King Fahd University of Petroleum & Minerals
College of Computer Sciences and Engineering
Computer Engineering Department

COE 444 - Internetwork Design and Management (3-0-3)
UT: 7:00-8:15 AM, Room: 24-110
Fall 2005 (Term 051)

Syllabus

Catalog Description

Types of computer networks. Principles of internetworking. The network development life cycle. Network analysis and design methodology. Internetworking hardware. Connectionless internetworking. Connection-oriented internetworking. Routing strategies. Structured wiring and backbone design. OSI internetworking. Network management (SNMP). Network security and firewalls. Network administration. Case studies.

Prerequisite: COE 342 or consent of instructor.

Instructor: Dr. Mohammed Houssaini Sqalli

Office: 22-149   **Phone:** 1725   **Email:** sqalli@ccse.kfupm.edu.sa

Office hours: UT 8:30-10:00AM, SM 8:00-8:30PM, and by appointment.

Course URL: http://www.ccse.kfupm.edu.sa/~sqalli/051/coe444

Text Book: *There is no textbook for this course. Handouts from several references will be provided throughout the course.*

Grading Policy: **Exam dates**

Attendance	5%	
Assignments/Quizzes	15%	
Project	15%	
Exam 1	20%	Sunday, October 16, 2005, 9:00-11:00 PM
Exam 2	20%	Sunday, December 4, 2005, 7:00-9:00 PM
Final Exam	25%	Scheduled by the registrar

Attendance: attendance is required by all students. Official excuse for an authorized absence must be presented to the instructor no later than one week following the absence. More than 6 unexcused absences lead to a "DN" grade.

Course Topics:

1. *Overview of Computer Networks* **1 week**
Types of computer networks. LANs and WANs. Protocols and protocol families. The OSI reference model. The TCP/IP protocol.

2. *Internetworking* **3 weeks**
Basic terminology. Principles of internetworking. Types of internetworking devices. Repeaters, hubs, bridges, routers, switches and gateways. Transparent and source-routing bridges. Multilayer switches. VLANs. Routing strategies. Addressing.

3. *The Network Development Life Cycle* **1 week**
Network analysis. Network design methodology. Writing of a Request For Proposal (RFP) and quotation analysis. Prototyping/simulation. Implementation.

4. *Enterprise Network Design* **4 weeks**
Enterprise Network Design Model. Backbone design concepts. Network security and firewalls. Structured cabling systems. Case studies.

5. *Topology design and analysis* **3 weeks**
Topology design. Network design algorithms. Terminal assignment. Concentrator location. Traffic flow analysis and performance evaluation. Network reliability.

6. *Network Management* **2 weeks**
Network management standards & models. ISO Functional areas of management. Network management tools and systems. SNMP architecture & operations. Network administration.

7. *Project Presentations* **1 week**
More details will be posted on the course web site about the project.