

**ECE 317 Course Syllabus
Signals and Electronic Systems**

Summer 2005

Tuesday, 11:30 AM - 1:20 PM, 198 ELB

Thursday, 11:30 AM - 2:20 PM, 198 ELB

Instructor: Luke Reisner

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- Please include “ECE 317” somewhere in the subject

Office: 227 ELB

- Tuesday, 1:30 PM - 3:30 PM
- Wednesday, 4:00 PM - 6:00 PM

Textbook:

- C. Phillips, J. Parr, and E. Riskin, “Signals, Systems, and Transforms”, Third Edition, Prentice Hall, 2002. ISBN: 0-13-041207-4.

Additional Requirements:

- Access to a computer with the Camtasia video codec
- Access to a computer with Matlab and PSpice

Grading:

Item	Percentage
Labs and Project	20%
First Exam	20%
Second Exam	20%
Final Exam	40%

Lab Assignments and Project:

- Four lab assignments and one project will be assigned
- Done in groups of 1-3 students
- Require a written report

Exams:

- Two regular exams given during the semester
- One final exam given at the end of the semester
- Arrangements must be made well in advance if you cannot make an exam date

Homework Assignments:

- Given in-class or on the web site
- Not turned in or graded

Competency Tests:

- A prerequisite assessment test will be given at the beginning of the semester
- A proficiency test will be given near the end of the semester
- Both tests are pass/fail

Academic Integrity:

- The Honor Code must be followed for all assignments and tests. Cheating will not be tolerated. No person/group is permitted to share its work with other people/groups.

Course Overview:

- 1) Introduction to continuous-time signals
 - a) Representation
 - b) Basic signals
 - c) Classification of signals
 - d) Operations applied to signals
- 2) Introduction to systems:
 - a) Classification of systems
 - b) Description of linear time-invariant systems in the time domain
 - i) Differential equations
 - ii) Impulse response
- 3) Laplace transform with applications to signals and systems
 - a) Fundamentals
 - b) The Laplace transform of basic signals
 - c) Finding the Laplace transform of composite signals
 - d) Determining the inverse Laplace transform
 - e) Applications of the Laplace transform
 - i) Solving differential equations
 - ii) Analysis of LTI systems (transfer function, stability, time-response, etc.)
- 4) The Fourier analysis of signals and systems
 - a) The Fourier series analysis (periodic signals)
 - b) The Fourier transform (aperiodic signals)
 - c) Applications of the Fourier transform
- 5) Filter design and applications
 - a) Simple passive and active filters
 - b) Basic operations applied to filters
 - i) Frequency scaling
 - ii) Impedance scaling
- 6) Design of passive and active Butterworth filters
 - a) Lowpass
 - b) Highpass
 - c) Bandpass
 - d) Bandstop (notch)
- 7) Selected topics