

SYLLABUS  
PART I  
EDISON COMMUNITY COLLEGE  
CSC 212S CCNA 3  
3 CREDIT HOURS

**COURSE DESCRIPTION**

Introduces Variable Length Subnet Masks (VLSM), intermediate routing protocols such as Routing Information Protocol (RIP), single-area Open Shortest Path First (OSPF), and Enhanced Information Gateway Routing Protocol (EIGRP), performing command-line interface configuration of switches, Ethernet switching, virtual LANs (VLANs), spanning tree protocol (STP), and the VLAN trunking protocol (VTP). Prepares students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: grade of “C” or better in CSC 211S. Lab fee.

**COURSE GOALS**

The student will:

Bloom's Level		Program Outcomes
3	1. Solve and correct common network problems at layers 1, 2, 3, and 7 using a layered model approach.	8
5	2. Recommend the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts.	5
2	3. Explain the technology and media access control method for Ethernet networks.	5
2	4. Explain basic switching concepts and the operation of Cisco switches.	6
4	5. Analyze and verify initial switch configuration tasks including remote access management.	8
2	6. Describe enhanced switching technologies such as VLAN's, VTP, Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q.	4
2	7. Describe how VLANs create logically separate networks and how routing occurs between them.	7
4	8. Analyze, verify, and troubleshoot VLANs, trunking on Cisco switches, interVLAN routing, VTP, and RSTP.	6
3	9. Demonstrate the output of various show and debug commands to verify the operational status of a Cisco switched network.	7
3	10. Demonstrate network status and switch operation using basic utilities such as ping, traceroute, Telnet, Secure Shell (SSH), Address Resolution Protocol (ARP), and ipconfig, as well as the show and debug commands.	6
4	11. Categorize, prescribe, and resolve common switched network media issues, configuration issues, autonegotiation, and switch hardware failures.	8
3	12. Demonstrate use of Cisco IOS configuration files (save, edit, upgrade, and restore).	8
2	13. Describe standards associated with wireless media, such as IEEE WI-FI Alliance and ITU/FCC.	5
5	14. Critique and describe the purpose of the components in a small wireless network, such as Service Set Identification (SSID), Basic Service Set (BSS), and Extended Service Set (ESS).	8

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2	15. Explain basic configuration parameters on a wireless network to ensure that devices connect to the correct access points.	8
4	16. Compare and contrast Wi-Fi Protected Access (WPA) security features and capabilities of open, Wired Equivalent Privacy (WEP), and WPA-2 networks.	8
2	17. Describe common wireless-network implementation issues such as interference and misconfiguration.	5

#### CORE VALUES

The Core Values are a set of principles that guide in creating educational programs and environments at Edison. 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. LAN design
2. Switch concepts and configuration
3. VLAN's
4. VTP
5. STP
6. Inter-VLAN routing
7. Wireless concepts and configuration