ECE 486 Control System Lab

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If these hours do not help you, please let us know immediately.

Lab Grading

Grade	Details	Content
05%	Lab 0	Intro to MATLAB & Equipment
07%	Lab 1	Simulation Using the Analog Computer
08%	Lab 2	Digital Simulation
10%	Lab 3	Digital Simulation of a Closed Loop System
15%	Lab 4	Introduction to the DC Motor
15%	Lab 5	PD Control: Analog Computer & Windows Target
15%	Lab 6	Lead Controller Design
25%	Project	Stabilizing the *Reaction Wheel Pendulum*

> **Lab Policy:**
> **ABSOLUTELY NO FOOD OR DRINK IN THE LAB.**
> If you have something, please leave it on one of the desks in the center of the room.
>
> No equipment or manuals can be removed from the lab. If any item is found missing, the 24 hour access privilege will be revoked from all students.

Calendar Fall 2024

Week	Lab	First 90min	Last 90min
Aug. 26	No lab		
Sep. 2	Lab 0	all	all
Sep. 9	Lab 1	A	B
Sep. 16	Lab 2	A	B
Sep. 23	Lab 3	A	B
Sep. 30	Lab 4	A	A
Oct. 7	Lab 4	B	B
Oct. 14	Lab 5	A	A
Oct. 21	Lab 5	B	B
Oct. 28	Final Project I	all	all
Nov. 4	Lab 6	A	A
Nov. 11	Lab 6	B	B
Nov. 18	Final Project II	all	all
Nov. 25	*Thanksgiving!*		
Dec. 2	Final Project III	all	all
Dec. 9	Final Project IV	all	all

Schedule for 3077 ECEB

	Mon	Tue	Wed	Thu	Fri
09:00		486	486	486	
10:00		486	486	486	
11:00	Junjie	486	486	486	
12:00	Junjie		Chris		
01:00	Qingyuan		Chris		
02:00	Qingyuan	486	486	486	
03:00		486	486	486	
04:00		486	486	486	
05:00					

Assignment Policies

The lab portion of ECE 486 counts for 30% of the final grade. The grading for each lab (excluding Lab 0) consists of three parts: a prelab, checkout, and a report. All the lab assignments add together in a 1000 point grading system, with each lab weighted differently depending on the length and difficulty of the lab. The final project is the most heavily weighted component of the lab grade, worth 25% of the lab grade.

Prelabs

The prelab assignment is due at 5:00 PM Monday on Gradescope. **Each student must individually complete and turn in their own prelab. NO LATE PRELABS WILL BE ACCEPTED.**

The prelabs usually involve design work that must be completed before the lab can be started. These may be neatly handwritten or typed (your choice), like you would do for your homework. After you turn them in, the TA will grade them and return them to you at the beginning of your lab session so you may use these results in the lab.

Checkout

In order to receive credit for completing the lab, you must complete a "checkout". The checkout simply consists of showing relevant plots and data to your TA, answering questions about the lab, and cleaning up your lab area by neatly putting away all cables and wires, turning off the computer, and pushing the chairs in.

Lab Reports

All students must hand in their own, separate, individually written, and *original* report. Lab reports are due at the start of your next lab session, which is one week for early labs and two weeks for later labs. Reports are considered late if they are not turned in at this time, and will be assessed a late penalty of 10% off the final report if they are turned in before 5:00 PM the following day, and 20% if they are turned in before 5:00 PM the second day. If the paper is more than 2 days late, it will not be accepted. When turning in a late lab report, be sure to email your TA after turning it in, so that he knows to pick it up.

Use the provided templates for your lab reports. The top of the first page of each lab report must contain your name, your lab partner's name, your lab TA and section, the lab name, and the date the lab was scheduled. Lab reports must be typed up. Use MS Word or [La]TeX (templates available on course website). In Word, the legacy method of inserting equations is to use Insert->Object->Microsoft Equation 3.0+. Or you can use

MathType, a free download at https://webstore.illinois.edu. All tables and figures should be titled, and all tables, figures, and equations must be clearly referenced with a number. Attach printed figures and other materials to the end of the report. **Label appropriately.**

Lab reports should be written in a concise paragraph format (use few, carefully chosen words) and directly answer the questions asked. Use plots, equations, and data to support your answers. Do not reiterate the lab procedure in your report. Only include plots and tables that are actually referenced in the report. One good plot type is to include multiple well-labeled curves on a single plot, thereby showing a trend as one parameter changes. Another type of plot to include shows a single curve with extra markings indicating how you measured certain properties of that curve.

The text of your report should not exceed a few pages. Reports may be docked points for being overly wordy.

Do not critique the lab in the report. If you do have suggestions or find problems, please alert the TA's or Dan Block as appropriate.

Note: The final project reports are to be written and turned in as a group. They should be more formal and thorough than normal lab reports.

Lab Etiquette

In order to create a pleasant working environment for all students, the following guidelines are to be followed while in lab:

- No foul or obscene language or gestures.
- No typing or talking while the TA is addressing the class.
- Turn off cell phones and other communication devices.
- If desks, chairs, etc. are moved during the lab, put the lab back in order.

Failure to follow these guidelines will result in a warning for the first offense, and points deducted from the checkout grade for each subsequent offense.

Academic Integrity

In this course, unless otherwise stated, each student must do his/her own work, and cheating will not be tolerated. If your discussion for the lab report or prelab is the same as a classmate's, the points awarded will be divided by the people involved and the professor will be notified.