ECEN 5713 Linear Systems  
Spring 2001  
Syllabus

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

**Place:**  
Cordell 127

**Text:**  
*Lecture Notes* to be distributed via Web

**References:**  
*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 System Theory and Design*, Chi-Tsong Chen  
Oxford, 1984 (ctchen@sbee.sunysb.edu)  
*Linear Systems*, Thomas Kailath  
Prentice-Hall, 1980

**Instructor:**  
Professor Gary G. Yen  
http://www.okstate.edu/elec-engr/faculty/yen  
405-744-7743, 405-744-9198 (fax), gyen@ceat.okstate.edu  
Engineering South 202D/404  
Office Hours: Tuesday/Thursday 10:30AM-2:00PM; 3:30PM-5:00 PM; or by appointment only

**Objectives:**  
To study the fundamental theory of finite-dimensional linear system with emphasis on the state-space representation and its solution. The topics include  
- mathematical basis- matrix theory, linear algebra, vector space  
- system representation- input-out operator, geometric approach,  
  *state space representation*, transfer function algorithm  
- conversion of alternative representations  
- linear dynamical solution  
- controllability, observability, stability and control  
- linearization and minimal realization  
- state feedback and state estimation

**Grading:**  
10 Weekly Homework Assignments  20%  
1/25, 2/1, 2/8, 2/15, 3/8,  
3/15, 3/29, 4/5, 4/24, 5/1  
Midterm Exam 1 (March 1, 9:00-10:30 AM)  25%  
Midterm Exam 2 (April 17, 9:00-10:30 AM)  25%  
Final Exam (May 7, 8:30-10:20 AM)  30%  
A-85% above; B-76%-85%; C-66%-75%; D-65% below

**Note:**  
All exams are open notes, but close book.