Course Training

Implementing and Administering Cisco Solutions [200-301] v2.0

Course Content

Implementing and Administering Cisco Solutions (CCNA) training teaches you how to install, operate, configure, and verify a basic IPv4 and IPv6 network, configure network components, such as switches, routers, and wireless local area network (LAN) controllers (WLNs), manage network devices, and identify basic security threats. This training also covers the introduction of AI and machine learning (ML) in network operations.

Course Objectives

- 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 transmission control protocol and the internet protocol (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 the 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 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 wide-area network (WAN) and virtual private network (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 the basic quality of service (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
- Explain software-defined networks
- Configure basic Cisco 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
- Discuss the need of network programmability in Enterprise networks, common programmability protocols, and configuration management tools
- Describe AI and ML in network operations

Course Prerequisite

The knowledge and skills you are expected to have before attending this training are:

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

Who should attend

- Entry-level Network Engineers
- Entry-level Network Administrators
- Entry-level Network Support Technicians
- Entry-level Help Desk Technicians

Course Outline

- 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
- Explaining the Basics of ACL
- Enabling Internet Connectivity
- Introducing AI and ML in Network Operations
- Introducing System Monitoring
- Managing Cisco Devices
- Securing Administrative Access
- Implementing Device Hardening
- Exploring Layer 3 Redundancy
- Introducing WAN Technologies
- Introducing QoS
- Explaining Wireless Fundamentals
- Introducing Architectures and Virtualization
- Explaining Software-Defined Networking
- Introducing Network Programmability
- Examining the Security Threat Landscape
- Implementing Threat Defense Technologies