KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COLLEGE OF COMPUTER SCIENCES & ENGINEERING

COMPUTER ENGINEERING DEPARTMENT

COE 342 Data Communications
Syllabus - Term 003

Catalog Description

Introduction to data communication. Overview of the OSI model. Frequency response, bandwidth, filtering, and noise. Fourier series and transform. Information theory concepts such as Nyquist theorem, Shannon theorem, and Sampling theorem. Analog and digital modulation techniques. Pulse Code Modulation (PCM). Communication systems circuits and devices. Data encoding. Physical Layer Protocols. Data Link Control (point to point communication; design issues; link management; error control; flow control). Multiplexing and Switching. Introduction to LAN Technology.

Corerequisite STAT 319

Instructor Dr. Aiman H. El-Maleh. Room: 22/332 Phone: 2811 Email: aimane

Office Hours Sat-Sun-Mon-Tues, 2:00-3:00 PM

Text Book: *William Stalling, ``Data and Computer Communications'', Prentice Hall International, 6th Edition, 2000.*

Grading Policy

Quizzes	10%
Exam I	25%
Exam II	30%
Final	35%

Course Topics

1. ***Introduction (Chapters 1 & 2)*** **5 lectures**
   Communication Model. Data Communications Networking. TCP/IP Protocol and OSI Model.
2. ***Data Transmission (Chapters 3 & 4)*** **8 lectures**
   Concepts and Terminology. Analog and Digital Transmission. Transmission Impairments. Transmission Media.
3. ***Data Encoding (Chapter 5)*** **8 lectures**
   Encoding of Digital Data as Digital Signals. Amplitude, Frequency, and Phase Shift Keying. Pulse Code and Delta Modulation. Analog Modulation (Amplitude, Frequency, and Phase Modulation).
4. ***The Data Communication Interface (Chapter 6)*** **5 lectures**
   Asynchronous and Synchronous Transmission. Error Detection Techniques. Interfacing.

5. ***Data Link Control (Chapter 7)*** **5 lectures**
   Line Configuration. Flow and Error Control. Bit-Oriented Data Link Control.

6. ***Multiplexing (Chapter 8)*** **5 lectures**
   Frequency, Time, and Space Division Multiplexing.

7. ***Data Communication Networking. (Chapters 9 & 10)*** **5 lectures**
   Computer Communication Networking. Broadcast versus Switched Networks. Circuit, Message, and Packet Switching. Digital Switching Concepts. Digital Data Switching Devices. The Digital Private Branch Exchange.

8. ***Introduction to LAN Technology. (Chapter 13)*** **4 lectures**
   LAN Architecture. The Bus, Tree, and Ring Topologies. Medium Access Control Protocols and Standards.