University of Pittsburgh

School of Library and Information Science
Telecommunications

Course	: TELCOM 2310 - Computer Networks
Term	: Fall Term 01-1
Meetings	: Wednesday 3:00pm - 5:50pm
Classroom	: IS 405
Home Page	: http://www.cs.pitt.edu/˜znati/tel2310.html
Instructor	: Dr. Taieb Znati (**znati@cs.pitt.edu**)
Office	: **226, Alumni Hall**
Phone	: **624-8417**

I. Course Description

The course discusses the basic principles and topics of fundamental importance which are involved in data networks. The first part of the course provides an overview of the procedures and rules involved in the communication process, and discusses the basic **design principles** of computer communications. The second part of the course discusses the fundamental issues related to **network architectures** and **protocols**. Topics include, routing, flow control, addressing and naming. The third part of the course introduces the concept of **Internetworking**, a powerful abstraction that allows dealing with the complexity of multiple underlying communication technologies. The final part of the course provides and introduction to the emerging technologies and high-speed integrated service networks.

II. Course Prerequisites

Students are expected to have a basic understanding of communication networks fundamentals discussed in courses such as TelCom 2100 or any equivalent network course. Students are also expected to be able to develop programs in structured or object-oriented languages such as C, C++ or Java.

III. Course Topics

The following topics will be discussed:

1. Computer Network Fundamentals
Data Communication Models
Network Architectures Overview
Switching Techniques
Homework Assignment : Handout

2. Application Programming Interfaces
Service Access Points
Sockets
Ports and ‘‘Well-Known Port’’ Concept
Network Programming

3. Network Design Issues
Data Link Layer Fundamentals
Network Layer Protocol Fundamentals
Transport Layer Protocol Fundamentals
Internetworking Concepts
Flow Control, Congestion Control, Routing and Multicating Algorithms
Homework Assignment : Handout

4. ISO/OSI Protocol Suite
OSI Network Layer Protocol
OSI Transport Layer Protocol
OSI Internet Layer Protocol
ISO/OSI Routing Architecture and Algorithms
Homework Assignment : Handout

5. TCP/IP Protocol Suite
Internet Protocol
User Datagram Protocol
Transmission Control Protocol
Other IP related Protocols
Internet Routing Architecture and Algorithms
IP Multicasting
Homework Assignment : Handout

6. Emerging Technology Overview
Next Generation Internet Protocols Overview

IV. Homework Assignments and Policies

Regular Assignments will include reading in the course textbook, written homework assignments, and a programming project.

- Working together with other students in this class is encouraged; however each student must turn in their own original version.
- All homeworks must be neat and organized (or else the may not be graded). Homeworks are not to be turned in on paper torn from a spiral binder.
- All assignments must be handed in due date at the beginning of the class. Late assignments will NOT be accepted. Emergency cases must be brought to the attention of the instructor prior to the due date.

V. Important Dates

Midterm	: Wednesday 25, Oct. 2000
Project Due	: Friday 8, Dec. 2000
Final Exam	: Wednesday 13, Dec. 2000

VI. Course Evaluation

Homeworks	: 15%
Midterm Exam	: 25%
Project	: 30%
Final Exam	: 30%

VII. Suggested References

[1] John D. Spragins, J. L. Hammond, and K. Pawlikowski, ‘‘Telecommunications Protocols and Design’’, Addison Wesley, 1991 (Main Reference).

[2] William Stallings, ‘‘Data and Computer Communications’’, MacMillan

[3] Andrew S. Tanenbaum, ‘‘Computer Networks’’, 3rd Edition, Prentice Hall, 1996.

Where possible, supplemental material will be placed on reserve in the third floor of the Library and Information Science (LIS) Building.

VIII. Office Hours

Monday	: 10:30 a.m. - 12:00 a.m.
Wednesday	: 10:30 a.m. - 12:00 a.m.

Additional hours are available by appointment.