ECEN 4413
Automatic Control Systems
Spring 2005
Syllabus

Time: Tuesday/Thursday 3:30-4:45 PM

Place: Engineering South 214A

Prerequisite: ECEN3713-Network Analysis and ECEN3723-System I

8th Edition, Benjamin C. Kuo and Farid Golnaraghi

References:
- Linear Control Systems, McGraw-Hill, 1993
  Charles E. Rohrs, James L. Melsa and Donald G. Schultz
- Modern Control Systems, Addison Wesley, 1995
- Modern Control Engineering, Prentice-Hall, 1997
  3rd Edition, Katsuhiko Ogata
- Control Systems Engineering, John Wiley, 2000
  Norman S. Nise
- Feedback Control of Dynamic Systems, Prentice-Hall, 2002
  4th Edition, Gene Franklin, David Powell and Emami-Naeini

Instructor: Professor Gary G. Yen, Engineering South 404
http://www.okstate.edu/elec-engr/faculty/yen
405-744-7743, 405-744-9198 (fax), gyen@okstate.edu
Office Hours: Tuesday/Thursday 9:00AM-12:00PM; or by appointment only

TA: TBD
(weekly homework help session will be arranged and posted)

Objectives: To study the fundamental theory of linear control systems through mathematical analysis and numerical simulation.
The topics include
- review of mathematical tools
- review of dynamic modeling
- model representations
- block diagram and signal-flow graph
- state variable analysis
- time domain analysis
- root locus technique
- frequency domain analysis
- stability
- control system design
- digital control system
- Matlab and Simulink

Grading: 10 Weekly Homework Assignments 20%
Tentative schedule-
1/20, 1/27, 2/3, 2/10, (before the first midterm)
3/1, 3/8, 3/17, 3/24, (between the first and second midterms)
4/12, 4/19. (after the second midterm)
Spring Break (March 15 and 17)
Midterm Exam 1 (February 24, 3:30-5:00 PM) 20%
Oral Presentation (March 3, 3:30-5:00 PM) 10%
Midterm Exam 2 (April 5, 3:30-5:00 PM) 20%
Computer Simulation Project (April 29, 5:00 PM) 10%
Final Exam (May 5, 2:00-3:50 PM) 20%

A  -88% above; B  -76%-88%; C  -66%-75%; D  -56%-65%; F  -55% below

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
class schedule book or Ms. Helen Daggs in Engineering
South 202 for more information.

Attendance: Attendance record will be sampled randomly and will be
counted toward your grade. Students will be expected to
attend class. Habitual failure to do so will result in a reduced
grade. 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.

Class Website: You are advised to check class website at
http://www.okstate.edu/elec-engr/faculty/yen/spring05.html
regularly for important information, such as handouts,
homework assignments, schedule changes, old exams and
last minute announcements.