

SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
CYB 247S SWITCHING AND ROUTING
3 CREDIT HOURS

COURSE DESCRIPTION

Continuation of configuring networks from a routing and switching perspective. Focuses on switching technologies, router operations, and wireless local area networks (WLANs) that support small-to-medium business networks. The course emphasizes the configuration and troubleshooting of network devices, the mitigation of LAN security threats, and the setup and management of basic WLANs. Prepares students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: CYB 246S with a grade of “C” or better. Lab fee.

COURSE GOALS

The student will:

Bloom's Level		Program Outcomes
2	1. Explain how to support available and reliable networks using dynamic addressing and first-hop redundancy protocols.	3, 6
3	2. Configure Virtual Local Area Network (VLANs) and Inter-VLAN routing applying security best practices.	7, 8
4	3. Troubleshoot inter-VLAN routing on Layer 3 devices to resolve connectivity issues.	3, 8
3	4. Configure redundancy on a switched network using Spanning Tree Protocol (STP) and Port Link Aggregation (EtherChannel).	7, 8
4	5. Troubleshoot Port Link Aggregation (EtherChannel) on switched networks.	3, 8
3	6. Configure dynamic address allocation using DHCP for IPv4 and IPv6 networks.	6, 7, 8
3	7. Implement static routing on IPv4 and IPv6 networks to facilitate network communication.	6, 7, 8
3	8. Configure WLANs using Wireless LAN Controllers (WLC) and L2 security best practices.	5, 7, 8
4	9. Mitigate LAN security threats through switch security configuration and monitoring.	3, 7, 8
5	10. Develop documentation detailing network configurations and security policies.	1, 2, 8

CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison State. They include communication, ethics, critical thinking, human diversity, inquiry/respect for learning, and interpersonal skills/teamwork. The goals, objectives, and activities in this course will introduce/reinforce these Core Values whenever appropriate.

TOPIC OUTLINE

1. Basic Device Configuration
2. Switching Concepts
3. VLANs and Inter-VLAN Routing
4. Spanning Tree Protocol (STP) Concepts
5. EtherChannel Configuration
6. DHCPv4
7. SLAAC and DHCPv6 Concepts
8. First Hop Redundancy Protocols (FHRP)
9. LAN Security Concepts
10. Switch Security Configuration
11. WLAN Concepts and Configuration
12. Routing Concepts
13. IPv4 and IPv6 Static Routing
14. Static and Default Route Troubleshooting