COURSE SYLLABUS

(1) Course Details:

Instructor: Professor Vijaya Kumar, HH B208, kumar@ece.cmu.edu, X8-3026

Secretary: Marlene Layton, HH A305, marlene@ece.cmu.edu, X8-3896

Teaching Assistants: Mehmet Keskinöz, HH A307, mehmet@andrew.cmu.edu, x8-3277
Steven Ives, ives+@andrew.cmu.edu

Class Hours: Monday and Wednesday, 9:30 am - 11:20 pm

Class Room: Porter Hall 125C

Office Hours: Monday/Wednesday: 1:00 pm - 2:00 pm (Kumar)
Tuesday/Thursday: 9:30 am - 10:30am (Keskinoz)
Monday: 3:00 pm - 5:00 pm (Ives; in room HH-A306)


Web Page: http://www.ece.cmu.edu/~ee550

Discussion Group: cmu.ece.class.ee550

Prerequisites: 18-396 or an equivalent signals and systems course and 36-217 or an equivalent probability theory, random variables course.

Handouts: Extra handouts will be placed in the metal cabinet outside the secretary's office (HH-A305). Handouts will also be available on the course home page. Unclaimed homework solutions will be placed in the cabinet whereas unclaimed tests must be picked up from the instructor.

(2) Course Objective:

The goal of this course is to introduce the students to some fundamental concepts associated with digital communications. These concepts will prove applicable in a variety of applications including wireless communications, satellite communications and data storage channels.

(3) Course Topics:

Chapters listed below refer to chapters in the textbook by Sklar.

- Introduction, background (Chapter 1, 3 lectures)
- Formatting and baseband transmission (Chapter 2, 4 lectures)
• Bandpass modulation and demodulation (Chapter 3, 5 lectures)
• Channel coding (Chapters 5 and 6, 6 lectures)
• Modulation and coding trade-offs (Chapter 7, 3 lectures)
• Synchronization overview (Chapter 8, 1 lecture)
• Multiaccess overview (Chapter 9, 1 lecture)

(4) Homework Assignments:
Nine homework assignments are being planned and the best 7 scores out of these 9 will be considered for the final grade. The course calendar lists the dates on which homework assignments will be given and when they will be due. Homework assignments are due at the start of the lectures and no late homework will be accepted. Collaborating on specific homework assignment problems is considered cheating. Some homework problems may require the use of MATLAB and it is assumed that you have access to MATLAB. If this is not the case, please contact the instructor immediately.

(5) Examinations:
There will be three mid-term examinations. Mid-term test #1 will be during the class time on 09/22/99 and will cover chapters 1 and 2. Mid-term test #2 will be during the class time on 10/27/99 and will cover chapters 3 and 5. Finally, mid-term test #3 will be during the class time on 12/01/99 and will cover chapters 6, 7, 8 and 9. No makeup exams or makeup work will be available except in cases of medical emergencies. Please arrange your other commitments not to conflict with the mid-term test dates.

All mid-term tests will be open-book, i.e., use of the text book, class handouts and your personal lecture notes will be allowed during the test. Each test will be designed for a duration of 1 hour and 50 minutes. Any questions regarding the grading of homeworks and tests should be brought to our attention within one week.

(6) Grading Policy:
Vague, incomplete and unjustified answers will receive considerably reduced credit. The final course grade will be based on the following components:

- Homework assignments: 25%
- 3 Mid-term tests: 25% each

Final grade will be based on the following thresholds.

A: > 85%
B: > 70%, but < 85%
C: > 60%, but < 70%
D: > 50%, but < 60%
R: < 50%

(7) Cheating:
Cheating will be dealt with seriously. Collaborating on specific HW problems or copying someone else’s solutions are examples of cheating. Students caught cheating will be disciplined according to CMU policy.