

## **SWITCH 2.0 - Implementing Cisco IP Switched Networks (5 Days)**

### **Course Overview:**

Implementing Cisco Switched Networks (SWITCH) v2.0 is a five-day instructor-led training course developed to help students prepare for Cisco CCNP certification. The ROUTE course is a component of the CCNP Routing and Switching curriculum.

This course is designed to help learners create an efficient and expandable enterprise network by installing, configuring, and verifying network infrastructure equipment according to the Cisco Enterprise Campus Architecture. Some older topics from Version 1 have been removed or simplified, while several new IPv6 routing topics have been added. The course content has been adapted to Cisco IOS Software Release 15 and technically updated.

### **Audience Profile:**

This course is appropriate for learners with Cisco CCNA-level knowledge who aim to be network professionals. Typical job roles include network engineers, support engineers, systems engineers or network technicians

### **Prerequisites:**

The knowledge and skills that a student must have before attending this course are as follows:

- Describing network fundamentals
- Establishing Internet and WAN connectivity (IPv4 and IPv6)
- Managing network device security
- Operating a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree
- Troubleshooting IP connectivity (IPv4 and IPv6)
- Configuring and troubleshooting EIGRP and OSPF (IPv4 and IPv6)
- Configuring devices for SNMP, syslog, and NetFlow access
- Managing Cisco device configurations, Cisco IOS images, and licenses

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

- Interconnecting Cisco Networking Devices v2.0, Part 1 (ICND1 v2.0) and Part 2 (ICND2 v2.0), or
- Interconnecting Cisco Networking Devices: Accelerated version 2.0 (CCNAX v2.0)

### **At Course Completion:**

After completing this course, students will be able to:

- Describe hierarchical campus structure, basic switch operation, use of SDM templates, PoE, and LLDP
- Implement VLANs, trunks, explain VTP, implement DHCP in IPv4 and IPv6 environments, and configure port aggregation
- Implement and optimize STP mechanism that best suits your network – PVSTP+, RPVSTP+, or MSTP
- Configure routing on a multilayer switch
- Configure NTP, SNMP, IP SLA, and port mirroring, and verify StackWise and VSS operation
- Implement first hop redundancy in IPv4 and IPv6 environments
- Secure the campus network according to recommended practices

## Course Outline:

### 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
- 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
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### 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
- 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