# IMPLEMENTING CISCO IP SWITCHED NETWORKS 2.0 (CI-SWITCH)

## Temario

This is a five-day course designed to help students prepare to plan, configure, and verify the implementation of complex enterprise switching solutions for campus environments using the Cisco Enterprise Campus Architecture. Labs are an important feature of this course with 2 different types of labs being used to aid learning, discovery labs are instructor guided labs through which students explore new topics in an interactive way, the challenge Labs are designed to test students understanding of the topics being taught and to provide vital hands-on practice.

## Pre-requisitos

- Taking ICND1 v2.0 and ICND2 v2.0 (or CCNAX v2.0) is highly recommended
- Know how to:
  - Configure network fundamentals, including the ability to establish Internet, LAN, and WAN connectivity using both IPv4 and IPv6
  - Operate and support a medium-sized LAN that has multiple switches, including VLANs, trunking, and spanning tree functionality
  - Troubleshoot IPv4 and IPv6 connectivity issues
  - Configure and troubleshoot EIGRP and OSPF, for both IPv4 and IPv6
  - Configure devices for SNMP, Syslog, and NetFlow
  - Manage network device security, Cisco device configurations, Cisco IOS images, and licenses

## Contenido

### Basic Concepts and Network Design

- Analyzing Campus Network Structure
- Comparing Layer 2 and Multilayer Switches
- Using Cisco SDM Templates
- Implementing LLDP
- Implementing PoE

### Campus Network Architecture

- Implementing VLANs and Trunks
- Introducing VTP
- Implementing DHCP

- Implementing DHCP for IPv6
- Configuring Layer 2 Port Aggregation

**Spanning Tree Implementation**

- Implementing RSTP
- Implementing STP Stability Mechanisms
- Implementing Multiple Spanning Tree Protocol

**Configuring Inter-VLAN Routing**

- Implementing Inter-VLAN Routing Using a Router
- Configuring a Switch to Route

**Implementing High Availability Networks**

- Configuring Network Time Protocol
- Implementing SNMP Version 3
- Implementing IP SLA
- Implementing Port Mirroring for Monitoring Support
- Verifying Switch Virtualization

**First Hop Redundancy Implementation**

- Configuring Layer 3 Redundancy with HSRP
- Configuring Layer 3 Redundancy with VRRP
- Configuring Layer 3 Redundancy with GLBP
- Configuring First Hop Redundancy for IPv6

**Campus Network Security**

- Implementing Port Security/li>
- Implementing Storm Control/li>
- Implementing Access to External Authentication/li>
- Mitigating Spoofing Attacks/li>
- Securing VLAN Trunks
- Configuring Private VLANs

**Challenge Labs**

- Lab 1: Network Discovery

- Lab 2: Configure DHCP
- Lab 3: Configure DHCPv6
- Lab 4: Configure EtherChannel
- Lab 5: Implementing Rapid Spanning Tree
- Lab 6: Improving STP Configuration
- Lab 7: Configure MST
- Lab 8: Configure Routing Between VLANs Using a Router
- Lab 9: Configure Routing on a Multilayer Switch
- Lab 10:Configure NTP
- Lab 11:Configure Network Monitoring Using IP SLA
- Lab 12: Configure HSRP With Load Balancing
- Lab 13: Configure VRRP With Load Balancing
- Lab 14: Implement GLBP
- Lab 15: Configure HSRP for IPv6
- Lab 16:Controlling Network Access Using Port Security

## Dirigido a

- Network engineers and technicians
- Support engineers
- Systems engineers
- Network analysts
- Senior network administrators
- Anyone involved in planning, implementing, verifying, and troubleshooting switch-based solutions in enterprise networks

## Objetivos del curso

**After you complete this course you will be able to:**

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

- Implement First Hop redundancy in IPv4 and IPv6 environments
- Secure campus network according to recommended practices
- Components of the Cisco Enterprise Campus Architecture including the operation of Layer 2 and multilayer switches
- Switching Database Manager (SDM) templates and how they are used
- Implementing device features including LLDP and PoE
- VLANs and trunks and how VTP works
- Configuring a device to be a DHCP server and relay agent, for both IPv4 and IPv6
- Configuring Layer 2 and Layer 3 port aggregation
- Different types of spanning tree protocols and mechanisms, including STP, RSTP, and MST
- Implementing inter-VLAN routing on both a router and a multilayer switch
- Network high availability including NTP, SNMPv3, IP SLA, port mirroring, and switch virtualization
- First hop redundancy protocols for IPv4 and IPv6 including HSRP, VRRP, and GLBP
- Implementing network security features including port security, storm control, DHCP snooping, IP source guard, dynamic ARP inspection, VLAN ACLs, and private VLANs
- Using an external authentication server in your network, including implementing IEEE 802.1x