

SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
CYB 246S CCNA 1
3 CREDIT HOURS

COURSE DESCRIPTION

Introduction to the computer and data networking field. Focuses on network terminology and protocols, local-area networks (LANs), wide-area networks (WANs), Open System Interconnection (OSI) models, cabling, cabling tools, routers, router configuration, Ethernet, Internet Protocol (IP) addressing, and networking standards. Prepares students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: grade of “C” or better in CIS 211S and CIS 214S. Co-requisite: CIS 215S or A+ certification or department approval. Lab fee.

COURSE GOALS

The student will:

Bloom's Level		Program Outcomes
2	1. Explain the importance of data networks and the Internet in supporting business communications and everyday activities.	6
2	2. Explain how communication works in data networks and the Internet.	5
1	3. Label the devices and services that are used to support communications across an Internetwork.	8
3	4. Demonstrate network protocol models to explain the layers of communications in data networks.	6
2	5. Explain the role of protocols in data networks.	7
2	6. Describe the importance of addressing and naming schemes at various layers of data networks.	6
2	7. Describe the protocols and services provided by the application layer in the OSI and TCP/IP models and describe how this layer operates in various networks.	6
4	8. Analyze the operations and features of network layer protocols and services.	7
4	9. Analyze the operations and features of network layer protocols and services and explain the fundamental concepts of routing.	7
5	10. Design, calculate, and apply subnet masks and addresses to fulfill given requirements.	8
2	11. Describe the operation of protocols at the OSI data link layer and explain how they support communications.	7
2	12. Explain the role of physical layer protocols and services in supporting communications across data networks.	4
2	13. Explain fundamental Ethernet concepts such as media, services, and operation.	4
3	14. Demonstrate basic cabling and network designs to connect devices in accordance with stated objectives.	4

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5	15. Create an Ethernet network using routers and switches.	7
3	16. Demonstrate Cisco command-line interface (CLI) commands to perform basic router and switch configuration and verification.	8
4	17. Analyze the operations and features of common application layer protocols such as HTTP, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), Simple Mail Transfer Protocol (SMTP), Telnet, and FTP.	8
3	18. Analyze common network utilities to verify small network operations and data traffic.	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. Network exploration
2. Network configuration operating system
3. Network protocols and communications
4. Network Access
5. Ethernet
6. OSI Network layer
7. IPv4 and IPv6 Addressing
8. IP networks subnetting
9. OSI Transport layer
10. OSI application layer
11. Network cabling
12. Small network construction
13. Network troubleshooting