



**ECEN 4413**  
**Automatic Control Systems**  
**Spring 2009**  
**Syllabus**



- Time:** Tuesday/Thursday 10:30-11:45AM
- Place:** CLB 106B (Stillwater) and NCB 213 (Tulsa)
- Prerequisite:** ECEN/MAE 3723-System/Controls 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 2:00-5:00PM;  
or by appointment only
- TA:** TBA, if available  
(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 25%  
Tentative schedule-  
1/22, 1/29, 2/5, 2/12 (before the first midterm)  
3/3, 3/10, 3/24, 3/31 (before the second midterm)  
4/16, 4/23 (after the second midterm)  
Spring Break: 3/17, 3/19  
Midterm Exam 1 (February 24, 10:30AM-12:00PM) 20%  
Midterm Exam 2 (April 9, 10:30AM-12:00PM) 20%  
Computer Project (May 1, 5:00PM) 10%  
Final Exam (May 5, 10:00-11:50AM) 25%  
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 Dagg 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 all classes. 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 Integrity:** The instructor will strictly follow OSU's Academic Integrity Policy as stipulated in <http://academicintegrity.okstate.edu/> There is a video clip at <http://ra.okstate.edu/provost/academic/integrity.html> that every student (and probably every faculty member) should watch early in their academic career. This video very clearly defines the different types of academic misconduct and summarizes methods to avoid these problems. Cheating on homework, quizzes or examinations, plagiarism and other forms of academic dishonesty are serious offenses and will subject the student to serious penalties. **Plagiarism.** Presenting the written, published or creative work of another as your own work. Whenever you use wording, argument, data, design, etc., belonging to someone else in a paper, report, oral presentation, or other assignment, you must take this fact explicitly clear by correctly citing the appropriate references or sources. You must fully indicate the extent to which any part or parts of the project are attributed to others and provide citations for paraphrased materials.

**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.

**Class Website:**

You are advised to check class website at the Online Classroom and Community page (D2L) at <https://oc.okstate.edu/> regularly for important information, such as handouts, homework assignments, schedule changes, old exams and last minute announcements.