KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT

COE 344: Computer Networks (3-3-4)
Term 111 (Fall 2011)

Syllabus

Instructor: Dr. Abdulaziz Barnawi
Lecture: U.T.: 10:00-11:15AM
Class location: Bldg 24 Room 130
Office hours: S.M.: 11:00-11:50AM, T: 1:00-1:50PM or by appointment
Office location: Bldg 22 Room 407-4   **Office-Te**l: 1038
Web site: http://faculty.kfupm.edu.sa/coe/barnawi
Course related e-mail: Blackborad email is the main email used during the course

Course Description:
This course will be taught using TCP/IP top-down approach. Topics covered include introduction to computer networks. Application layer design issues and protocols are discussed. Then, Transport layer design issues, protocols as well as congestion control mechanisms are presented. Socket programming is explained. An in-depth analysis is presented of the Network layer design issues, and internetworking. MAC layer design issues and protocols are presented. Finally, multimedia network applications are explored.

Prerequisite: COE 341 - Data and Computer Communications.

Textbook:
Computer Networking: A Top-Down Approach Featuring the Internet, J. Kurose & K. Ross, Addison Wesley, 4th Edition, 2008.

Tentative Grading Policy:

Homework Assignment	10%	
Quizzes	10%	
Lab	15%	
Major Exam I	15%	**(Tuesday 11 October)**
Major Exam II	20%	**(Tuesday 6 December)**
Final Exam	30%	

Important Policies:

- All KFUPM regulations and standards will be enforced. Attendance will be checked each class. The KFUPM rule pertaining to a DN grade will be strictly enforced (i.e. **> 6 absences** will result in a DN grade).
- Prompt attendance in classes shows how keen you are to benefit from this course and enhances your performance and grade. Therefore, three late attendances (5 min max) are counted as one absent.
- Only university approved/certified excuses will be accepted, and should be presented **no later than 1 week** after absence.
- Assignments are submitted **at the beginning of the class** of the due date.
- Quizzes are carried out **at the beginning of class time**.
- You have 48 hours to object to the grade of a homework, a quiz, or a major exam from the end of the class time in which the graded papers have been distributed back.
- *Check your exam schedule carefully*. **NO makeup exams** are allowed.
- Check the course webpage and Blackboard for updates, emails and announcements.
- Plagiarism (copying and handing in for credit someone else's work) is a serious instructional offense that will not be tolerated.

Tentative Class and Lab Schedule

Week	Chapter	Topics	Lab
1	Introduction (Chapter 1)	• What is the Internet, What is a protocol? • Network Edge, Network Access & Physical Media • Network Core, Packet-Switched Networks, Internet Backbones, and ISPs • Delay and Loss in Packet-Switched Networks • Protocol Layers and Their Service Models • Brief History of Computer Networking and the Internet	Introduction: Lab setting, Network devices, etc.
2	Application Layer (Chapter 2)	• Principles of Network Applications • The World Wide Web: HTTP • File Transfer: FTP	Lab1: Networking Tools - OS and LAN implementation
3		• Electronic Mail in the Internet • The Internet's Directory Service: DNS	Lab2: Application Layer - HTTP, FTP, and TFTP Services
4		• P2P File Sharing	Lab3: Application Layer - DNS, SMTP, and POP3
5	Transport Layer (Chapter 3)	• Transport-Layer Services and Principles • Multiplexing and Demultiplexing Applications	Lab4: Socket Programming
		Major Exam I – Tuesday 11 October	
6		Principles of Congestion Control	Lab5: Review
7			Lab6: Transport Protocol Analysis – TCP & UDP
8	Network Layer (Chapter 4)	• Introduction and Network Service Models • What is Inside a Router? • IP: the Internet Protocol	Lab7: IPv4 & IPv6 Addressing
	Mid-Term Vacation 9-13 April		
9		• Routing Algorithms • Hierarchical Routing • Routing in the Internet	Lab8: Network Protocol Analysis - IP
10	Link Layer & LANs (Chapter 5)	• Link Layer: Introduction & Services • Multiple Access Protocols and LANs	Lab9: Dynamic Routing Protocols: RIPv1, and RIPv2
11		• LAN Addresses and ARP • Ethernet • Hubs, Bridges and Switches	Lab10: Routing Between LANs using OSPF, and ICMP
12		• PPP: the Point-to-Point Protocol • Link Virtualization: ATM	Lab11: IEEE 802.3, ARP
		Major Exam II – Saturday 7 May	
13	Wireless & Mobile Networks (Chapter 6)	• Wireless Links, Network Characteristics and CDMA	Lab12: Trunking, Virtual LAN (VLAN), and L3 Routing
14		• Wireless LANs: IEEE 802.11 WPAN & Bluetooth	Lab13: DHCP, NAT, and Access List
15		• Mobile networking (introduction)	**Final Lab Exam**