COURSE INFORMATION FORM

DISCIPLINE  CSIS
COURSE TITLE  Implementing Cisco IP Routing: CCNP 1

CR.HR  4  LECT HR.  3  LAB HR.  2  CLIN/INTERN HR.  _______  CLOCK HR.  _______

CATALOG DESCRIPTION
This course teaches students how to implement, monitor, and maintain routing services in an enterprise network. Students will learn how to plan, configure and verify the implementation of complex enterprise LAN and WAN routing solutions, using a range of routing protocols in IPv4 and IPv6 environments. The course also covers the configuration of secure routing solutions to support branch offices and mobile workers. Comprehensive labs emphasize hands-on learning and practice to reinforce configuration skills.

PREREQUISITES
CSIS 213

EXPECTED STUDENT OUTCOMES IN THE COURSE (ESO)
Upon completion of this course, the student will be able to:

1. Explain complex network requirements and design models for implementing advanced routing services in an enterprise network.
2. Implement EIGRP and OSPF in an enterprise network.
3. Implement various mechanisms for controlling routing updates and traffic.
4. Implement BGP to allow an enterprise network to connect to an ISP.
5. Describe a basic implementation for branch office and mobile worker connectivity.
GENERAL EDUCATION OUTCOMES (ESO)
Specify which general education outcomes, if any, are substantially addressed by the course. Numbers in parentheses identify the Expected Student Outcomes linked to the specific General Education Outcome.

PROGRAM-LEVEL OUTCOMES

CAREER AND TECHNICAL EDUCATION PROGRAM OUTCOMES
Specify which Career and Technical program outcomes, if any, are substantially addressed by the course by completing the “Career and Technical Education template” to show the relationship between course and program outcomes to assessment measures.

The student will demonstrate:

1. Use industry specific software and/or apply troubleshooting skills to solve problems. (1 – 6)
2. Work effectively in a team environment. (1 – 6)

CLASS-LEVEL ASSESSMENT MEASURES
Student accomplishment of expected student outcomes will be assessed using the following measures. (Identify which measures are used to assess which outcomes.)

1. End of Chapter Assessments (1 – 6)
2. Final Exam (1 – 6)
3. Skills Based Assessment (1 – 6)
Individual instructors may order this outline as fits the needs of their individual courses. In addition, they may place more emphasis on some areas than on others. What is assured is that this particular list is covered in the course. Other topics may be added to a course as the instructor sees fit, and as time and interest allow. An *asterisk can be used to mark an item as optional.

I. Routing Services
   A. Complex Enterprise Network Requirements
   B. IP Routing Principles
   C. Implementation Plan

II. Enhanced Interior Gateway Routing Protocol
   A. EIGRP Capabilities and Attributes
   B. EIGRP Routing Implementation
   C. EIGRP Configuration
   D. EIGRP in an Enterprise WAN
   E. EIGRP Authentication
   F. EIGRP Optimization

III. Open Shortest Path First Protocol
   A. OSPF Terminology and Operation
   B. OSPF Packets
   C. OSPF Routing Implementation
   D. Basic OSPF Configuration
   E. OSPF Network Types
   F. Advanced OSPF Features
   G. OSPF Authentication

IV. Routing Updates
   A. Network Routing Performance
   B. Routing Update Traffic
   C. Multiple Routing Protocol Use
   D. Route Redistribution

V. Path Control
   A. Path Control Methods
   B. Offset-List Configuration
   C. IP Service-Level Agreement
   D. Policy Based Routing
VI. Border Gateway Protocol
   A. Enterprise-to-ISP Connection
   B. BGP Terminology and Operation
   C. BGP Configuration
   D. Route Maps
   E. EBGP Path Selection

VII. Routing Facilities for Branch Offices and Mobile Workers
   A. Branch Office Implementation
   B. Branch Office Services
   C. Branch Office Routing
   D. Mobile Worker Implementations
   E. Mobile Worker Routing

VIII. Internet Protocol version 6 (IPv6)
   A. IPv6 Address structure
   B. IPv6 Address configuration
   C. IPv6 Traffic routing
   D. IPv6 Tunneling
   E. IPv6 NAT-PT