EE 382 Analytical Methods for Continuous Time Systems-- Fall 2004

Instructor: Laurie L. Joiner 217B Engineering Building 824-6126
Office Hours: MW 3:00-4:00, TTh 4:00-5:00 email: ljoiner@ece.uah.edu

Textbook:

B. Lathi, *Signal Processing & Linear Systems.* Berkeley-Cambridge, 1998.

References:

H. Hsu, Schaum's Outlines Signals and Systems. McGraw-Hill, 1995.

C. Phillips and J. Parr, *Signals, Systems, and Transforms, 2nd ed*. Prentice Hall, 1995.

R. Ziemer, W. Tranter, and D. Fannin, *Signals and Systems, Continuous and Discrete, 4th ed*. Prentice Hall, 1998.

Grades will be based on:

Homework: 10%
Quizzes: 15%
Two in class exams: 40%
Final exam: 35%

Schedule of topics:

Signal and System Modeling Concepts
System Modeling and Analysis in the Time Domain
Fourier Series
Fourier Transform
Laplace Transform

Course objectives:

- Develop an understanding of the mathematical transform techniques to model the behavior of analog signal components.
- Formulate and solve engineering problems using transform techniques.

Attendance:

Advance notice will be given for class cancellations when possible. Students may leave after 15 minutes if no one shows up to teach a class. It is the responsibility of each student to make up deficiencies that result from missing classes. If an exam must be missed, the student must see the instructor and make arrangements in advance, unless an emergency makes this impossible. Approval for makeup exams is much more likely if the student is willing to take the exam early. A makeup exam will be different, and generally more difficult than the regular exam.

Prerequisite: EE 300 Electrical Circuit Analysis I

The College of Engineering requires that a grade of C or better be earned in each course that serves as a prerequisite to any course applied toward completing the BSE degree requirements. If a grade of less than C is received in a course taken at UAH which is a prerequisite course, the course must be repeated and a grade of

C or better earned BEFORE the student enrolls in the subsequent course. A student not satisfying this requirement will be suspended from the College. Only one repeat attempt or a total of two attempts is allowed in each of these prerequisite courses.

Late homework will be accepted a maximum of twice during the semester but with a 25% deduction. Homework will not be accepted after solutions are available.

The Final exam is Thursday, December 16 from 3:00-5:30 PM, and will be cumulative.

Class notes are located on the web at http://www.ece.uah.edu/~ljoiner/ee382
Please email me if there are problems with the notes.

Tentative Schedule

Aug. 31	Introduction to signals and systems, Classification of signals
Sep. 2	Signal operations
Sep. 7	Signal models
Sep. 9	Systems
Sep. 14	Time domain analysis of continuous time systems
Sep. 16	Unit impulse response
Sep. 21	Zero state response
Sep. 23	Stability
Sep. 28	Test 1
Sep. 30	Fourier Series
Oct. 5	Trigonometric and exponential Fourier series
Oct. 7	No class – Fall break
Oct. 12	Existence of Fourier series, spectra
Oct. 14	Parseval's theorem, response of LTI systems to periodic input
Oct. 19	Fourier transform
Oct. 21	Properties of the Fourier transform, system response
Oct. 26	Ideal filters, bandwidth
Oct. 28	Amplitude modulation
Nov. 2	Test 2
Nov. 4	Laplace transforms
Nov. 9	Inverse Laplace transforms
Nov. 11	Properties of the Laplace transform
Nov. 16	Solution of differential equations
Nov. 18	Circuit analysis
Nov. 23	Block diagrams, system realization
Nov. 25	No class – Thanksgiving
Nov. 30	Frequency response of LTI systems
Dec. 2	Bode plots
Dec. 7	Bode plots
Dec. 9	Review
Dec. 16	Final Exam: 3:00-5:30 PM