

**ECE-300 Signals and Systems  
Winter 2006-2007**

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**Text:** *Fundamentals of Signals and Systems* by Kamen and Heck, third edition, Prentice-Hall, 2006.

**GRADING POLICY**

(3) Exams	12% each
(Cumulative) Final Exam	29%
Labs	10%
Lab Practical	10%
Homework	10%
Matlab/Prelab work	5%

**Notes:**

- (1) In general, you must have a passing average (greater than or equal to 60%) on the exams to pass the class.
- (2) Homework assignments are **due at 12:40 PM on Tuesday** No late homework will be accepted without prior approval.
- (3) You must acceptably complete each lab to pass the class.
- (4) Prelabs will be part of your homework assignment. Each person in the lab group is to do the prelab problems.
- (5) You are expected to do your own work. You can certainly talk with each other and help each other, but the work you hand in should be your own. As an example, if two people hand in the same Matlab and both came from the same directory, neither will receive any points!
- (6) Unless specifically told otherwise on a particular problem, you are expected to work out the problem by hand (or use Matlab). *If you write on your assignment that you used Maple and are copying the answer, expect to get no points.* You can use Maple to check your answers. You cannot turn in any Maple code or plot as part of the solution to a problem.

**Labs:**

A portion of your course grade (25%) is derived from your work in the laboratory exercises chosen to enhance the lecture material and your learning. You must want to participate to learn this material, and you will be rewarded for your work. **PASS NOTHING UP** -- that is the only way to truly learn. **DO NOT** let your lab partner do the work for you.

Your primary means of recording your work for the laboratory is by means of a worksheet or memo. Some labs will be done individually, some will be done with a lab partner.

- 1) Each lab is worth 10 points.
- 2) Labs are due at the end of your lab period.
- 3) Each lab will have three components entered into the lab notebook:
  - Prelab Exercises
  - Lab setup diagram
  - Lab results and instructor checkoffs
- 4) Your grade in the laboratory is determined by your lab work and your lab practical.
- 5) You will only be allowed to bring your lab assignments and laptop to the lab practical-  
- it is to your advantage to keep well maintained lab notebooks and make sure any software used or developed in lab is on both partners' laptops.

## SYLLABUS

Class 1 (11/27) – Step, ramp, and impulse functions

Class 2 (11/28) – Periodic signals

*Lab 1 - Concept Inventory Exam, Introduction to Matlab*

Class 3 (11/30) – Power and energy signals

Class 4 (12/4) – System properties

Class 5 (12/5) - System properties

*Lab 2 - Matlab scripts and functions*

Class 6 (12/7) - Impulse Response

Class 7 (12/11) – Convolution Properties

Class 8 (12/12) – Convolution

*Lab 3 – Transistor Lab*

Class 9 (12/14) – Convolution

Class 10 (12/18) – Fourier Series

Class 11 (12/19) – Fourier Series

*Lab 4 – System impulse and step response*

Class 12 (12/21) – **Exam 1**

Class 13 (1/8) – Spectra

Class 14 (1/9) – Properties of Fourier Series

*Lab 5 – Periodic signals as system inputs*

Class 15 (1/11) – Response of systems to periodic inputs

Class 16 (1/15) – Parseval's Theorem

Class 17 (1/16) – Fourier Transforms

*Lab 6 – Measurement of Fourier Coefficients*

Class 18 (1/18) – Fourier Transform properties

Class 19 (1/22) – Fourier Transform properties

Class 20 (1/23) – Fourier Transform properties

*Lab 7 – Signal Spectra*

Class 21 (1/25) – **Exam 2**

Class 22 (1/29) – Fourier Transform properties

Class 23 (1/30) – Fourier Transform Tables

*Lab 8 – Audio Signals*

Class 24 (2/1) – Response of systems to aperiodic inputs

Class 25 (2/5) - Response of a system to aperiodic inputs

Class 26 (2/6) - Analysis of ideal filters

*Lab 9 – Filter Design*

Class 27 (2/8) – Real Filters

Class 28 (2/12) – Sampling

Class 29 (2/13) - **Exam 3**

*Lab 10 - Lab Practical*

Class 30 (2/15) - Sampling