

Cisco Certified Network Associate (CCNA)

Program Summary

This instructor-led program with a combination of lecture and hands-on laboratory exercises validates the ability to install, configure, operate, and troubleshoot medium-size route and switched networks, including implementation and verification of connections to remote sites in a WAN. CCNA curriculum includes basic mitigation of security threats, introduction to wireless networking concepts and terminology, and performance-based skills. This new curriculum also includes (but is not limited to) the use of these protocols: IP, Enhanced Interior Gateway Routing Protocol (EIGRP), Serial Line Interface Protocol Frame Relay, Routing Information Protocol Version 2 (RIPv2), VLANs, Ethernet, access control lists (ACLs).

- Certification program
- 96 Contact Hours, 6 Credit Hours, 12 Weeks

Course No.	Course Name	Quarter Credit Hours	Clock Hours
CCA100	Administration I	6	96
Total		6	96

Prerequisites

Candidates wishing to enter this course should have completed either a Microsoft or Linux+ networking program or have commensurate experience with PC networking and TCP/IP.

Type of Document Received Upon Graduation

Upon successful completion of all program requirements, each student will be awarded a Certificate of Completion.

Certification Tests

All certification exams are scored on a pass/fail basis. Depending on the specific exam, a correct response to 75% - 80% of the questions will be required to achieve a passing score. Students are encouraged to take exams immediately following completion of the corresponding course.

Career Development

Students who successfully complete this program will be prepared for entry to midlevel professional opportunities in the IT field with emphasis on installation, configuration and maintenance of Local Area Network (LAN) infrastructure. Although titles may vary by hiring organizations, students with these credentials are qualified to meet the requirements of positions such as Network Engineer, Network Support Specialist, Local Area Network Engineer, Network Systems Engineer or similar designations.

This program also aligns with the following career opportunities classified by US Department of Labor under the Standard Occupational Classification (SOC) system.

- 15-1142 Network and Computer System Administrators
- 15-1152 Computer Network Support Specialist

Recommended Next Course

Candidates wishing to further their education are recommended to consider the Cisco Certified Network Professional (CCNP) program as the next logical step towards becoming a well rounded IT professional.

CCNA Program Details

COURSE CCA100

Title: Cisco Certified Network Associate

Exam: 200-125

Course Description

This instructor-led program with a combination of lecture and hands-on laboratory exercises covers basic networking concepts implemented on Cisco routers. Students will be introduced to the Cisco Internetworking Operating System (IOS) and its command structure. TCP/IP addressing and implementation, including subnetting, will be covered thoroughly. Wide Area Networking (WAN) implementations including ISDN, frame relay, and serial point-to-point (including T1), will be emphasized. This is an advanced course providing the skills and knowledge necessary to pass the Cisco certification exam (one exam) necessary to become a Cisco Certified Network Associate (CCNA).

Course Objectives

This course will cover the following subjects:

Operation of IP Data Networks

- Recognize the purpose and functions of various network devices such as Routers, Switches, Bridges and Hubs
- Select the components required to meet a given network specification
- Identify common applications and their impact on the network
- Describe the purpose and basic operation of the protocols in the OSI and TCP/IP models
- Predict the data flow between two hosts across a network
- Identify the appropriate media, cables, ports, and connectors to connect Cisco network devices to other network devices and hosts in a LAN

LAN Switching Technologies

- Determine the technology and media access control method for Ethernet networks
- Identify basic switching concepts and the operation of Cisco switches
- Configure and verify initial switch configuration including remote access management
- Verify network status and switch operation using basic utilities
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure and verify VLANs
- Configure and verify trunking on Cisco switches
- Identify enhanced switching technologies
- Configure and verify PVSTP operation

IP Addressing

- Describe the operation and necessity of using private and public IP addresses for IPv4 addressing
- Identify the appropriate IPv6 addressing scheme to satisfy addressing requirements in a LAN/WAN environment
- Identify the appropriate IPv4 addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 in conjunction with IPv4
- Describe IPv6 addresses

IP Routing Technologies

- Describe basic routing concepts
- Configure and verify utilizing the CLI to set basic router configuration

- Configure and verify operation status of a device interface
- Verify router configuration and network connectivity using
- Configure and verify routing configuration for a static or default route given specific routing requirements
- Differentiate methods of routing and routing protocols
- Configure and verify OSPF
- Configure and verify interVLAN routing (Router on a stick)
- Configure SVI interfaces
- Manage Cisco IOS Files
- Configure and verify EIGRP (single AS)

IP Services

- Configure and verify DHCP (IOS Router)
- Describe the types, features, and applications of ACLs
- Configure and verify ACLs in a network environment
- Identify the basic operation of NAT
- Configure and verify NAT for given network requirements
- Configure and verify NTP as a client
- Recognize High availability (FHRP)
- Configure and verify syslog
- Describe SNMP v2 and v3

Network Device Security

- Configure and verify network device security features
- Configure and verify switch port security
- Configure and verify ACLs to filter network traffic
- Configure and verify an ACLs to limit telnet and SSH access to the router

Troubleshooting

- Troubleshoot and correct common problems associated with IP addressing and host configurations
- Troubleshoot and resolve VLAN problems
- Troubleshoot and resolve trunking problems on Cisco switches
- Troubleshoot and resolve ACL issues
- Troubleshoot and resolve Layer 1 problems
- Identify and correct common network problems
- Troubleshoot and resolve spanning tree operation issues
- Troubleshoot and resolve routing issues
- Troubleshoot and resolve OSPF problems
- Troubleshoot and resolve EIGRP problems
- Troubleshoot and resolve interVLAN routing problems
- Troubleshoot and resolve WAN implementation issues
- Monitor NetFlow statistics
- Troubleshoot EtherChannel problems

WAN Technologies

- Identify different WAN Technologies
- Configure and verify a basic WAN serial connection
- Configure and verify a PPP connection between Cisco routers
- Configure and verify frame relay on Cisco routers
- Implement and troubleshoot PPPoE