Implementing and Administering Cisco Solutions v 2.2

The **Cisco** authorized course **CCNA - Implementing and Administering Cisco Solutions** 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.

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

Cisco Continuing Education programme is a flexible offer dedicated to all active people who have certificates on Associate, Specialist and Expert level.

Learn more how you may recertify as part of CE to keep certification status active.

[Cisco Continuing Education Program - CE](#)

Taking part in authorised training allows you to obtain extra points necessary to maintain certification.

CCNA: 30 points CE

Training recipients

This course is designed for anyone seeking CCNA certification. The course also provides foundational knowledge for all support technicians involved in the basic installation, operation, and verification of Cisco networks.

Key job roles best suited to the material in this course are:

- Entry-level network engineer
- Network administrator
- Network support technician
- Help desk technician

You should consider this course if you wish to perform the following job tasks:

- **Configure:** Implement the identified solution by applying the planned implementation processes using Cisco IOS commands and applications in the correct order to the selected devices and portions of the network.
- **Verify:** Use the appropriate show commands and applications to ensure that the solution was correctly implemented and is performing as desired.

Benefits

This course will help you:

- Learn the knowledge and skills to install, configure, and operate a small- to medium-sized network
- Gain a foundation in the essentials of networking, security, and automation
- Earn 30 CE credits toward recertification

Training program

After taking this course, you should be able to:

- Identify the components of a computer network and describe their basic characteristics
- Understand the model of host-to-host communication
- Describe the features and functions of the Cisco Internetwork Operating System (IOS®) software
- Describe LANs and the role of switches within LANs
- Describe Ethernet as the network access layer of TCP/IP and describe the operation of switches
- Install a switch and perform the initial configuration
- Describe the TCP/IP Internet layer, IPv4, its addressing scheme, and subnetting
- Describe the TCP/IP Transport layer and Application layer
- Explore functions of routing
- Implement basic configuration on a Cisco router
- Explain host-to-host communications across switches and routers
- Identify and resolve common switched network issues and common problems associated with IPv4

addressing

- Describe IPv6 main features and addresses, and configure and verify basic IPv6 connectivity
- Describe the operation, benefits, and limitations of static routing
- Describe, implement, and verify Virtual Local Area Networks (VLANs) and trunks
- Describe the application and configuration of inter-VLAN routing
- Explain the basics of dynamic routing protocols and describe components and terms of Open Shortest Path First (OSPF)
- Explain how Spanning Tree Protocol (STP) and Rapid Spanning Tree Protocol (RSTP) work
- Configure link aggregation using EtherChannel
- Describe the purpose of Layer 3 redundancy protocols
- Describe basic WAN and VPN concepts
- Describe the operation of Access Control Lists (ACLs) and their applications in the network
- Configure Internet access using Dynamic Host Configuration Protocol (DHCP) clients and explain and configure Network Address Translation (NAT) on Cisco routers
- Describe basic Quality of Service (QoS) concepts
- Describe the concepts of wireless networks, which types of wireless networks can be built, and how to use Wireless LAN Controllers (WLCs)
- Describe network and device architectures and introduce virtualization
- Introduce the concept of network programmability and Software-Defined Networking (SDN) and describe smart network management solutions such as Cisco DNA Center™, Software-Defined Access (SD-Access), and Software-Defined Wide Area Network (SD-WAN)
- Configure basic IOS system monitoring tools
- Describe the management of Cisco devices
- Describe the current security threat landscape
- Describe threat defense technologies
- Implement a basic security configuration of the device management plane
- Implement basic steps to harden network devices

Outline

This class includes lecture sections and some self-study sections. In instructor-led classes, lectures are delivered in real-time, either in person or via video conferencing. In e-learning classes, the lectures are on recorded videos.

- Implementing VLANs and Trunks – Lecture
- Routing Between VLANs – Lecture
- Introducing OSPF – Lecture
- Building Redundant Switched Topologies – Self-study
- Improving Redundant Switched Topologies with EtherChannel – Lecture
- Exploring Layer 3 Redundancy – Self-study
- Introducing WAN Technologies – Self-study
- Explaining Basics of ACL – Lecture
- Enabling Internet Connectivity – Lecture
- Introducing QoS – Self-study

- Explaining Wireless Fundamentals – Self-study
- Introducing Architectures and Virtualization – Self-study
- Explaining the Evolution of Intelligent Networks – Lecture
- Introducing System Monitoring – Lecture
- Managing Cisco Devices – Lecture
- Examining the Security Threat Landscape – Self-study
- Implementing Threat Defense Technologies – Self-study
- Securing Administrative Access – Lecture
- Implementing Device Hardening – Lecture

Lab outline

- Get Started with Cisco Command-Line Interface (CLI)
- Observe How a Switch Operates
- Perform Basic Switch Configuration
- Implement the Initial Switch Configuration
- Inspect TCP/IP Applications
- Configure an Interface on a Cisco Router
- Configure and Verify Layer 2 Discovery Protocols
- Implement an Initial Router Configuration
- Configure Default Gateway
- Explore Packet Forwarding
- Troubleshoot Switch Media and Port Issues
- Troubleshoot Port Duplex Issues
- Configure Basic IPv6 Connectivity
- Configure and Verify IPv4 Static Routes
- Configure IPv6 Static Routes
- Implement IPv4 Static Routing
- Implement IPv6 Static Routing
- Configure VLAN and Trunk
- Troubleshoot VLANs and Trunk
- Configure a Router on a Stick
- Implement Multiple VLANs and Basic Routing Between the VLANs
- Configure and Verify Single-Area OSPF
- Configure and Verify EtherChannel
- Improve Redundant Switched Topologies with EtherChannel
- Configure and Verify IPv4 ACLs
- Implement Numbered and Named IPv4 ACLs
- Configure a Provider-Assigned IPv4 Address
- Configure Static NAT
- Configure Dynamic NAT and Port Address Translation (PAT)
- Implement PAT
- Log into the WLC

- Monitor the WLC
- Configure a Dynamic (VLAN) Interface
- Configure a DHCP Scope
- Configure a WLAN
- Define a Remote Access Dial-In User Service (RADIUS) Server
- Explore Management Options
- Explore the Cisco DNA™ Center
- Configure and Verify NTP
- Configure System Message Logging
- Create the Cisco IOS Image Backup
- Upgrade Cisco IOS Image
- Configure WLAN Using Wi-Fi Protected Access 2 (WPA2) Pre-Shared Key (PSK) Using the GUI
- Secure Console and Remote Access
- Enable and Limit Remote Access Connectivity
- Secure Device Administrative Access
- Configure and Verify Port Security
- Implement Device Hardening

Expected preparation of the participant

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.

Training Includes

- 5 days with instructor training and 3 days of self-study
- Trainer's supervision
- Contact with community
- Coursebook
- Lab environment

Training method
- lecture
- workshops

Language

- Training: English
- Materials: English

Duration

5 days / 35 hours

Examination description

The training prepares you for the CCNA 200-301 exam, which can be taken for an additional fee at the PearsonVUE center. You can also take the exam on-line.
Details are available at: https://home.pearsonvue.com/cisco/onvue