ME 360: Signal Processing
Spring 2015

Section AL1
MWF 2-2:50pm
135 Mech. Eng. Bldg.

Instructor: Prof. P.G. Mehta
Office: 332E MEB and 359 CSL
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Office Hours: F 3:00-5:00pm, or by appointment
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Teaching Assistants:
Jon Hoff (jehoff2@illinois.edu) Office Hours: M 10-11am, Tu 9-10am, Th 9-10am. Location: 1318 MEL
Jingwei Zhu (jzhu50@illinois.edu) Office Hours: Tu 3-5pm. Location: 1318 MEL

Grader:
Bofan Shi (bshi5@illinois.edu)

Course Website: http://compass2g.illinois.edu

Text: Ambardar, Analog and Digital Signal Processing, 2nd Ed., 1999.

Reference Texts: Cochin and Cadwallender, Analysis and Design of Dynamic Systems, 3rd Ed, 1997, *or any other dynamic systems analysis text.*

Prerequisite: ME 340: Modeling and Analysis of Dynamic Systems (or equivalent)

Grading Policy:

Homework	30%	
Lab	15%	
Exam 1	10%	Feb 20, 2-2:50PM, 135MEB
Exam 2	10%	Mar 20, 2-2:50PM, 135MEB
Exam 3	10%	Apr 17, 2-2:50PM, 135MEB
Final Exam	25%	TBA

Homework Assignments

There will be 12 homework assignments during the course. The homework will be assigned each Wednesday that does not have a test on the following week and is due at the beginning of class on Friday of the following week. The lowest 2 homework grades will be dropped. No late homework will be accepted.

Each homework will consist of 4 problems, each worth a maximum of 25 points. Homework submission guidelines are as follows:

1. Use a new page for each problem.
2. Please clearly write your name and section number.

Examinations

Midterm examinations are given on Friday during the class time.

Requests for a conflict or make-up examination will be individually evaluated. Only requests that, in the instructor's opinion, are fully justified (i.e., with the appropriate written documentation) will be granted.

Students can ONLY request a re-grading of their exams within the first 48 hours of receipt of their exam. Note that re-graded exams may potentially receive a lower grade, if applicable.

Laboratory Assignments

You should be enrolled in one of the eight scheduled lab sections. Seven weeks of laboratory sessions will be held during the semester per the following schedule:

Lab 1:	Week of February 2…….	3073 ECEB
Lab 2:	Week of February 16……...	3073 ECEB
Lab 3:	Week of March 2……	3073 ECEB
Lab 4:	Week of March 16……...	3073 ECEB
Lab 5:	Week of April 6……	3073 ECEB
Lab 6:	Week of April 20……...	3073 ECEB
Lab 7:	Week of April 27……..……	1223 MEL

The lab website can be found at: http://coecsl.ece.uiuc.edu/me360/

The pre-lab must be completed and turned in at the beginning of the session. A laboratory report consisting of the original data sheets and written answers to the discussion questions is due one week (excluding vacation periods) after each laboratory session. A passing grade for each of the seven laboratories is required to receive a passing grade in the course.

Grading Scheme

The final grade distribution for the course will be as follows:

%	Grade
90 or above	A- is guaranteed
80-89	B- is guaranteed
70-79	C- is guaranteed
60-69	D- is guaranteed
< 60	F

Course Policy

1. Please show respect for your classmates by limiting distractive behavior. Turn your cell phones off during class and please keep any side discussions short and quiet.
2. No use of any electronic devices (e.g., video or audio) will be permitted during class.
3. You are expected to adhere to all of the rules pertaining to academic integrity outlined in the UIUC Student Code (http://www.admin.uiuc.edu/policy/code/). Failure to do so will result in an automatic F for the course.
4. It is expected that each student will be courteous and respectful to all members of the class and will carry his or herself in an orderly manner for the entire duration of the course as outlined in the Student Code (http://www.admin.uiuc.edu/policy/code/).
5. Regular class attendance and punctuality are expected.

Tentative Course Outline

1. Course overview
2. Signal analysis – Analog and digital signals, energy and power signals, harmonic signals, signal operations, spectrum
3. Effects of sampling – Sampling, aliasing, Nyquist frequency, folding
4. Systems analysis – Analog and discrete systems, Laplace and Z transforms, impulse response, convolution, stability, causality
5. Fourier analysis – Fourier series, Fourier transformation
6. Applications: Filter design, networks, sensors
7. Introduction to feedback control – Feedback, closed-loop stability, PID controller design

Special Accommodations

If you have any condition, such as a physical or learning disability, which will make it difficult for you to carry out the work as it has been outlined or which will require special accommodations, please notify the instructor during the first week of the course with the appropriate written documentation.