University of California, Berkeley
Department of Electrical Engineering and Computer Sciences
EE123: DIGITAL SIGNAL PROCESSING

INFORMATION SHEET **Fall 2005**

Lectures:
Wednesdays and Fridays: 9:30 am – 11:00 pm
203 McLaughlin

Lecturer:
Professor A. Zakhor
avz@eecs.berkeley.edu
507 Cory Hall
ext. 3-6777

Prof. Office Hours: Fridays, 11:00 pm – 12:00 pm and by appointment.

Teaching Assistant:
Pierre Garrigues
garrigue@eecs.berkeley.edu

Office Hours: Tuesdays, 2:00 – 3:30 pm and Mondays, 5:00 – 6:30 pm in 479 Cory.

Discussion Section:
Tuesdays, 1:00 – 2:00 pm and Mondays, 4:00 – 5:00 pm in 293 Cory.

Course Administrative Assistant:
Rosita Alvarez
253 Cory Hall
ext. 3-4976

Course Handouts:
Handouts not picked up during lectures can be found on the course web site, http://www-inst.eecs.berkeley.edu/~ee123, and graded problem sets can be picked up in 253 Cory from Rosita Alvarez.

Prerequisite: EE120, graduate standing, or consent of the instructor.

Text:
A. V. Oppenheim and R. W. Schafer, "**Discrete Time Signal Processing**", Prentice Hall, 1989. (required)

Outline of Topics:

1. Fast review of LTI systems, DTFT, sampling.
2. Multirate signal processing, Bilateral Z Transform.
3. Discrete Fourier transform, Fast Fourier Transform.
4. Quantization, finite word length effects
5. FIR and IIR filter design techniques;
6. Filter banks, Wavelets
7. Applications: speech and video processing.

Homework:

1. Problem sets will be issued approximately once a week. They will contain Matlab problems. Problem sets are due in class, either on Wednesday or Friday, at the beginning of the class.
2. Matlab runs on the instructional computers in Cory, which include UNIX, Windows and MacOSX. You need a 'named' account to use the instructional computers. Students can use the computer labs in 199, 105, and 119 Cory. Most students already have computer accounts that work in those labs.

   How to get a 'named' account: http://inst.eecs.berkeley.edu/connecting.html#accounts
   (go to 199 Cory, login as "newacct" with password "newacct")

   Where the labs are: http://inst.eecs.berkeley.edu/~inst/iesglabs.html

   How to start Matlab: http://inst.eecs.berkeley.edu/cgi-bin/pub.cgi?file=matlab.help
3. Problem Sets handed in late will not be accepted unless consent is obtained from the teaching staff prior to the due date.
4. Some lectures might move from Wednesday or Friday to Monday from 9:30 – 11:00. This will be done with advance notice. Please make sure that you either attend Monday 9:30 to 11:00 classes, or watch the video tapes of the lecture. The course is digitally recorded, webcast, and stored to be viewed on line. Look up the URL address for the video's on the class web page. The video lectures for EE123 for Fall 2003 are going to be located at:
   http://www-video.eecs.berkeley.edu/~avz/video_lectures.html
5. Pdf version of the lecture notes will be on line at the class web page by the end of the day on which the lecture was given.

Midterms: (Date is tentative)
In class, Oct. 21st, Dec. 9th.

Grade:
Homework: 20 percent
Midterm : 40 percent
Midterm : 40 percent