DEPT: Computer Support Technology        COURSE NO: CST 2150

NUMBER OF CREDITS: 4

COURSE TITLE: Advanced Routing Technology

CATALOG DESCRIPTION:
This Course covers concepts and skills in advanced IP addressing techniques, intermediate routing protocols Ethernet switching, Virtual LANs, Spanning Tree Protocol and VLAN Trunking Protocol Students will demonstrate the ability to apply competencies from prior networking courses including Intro to Networking and Routers and Switches. The course consists of web-based interactive lessons and hands-on labs. This course is the third of four courses leading to the Cisco Certified Network Associate (CCNA) designation. Prerequisite: CST 1500

AUDIENCE:
Computer Support Technology students, Networking Specialist students and anyone interested in learning about Cisco router configuration.

FULFILLS MN TRANSFER CURRICULUM AREA(S): (Does not apply.)

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE:
CST1500 Routers and Switches

LENGTH OF COURSE: 3 lecture hours and 2 lab hours per week for 16 weeks or the equivalent in online instruction.

THIS COURSE IS USUALLY OFFERED:
Every other year □ Fall X Spring □ Summer □ undetermined □

Four goals are emphasized in course at Minnesota West Community & Technical College:

1) ACADEMIC CONTENT: The student will achieve an entry level of knowledge and skill needed for computer support personnel.

2) THINKING SKILLS: The student will develop logical thinking skills by mastering the networking curriculum.
3) **COMMUNICATIONS SKILLS:** The student will demonstrate appropriate communication techniques by completing an engineering journal, interviewing network clients, and documenting router configuration.

4) **HUMAN DIVERSITY:** The student will gain self-awareness regarding their feelings towards people of different cultures, educational backgrounds, value systems and socioeconomic status.

**TOPICS TO BE COVERED:** Using routers, setting up and starting routers, configuring routers, examining router operating system files, using routed and routing protocols.

**LIST OF EXPECTED COURSE OUTCOMES:**

1. understand the different classes of routing protocols
2. describe LAN communication problems
3. describe LAN performance improvement methods
4. describe the effects of LAN segmentation
5. describe switching
6. determine VLAN benefits
7. determine LAN design goals and components
8. describe network implementation documentation
9. describe interior and exterior protocols
10. describe routing protocol characteristics and configuration including IGRP
11. define purpose and operation of access control lists (ACLs)
12. use ACL configuration commands, global statements, and interface commands
13. perform network management tasks
14. identify WAN encapsulation formats
15. identify WAN link options
16. identify WAN design requirements
17. identify and select network capabilities
18. explain T1 leased lines, Frame Relay, ISDN, and PPP
19. explain the 4-phase PPP session process
20. add ISDN to router configuration
21. understand Frame Relay technology
22. add Frame Relay to router configuration
23. describe WAN-related network management tasks
24. review for certification test

**LEARNING/TEACHING TECHNIQUES** used in the course are:

- Collaborative Learning
- Problem Solving
- Interactive Lectures
- Student Presentations
- Individual Coaching
- Creative Projects
- Lab
- Films/Videos/Slides
- Other (describe below)
ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
X  Reading          X  Tests          X  Individual Projects
☐  Oral Presentations  X  Worksheets  X  Collaborative Projects
X  Textbook Problems  ☐  Papers  ☐  Portfolio
☐  Group Problems  ☐  Term Paper
X  Other (describe below)
   Practical Tests

Veteran Services: Minnesota West is dedicated to assisting veterans and eligible family members in achieving their educational goals efficiently. Active duty and reserve/guard military members should advise their instructor of all regularly scheduled military appointments and duties that conflict with scheduled course requirements. Instructors will make every effort to work with the student to identify adjusted timelines. If you are a veteran, please contact the Minnesota West Veterans Service Office.

The information in this course outline is subject to revision

To receive reasonable accommodations for a documented disability, please contact the campus Student Services Advisor or campus Disability Coordinator as arrangements must be made in advance. In addition, students are encouraged to notify their instructor.

This document is available in alternative formats to individuals with disabilities by contacting the Student Services Advisor or by calling 800-658-2330 or via your preferred Telecommunications Relay Service.

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