EENG 5820 Wireless Communications

Spring 2009
Monday, 4:00 – 6:50 PM
Classroom: DP B217

Instructor: Dr. Shengli Fu
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Office Hours: Tuesday & Thursday from 2:30 to 3:30 pm or by appointment

Course Description

This course introduces fundamental theory and design of modern wireless communication systems. Topics include 2G and 3G wireless standards, cellular communications, mobile radio propagation, multipath fading channel characterization, channel equalization, and multiple access technique for wireless communications. The goal of this course is to provide the students insight into technical issues associated with wireless communications.

Textbooks

- *Required*:
  - Theodore S. Rappaport, *Wireless Communications: Principles and Practice*, ISBN-10: 0130422320, Prentice Hall, Second Edition.
- *Reference*:
  - John G. Proakis, *Digital Communications*, ISBN-10: 0072321113, McGraw-Hill, Fourth Edition.
  - David Tse and Pramod Viswanath, *Fundamentals of Wireless Communication*, ISBN-10: 0521845270, Cambridge University Press, First Edition.

Prerequisites

- Signals and systems
- Probability theory and random process
- Digital communication principles

Grading Policies

Homework: 15% (NOT be accepted if late)
Mid-term: 25%
Final Exam: 30%
Project: 30%

General Comments

- You are expected to attend every lecture and responsible for announcements made in lecture, on the student access website, or via the class email list.

- Students are encouraged to discuss class material and homework in order to better understand concepts. However, all the homework you submit must be of your own. Homework assignments are to be turned in during class on the due date.
- Any request for "make-up" tests (midterm or final) will be subjected to university policy.
- Please turn off your cell phone during lecture. No food and drink in all classrooms and labs.
- It is the responsibility of students with certified disabilities to provide the instructor with appropriate documentation from the Dean of Students Office (see http://www.unt.edu/oda).

Class Schedule (tentative)

Week	Date	Topics	Reading
1	Jan. 26	Wireless communication systems, Introduction, 2G and 3G wireless standards	Ch.1, Ch. 2
2	Feb. 2	Cellular concept	Ch. 3.1 – 3.5
3	Feb. 9	Cellular concept (cont.)	Ch. 3.6 – 3.7
4	Feb. 16	Large scale path loss	Ch. 4.1 – 4.6
5	Feb. 23	Large scale path loss (cont.)	Ch. 4.7 – 4.11
6	Mar. 2	Small-scale fading and multi-path	Ch. 5.1 – 5.4
7	Mar. 9	Small-scale fading and multi-path (cont.)	Ch. 5.5 – 5.7
8	Mar. 16	*Spring Vacation, University Closed*	
9	Mar. 23	**Midterm**	
10	Mar. 30	Equalization	Ch. 7.1 – 7.6
11	Mar. 24	Equalization (cont.)	Ch. 7.7 – 7.8
12	Apr. 6	Multiple access techniques	Ch. 9.1 – 9.5
13	Apr. 13	Multiple access techniques (cont.)	Ch. 9.6 - 9.7
14	Apr. 20	Wireless networking	Ch. 10
15	Apr. 27	**Project Presentation**	
16	May 4		
17	May 11	**Final Exam**	