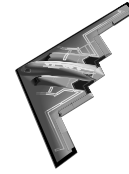


# ECEN 3723 Systems I

## Fall 2012

### Syllabus



- Time:** Tuesday/Thursday 10:30AM-11:45AM
- Place:** Engineering South 213B
- Prerequisite:** ENSC 2613- Introduction to Electrical Science  
MATH 2233- Differential Equations
- Text:** *System Dynamics* (ISBN 0-13-142462-9)  
Katsuhiko Ogata, Prentice-Hall, 4<sup>th</sup> edition, 2004
- References:** *System Dynamics*  
William Palm III, McGraw Hill, 2<sup>nd</sup>, 2010  
*Automatic Control Systems*  
Farid Golnaraghi and Benjamin Kuo, John Wiley, 9<sup>th</sup>, 2010  
*Modern Control Engineering*  
Katsuhiko Ogata, Prentice-Hall, 2<sup>nd</sup>, 1997  
*Control Systems Engineering*  
Norman S. Nise, John Wiley, 2000  
*Feedback Control of Dynamic Systems*, Prentice-Hall  
Gene Franklin, David Powell and Emani-Naeini, 4<sup>th</sup>, 2002
- 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-10:30PM, 3:30PM-5:00pm  
or by appointment only
- TA:** Zhenan He, [zhenan@ostatemail.okstate.edu](mailto:zhenan@ostatemail.okstate.edu)  
Monday 3PM-5PM and Wednesday 2PM-4PM
- Objectives:** To introduce selected basic tools needed for signal and system analysis and design applicable to dynamic controls through mathematical derivations and computer simulations. The topics include
- signals and systems representation
  - *Laplace* transform
  - differential equation approach
  - transfer function approach
  - state space approach
  - modeling of electrical systems
  - modeling of mechanical systems
  - modeling of fluid and thermal systems
  - time-domain analysis of dynamic systems
  - frequency-domain analysis of dynamic systems
  - time-domain analysis of control systems
  - frequency-domain analysis of control systems
  - Matlab and Simulink simulations

**Grading:** 9 Weekly Homework Assignments (*Tentative Schedule*) **20%**  
8/30, 9/6, 9/13, 9/20 (before the first midterm)  
10/11, 10/18, 10/25, 11/1 (before the second midterm)  
11/27 (after the second midterm)  
11/22 Thanksgiving Holiday  
Midterm Exam 1 (October 4, 10:30AM-11:45AM) **20%**  
Midterm Exam 2 (November 15, 10:30AM-11:45AM) **20%**  
Oral Presentation (November 29, 10:30AM-11:45AM) **20%**  
Final Exam (December 13, 10:00AM-11:50AM) **20%**  
**A**-90% and above; **B**-80%-90%; **C**-70%-80%; **D**-60%-70%; **F**-below 60%  
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 calss schedule book or departmental counselors 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 periodically 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 Integrity:** The instructor will strictly follow OSU's Academic Integrity Policy. 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. 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 on class website at Online Classroom at <https://oc.okstate.edu> prior to each class for important information, such as handouts, homework assignments, schedule changes, old exams and etc. You are expected to bring in your own copy of lecture notes and handouts.