



**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
- Text:** *Automatic Control Systems*, John Wiley, 2003  
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  
7th Edition, Richard C. Dorf and Robert H. Bishop  
*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 Emani-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](mailto: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

Quizzes will be given throughout the semester and counted toward the final grade as bonus points; 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 class schedule book or Ms. Helen Dags 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..