

SAN JOSE STATE UNIVERSITY
College of Engineering
DEPARTMENT OF ELECTRICAL ENGINEERING

EE210-1

Fall 2005

Linear System Theory

Course Description

EE210 is a required first graduate course in the time domain and transform analysis of discrete and continuous systems with deterministic and random inputs. The course materials basically include convolution and correlation, transform theory, two-sided transform techniques, state variable technique, and applications of system in electrical engineering. Topics listed below will be discussed in details and at advanced levels. Applications include circuit and filter design, robotic control, computer simulation, communication, speech and image processing.

- Classifications of signals and systems
- System impulse functions and transfer functions
- Convolution, deconvolution, and correlation
- Fourier series and Fourier transforms
- Laplace transforms
- Z-transforms
- Sampling theorems
- Basic filtering techniques and design
- Feedback stability and modulation system analysis
- State variable technique

Prerequisites

- Basic knowledge of signals, systems, transform (equivalent to the completion of EE112 with grades C or better)
- Familiar with the use of computer and MATLAB software

Instructor: Prof. Thuy T. Le

Office Hrs: Tuesday & Thursday: 20:15 – 21:45, ENGR369
Friday: 10:00 – 12:00 (and by appointment), ENGR369

Contact inf.: Email: thuyle@email.sjsu.edu, Phone: (408) 924-5708
Web: <http://www.engr.sjsu.edu/tle>

Note: If you need to communicate with me, please try to see me in person during the office hours. If you must send me an email, please clearly specify your full-name, course, section, etc. I will not respond to email that I do not know the author or emails that have no manners.

PLEASE DO NOT CONSUME FOOD IN THE CLASSROOM

Meetings: Tuesday & Thursday, 19:00 – 20:15

Required Lecture Notes

- *Linear System Theory*, Thuy T. Le
Maple Press – 481 E. San Carlos St. San Jose, CA 95112 (408) 297-1001
(Corner of San Carlos and 10th Street)
- Additional lecture notes will be distributed during the semester

Required Reference (for reading and homework assignments)

Signals and Systems, 2nd Edition, by Alan V. Oppenheim, Alan S. Willsky, and S. Hamid Nawab, Prentice Hall Publisher, 1997 (ISBN 0-13-814757-4)

This required text is good for undergraduate level and so students must be prepared to go beyond the materials covered in this text. This text is required for your reading and homework assignments. The text may or may not cover the lecture materials and exams. Since this is a graduate-level class, students are expected to search for additional references to read, exercise, and practice themselves in order to improve their understanding and problem solving skills

Software Tool

MATLAB will be used to demonstrate some of the concepts discussed in class and also to solve some homework problems. Students are responsible for self-learning and purchasing the software if necessary. The Student Version of MATLAB and the Signal Processing Toolbox are available from the bookstore or directly from the Mathworks, Inc. (www.mathworks.com). MATLAB and many toolboxes are also available on many PCs in rooms ENG387 and ENG405

Lectures

The course will follow the selected subjects as listed on the course description. Additional theory and examples will be given and discussed in class as much as time permits. Please note that lecture materials are NOT based on the referenced text and so students are responsible for following up the lecture in order to prepare themselves for the exams.

- Students are responsible for the reading the text, handouts, lecture presentations, etc.
- Students are responsible for following up and keeping track of the in-class lecture materials.
- Students are responsible for reading additional books and examples in order to gain more understanding of the materials discussed in the lectures.
- Students are solely responsible for learning and using MATLAB for assigned homework problems as well as for lecture discussions.

PLEASE DO NOT CONSUME FOOD IN THE CLASSROOM

Exams

There will be two midterm exams and a comprehensive final exam. The dates of the midterm and final exams are listed as below. Please make sure that you are able to attend all exams (including final examination) since there will be no make-up exam:

First Midterm Exam: Thursday 09/29/05, 19:00 – 20:15
Second Midterm Exam: Thursday 11/03/05, 19:00 – 20:15
Final Exam: Tuesday 12/13/05, 19:45 – 22:00
(as specified by the department/university final exam schedule)

- All exams are closed-book exams.
 - One sheet (double-side) of hand-written notes is allowed for the first midterm exam, two sheets are allowed for the second midterm exam, and three sheets are allowed for the final exam.
 - Printed derivative, integration, and transform tables are allowed
 - Basic calculators are allowed
- There will be no make-up exams (in very special circumstances, written excuse and official proofs are required for making-up exams).
- Exam solutions will be discussed in class after the exam dates. Written solutions will NOT be distributed.

