Cisco® Implementing and Administering Cisco® Solutions v1.0 (CCNA)

Course Overview
This course gives you a broad range of fundamental knowledge for all IT careers. 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. 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 to earn CCNA certification.

This course consists of 5 days of instructor-led training with hands-on lab practice, plus the equivalent of 3 days of self-paced material.

Who Should Attend
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. The job roles best suited to the material in this course are: Entry-level Network Engineer, Network Administrator, Network Support Technician, and Help Desk Technician. Before taking this course, you should have: basic computer literacy, basic PC operating system navigation skills, basic Internet usage skills, and basic IP address knowledge.

Course Objectives
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 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
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- 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

Course Outline

1. EXPLORING THE FUNCTIONS OF NETWORKING
2. INTRODUCING THE HOST-TO-HOST COMMUNICATIONS MODEL
3. OPERATING CISCO IOS SOFTWARE
4. INTRODUCING LANS
5. EXPLORING THE TCP/IP LINK LAYER
6. STARTING A SWITCH
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7 INTRODUCING THE TCP/IP INTERNET LAYER, IPV4 ADDRESSING, AND SUBNETS
8 EXPLAINING THE TCP/IP TRANSPORT LAYER AND APPLICATION LAYER
9 EXPLORING THE FUNCTIONS OF ROUTING
10 CONFIGURING A CISCO ROUTER
11 EXPLORING THE PACKET DELIVERY PROCESS
12 TROUBLESHOOTING A SIMPLE NETWORK
13 INTRODUCING BASIC IPV6
14 CONFIGURING STATIC ROUTING
15 IMPLEMENTING VLANS AND TRUNKS
16 ROUTING BETWEEN VLANS
17 INTRODUCING OSPF
18 BUILDING REDUNDANT SWITCHED TOPOLOGIES
19 IMPROVING REDUNDANT SWITCHED TOPOLOGIES WITH ETHERCHANNEL
20 EXPLORING LAYER 3 REDUNDANCY
21 INTRODUCING WAN TECHNOLOGIES
22 EXPLAINING BASICS OF ACL
23 ENABLING INTERNET CONNECTIVITY
24 INTRODUCING QOS
25 EXPLAINING WIRELESS FUNDAMENTALS
26 INTRODUCING ARCHITECTURES AND VIRTUALIZATION
27 EXPLAINING THE EVOLUTION OF INTELLIGENT NETWORKS
28 INTRODUCING SYSTEM MONITORING
29 MANAGING CISCO DEVICES
30 EXAMINING THE SECURITY THREAT LANDSCAPE
31 IMPLEMENTING THREAT DEFENSE TECHNOLOGIES
32 IMPLEMENTING DEVICE HARDENING