



## Implementing and Administering Cisco Solutions (CCNA)

Cisco

- **Nível:**
  - **Duração:** 35h
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### Sobre o curso

The **Implementing and Administering Cisco Solutions (CCNA)** course provides a broad range of fundamental knowledge for all IT careers. Through a combination of lecture and hands-on labs, you will learn how to install, operate, configure, and verify a basic IPv4 and IPv6 network.

The course covers configuring network components such as switches, routers, and Wireless LAN Controllers; managing network devices; and identifying basic security threats. Network programmability, automation, and software-defined networking are also covered at a foundational level.

This course **includes** and **helps you prepare** to take the **200-301 Cisco Certified Network Associate (CCNA)**.

#### **After completing 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 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, addresses and configure and verify basic IPv6 connectivity

- Describe the operation, benefits, and limitations of static routing
- Describe, implement and verify 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 OSPF
- Explain how STP and 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 ACLs and their applications in the network
- Configure internet access using DHCP clients and explain and configure NAT on Cisco routers
- Describe the basic QoS concepts
- Describe the concepts of wireless networks, which types of wireless networks can be built and how to use WLC
- Describe network and device architectures and introduce virtualization
- Introduce the concept of network programmability and SDN and describe the smart network management solutions like Cisco DNA Center, SD-Access and 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

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## Destinatários

Anyone looking to start a career in networking or wishing to achieve the Cisco CCNA Certification.

The course also provides foundational knowledge for all support technicians involved in the basic installation, operation, and verification of Cisco networks.

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

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

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## Pré-requisitos

Before taking this course, you should have:

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

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## Metodologia

Please note this course is a combination of Instructor-Led and Self-Paced Study – 5 days in the classroom and approx 3 days of self study.

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## Programa

- Exploring the Functions of Networking
- Introducing the Host-To-Host Communications Model
- Operating Cisco IOS Software
- Introducing LANs
- Exploring the TCP/IP Link Layer
- Starting a Switch
- Introducing the TCP/IP Internet Layer, IPv4 Addressing, and Subnets
- Explaining the TCP/IP Transport Layer and Application Layer
- Exploring the Functions of Routing
- Configuring a Cisco Router
- Exploring the Packet Delivery Process
- Troubleshooting a Simple Network
- Introducing Basic IPv6
- Configuring Static Routing
- Implementing VLANs and Trunks
- Routing Between VLANs
- Introducing OSPF
- Building Redundant Switched Topologies
- Improving Redundant Switched Topologies with EtherChannel

- Exploring Layer 3 Redundancy
  - Introducing WAN Technologies
  - Explaining Basics of ACL
  - Enabling Internet Connectivity
  - Introducing QoS
  - Explaining Wireless Fundamentals
  - Introducing Architectures and Virtualization
  - Explaining the Evolution of Intelligent Networks
  - Introducing System Monitoring
  - Managing Cisco Devices
  - Examining the Security Threat Landscape
  - Implementing Threat Defense Technologies
  - Implementing Device Hardening
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  - Introducing OSPF
  - Building Redundant Switched Topologies (Self Study)
  - Improving Redundant Switched Topologies with EtherChannel
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  - Explaining Basics of ACL
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  - Introducing QoS (Self Study)
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- Examining the Security Threat Landscape (Self Study)
- Implementing Threat Defense Technologies
- Implementing Device Hardening

### **Labs:**

- Get Started with Cisco CLI
- Observe How a Switch Operates
- Perform Basic Switch Configuration
- Inspect TCP/IP Applications
- Configure an Interface on a Cisco Router
- Configure and Verify Layer 2 Discovery Protocols
- 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
- Configure VLAN and Trunk
- Configure a Router on a Stick
- Configure and Verify Single-Area OSPF
- Configure and Verify EtherChannel
- Configure and Verify IPv4 ACLs
- Configure a Provider-Assigned IPv4 Address
- Configure Static NAT
- Configure Dynamic NAT and PAT
- Log into the WLC
- Monitor the WLC
- Configure a Dynamic (VLAN) Interface
- Configure a DHCP Scope
- Configure a WLAN
- Define a RADIUS Server
- Explore Management Options
- Explore the Cisco DNA Center
- Configure and Verify NTP
- Create the Cisco IOS Image Backup

- Upgrade Cisco IOS Image
- Configure WLAN Using WPA2 PSK Using the GUI
- Secure Console and Remote Access
- Enable and Limit Remote Access Connectivity
- Configure and Verify Port Security