ENEE 322 Fall 2013
SIGNAL AND SYSTEM THEORY
(0201, 0202, 0203)
Lecture: Tu Th 2:00–3:15pm, KEB 1110

Discussion Sections:

Wednesday 9:00–9:50am (0201) EGR 1102

Wednesday 10:00–10:50am (0202) EGR 3102

Wednesday 10:00–10:50am (0203) EGR 3114

(Discussion sections will not meet Wednesday, September 4)

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Teaching Assistants:

Sections 0201 and 0202

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Section 0203

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Text: Alan V. Oppenheim and Alan S. Willsky, *Signals & Systems*, Second Edition, Prentice Hall, 1997.

Class web site (syllabus, homework assignments, exam announcements, etc.)

`www.ece.umd.edu/~tretter`

Very interesting demos:

`www.jhu.edu/~signals/`

Exams and Homework

	Time	% of Grade
Exam 1	1/3 way through (Ch 1, 2)	25
Exam 2	2/3 way through (Ch 3, 4)	25
Final Exam	Thursday, December 19, 10:30am–12:30pm	40
Homework		10

Note: All exams are closed book.

Homework

- Homework problems related to the material just covered in class will be assigned each week.
- Homework assignments are due at the beginning of the next discussion section. Please fold your assignments the long way, put your name and section on the outside top, and put them on the TA's desk in the front of the classroom at the beginning of

class.

- Graded homeworks will be returned in the discussion sections and solutions will be discussed there.
- One of the best ways to learn signals and systems concepts is to thoroughly understand how to solve the homework problems.
  - The best approach is to try to solve them by yourself. There is no substitute for the mental struggle you will have to exert to solve these problems.
  - The next best approach is to work with your classmates.
  - In any case, do your best to do the homework assignments.

- **No late homework will be accepted. However, the two lowest scores will be dropped.**

COURSE OUTLINE

Chapter 1 Signals and Systems

- Continuous and Discrete-Time Signals
- Special signal types: exponentials, sinusoids, impulses, steps
- Continuous and Discrete-Time Systems
- Basic System Properties

Chapter 2 Linear Time-Invariant Systems

- The convolution sum for discrete-time systems

- The convolution integral for continuous-time systems
- Properties of linear time-invariant systems
- Systems described by differential and difference equations

Chapter 3 Fourier Series Representation of Periodic Signals

- Sinusoidal steady-state response
- Representation of periodic signals by trigonometric series (Fourier series)
- Properties of continuous-time Fourier series
- Continuous and discrete-time filtering

Chapter 4 The Continuous-Time Fourier Transform

- Definition of the Fourier transform and its inverse
- Properties of the transform
- The convolution and multiplication theorems

Chapter 7 Sampling (If time permits.)

- Uniform sampling
- The Sampling Theorem
- Aliasing
- Decimation and interpolation

Chapter 9 The Laplace Transform

- Definition
- Region of convergence

- Properties
- Analysis of LTI systems
- Solution of differential equations

Chapter 10 The z-Transform

- Definition
- Region of convergence
- Inversion
- Basic properties
- Solution of difference equations

Chapters 5, 6, 8 and 11 Selected Topics as Time Permits