MEEN 3230.002 – System Dynamics and Controls  3 hours  Spring 2016

Instructor:
Dr. Mark Wasikowski                        Mark.Wasikowski@unt.edu    TuTh 7-8:20 PM, Room: NTDP B140
Office: TBD                                 Office Hours: by appointment

Required Text:
System Dynamics and Control for UNT

Pre-requisite: MATH 3410 Differential Equations 1
Pre-requisite: MEEN 2240 Programming for MEE (MATLAB)


Course Objectives: Upon successful completion of this course, students will be able to:
- Demonstrate ability to model mechanical and electrical systems.
- Determine transfer functions.
- Learn to develop state-space models of mechanical systems.
- Demonstrate ability to perform computer simulation of control systems.
- Be able to perform stability analysis and root locus techniques.
- Gain ability to perform vibration analysis.

ABET Criteria: MEEN 3250 addresses the following ABET program outcomes: a) Apply knowledge of mathematics, engineering and science; b) Design and conduct experiments to verify and validate the design projects they develop and analyze and interpret the data; e) Identify, formulate and solve engineering problems; j) Achieve knowledge of contemporary issues; k) Use techniques, skills and computer-based tools for conducting experiments and carrying out designs; l) Apply principles of engineering, basic science, and mathematics to model, analyze, design, and realize physical systems, components, or processes in both thermal and mechanical systems areas

Topics to be Covered (topics may or may not be covered depending on time available): Modeling in the Frequency Domain, Modeling in the Time Domain, Time Response, Stability, Steady-State Errors, Root Locus Techniques, Design via State-Space Representation, Frequency Response Techniques.

Course Format: “Chalk-n-Talk lecture style”, occasional ppt, group discussion and problem solving. Cell phones will not be allowed during quizzes and exams. Extensive use of Blackboard for communication, grading, etc.

Grade Evaluation:
Homework: 10%  A – 90-100%  No curve. A final average of 90.00 or higher is an A; 89.8 is a B. Exam/quiz re-grade requests must be made day returned. Once class dismissed requests not accepted.
Quizzes 20%  B – 80-89%  It should be noted that entire quiz/exam will be re-graded, which may result in a lower score than originally assigned. Make-ups only for University-excused absences, given at semester end. Documentation required.
Exam 1; 2/16 20%  C – 70-79%  Final; 5/5 (early) 30%  F - < 60%
Exam 2; 4/5 20%  D – 60-69%

Assignments/Quizzes:
Homework problems assigned often and due the following week. Late homework not accepted. Homework turned in to office not accepted. There will be several quizzes. Lowest one is dropped. Make-up quizzes are NOT allowed.

Disability Policy: Reasonable accommodation will be made to facilitate special needs. If special accommodations are required, student must meet with Office of Disability Accommodation (ODA), (940) 565-4323. After that meeting, please contact me to discuss what accommodations will be necessary. For more information, see http://www.unt.edu/oda.

Academic Dishonesty:
Each student is expected to complete his/her own work. Cheating of any kind on the quizzes and exams will not be tolerated and will result in a score of zero for that assignment.