Course Syllabus

ECE 148 Applications of Signal Analysis and Processing (Elective) 4 units

Catalog Description:
A sequence of engineering applications of signal analysis and processing techniques; in communications, image processing, analog and digital filter design, signal detection and parameter estimation, holography and tomography, Fourier optics, and microwave and acoustic sensing.

Prerequisites:
ECE 130A-B with a minimum grade of C-.

Text, References, and Software:


Course-notes and handouts available on class webpage.

Topics Covered and Course Goals:
1. Illustrate fundamental (and often abstract) signal processing concepts through exposure to concrete application examples from communications, optical and other imaging systems, signal compression, analog and digital filter design, signal detection and parameter estimation.
2. Develop proficiency with a high-level programming language (Matlab) for prototyping signal processing algorithms.
3. Develop ability to solve practical problems via concrete and hands-on bi-weekly projects.
4. Develop ability to write technical reports and communicate algorithm designs and performance in a concise yet precise manner.

Class/Laboratory Hours:
Lecture 3 hours, Discussion 1 hour (Alternating bi-weekly projects and homeworks)

Contribution to Criterion 5
Contributes to the one and one-half year of engineering topics, primarily engineering Sciences, by providing a bridge between mathematics and basic sciences on the one hand and engineering practice on the other.
Contribution to Program Outcomes:

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Prepared by: Michael Liebling
Date: 4/25/2008