MEC 411 Control System Analysis and Design
FALL 2010

Instructor: Dr. Noah D. Machtay, PhD, 148 Heavy Engineering Building, 2-9014
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Office Hours: MF 2:10-3:40pm, HE 148
Lecture: MF 12:50-2:10pm, Harriman Hall, Room 108
Recitation #1 (92721): Th 11:20–12:15am, SB Union 237
Recitation #2 (94896): Tu 11:20–12:15am, Chem. 123
Tuesday Lab: Tu 1:00-3:30pm, HE 139
Thursday Lab: Th 1:00-3:30pm, HE 139

Attendance policy: Both lectures and recitations are required – there will be no make-ups for unannounced in class assignments. When scheduled, lab sessions are absolutely mandatory. Students who are late for or miss a lab session will not receive a grade for that lab report. Lab sessions will be announced one week in advance.

Teaching Assistant: TBA
Office hours: TBA
e-mail: TBA


Assignments: Homework problems will be assigned every week or two and will be discussed in recitation. The solutions will be distributed about a week after the deadline. There will also be a number of laboratory reports that must be completed and submitted. Assignments are due at the beginning of the lecture on the due date, and late assignments (either homework or lab reports) will not be accepted.

Lab work: Students will form into lab groups of 3. Lab groups are responsible for conducting experiments as instructed, and preparing and submitting reports as a group. It is each student’s responsibility to ensure that the group functions well and achieves the assigned goals.

Calculators: Only approved calculators will be permitted in the midterms and final exam. See the discussion below for approved calculators for this course. Use of an unapproved calculator during an exam will result in ejection without a grade.

Exams: Two midterm exams and a final exam. Dates TBA. No make-up exams will be given. Exams will be closed book and closed notes.

Grading: 1st midterm: 15%, 2nd midterm: 15%, Lab reports: 20%, Homework: 10%, Final: 30%, Participation: 10%.

Cell phone policy: Cellular phones or other communication devices are not permitted in lectures or labs, and are especially prohibited from exams. If you are found to be in possession of such a device during an exam, you will be ejected from the exam and will not receive a grade.
Course Objectives: This course will cover the analysis and design of feedback control systems. Topics include system modeling; transfer function; block diagram and signal-flow graph; sensors, actuators, and control circuit design; control system characteristics and performance; stability analysis; root locus method; Bode diagram; PID and lead-lag compensator design, time permitting. A preexisting understanding of calculus up to and including differential equations and Laplace transforms is essential (see prerequisites) as these tools are intrinsic to the study of control system analysis and design.

Prerequisites: AMS 361 or MAT 303, MEC 262.

Americans with Disabilities Act
If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students requiring emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information, go to the following web site: http://www.stonybrook.edu/ehs/policy/campus.shtml.

Statement on Academic Dishonesty
Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, designs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn. Please note that failing to provide proper citations in a paper or report constitutes plagiarism and will be prosecuted accordingly. Be sure to cite your sources!

Allowed Calculators
For both security and uniformity in this class only the following calculators will be allowed to be used on the midterm and final exams. There will be no exceptions. This list of calculators is identical to that allowed for the National Council for Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam that many of you will take in your senior year, as well as the Professional Engineering (PE) exam that you may take several years from now. The sooner you become comfortable on one of these calculators, the better. If you have any questions on this policy please feel free to contact me. The NCEES policy on calculators can be found here: http://www.ncees.org/Exams/Exam-day_policies/Calculator_policy.php

Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name.
Hewlett Packard: The HP 33s and HP 35s models, but no others.
Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

You should register to take the FE exam now: http://www.ncees.org/Exams/FE_exam.php

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1 Dr. Jon Longtin, Department of Mechanical Engineering, Stony Brook University