

LEHIGH UNIVERSITY
Department of Civil & Environmental Engineering

CEE354/454: Sensors, Signals and Systems Spring Semester, 2013

Instructor: Shamim Pakzad

Class Time and Location: Tuesday & Thursday 1:00-2:20 PM, at B-101 Imbt Lab

Office Hours: TBD

Textbooks:

- *Signals and Systems using MATLAB*, by Chaparro, (Academic Press)
- *Discrete-Time Signal Processing* by Oppenheim and Schaffer, Third Edition (Prentice Hall) (Suggested)
- *Signal Processing using Matlab 5* by McClellan et al. (Prentice Hall) (Suggested)
- *Structure and Interpretation of Signals and Systems* by Lee and Varaiya. A republication version can be downloaded at:
http://ptolemy.eecs.berkeley.edu/~eal/books/LeeVaraiya_SigSys_Prepub.pdf

Prerequisites: Consent of instructor

Conduct of Course

Problems: Approximately 8 sets of homework problems will be assigned during the semester. Problem solutions must be submitted on 8 1/2 x 11 in. engineering computation paper, stapled at the upper left corner and the student's name should appear on each page. Principal results must be clearly identified. The units used must be those of the problem statement. Untidy solutions will not be accepted.

When MATLAB is used to solve a problem, only significant, easily interpreted parts of the computer output should be included in the problem solution.

Late assignments will not be accepted.

Examinations: One midterm of 75 minutes duration and a final exam of three hours duration will be scheduled. One page of formulas and equations is permitted as reference in the final exam, and one side of one page for the midterm exam.

8- Spectral Analysis, System Identification <ul style="list-style-type: none"> a. Stationary Processes b. Power Spectral Density, Periodogram c. Spectral Analysis using Auto-Correlation d. Frequency Leakage, Windowing 	
9- Piezoelectricity, Actuation, and Sensor Properties <ul style="list-style-type: none"> a. Piezoelectric Materials, Poling b. Actuator Structure Interaction c. Piezoelectric Sensors; Compression, Flexure and Shear Accelerometers d. Measurement Parameters 	

Key to grades:

- A, A- Excellent
- B+, B, B- Good
- C+, C Competent
- C- Continuation competency
- D+, D, D- Passing
- F Failure

Accommodations for Students with Disabilities: If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center 212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Academic integrity: There is a zero-tolerance policy for any violation of academic integrity. It is expected that each student will do the homework assignments and other course-related projects independently. Collaboration in the preliminary stages of each problem is permitted and encouraged. Each student assumes responsibility for every assignment or examination that he/she submits.