MISSOURI WESTERN STATE UNIVERSITY
COLLEGE OF LIBERAL ARTS AND SCIENCES
DEPARTMENT OF COMPUTER SCIENCE, MATHEMATICS, AND PHYSICS

CO URSE NUMBER: CSC 294
COURSE NAME: Networking and Telecommunications
COURSE DESCRIPTION:
This course introduces students to the inner facets of networks and the layered network design models. Students will learn about the functionality, internal mechanisms and communication protocols on each layer. We will explore how the layers work together to facilitate a monolithic network that presents itself to application users as a reliable, robust, autonomous entity.
PREREQUISITE:
Grade of C or better in CSC 184.
TEXT:
This is the required textbook for this course.
Computer Networks, 5th Edition, Tanenbaum & Wetherall
ISBN-13: 9780133354669

COURSE OBJECTIVES:

1. Understand the architectural principles of networking.
2. Describe the structure and component of a layered network model.
3. Compare different layered network design alternatives. Identify their advantages and tradeoffs.
4. Describe the services, functions, and inter-operation mechanisms of different layers in a layered network model.
5. Understand the role of each layer in a network model and how each layer facilitate its role.
6. Identify and compare a number of datalink, network, and transport layer protocols.
7. Identify the performance properties of physical, datalink and network protocols.

COURSE OUTLINE:

1. Computer networking overview
    a. Reference models
2. The physical layer
    a. Wired & wireless transmission
    b. Digital modulation and multiplexing
3. The data link layer
    a. Design issues and protocols
    b. Error detection & correction
4. The medium access control sublayer
    a. Multiple access protocols
    b. Ethernet & wireless LANs
5. The network layer
    a. Routing algorithms
    b. Congestion control algorithms
    c. Quality of Service
    d. Internetworking
6. The transport layer

    a. The transport service and protocol
    b. Congestion control
7. The application layer
    a. Domain name system
    b. World-wide web and streaming media
    c. Content delivery