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# Implementing and Administering Cisco Solutions (CCNA® ver1.0)

**Exam Code : 200-301**

## **Course Objective :**

The Implementing and Administering Cisco Solutions (CCNA) v1.0 course gives you a broad range of fundamental knowledge for all IT careers. Through a combination of lecture, hands-on labs, and self-study, you will learn how to install, operate, configure, and verify basic IPv4 and IPv6 networks. The course covers configuring network components such as switches, routers, and wireless LAN controllers; managing network devices; and identifying basic security threats. The course also gives you a foundation in network programmability, automation, and software-defined networking.

## **Prerequisite:**

Before taking this course, you should have:

- Basic computer literacy & Basic PC operating system navigation skills
- Basic Internet usage skills & Basic IP address knowledge

There are no formal prerequisites for CCNA certification, but you should make sure to have a good understanding of the exam topics. Please refer to below course and exam topics.

## **Training Methodology & Materials:**

- Practical hands-on sessions, 70% lab-based and 30% theory-based.
- Additional and well-designed labs handouts are given to enhance further enhance the courseware given.

## **Certificate Of Attendance :**

Certificate Of Attendance will be awarded by IT Enabler to participants completing the course achieving minimum 75% attendance.

## **Training Duration:**

Full-Time : 5 Weekdays or 5 Sats  
Time : 9am – 6pm

## **Promotion Course Fee:**

Course Fee : S\$1750  
Regn Fee : S\$50  
Exam Fee : S\$489\* (Includes exam proctor fee)

\* Exam fee subject to final confirmation from Cisco at exam regn

All fees subject to prevailing GST.

**Course is eligible for SkillsFuture Course Fee Funding & Absentee Payroll. Self-sponsored trainees may offset course fee using their SkillsFuture Credit Claim & PSEA.** Terms and conditions apply. Contact us @ 6333-4843 for more details.

## **Cisco Certification Exam**

This course helps you to prepare for the 200-301 Cisco® Certified Network Associate (CCNA®) exam. By passing this one exam, you earn CCNA certification.

## **DETAILED COURSE OUTLINE & EXAM TOPICS**

### **1.0 Network Fundamentals**

- 1.1 Explain the role and function of network components
- 1.2 Describe characteristics of network topology architectures
- 1.3 Compare physical interface and cabling types
- 1.4 Identify interface and cable issues (collisions, errors, mismatch duplex, and/or speed)
- 1.5 Compare TCP to UDP
- 1.6 Configure and verify IPv4 addressing and subnetting
- 1.7 Describe the need for private IPv4 addressing
- 1.8 Configure and verify IPv6 addressing and prefix
- 1.9 Compare IPv6 address types
- 1.10 Verify IP parameters for Client OS (Windows, Mac OS, Linux)
- 1.11 Describe wireless principles
- 1.12 Explain virtualization fundamentals (virtual machines)
- 1.13 Describe switching concepts

### **2.0 Network Access**

- 2.1 Configure and verify VLANs (normal range) spanning multiple switches
- 2.2 Configure and verify interswitch connectivity
- 2.3 Configure and verify Layer 2 discovery protocols (Cisco Discovery Protocol and LLDP)
- 2.4 Configure and verify (Layer 2/Layer 3) EtherChannel (LACP)
- 2.5 Describe the need for and basic operations of Rapid PVST+ Spanning Tree Protocol and identify basic operations
- 2.6 Compare Cisco Wireless Architectures and AP modes

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- 2.7 Describe physical infrastructure connections of WLAN components (AP,WLC, access/trunk ports, and LAG)
- 2.8 Describe AP and WLC management access connections (Telnet, SSH, HTTP,HTTPS, console, and TACACS+/RADIUS)
- 2.9 Configure the components of a wireless LAN access for client connectivity using GUI only such as WLAN creation, security settings, QoS profiles, and advanced WLAN settings

### **3.0 IP Connectivity**

- 3.1 Interpret the components of routing table
- 3.2 Determine how a router makes a forwarding decision by default
- 3.3 Configure and verify IPv4 and IPv6 static routing
- 3.4 Configure and verify single area OSPFv2
- 3.5 Describe the purpose of first hop redundancy protocol

### **4.0 IP Services**

- 4.1 Configure and verify inside source NAT using static and pools
- 4.2 Configure and verify NTP operating in a client and server mode
- 4.3 Explain the role of DHCP and DNS within the network
- 4.4 Explain the function of SNMP in network operations
- 4.5 Describe the use of syslog features including facilities and levels
- 4.6 Configure and verify DHCP client and relay
- 4.7 Explain the forwarding per-hop behavior (PHB) for QoS such as classification, marking, queuing, congestion, policing, shaping
- 4.8 Configure network devices for remote access using SSH
- 4.9 Describe the capabilities and function of TFTP/FTP in the network

### **5.0 Security Fundamentals**

- 5.1 Define key security concepts (threats, vulnerabilities, exploits, and mitigation techniques)
- 5.2 Describe security program elements (user awareness, training, and physical access control)
- 5.3 Configure device access control using local passwords
- 5.4 Describe security password policies elements, such as management, complexity, and password alternatives (multifactor authentication, certificates, and biometrics)
- 5.5 Describe remote access and site-to-site VPNs
- 5.6 Configure and verify access control lists
- 5.7 Configure Layer 2 security features (DHCP snooping, dynamic ARP inspection, and port security)
- 5.8 Differentiate authentication, authorization, and accounting concepts
- 5.9 Describe wireless security protocols (WPA, WPA2, and WPA3)
- 5.10 Configure WLAN using WPA2 PSK using the GUI

### **6.0 Automation and Programmability**

- 6.1 Explain how automation impacts network management
- 6.2 Compare traditional networks with controller-based networking
- 6.3 Describe controller-based and software defined architectures (overlay, underlay, and fabric)
- 6.4 Compare traditional campus device management with Cisco DNA Center enabled device management
- 6.5 Describe characteristics of REST-based APIs (CRUD, HTTP verbs, and data encoding)
- 6.6 Recognize the capabilities of configuration management mechanisms Puppet, Chef, and Ansible
- 6.7 Interpret JSON encoded data



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