ECEN 5713 Linear Systems
Fall 2002
Syllabus

Time: Tuesday/Thursday 9:00-10:15AM

Place: Physical Science 101

Prerequisite: Graduate standing or consent pf instructor
Linear Algebra, Dynamical Systems, Signals and Transforms

Text: *Lecture Notes* to be distributed via Web

References: *Linear System Theory and Design*, Chi-Tsong Chen
Oxford, 1984 (ctchen@sbee.sunysb.edu)

Modern Control Theory, 3rd edition, William L. Brogan
Prentice-Hall, 1991 (eewlb@ee.unlv.edu)

Linear Systems, Panos Antsaklis and Anthony Michel
McGraw-Hill, 1997 (antsaklis.1@nd.edu)

Linear Systems, Thomas Kailath
Prentice-Hall, 1980

Instructor: Professor Gary G. Yen, Engineering South 404
http://www.okstate.edu/elec-engr/faculty/yen
405-744-7743, 405-744-9198 (fax), gyen@ceat.okstate.edu
Office Hours: Tuesday/Thursday 10:30AM-12:00PM;
3:30PM-5:00PM; or by appointment only

TA: TBA

Objectives: To study the fundamental theory of finite-dimensional linear system with emphasis on the state-space representation and its solution.
The topics include, but not limited to,

- mathematical basis-
  matrix theory, linear algebra, vector space
- system representation-
  input-output operator, geometric approach,
  state space representation, transfer function algorithm
- conversion of alternative representations
- linear dynamical solution
- similarity transformation
- controllablity, observability and special forms
- stability and control
- linearization and minimal realization
- state feedback and state estimation
- state observer

Grading:

10 Weekly Homework Assignments **20%**
Tentative schedule-
8/29, 9/5, 9/12, 9/19 (before the first midtem)
10/10, 10/17, 10/24, 10/31 (before the second midterm)
11/19, 11/26
10/5-10/9 Spring Break; 11/28-11/29 University Holidays
Midterm Exam 1 (October 1,9:00-10:30PM) **25%**
Midterm Exam 2 (November 12, 9:00-10:30PM) **25%**
Final Exam (December 12, 8:00-9:50PM) **30%**
A-85% above; **B**-76%-85%; **C**-66%-75%; **D**-56%-65%; **F**-55% below
No makeup exams will be given.

Note:

All exams are open notes, but close book.

Drop and Add:

The instructor will follow University, College and Departmental guidelines for drops and adds. Consult the calss schedule book or Ms. Rea Maltsberger in Engineering South 202 for more information.

Attendance:

Students will be expected to attend class. Habitual failure to do so will result in a reduced grade. Class attendance is taken occasionally for reference.
An incomplete grade will only be given when a student misses a portion of the semester because of illness or accident. All (I) grades must be completed within thirty days.

Academic Dishonesty:

Cheating on homework, quizzes or examinations, plagiarism and other forms of academic dishonesty are serious offenses and will subject the student to serious penalties.
On the first instance of academic dishonesty, the student will receive a grade of zero for the assignment, quiz or examination, and a letter will be placed in the student's academic file. The second instance will result in a grade of "F" for the course.

Disability Impairment:

If any member of the class feels that he/she has a disability and needs special accommodations of any nature whatsoever, the instructor will work with you and the University Office of Disabled Student Services to provide reasonable accommodations to ensure that you have a fair opportunity to perform in this class. Please advise the instructor of such disability and the desired accommodations at some point before, during, or immediately after the first scheduled class period.

Class Website:

You are advised to check on class website at http://www.okstate.edu/elec-engr/faculty/yen/fall02.html regularly for important information, such as handouts, homework assignments, schedule changes, old exams and etc.