TC 462a
Wireless Networks and Applications

COURSE INFORMATION

Professor: Dan J. Kim
Email: dankim@msu.edu (preferred contact method)
Phone: (517) 353-6712
Office: 402 Communication Arts & Sciences
Class Hours: Wednesday 3:00 – 4:50 PM
Class Room: Illinois Union Bldg
Office Hours: Monday and Thursday 1:30 - 3:00 PM (or by appointment)
Course Web Site: http://angel.msu.edu

Teaching Assistant: Nala KOK SREY
Email: koksreyn@msu.edu
Phone: (517)
Office: xxx Communication Arts & Sciences
Lab Hours: Wednesday 3:00 – 4:50 PM
Lab Room: 337 Case Hall
Office Hours: 2:30p-3:30p Tuesday and Thursday (e-mail if you need help)

Required Textbook:

- Umar, A., "Mobile Computing and Wireless Communications: Applications, Networks, Platforms, Architectures, and Security", NGE Solutions, July 2004

Prerequisites: TC361 – Data Communication. Concurrent registration is not allowed.

COURSE OBJECTIVES

Wireless technology (WT) has become the most exciting area in telecommunications and networking. This course provides students a general overview of the technical as well as business aspects of wireless technology and its applications in an increasingly competitive business world. Information Technology (IT) managers of the future must understand wireless communications fundamentals, wireless networks, and wireless applications to increase organizational effectiveness and create a strategic advantage. This class starts with a discussion of basic concepts, applications, and issues in the wireless technology area. Although the class will cover a number of technical issues, the general focus of this course is managerial. The course accomplishes this by:

- Reviewing an overview of the data and telecommunications
- Introducing basic concepts of mobile computing and wireless communications
- Discussing the wireless transmission techniques
- Introducing present and future wireless network applications
- Discussing and examining various mobile computing platforms such as WML (Wireless XML), WAP, i-mode, J3ME, BREW, and Mobile Internet Toolkit for wireless applications

GRADING

Grade Point (portion) Breakdown		Final Grade Assignment		Group Evaluation Grading	
Lab assignments	100	4.0	900 – 1000	Excellent	100%

Individual assignment	150
Group assignment and presentation	200
Quizzes (4*25)	100
Two exams	400
Instructor's assessment and participation	50
Total	1000

3.5	850	– 899
3.0	800	– 849
2.5	750	– 799
2.0	700	– 749
1.5	650	– 699
1.0	600	– 649
0.0	0	– 599

Good	85%
Fair	75%
Poor	50%

Labs:
Labs will be held in PC Lab rm. 337 Case Hall on Monday from 3:00 – 4:50 with the teaching assistant. Before coming to each lab each week, you should access the class website and familiarize yourself with that weeks topic, and read the designated material. You may want to have a printout of that weeks exercise before arriving to lab. Upon the start of each lab period, an overview of the material will be given, with a short question and answer session. Then, the lab exercise will be completed in class and handed in before you leave. Some of the lab topics may also have homework to be turned in at the start of the next lab.

Lab Assignments:
There are several lab assignments that are designed to help reinforce the material that has been covered in the lecture. Late assignments are penalized at a rate of 25% per day late.

Individual Project: Survey on Innovative/Interesting Wireless Applications

You can individually survey the literature to find an innovative and interesting wireless (mobile) applications or systems. The details of project description and evaluation criterion will be given in class.

Group Project: Wireless Network Design
You can work in team to design wireless network for XYZCorp and present your output with acceptable justification to the rest of the class. The project will be evaluated by other classmates based on your group presentation. Final reports should be written in HTML, and, when printed, should be not exceed 10 pages long. To submit the report, just e-mail the URL of your HTML page to the TA. All reports will be linked into the course website. Further details will be given in class.

Group Evaluations Grade Adjustment Policy:
Group evaluations will be conducted at the end of the semester to ensure all group members equal participate. To avoid a poor project grade due to a low peer evaluation, you are encouraged to:

- keep in touch with your team members (hint: use the phone if they don't reply to email)
- attend all team meetings; if you are not able to attend a team meeting, let your team know in advance
- complete all the negotiated and assigned project work
- find out if your team members have any concerns about your performance
- see the instructor immediately (not a week before the project is due) if problems among members can not be resolved
- work as a team!
- For privacy reasons group evaluations submitted to the instructor are confidential thus students will not be able to see evaluations submitted by other students. There is no need to worry about retaliation.

