SYLLABUS
PART I
EDISON STATE COMMUNITY COLLEGE
CYB 247S CCNA 2
3 CREDIT HOURS

COURSE DESCRIPTION
Introduces initial router configuration, router software management, routing protocol configuration, internet addressing, and access control lists (ACLs). Prepares students for the Cisco Certified Network Associate (CCNA) certification exam. Prerequisite: grade of "C" or better in CYB 246S. Lab fee.

COURSE GOALS
The student will:

Bloom's Level		Program Outcomes
2	1. Describe the purpose, nature, and operations of a router.	3
2	2. Explain the critical role routers play in enabling communications across multiple networks.	8
2	3. Describe the purpose and nature of routing tables.	6
2	4. Describe how a router determines a path and switches packets.	6
3	5. Explain the route lookup process and determine the path packets will take in a network.	7
3	6. Establish and verify basic operations for a newly-installed router.	7
2	7. Describe the purpose of static routes and the procedure for configuring them.	4
5	8. Create and verify static and default routing.	8
2	9. Describe the role of dynamic routing protocols and place these protocols in the context of modern network design.	7
2	10. Describe how metrics are used by routing protocols and identify the metric types used by dynamic routing protocols.	6
4	11. Analyze the characteristics of distance vector routing protocols using Routing Information Protocol (RIP).	8
2	12. Describe the functions, characteristics, and operations of the RIP protocol.	5
4	13. Compare and contrast classful and classless IP addressing, both IPv4 and IPv6.	5
2	14. Describe classful and classless routing behaviors in routed networks.	6
5	15. Design and implement a classless IP addressing scheme for a given network IPv4 and IPv6.	6
2	16. Describe the main features and operation of the Enhanced Interior Gateway Routing Protocol (EIGRP).	5
3	17. Prepare advanced configuration commands with routers implementing EIGRP and Open Shortest Path First (OSPF).	8
2	18. Describe the basic features and concepts of link-state routing protocols.	7
2	19. Describe the purpose, nature, and operations of the OSPF Protocol.	6

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Bloom's Level		Program Outcomes
5	20. Create and verify basic RIP, single area OSPF, and EIGRP operations in a small routed network.	8
4	21. Distinguish between router Show and Debug commands to troubleshoot common errors that occur in small routed networks.	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. Routing concepts
2. Static routing protocols
3. Dynamic routing protocols
4. Switched networks
5. Switch configuration
6. Variable length subnet masking VLSM and CIDR
7. Access control lists
8. EIGRP and DHCP
9. NAT for IPv4
10. Device Discovery, Management, and Maintenance