Course Content

The **Implementing and Administering Cisco Solutions** (CCNA) v2.0 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 the CCNA certification. This course also earns you 30 Continuing Education (CE) credits towards recertification.

Who Should Enroll

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

What to expect in the exam

The **200-301 CCNA** exam certifies your knowledge and skills related to network fundamentals, network access, IP connectivity, IP services, security fundamentals, and automation and programmability.

After you pass **200-301 CCNA**, you earn CCNA certification.

Course Objetives

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

Tel: (54-11) 5237-3500 - info@itcollege.com.ar
Av. Córdoba 939 1°Piso - Ciudad Autónoma de Buenos Aires - Argentina
www.itcollege.com.ar

Implementing and Administering Cisco Solutions (CCNA) 2.0

- 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

Duration

40 hs In Class + 24 hs SElf Study

Prerequisites

Before taking this course, you should have:
- Basic computer literacy

Tel: (54-11) 5237-3500 - info@itcollege.com.ar
Av. Córdoba 939 1°Piso - Ciudad Autónoma de Buenos Aires - Argentina
www.itcollege.com.ar

- 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.

Course 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.

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.

Section title — Learning mode

- Exploring the Functions of Networking — Lecture
- Introducing the Host-to-Host Communications Model — Lecture
- Operating Cisco IOS Software — Lecture
- Introducing LANs — Lecture
- Exploring the TCP/IP Link Layer — Lecture
- Starting a Switch — Lecture
- Introducing the TCP/IP Internet Layer, IPv4 Addressing, and Subnets — Lecture
- Explaining the TCP/IP Transport Layer and Application Layer — Lecture
- Exploring the Functions of Routing — Lecture
- Configuring a Cisco Router — Lecture
- Exploring the Packet Delivery Process — Lecture
- Troubleshooting a Simple Network — Lecture
- Introducing Basic IPv6 — Lecture
- Configuring Static Routing — Lecture
- 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

Tel: (54-11) 5237-3500 - info@itcollege.com.ar
Av. Córdoba 939 1°Piso - Ciudad Autónoma de Buenos Aires - Argentina
www.itcollege.com.ar

- 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

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 VLANs and Trunk
- Troubleshoot VLANs and Trunk
- Configure Inter-VLAN Routing
- 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
- Explore the Cisco DNA™ Center

Tel: (54-11) 5237-3500 - info@itcollege.com.ar
Av. Córdoba 939 1°Piso - Ciudad Autónoma de Buenos Aires - Argentina
www.itcollege.com.ar

- Configure and Verify NTP
- Configure System Message Logging
- Create the Cisco IOS Image Backup
- Upgrade Cisco IOS Image
- Secure Console and Remote Access
- Enable and Limit Remote Access Connectivity
- Secure Device Administrative Access
- Configure and Verify Port Security
- Implement Device Hardening
- Log into and Monitor the WLC
- Configure an Open Wireless Network
- Define a RADIUS Server and Enable SNMP and Syslog
- Configure a WLAN to Use WPA2 PSK

Tel: (54-11) 5237-3500 - info@itcollege.com.ar
Av. Córdoba 939 1°Piso - Ciudad Autónoma de Buenos Aires - Argentina
www.itcollege.com.ar