

SYLLABUS

ME EN 3210 MECHATRONICS LABORATORY - SPRING 2002

Phone: 585-3322

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, system modeling, system 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 will be 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 15% each business day until it is completed (unless a very good excuse is provided). This also goes for the reports.

Lab Sections:

<u>Section</u>	<u>Time</u>	<u>Teaching Assistant</u>
2	Monday 11:50am – 2:50pm	Roy Merrell
3	Monday 3:05pm – 6:05pm	Adam Blankespoor
4	Monday 6:00pm – 9:00pm	Satya Krosuri
5	Tuesday 7:30am – 10:30am	Satya Krosuri
6	Wednesday 3:05pm – 6:00pm	Adam Blankespoor
8	Thursday 10:45pm – 1:45pm	Roy Merrell
9	Friday 11:50pm – 2:50pm	Ben Shores
10	Friday 3:05pm – 6:05pm	Ben Shores

DEPARTMENT OF MECHANICAL ENGINEERING

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Lab Schedule:

Lab 1: Stepper & Servo Motors	Week of Jan. 13
Lab 2: Force and Torque Sensors	Week of Jan. 27
Lab 3: DC Motor Characteristics	Week of Feb. 3
Lab 4: DC Motor Parameters	Week of Feb. 10
Lab 5: First Order Response	Week of Feb. 24
Lab 6: Second Order Response	Week of Mar. 3
Lab 7: PID Control	Week of Mar. 31

Lab Reports:

1. Report #1 pertains to the characterization of the lab's DC motor setups as explored in labs 2 thru 4. The report is due on February 24 at the start of your regular lab section. Report #1 should be no longer than five single spaced pages, or ten double spaced pages, including figures. 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 final labs 5 & 6. The report is due the week of March 10 at the start of your lab time in your T.A.'s box in the copy room (MEB 2101). Report # 2 should be no longer than four single spaced pages or eight double spaced pages, including figures. 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: 30% Report #2: 30% Design Milestones: 10%

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.