

**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: 24-162 (Section 01)

UT: 8:30-9:45 AM, Room: 24-162 (Section 02)

**Spring 2006 (Term 052)**

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

**Course URL:** <http://www.ccse.kfupm.edu.sa/~sqalli/052/coe444>

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

**Grading Policy:**

Attendance	5%
Quizzes	15%
Project	15%
Exam 1	20%
Exam 2	20%
Final Exam	25%

**Exam dates**

Sunday, March 19, 2006, 6:30-8:30 PM

Sunday, April 30, 2006, 7:00-9:00 PM

Monday, May 29, 2006, 7:30-10:00 AM

**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.