Electrical Engineering Department
Cal Poly State University

Course: EE 419/459 - Digital Signal Processing (3 Units Lecture, 1 Lab)
Prerequisite: EE 328 and CSC 204

Term: Winter 2002, Section 1
Lecture: MWF 12:10-1:00, in 52-E45
Lab: 20-135,
Open Lab M-F!
Consulting w/ DePiero and Greg Fryer R9, R10, F10

Instructor: Fred DePiero, Associate Professor
fdepiero@calpoly.edu  www.ee.calpoly.edu/~fdepiero/

Office Location: 20-203
Hours: M2, W2, R11, R12, F4, or by appointment (subject to change).
Phone: 756-2917


References: Lecture Notes for Signals and Systems, Nahvi.


EVM User and Reference Manuals, Texas Instruments. Manuals are available in the lab.

User Manual for Student Edition of MatLab. This software package is in the lab, as are portions of the user manual. You may want to get the student edition for yourself; it will be helpful for homework and labs. MatLab is available at the bookstore.

Student Edition of DADisp. This software package is installed in the lab. You are encouraged to install it on a PC that is convenient for you to use. It is available for free at www.dadisp.com. User manual is available in the lab.

www.ee.calpoly.edu/~fdepiero/ Extensive materials are posted for reading assignments, homework and labs.
Topics
1) Introduction
2) Review and Applications of Sampling, A/D, D/A, DTFT, DFT and FFT, Frequency
   Response and Z Transforms. Filter design by pole/zero placement.
3) Design of FIR Filters – by Windowing and Frequency Sampling
4) Ideal vs. Practical Filters
5) Programming Digital Signal Processors
6) Design of IIR Filters – Bilinear Transformation
7) Digital Filter Structures
8) Spectral Estimation

Grades: will be determined using the following weighting:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tr>
<td>Homework and Lab Experiments</td>
<td>15%</td>
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<tr>
<td>2 Midterms (1 hour each, 25% each)</td>
<td>50%</td>
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<tr>
<td>Final Project</td>
<td>5%</td>
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<td>Final</td>
<td>30%</td>
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<td>100%</td>
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Final grades will be assigned using a 'straight scale':

... 80 <= B- < 83 <= B < 87 <= B+ < 90 <= A- < 93 <= A <= 100

Activities and grading for the lecture and lab are combined. Students will receive the same
grade for both lecture and lab.

Lab experiments may be modified somewhat, compared to the presentation in the lab
manual - check web pages weekly for updates. Students may work in groups of 2-3 for
both the lab work and the homework.

Course announcements will occasionally be sent out via the class email alias.

A portion of the grading will be judged on a competitive basis - for example, on the Final
Project and labs. Grades for these items will be assigned based on relative effort, creative
approach, quality of results, and professional reporting.

Exams will cover all lecture material, the assigned homework and lab work.

Policies:
(1) Students are encouraged to participate in class discussions.
(2) Students are responsible for all lecture and lab materials and all handouts.
(3) Students are responsible for material covered in any missed classes.
(4) Assignments are due at the beginning of class on the due date.
(5) Grades for assignments that are turned in late are reduced 50% / day.

One assignment may be turned in late without penalty.