

2.003 Modeling, Dynamics, and Control I

Course Information, Spring `05

Faculty:

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Text: The text is a set of notes written by Prof. Trumper. These will be provided in periodic installments over the course of the semester. As a supplemental reference, consult either *Modeling, Analysis, and Control of Dynamic Systems*, by W. J. Palm, or *System Dynamics*, by K. Ogata. Both texts are on reserve in Barker Engineering Library. These texts can be purchased at the Coop, or at Quantum Books (both are in Kendall Square).

Lectures: MW 9:30-11; Rm. 4-231

Recitations: F 9,10; Rm. 1-135

Students are required to attend their assigned recitation section. In almost all recitations, we will assign brief quizzes (about 5-10 min duration) to check on students' understanding of the homework material due at that recitation. These exercises will start at the beginning of recitation, so please come to class on time!

Laboratory Sessions: T1-4, and R1-4; Rm. 1-004

Students will attend one assigned 3 hr. lab session most weeks. All lab sessions meet in Rm. 1-004. You may not switch sessions without permission of the staff. Students will receive a grade of zero for missed lab sessions. We also reserve the right to move students between sections in order to level the loading on the lab facilities.

A prelab will be assigned in the week preceding the lab exercise. The prelab is due at the start of the assigned lab session. Prelabs will not be accepted more than 5 minutes after the start of the lab session. Lateness to the lab will also reduce the lab portion of the student's score. Each student must submit an individual lab report at the end of the lab session. Lab reports will not be accepted after the end of the lab session.

The lab grade will be based upon the prelab (50%), and lab report scores (50%).

Homework: Weekly problem set assignments will be due on Friday in your *assigned* recitation section. No late problem sets will be accepted; we also will not accept problem sets handed in to other recitation sections. We will be providing problem set solutions to

many of the problems *along with* the problems themselves. The intention here is to provide you with a resource for getting unstuck on problems, and to have a chance to see how an experienced person solves a particular problem. Our stipulation is that you first try to solve the problems yourself without reference to the solutions. Only turn to the solutions if you need help once you are well-engaged with the problem and have made significant independent efforts. We also require that what you turn in accurately represents your own work and understanding of the material. We do not guarantee to provide solutions for all problems, especially those of a design or experimental character. Your understanding of the problem set material will be tested by short quizzes in most recitations. These quizzes should be easy for you to do if you've understood the homework material.

Quizzes: Three closed-book quizzes will be given during the lecture period:

Quiz 1; Wed. March 2; 9:30-11am; Rm 4-231

Quiz 2; Wed. March 30; 9:30-11am; Rm 4-231

Quiz 3; Wed. April 27; 9:30-11am; Rm 4-231

Please mark these times in your calendar to leave them free. The quizzes are closed-book. One sheet of notes (both sides if you like) will be permitted in Quiz 1. Two sheets of notes will be permitted in Quiz 2, etc.

Final exam: A 3 hr. closed-book final exam will be held during the final exam period May 16-20. The final is closed-book. Four sheets of notes will be permitted in the final.

Grading: The course grade will be based upon the student's performance in the laboratories (20%), homework (15%), recitation quizzes (10%), the 3 lecture-period quizzes (25%), and final exam (30%). The department of Mechanical Engineering has adopted the following guidelines for the grade distribution in undergraduate courses: approximately 25% A, 40% B, 25% C, not more than 10% D and F. We will use this as a starting point in assigning grades; previous offerings of 2.003 have had grade distributions similar to this.

Collaboration policy: Collaboration in the form of discussion between students is permitted and encouraged on the homeworks and prelabs, but what you turn in must be your individual solution. Of course, collaboration on quizzes or the final is prohibited.