting at PILE Forensic Accounting Ltd.
Challenge 9: Second Troubleshooting at PILE Forensic Accounting Ltd.
Challenge 10: Third Troubleshooting at PILE Forensic Accounting Ltd.
Challenge 11: Fourth Troubleshooting at PILE Forensic Accounting Ltd.
Challenge 12: Fifth Troubleshooting at PILE Forensic Accounting Ltd.
Challenge 13: First Troubleshooting at Bank of POLONA Ltd.
Challenge 14: Second Troubleshooting at Bank of POLONA Ltd.
Challenge 15: Third Troubleshooting at Bank of POLONA Ltd.
Challenge 16: Fourth Troubleshooting at Bank of POLONA Ltd.
Challenge 17: First Troubleshooting at RADULKO Transport Ltd.
Challenge 18: Second Troubleshooting at RADULKO Transport Ltd.
Challenge 19: Third Troubleshooting at RADULKO Transport Ltd.
Challenge 20: Fourth Troubleshooting at RADULKO Transport Ltd.