

# C-ID Descriptor

## Switching, Routing and Wireless Essentials

### Descriptor Details

- **Descriptor Title:** Switching, Routing and Wireless Essentials
- **C-ID Number:** 151
- **Units:** 3.0
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### General Description

This second course in the Cisco Certified Networking Associate (CCNA) curriculum focuses on switching technologies and router operations that support small-to-medium business networks and includes Wireless Local Area Networks (WLANs) and security concepts. Students learn key switching and routing concepts. Students will perform basic network configuration and troubleshooting, identify and mitigate Local Area Network (LAN) security threats, and configure and secure a basic WLAN.

### Prerequisites

No information provided

### Corequisites

No information provided

### Advisories

ITIS 150 - Computer Network Fundamentals

### Content

1. Basic Device Configuration
2. Switching Concepts

3. Virtual Local Area Networks (VLANs)
4. Inter-VLAN Routing
5. Spanning Tree Protocol (STP)
6. EtherChannel
7. Dynamic Host Configuration Protocol version 4 (DHCPv4)
8. Stateless Address Auto Configuration (SLAAC) and DHCPv6 Concepts
9. First Hop Redundancy Protocol (FHRP) Concepts
10. LAN Security Concepts
11. Switch Security Configuration
12. WLAN Concepts
13. WLAN Configuration
14. Routing Concepts
15. Internet Protocol (IP) Static Routing
16. Troubleshoot Static and Default Routes

### **Lab Activities**

No information provided

### **Objectives**

*At the conclusion of this course, the student should be able to:*

1. Configure VLANs and Inter-VLAN routing applying security best practices.
2. Troubleshoot inter-VLAN routing on Layer 3 devices.
3. Configure redundancy on a switched network using STP and EtherChannel.
4. Troubleshoot EtherChannel on switched networks.
5. Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols.
6. Configure dynamic address allocation in Internet Protocol version 6 (IPv6) networks.
7. Configure WLANs using a Wireless Controller (WLC) and Layer 2 (L2) security best practices.
8. Configure switch security to mitigate LAN attacks.
9. Configure IPv4 and IPv6 static routing on routers.

## **Evaluation Methods**

Evaluation will include hands-on projects and a combination of examinations, presentations, discussions, or problem-solving assignments.

## **Textbooks**

- Cisco Academy Program, *Switching, Routing and Wireless Essentials CCNA Academy Companion Guide Version 7*, Cisco Press