Quizzes
There will be six 10-minute quizzes given in lecture classes randomly. Topics will be those covered most recently from lecture and lab class. Your two lowest-scoring quiz grades will be dropped. In other words, only 4 quizzes will be counted for your grade.

Exams:
There will be two exams, one midterm and one final. The midterm exam will be administered during the course. The final will be given during finals week. The exams will be closed book and closed note. Makeup exam policy will follow the established University Policy.

TENTATIVE COURSE SCHEDULE

Week	Date	Day	Lab/Recitation	Lecture	Reading Assignment	Assignments (Dates Due)
1	8/30	Mon	Introduction Course			
	9/1	Wed		Overview and the Big Picture	Ch.2	
2	9/6	Mon	Labor Day - No Class			
	9/8	Wed		Ch.2 Mobile Computing Applications to Support M-Business and M-Government	Ch.3	Intro. to Individual Project (Survey on wireless applications : **Due by 10/13**)
3	9/13	Mon	Introduction to wireless network elements and setting up network			
	9/15	Wed		Ch.3 Wireless Internet, Mobile IP, and the Wireless Web	Ch.4	
4	9/20	Mon	In-class Assignment 1			
	9/22	Wed		Ch.4 Mobile Computing Platforms, Wireless Middleware, WAP, i-mode, VoiceXML	Ch.5	
5	9/27	Mon	HTML/XHTML			
	9/29	Wed		Ch.5 Wireless Network Principles	Ch.6	Intro. To Group Project (Wireless Network Design: **Due by 11/29)**
6	10/4	Mon	XML1/XML2			
	10/6	Wed		Ch.6 Wireless LANs and IEEE 802.11 LANs	Ch.7	
7	10/11	Mon	In-class Assignment 2			
	10/13	Wed		Ch.7 WPANs, Bluetooth, UWB, Sensor Networks	Ch.8	Individual Project Due
8	10/18	Mon	**Mid-Term Exam**			
	10/20	Wed				
9	10/25	Mon	XML3/XML4			
	10/27	Wed		Ch.8 Cellular Networks	Ch.9	
10	11/1	Mon	WML1/WML2			
	11/3	Wed		Ch.9 Fixed Wireless Networks, Wireless Local Loops (WLLs), Satellite Communications	Ch.10	
11	11/8	Mon	In-class Assignment 3			
	11/10	Wed		Ch.10 Emerging Wireless Networks: UWB, FSO, MANET, and Flash OFDM	Ch.11	
12	11/15	Mon	WAP1/WAP2			
	11/17	Wed		Ch. 11 Integrated Wireless Architectures and Traffic Engineering	Ch.12 & Ch.13	

13	11/22 11/24	Mon Wed	WAP3/WAP4	Ch. 12 Wireless Security & Ch. 13 Wireless Management and Support		
14	11/25 11/29	Mon Wed	In-class Assignment 4	Group Presentation (1,2,3,4)		Group Project Due
15	12/1 12/6	Mon Wed	Group Presentation (5,6,7,8)	Group Presentation (9,10,11,12)		
	12/8	Tue	**Final Exam**			

Note: 1) The schedule and course outline are subject to change, depending on class pace and needs. The instructor reserves the rights to make any changes needed. 2) Sep. 3 and Oct. 19 is the last day to "Add" and "Withdraw from" the course, respectively. 3) According to University Regulations, a grade of Incomplete can only be given if the student is currently passing the course. This is only given when circumstances prevent you from completing the semester. Incomplete grades will not be given once the student has taken the final exam.

ACADEMIC INTEGRITY

The standards of academic integrity of the Michigan State University and the College of Communication Arts & Sciences will be strictly enforced. Please refer to the undergraduate handbook for details. Students cannot use any assignments that have been part of earlier sections of the course. Cheating will not be tolerated. Students found cheating will receive a grade of 0.0 for the course and subject to further disciplinary action by the College of Communication Arts & Sciences or the Michigan State University.