EEL 6503
Spread Spectrum and Code Division Multiple Access
(Spring 2007)

INSTRUCTOR  
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CLASS WEB SITE  
http://www.yang.ece.ufl.edu/teaching/eel6503s07.htm

CLASS MEETINGS  
MWF 3:00pm–3:50pm, NEB 201

OFFICE HOURS  
M 4:00pm–5:00pm, W 2:00pm-3:00pm

PREREQUISITES  
Probability and random processes (EEL 5544 or equivalent)  
Digital communications (EEL 6535 or equivalent)

TEXTBOOK  

REFERENCE BOOKS  

COURSE OBJECTIVES  
This course is intended to provide an introduction to spread spectrum fundamentals and a survey of spread spectrum techniques and applications in established cellular systems as well as recent advances in the context of wireless networks. Investigation and research in this area will be encouraged and facilitated via the course project.

COURSE TOPICS  
1. Spread spectrum techniques - direct sequence, frequency hopping, time hopping, and multi-carrier systems
2. Spreading sequences - correlation functions, linear feedback shift register, M-sequences, Gold sequences
3. Communicating through fading channels
4. Code acquisition and tracking loops
5. Multiple access - multi-user interference and multi-user detection
6. Applications - code division multiple access (CDMA), multi-carrier CDMA, ultra-wideband (UWB) systems, mobile communications and wireless networks

GRADING
- 20% Homework, 40% Midterm exam, 40% Course project
- No extra work will be accepted for improving the final grade

COURSE POLICIES

Attendance: Regular attendance is strongly encouraged. Students are responsible for all assignments and announcements made in class, and all material covered in class, whether or not it is in the textbook. Students are personally responsible for all information disseminated during lectures, including homework assignments and due dates, exam dates, course material etc. Please check the class web site, WebCT Vista and your GatorLink email account regularly for announcements and homework assignments.

Homework: Collaboration on homework is permitted unless explicitly prohibited, provided that: 1) collaboration is restricted to students currently in this class; 2) each student must have his/her own contribution and write up his/her homework independently; and 3) on problems involving programming, each student must independently implement every piece of the program(s). Direct copying of another student’s solution will be considered plagiarism and a violation of the University Honor Code.

Each homework assignment is due at the beginning of the class on the due date. In general, late submission will NOT be accepted. Extraordinary cases will be considered on an individual basis and must be discussed with the instructor before the due date of the assignment.

Midterm Exam: A midterm exam will be held on Mar 7, 2007 (tentative). The exam will be closed-book and closed-note. But two (2) single-sided 8.5in×11in handwritten study sheets are allowed. Disputes in exam grading should be addressed in writing to the instructor within one week from the date the exam is returned to the class. Changes in the exam grade are solely at the discretion of the instructor.

Make-Up Policy: If, in the event of extraordinary circumstances, a student has to miss an exam, the student has to seek prior approval of the instructor with a legitimate excuse, accompanied by some documentation from either a medical doctor or an attorney. Notes from family members are not acceptable. Make-up exams will be arranged only for properly authorized absences.

Course Project: Each student is required to submit an initial proposal, a preliminary report and a final report (all in written form) for his/her individual project. Detailed guidance will be provided.
**Integrity and Honesty:** Cheating of any kind is extremely serious and may result in an ‘E’ grade and other consequences. Please refer to the Student Honor Code at http://www.sg.ufl.edu/branches/judicial/honorcode.aspx, and consult Student Judicial Affairs web sites http://www.dso.ufl.edu/judicial/ for the Academic Honesty Guidelines and various policies.

**ADA Statement:** Students with disabilities are encouraged to register with the Office for Student Services to determine the appropriate classroom accommodations. Any student with verification of a disability should contact the instructor as soon as possible, and will be accommodated in an appropriate manner.