Homework Assignments

Homework assignments will be given periodically and will be automatically due in one week from the assigned date. Homework solutions will be made available after the due date.

- NO late submission will be accepted (absolutely!).
- There is no make-up homework.
- Each homework will be graded as 1 or 0 point only.
- To get credit for your homework assignments, submissions must be neat, clean, and must be done professionally and seriously. Your official name (not nickname), course #, section # (EE210, Section #), and homework # must be visibly shown on each homework.

Grading Policy

The overall course grades (letter-grades) will be assigned based on the overall class distribution or grading standard, whichever that is better.

- If grading standard is used, overall score above 90% will be distributed for A and A+, 80% to 89% will be distributed for B, B+, A-, 70% to 79% will be distributed for C, C+, B-, and 60% to 69% will be distributed for D, D+, C-.
- If overall class distribution is used for determining grade, overall scores above class average will be distributed for B, B+, A-, A, A+ and overall scores below class average will be distributed among B-, C+, C, etc.

PLEASE DO NOT CONSUME FOOD IN THE CLASSROOM

The weights of the homework assignments and the exams are listed as below:

- Homework assignments: 10%
- First midterm exam: 15%
- Second midterm exam: 25%
- A comprehensive final exam: 50%

Some Important Dates

Wed, August 24:	First day of instruction
Mon, September 5:	Labor Day holiday
Tue, September 6:	Last day to drop or withdraw without a "W" grade
Tue, September 13:	Last day to add courses
	Last day to request grade options - Academic Renewal, CR/NC, Audit
Thurs, Sep 29:	First midterm examination, 19:00 – 20:15
Thurs, Nov 03:	Second midterm examination, 19:00 – 20:15
Wed, Nov. 23:	Classes that start at 5:00 pm or later will not meet
Thurs - Fri, Nov. 24-25:	Thanksgiving Holiday
Thurs, December 8:	Last day of instruction
Fri, December 9:	Study/Conference Day - no classes or exams
Tue, Dec 13:	Final examination (19:45 – 22:00)

PLEASE DO NOT CONSUME FOOD IN THE CLASSROOM

EE@SJSU
Honesty and Respect for Others and Public Property

EE HONOR CODE

The Electrical Engineering Department will enforce the following Honor Code that must be read and accepted by all students.

“I have read the Honor Code and agree with its provisions. My continued enrollment in this course constitutes full acceptance of this code. I will NOT:

- *Take an exam in place of someone else, or have someone take an exam in my place*
- *Give information or receive information from another person during an exam*
- *Use more reference material during an exam than is allowed by the instructor*
- *Obtain a copy of an exam prior to the time it is given*
- *Alter an exam after it has been graded and then return it to the instructor for re-grading*
- *Leave the exam room without returning the exam to the instructor.”*

Measures Dealing with Occurrences of Cheating

- *Department policy mandates that the student or students involved in cheating will receive an “F” on that evaluation instrument (paper, exam, project, homework, etc.) and will be reported to the Department and the University.*
- *A student’s second offense in any course will result in a Department recommendation of suspension from the University.*

MESSAGES TO EE210 STUDENTS

In addition to EE Honor Code, EE210 students understand that professional attitude is necessary to maintain a comfortable academic environment. For examples:

- *Students will not skip the lecture and then ask the instructor to summarize the lecture later on. Office hours are for students to have questions, not for the instructor to summarize the lecture for any specific student.*
- *Students will come to the class on time and leave the class at the end of the lecture.*
- *Students will consult the course syllabus for class policies and requirements before requesting the instructor for special attentions*
- *To minimize possible tension during the exams, students are requested to follow the exam rules closely.*
- *Students understand that long-term learning is their responsibility and so will always keep it up. etc.*

PLEASE DO NOT CONSUME FOOD IN THE CLASSROOM