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

COE 444 - Internetwork Design and Management (3-0-3)

Section 01: SMW: 9:00-9:50 AM, Room: 24-125
Section 02: SMW: 1:10-2:00 PM, Room: 24-273
Spring 2003 (Term 022)

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: SMW 10:00-11:30 AM, and by appointment.

Course URL: www.ccse.kfupm.edu.sa/~sqalli/022/coe444

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

Grading Policy:

		Tentative exam dates
Assignments/Quizzes	20%	
Project	15%	
Exam 1	20%	March 29-31, 2003
Exam 2	20%	May 10-13, 2003
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. Unexcused absences lead to a "DN" grade.

Course Topics:

1. *Overview of Computer Networks* **3 lectures**
Types of computer networks. LANs and WANs. Protocols and protocol families. The OSI reference model. The TCP/IP protocol.

2. Internetworking **9 lectures**
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. *Enterprise Network Design* **5 lectures**
Enterprise Network Design Model. Backbone design concepts. Structured cabling systems.

4. *The Network Development Life Cycle* **5 lectures**
Network analysis. Network design methodology. Writing of a Request For Proposal (RFP) and quotation analysis. Prototyping/simulation. Implementation.

5. *Topology design and analysis* **11 lectures**
Topology design. Network design algorithms. Terminal assignment. Concentrator location. Traffic flow analysis and performance evaluation. Network reliability. Network simulation.

6. *Network Management* **8 lectures**
Network management standards & models. ISO Functional areas of management. Proactive vs. Reactive management. Network management tools and systems. SNMP architecture & operations.

7. *Network Security and Troubleshooting Problems* **4 lectures**
Network security and firewalls. Troubleshooting common network problems.