CCNA ROUTING AND SWITCHING

About Course

At **Sunshine Learning & Technologies**, you'll quickly get the knowledge you need to successfully implement and troubleshoot most common industry standard protocols, alongside best practices required for connected networks. You'll also learn how to:

- Install, operate, and troubleshoot a medium-sized network, including connecting to a WAN and implementing network security
- Describe the effects of new technologies such as IoE, IoT, IWAN, and SDN on network evolution

Cisco Certified Network Associate (CCNA) Routing and Switching is a certification program for entry-level network engineers that helps maximize your investment in foundational networking knowledge and increase the value of your employer's network. CCNA Routing and Switching is for Network Specialists, Network Administrators, and Network Support Engineers with 1-3 years of experience. The CCNA Routing and Switching validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks.

Course Content

After The CCNA curriculum includes a third course, Interconnecting Cisco Networking Devices: Master (CCNAM), a derivative works course consisting ICND1 and ICND2 content in its entirety, but with the content merged into a single course. Overlapping content between ICND1 and ICND2 is eliminated and content is rearranged for the purpose of the course flow.

it is an instructor-led training course that teaches learners how to install, operate, configure, and verify a basic IPv4 and IPv6 network, including configuring a LAN switch, configuring an IP router, connecting to a WAN, and identifying basic security threats. Also covers topics in more depth and teaches learners how to perform basic troubleshooting steps in enterprise branch office networks, preparing learners for Cisco CCNA certification

Course Outline

The course contains these components:

- Building a simple network
- Establishing Internet Connectivity
- Summary Challenge
- Implementing Scalable Medium Sized Network
- Introducing IPv6
- Troubleshooting Basic Connectivity
- Implementing Network Device Security
- Implementing an EIGRP-Based Solution
- Implement a Scalable OSPF-Based Solution
- Implementing Wide-Area Networks

- Network Device Management

Course Modules:

Module 1: Introduction to Networks
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.

Chapter 1 : Exploring the Network
Chapter 2 : Configuring a Network Operating System
Chapter 3 : Network Protocols and Communications
Chapter 4 : Network Access
Chapter 5 : Ethernet
Chapter 6 : Network Layer
Chapter 7 : Transport Layer
Chapter 8 : IP Addressing
Chapter 9 : Subnetting IP Networks
Chapter 10: Application Layer

Module 2: Switched Networks
describes the architecture, components, and operations of switches in a network. Students learn how to configure a switch for basic functionality.

Chapter 1: Introduction to Switched Networks
Chapter 2: Basic Switching Concepts and Configuration
Chapter 3: VLANs
Chapter 4: LAN Redundancy / STP, FHRP, ..
Chapter 5: Link Aggregation

Module 3: Routing Protocols

By the end of this course, students will be able to configure and troubleshoot routers and switches and resolve common issues with RIPv1, RIPv2, EIGRP, single-area and multi-area OSPF, virtual LANs, and inter-VLAN routing in both IPv4 and IPv6 networks.

Chapter 1 : Routing Concepts
Chapter 2 : Static Routing
Chapter 3 : Routing Dynamically
Chapter 4 : Enhanced Interior Gateway Protocol (EIGRP)
Chapter 5 : EIGRP Advanced Configurations and Troubleshooting
Chapter 6 : Single-Area OSPF
Chapter 7 : Adjust and Troubleshoot Single-Area OSPF
Chapter 8 : Multiarea OSPF

Module 4: Scaling Networks

describes the architecture, components, and operations of routers and switches in a larger and more complex network. Students learn how to configure routers and switches for advanced functionality.

Chapter 1 : Introduction to Scaling Networks
Chapter 2 : DHCP
Chapter 3 : Wireless LANs
Chapter 4 : IOS Images and Licensing

Module 5: Connecting Networks
discusses the WAN technologies and network services required by converged applications in a complex network. The course enables students to understand the selection criteria of network devices and WAN technologies to meet network requirements. Students learn how to configure and troubleshoot network devices and resolve common issues with data link protocols. Students will also develop the knowledge and skills needed to implement IPSec and virtual private network (VPN) operations in a complex network.

Chapter 1: Hierarchical Network Design
Chapter 2: Connecting to the WAN
Chapter 3: Point-to-Point Connections
Chapter 4: Frame Relay
Chapter 5: Network Address Translation for IPv4
Chapter 6: Broadband Solutions
Chapter 7: Securing Site-to-Site Connectivity
Chapter 8: Monitoring the Network
Chapter 9: Troubleshooting the Network