MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE
COURSE OUTLINE

Faculty is required to have the outline submitted to the Academic Affairs Office. The course outline is the form used for approval of new courses by the Academic Affairs and Standards Council.

DEPT. CST COURSE NUMBER: 1410
NUMBER OF CREDITS: 2 lecture 1 lab for a total of 3 credits
COURSE TITLE: Broadband Technology

CATALOG DESCRIPTION:
This course provides students with basic broadband technologies knowledge and skills. The student develops an understanding for Convergent Technologies and the need for transmitting more than one type of signal simultaneously by way of divided channel. Emphasis is placed on the exploration of the technology of voice and data integration, frame relay, Synchronous Optical Network (SONET), Asynchronous Transfer Mode (ATM)/cell relay, Switched Multi-megabit Digital Service (SMDS), Broadband Integrated Services Digital Network (BISDN), Digital Subscriber Line (DSL), and Virtual Private Network (VPN). This course presents and explains the many and varied techniques, solutions, principles, and challenges both carriers and end users utilize, experience, and overcome in implementing broadband and voice-over IP services.

AUDIENCE: Telecommunications Technology Students, Computer Support Technology students, Networking Specialist students and anyone interested in learning about the telecommunications industry.

FULFILLS MN TRANSFER CURRICULUM AREA(S) - Does not apply

PREREQUISITES OR NECESSARY ENTRY SKILLS/KNOWLEDGE
CST 1400 Telecommunications I – may be taken concurrently

LENGTH OF COURSE: 2 lecture hours and 1 lab hour per week for 16 weeks

THIS COURSE IS USUALLY OFFERED:
Every other year ☐ fall ☐ spring X summer ☐ undetermined ☐

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

1) ACADEMIC CONTENT: The academic objectives of this course are:
   a. The student will achieve an entry level of knowledge and skill needed for telecommunications personnel

2) THINKING SKILLS: This course will help students improve the effectiveness of their thinking skills through:
   a. The student will develop logical thinking skills by mastering the telecommunications curriculum.

3) COMMUNICATIONS SKILLS: This course will help students improve their oral and written communication skills through:
   a. Completing written and oral assignments journal and documenting lab configuration.

4) HUMAN DIVERSITY: This course will help students recognize, understand, and appreciate human diversity through:
   a. 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:
1. Fundamentals of Broadband Technology
2. Fundamentals of transmission systems
3. Voice communication systems
4. Data communication systems
5. Broadband Network Infrastructure
6. Broadband network services
7. Video and Multimedia networking
8. Network convergence

LIST OF EXPECTED COURSE OUTCOMES:
1. Work with SIP in Presence and event-based communications
2. Handle SIP-based application-level mobility issues
3. Set up Internet-based services
4. Explore how peer-to-peer SIP systems may change VoIP
5. Understand the critical importance of Internet transparency
6. Identify relevant standards and specifications
7. Handle potential quality-of-service and security problems
8. Discuss the basics of VoIP, VoIP codecs and VoIP Protocols including SIP and H.323.
9. Detail new technologies such as P2P technology, VoWiFi, WiMax, and 3G Networks.
10. Explain QoS issues arising from deploying VoIP using the new technologies.
11. Solve the performance issues that arise when VoIP is deployed over different network technologies

LEARNING/TEACHING TECHNIQUES used in the course are:
- Collaborative Learning
- Problem Solving
- Interactive Lecture
- Creative Projects
- Individual Coaching
- Lecture
- Films/Videos/Slides
- Demonstrations
- Other (describe below)

ASSIGNMENTS AND ASSESSMENTS FOR THIS CLASS INCLUDE:
- Reading
- Tests
- Individual Projects
- Oral Presentations
- Worksheets
- Collaborative Projects
- Textbook Problems
- Papers
- Portfolio
- Group Problems
- Term Paper
- Other (describe below)

The information in this course outline is subject to revision

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.

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
Minnesota Relay Service at 800-627-3529 or by using your preferred relay service.

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