

SYLLABUS
ME EN 3210 MECHATRONICS LABORATORY - SPRING 2002

Lab Teaching Assistants:

<u>Name</u>	<u>Email</u>	<u>Office Hours</u>
Satya Krosuri	krosuri@eng.utah.edu	Wed. 2:00-3:00 PM
Roy Merrell	mailroy@excite.com	Mon. 12:00-1:00 PM
Anand Ramasundar	anand_ramasundar@hotmail.com	Thur. 3:30-4:30 PM
Jason Riggs	jriggs45@hotmail.com	Thur. 3:30-4:30 PM

Office: MEB 2178

Phone: 587-9018

Laboratory: MEB 2415

Course Objectives: Explore and model the characteristics and response of systems. Primarily, the lab DC motor setups will be explored.

Prerequisites: CP SC 1000, EE EN 1050, ME EN 2000, ME EN 2040, ME 2400, ME 3200
Mechanical Engineering Intermediate Status

Texts: Consult the class web page www.mech.utah.edu/~me3200 for the lab handouts. Some experiments require the completion of a pre-lab assignment, which will be included in the handout.

Laboratory: Experiments deal with computer data acquisition, instrument calibration, system modeling and response, and feedback control.

Lab Policies:

1. All lab activities must be completed to receive credit for the laboratory portion of your final grade.
2. Handouts must be downloaded prior to your lab and pre-labs completed before coming to lab. If the pre-labs are not completed before lab, the score for that lab will be penalized by 25%. Refer to the class web page www.mech.utah.edu/~me3200 for handouts and further information.
3. Each lab handout includes a questionnaire that must be filled out with the correct answers and checked by the TA before leaving the lab. Labs are scored on a pass/fail system. If the questionnaire is acceptable, the score is 100%. It is important to ensure the details are written down and correct, as this will help out in writing the reports.
4. You must attend your scheduled lab unless prior arrangements have been made with all involved Teaching Assistants (TA).
5. If you miss a lab, you must make arrangements with the TAs to complete it immediately.
6. Students must write concise reports explaining the subject material of the lab, how the material would be applicable to a mobile robot, what limitations and advantages are expected, and also address any questions mentioned specifically in the lab handouts.
7. There will be two written reports due this semester. Teams of two students (or three in extreme circumstances) can work together on these reports. Refer to the sample memos for the required format and the tips sheet to help avoid common mistakes. Report assignments are provided later in this document.
8. If you miss any lab experiment without making prior arrangements, your possible score on that lab will decrease by 10% each business day until it is completed (unless a very good excuse is provided). This also goes for the reports.

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Lab Sections:

<u>Section</u>	<u>Time</u>	<u>Teaching Assistant</u>
2	Monday 3:05pm – 6:05pm	Satya Krosuri
3	Wednesday 3:05pm – 6:05pm	Satya Krosuri
4	Tuesday 7:30am – 10:30am	Roy Merrell
5	Thursday 7:30am – 10:30am	Roy Merrell
6	Tuesday 11:50am – 2:50pm	Anand Ramasundar
8	Tuesday 3:05pm – 6:05pm	Anand Ramasundar
9	Thursday 3:05pm – 6:05pm	Satya Krosuri
10	Thursday 6:20pm – 9:10pm	Anand Ramasundar

Lab Schedule:

Lab 1: Force and Torque Sensors	Week of Jan. 28
Lab 2: DC Motor Characteristics	Week of Feb. 25 (ONLY Thursday sections) Week of Mar. 4 (all sect. EXCEPT Thurs.)
Lab 3: DC Motor Parameters	Week of Mar. 11
Lab 4: First Order Response	Week of Mar. 25
Lab 5: Second Order Response	Week of Apr. 1
Lab 6: PID Control	Week of Apr. 8

Lab Reports:

1. Report #1 pertains to the characterization of the lab's DC motor setups as explored in the first three labs. **The report is due by March 22 at 5:00 PM** in the mechanical engineering office (2202 MEB) in the TA folders provided. Report #1 should be no longer than four single spaced pages, or eight double spaced pages, including figures. Conciseness will be rewarded. Extra information, such as program code and sample calculations, should be included as an attachment and referenced in the report.
2. Report #2 pertains to system response as examined in the final three labs. **The report is due by April 19 at 5:00 PM** in room 2202 MEB in the TA folders provided. Report # 2 should be no longer than four single spaced pages or eight double spaced pages, including figures. Conciseness will be rewarded. Extra information, such as program code and sample calculations, should be included as an attachment and mentioned in the report.
3. Refer to policies 6 and 7 above regarding report preparation. Also refer to handouts provided on the class webpage (www.mech.utah.edu/~me3200) under Lab Handouts.

Grading: The Mechatronics laboratory grade consists of the following:

Lab scores: 30%

Report #1: 35%

Report #2: 35%

Disability Services:

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD) to make arrangements for accommodations.

All written information in this course can be made available in alternative format with prior notification.