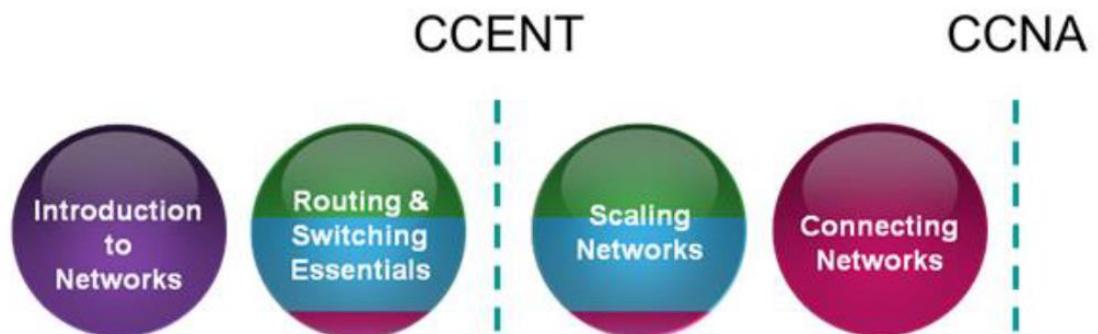

CCNA ROUTING & SWITCHING

Curriculum Overview

The CCNA Routing and Switching curriculum consists of four courses that make up the recommended learning path. Students will be prepared to take the Cisco CCENT® certification exam after completing a set of two courses and the CCNA Routing and Switching certification exam after completing a set of four courses. The curriculum also helps students develop workforce readiness skills and builds a foundation for success in networking-related careers and degree programs.



Introduction to Networks

This course introduces the architecture, structure, functions, components, and models of the Internet and other computer networks. The principles and structure of IP addressing and the fundamentals of Ethernet concepts, media, and operations are introduced to provide a foundation for the curriculum. By the end of the course, students will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

Students who complete Introduction to Networks will be able to perform the following functions:

- Explain network technologies.
- Explain how devices access local and remote network resources.
- Implement basic network connectivity between devices.
- Design an IP addressing scheme to provide network connectivity for a small to medium-sized business network.
- Describe router hardware.
- Explain how switching operates in a small to medium-sized business network.
- Configure monitoring tools available for small to medium-sized business networks.
- Configure initial settings on a network device.

Chapter	Introduction to Networks
1	Explore the Network
2	Configure a Network Operating System
3	Network Protocols and Communications
4	Network Access
5	Ethernet
6	Network Layer
7	IP Addressing
8	Subnetting IP Networks
9	Transport Layer
10	Application Layer
11	Build a Small Network

Routing and Switching Essentials

This course describes the architecture, components, and operations of routers and switches in a small network. Students learn how to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with virtual LANs and inter-VLAN routing in both IPv4 and IPv6 networks.

Students who complete the Routing and Switching Essentials course will be able to perform the following functions:

- Implement DHCP on a router.
- Implement network address translation (NAT).
- Implement access control lists (ACLs) to filter traffic.
- Determine how a router will forward traffic based on the contents of a routing table.
- Implement static routing.
- Explain how switching operates in a small to medium-sized business network.
- Configure Ethernet switch ports.
- Implement VLANs.
- Use monitoring tools and network management protocols to troubleshoot data networks.
- Configure monitoring tools available for small to medium-sized business networks.
- Configure initial settings on a network device.

Chapter	Routing and Switching Essentials
1	Routing Concepts
2	Static Routing
3	Dynamic Routing
4	Switched Networks
5	Switch Configuration
6	VLANs
7	Access Control Lists
8	DHCP
9	NAT for IPv4
10	Device Discovery, Management, and Maintenance

Scaling Networks

This course describes the architecture, components, and operations of routers and switches in larger and more complex networks. Students learn how to configure routers and switches for advanced functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with OSPF, EIGRP, and STP in both IPv4 and IPv6 networks. Students will also develop the knowledge and skills needed to implement a WLAN in a small-to-medium network.

Students who complete the Scaling Networks course will be able to perform the following functions:

- Determine how a router will forward traffic based on the contents of a routing table.
- Implement EIGRP.
- Implement OSPF.
- Implement VLANs.
- Implement enhanced switching technologies and first hop redundancy protocols.
- Design a small multi-site business network.

Chapter	Scaling Networks
1	LAN Design
2	Scaling VLANs
3	STP
4	Etherchannel and HSRP
5	Dynamic Routing
6	EIGRP
7	EIGRP Tuning and Troubleshooting
8	Single-Area OSPF
9	Multiarea OSPF
10	OSPF Tuning and Troubleshooting

Connecting Networks

This course focuses on the WAN technologies and network services required by converged applications in a complex network. By the end of this course, students will be able to configure PPPoE, GRE, single-homed eBGP, extended IPv4 and IPv6 ACLs. Students will also develop the knowledge and skills needed to implement a WLAN in a small-to-medium network. For LANs, students will be able to configure SNMP and Cisco SPAN. Students will also develop knowledge about QoS and the trends in networking including Cloud, virtualization, and SDN.

Students who complete the Connecting Networks course will be able to perform the following functions:

- Explain network technologies.
- Implement access control lists (ACLs) to filter traffic.
- Configure Ethernet switch ports.
- Design a small multi-site business network.
- Select WAN access technologies.
- Configure a serial interface to enable WAN communication.
- Configure an Ethernet interface to enable broadband communication given service provider requirements.
- Implement remote access and site-to-site VPNs.
- Use monitoring tools and network management protocols to troubleshoot data networks.
- Configure monitoring tools available for small to medium-sized business networks.
- Configure initial settings on a network device.
- Explain how quality of service (QoS) mechanism support network communication requirements.

Chapter	Connecting Networks
1	WAN Concepts
2	Point-to-Point Connections
3	Branch Connections
4	Access Control Lists
5	Network Security and Monitoring
6	Quality of Service
7	Network Evolution
8	Network Troubleshooting