Syllabus for
CSC 441—Data Communications
3 Credit hours
Spring 2005

I. COURSE DESCRIPTION

The study of concepts of data communication, network design, and distributed information systems.
Prerequisite: CSC 111.

II. COURSE GOALS

This course enables the student to understand the operation of the components in a data communication network and the functional relationships of these components. The student will gain the ability to analyze, design, and improve data communication networks. The student will learn how to manage the operations and security of data communication networks.

III. STUDENT LEARNING OUTCOMES FOR THIS COURSE

A. Terminal Objectives

As a result of successfully completing the course, the student will be able to do the following:

1. Explain why data communication networks are important and why their importance is expected to increase.
2. Describe the different types of network topologies.
3. Present the requirements to implement the automated office, voice, mail, electronic mail and Internet.
4. Discuss the fundamental communication concepts including digital and analog transmissions, base band and broadband transmission and polling and selecting techniques.
5. Explain how to use data communication hardware.
6. Discuss ethical issues associated with networks and software.

B. Unit Objectives

As a result of successfully completing each of these units, the student will be able to do the following:

1. For Unit I the student will be able to do the following:
    a. Relate the history of data communication and its components.
    b. Present the principles of the communication paradigm.
    c. Create useful network applications and configurations.
    d. Discuss the importance of the OSI model and it usages.

2. For Unit II the student will be able to do the following:
    a. Discuss various communications transmission media.
    b. Present elements associated with networks.
    c. Discuss packet transmission requirements, topology and hardware interfaces.

3. For Unit III the student will be able to do the following:
   a. Describe the different hardware components and telecommunications access methods.
   b. Express the different types of network designs.
   c. Discuss the connection-oriented networking and ATM data transmission.

4. For Unit IV the student will be able to do the following:
   a. Design a network utilizing a System Network Architecture protocol.
   b. Create an environment that enhances Network security and ethics.
   c. Discuss the IP and TCP protocols as they relate to the Internet.
   d. Present a speech demonstrating that they understand the concept of networking standards and design.

IV. TEXTBOOK

A. Required Textbook
Forouzan, Behrouz, Data Communications and Networking. McGraw-Hill, third edition.

B. Additional reading material may be recommended

V. POLICY AND PROCEDURES

A. University Policies and Procedures
1. Attendance at each class or laboratory is mandatory at Oral Roberts University.
2. Double cuts will be assessed for absences that immediately precede or follow holidays or breaks.
3. Excessive absences can reduce a student's grade or deny credit for the course.
4. Students taking a late examination because of an unauthorized absence will be charged a late exam fee.
5. Students and faculty at Oral Roberts University adhere to all laws addressing the ethical use of other's materials, whether it is in the form of print, video, multimedia, or computer software.
6. Final examines cannot be given before their scheduled times. Students need to check the final exam schedule before planning return flights or other events at the end of the semester.

B. Computer Science & Mathematics Department Policies and Procedures

1. Each Student who uses the computer is given access to the appropriate computer resources. These limited resources and privileges are given to allow students to perform course assignments. Abuse of these privileges will result in their curtailment. Students should note that the contents of Computer directories are subject to review by instructors and the computer Administrative staff.
2. A fee of $10.00 will be assessed for all late exams. This policy applies to all exams taken without notifying the professor prior to the regularly scheduled exam time, and to all exams taken late without an administrative excuse.

C. Course Policies and Procedures

1. Evaluation Procedures

The final grade will be based (approximately) on performance in five categories.

a. 25% on homework (Homework problems will be assigned in class. Details of specific requirements will be given at that time.)
b. 15% on final project to be presented in class.
c. 35% on exams
d. 5% on in class participation and mini-projects to be assigned
e. 20% on final exam

2. ePortfolio™ Requirements

There may be an ePortfolio™ artifact associated with this course. Check your ePortfolio™ handbook for the requirements.

VI. COURSE CALENDAR

Unit	Lesson	
I	1-4	Introduction to Data Communication and Network Models
	5	Standards including OSI Model
	6-7	Physical Layer
	8-9	Data Link Layer
	10	**Examination I**
II	11-17	Network Layer
	18-23	Transportation Layer
	24	**Examination II**
III	25-31	Application Layer to include Network Design
	32-33	Protocols and Internetworking
	34-36	Hardware
	37	**Examination III**
IV	38-41	Network security, ethics and privacy protection
	42-43	Network Application and Problem Solving
	44-45	Presentations
	46	**Final Examination**

Course Inventory for ORU's Student Learning Outcomes

CSC 441-Data Communication
Spring 2005

This course contributes to the ORU student learning outcomes as indicated below:
Significant Contribution – Addresses the outcome directly and includes targeted assessment.
Moderate Contribution – Addresses the outcome directly or indirectly and includes some assessment.
Minimal Contribution – Addresses the outcome indirectly and includes little or no assessment.
No Contribution – Does not address the outcome.

The Student Learning Glossary at http://ir.oru.edu/doc/glossary.pdf defines each outcome and each of the proficiencies/capacities.

OUTCOMES & Proficiencies/Capacities		Significant Contribution	Moderate Contribution	Minimal Contribution	No Contribution
1	**Outcome #1 – Spiritually Alive** Proficiencies/Capacities				
1A	Biblical knowledge				X
1B	Sensitivity to the Holy Spirit				X
1C	Evangelistic capability				X
1D	Ethical behavior		X		
2	**Outcome #2 – Intellectually Alert** Proficiencies/Capacities				
2A	Critical thinking	X			
2B	Information literacy		X		
2C	Global & historical perspectives				X
2D	Aesthetic appreciation			X	
2E	Intellectual creativity		X		
3	**Outcome #3 – Physically Disciplined** Proficiencies/Capacities				
3A	Healthy lifestyle				X
3B	Physically disciplined lifestyle				X
4	**Outcome #4 – Socially Adept** Proficiencies/Capacities				
4A	Communication skills	X			
4B	Interpersonal skills		X		
4C	Appreciation of cultural & linguistic differences				X
4D	Responsible citizenship				X
4E	Leadership capacity		X		