KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
COMPUTER ENGINEERING DEPARTMENT

COE 549: Wireless Sensor Networks
Term 102 (Spring 2010)

Syllabus

Instructor: Dr. Abdulaziz Barnawi
Lecture: S.M.: 6:39-7:45PM
Class location: Bldg 24 Room 114
Office hours: S.M.: 10:00-10:50 AM, T.: 11:00-11:50AM or by appointment
Office location: Bldg 22 Room 407-4
Office-Tel: 1038
Web site: http://faculty.kfupm.edu.sa/coe/barnawi
Course related e-mail: Blackborad email tool 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:
There is no specific textbook for this course

Tentative Grading Policy:

Class participation	10%
Reading-list presentations	25%
Project	50%
Final	15%

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).
- Assignments are submitted **at the beginning of the class** of the due date.
- You have 48 hours to object to the grade of a presentation or a project related assignments from the end of the class time in which the graded papers have been distributed back.
- 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.

Expected Learning Outcomes

Upon successful completion of this course:

1. Students will be introduced to some existing applications of wireless sensor actuator networks.
2. Students will be introduced to elements of network protocol design and will learn to apply these principles in the context of wireless sensor networks
3. Students will learn the various hardware, software platforms that exist for sensor networks
4. Students will get an overview of the various network level protocols for MAC, routing, time synchronization, aggregation.
5. Students will read and present seminal papers on various issues in sensor networks, opening a path to research in this area
6. Students will understand what research problems sensor networks pose in disciplines such as signal processing, wireless communications and even control systems

Tentative Class and Lab Schedule

Lecture	Date	Topic
1	February 12, 2011	Logistics and introduction
2	February 14, 2011	Sensor node architecture
3	February 19, 2011	Power and Energy Management
4	February 21, 2011	Wireless Transmission
5	February 26, 2011	MAC Protocols for Sensor Networks
6	February 28, 2011	Reading Assignments 1
7	March 5, 2011	Reading Assignments 2
8	March 7, 2011	Network Bootstrapping and Clustering
9	March 12, 2011	Reading Assignments 3
10	March 19, 2011	Reading Assignments 4
11	March 21, 2011	Routing and Data Aggregation
12	March 26, 2011	Reading Assignments 5
13	March 28, 2011	Localization
14	April 2, 2011	Invited Speaker
15	April 4, 2011	Project proposal presentation
16	April 14, 2011	Project proposal presentation
17	April 16, 2011	Cross-layer design
18	April 18, 2011	TinyOS and ns-2
19	April 23, 2011	Reading Assignments 6
20	April 25, 2011	Reading Assignments 7
21	April 30, 2011	Reading Assignments 8
22	May 2, 2011	Reading Assignments 9
23	May 7, 2011	Reading Assignments 10
24	May 9, 2011	Invited Speaker
25	May 14, 2011	Project Presentations
26	May 16, 2011	Project Presentations
27	May 21, 2011	Project Presentations
28	May 23, 2011	Project Presentations
29	May 28, 2011	Project Presentations
30	May 30, 2011	Discussion