

SYLLABUS
PART I
EDISON COMMUNITY COLLEGE
CSC 130S VIRTUAL LANS
3 CREDIT HOURS

COURSE DESCRIPTION

Provides students with the knowledge and skills necessary to use Variable Length Subnet Masks (VLSM), intermediate routing protocols such as RIP v2, single-area OSPF, and EIGRP, performing command-line interface configuration of switches, Ethernet switching, virtual LANs (VLANs), spanning tree protocol (STP), and the VLAN trunking protocol (VTP). Third of four courses helping students prepare for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: grade of “C” or better in CSC 111S.

COURSE GOALS

The student will:

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| 1. Identify and correct common network problems at layers 1, 2, 3, and 7 using a layered model approach |
| 2. Decide the appropriate media, cables, ports, and connectors to connect switches to other network devices and hosts |
| 3. Explain the technology and media access control method for Ethernet networks |
| 4. Explain basic switching concepts and the operation of Cisco switches |
| 5. Illustrate and verify initial switch configuration tasks including remote access management |
| 6. Describe enhanced switching technologies such as VLAN's, VLAN Trunking Protocol (VTP), Rapid Spanning Tree Protocol (RSTP), Per VLAN Spanning Tree Protocol (PVSTP), and 802.1q |
| 7. Describe how VLANs create logically separate networks and how routing occurs between them |
| 8. Illustrate, verify, and troubleshoot VLANs, trunking on Cisco switches, interVLAN routing, VTP, and RSTP |
| 9. Comprehend the output of various show and debug commands to verify the operational status of a Cisco switched network |
| 10. Assess 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 |
| 11. Identify, prescribe, and resolve common switched network media issues, configuration issues, autonegotiation, and switch hardware failures |
| 12. Demonstrate use of Cisco IOS configuration files (save, edit, upgrade, and restore) |
| 13. Describe standards associated with wireless media, such as IEEE WI-FI Alliance and ITU/FCC |
| 14. Identify 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) |
| 15. Identify basic configuration parameters on a wireless network to ensure that devices connect to the correct access points |
| 16. Compare and contrast Wi-Fi Protected Access (WPA) security features and capabilities of open, Wired Equivalent Privacy (WEP), and WPA-1/2 networks |
| 17. Describe common wireless-network implementation issues such as interference and misconfiguration |

CORE VALUES

The Core Values are a set of principles which 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. Basic Switch Concepts and Configuration
3. VLAN's
4. VTP
5. STP
6. Inter-VLAN Routing
7. Basic Wireless Concepts and Configuration