

UNIVERSITY OF CALIFORNIA, SANTA CRUZ
BOARD OF STUDIES IN COMPUTER ENGINEERING

CMPE118/L: INTRODUCTION TO MECHATRONICS
WINTER 2010



LECTURE/LAB CALENDAR

Lecture	Reading (to be completed before the lecture)	Out	Due
0 Tue. 05/Jan/2010 Course Introduction What's A Microprocessor ?	CKO Ch. 8, 9, 10 (Basic Electronics Review) CKO Ch. 1, 2, 3, 4 (Basic Software Review)	Lab 0	
1 Thur. 7/Jan/2010 Event Driven Programming	CKO Ch. 5		Pre-Lab 0
2 Tue. 12/Jan/2010 Sensors	CKO Ch. 10, 11, H&H Sections 9.10, 15.02-15.05, 15.10 (skim all of 15), Rorabaugh Ch. 2	Lab 1	Lab 0 (Wed.)
3 Thur. 14/Jan/2010 OpAmps (real ones)	CKO Ch. 10, 12, H&H Sections 4.01-4.09 (4.10-4.26 skim)		Pre-Lab 1
4 Tue. 19/Jan/2010 Mechanical CAD	CKO Ch. 26, Corel Draw tutorials available at: http://www.webreference.com/graphics/corel101/	Lab 2	Lab 1 (Wed.)
5 Thur. 21/Jan/2010 Rapid Prototyping & Statics	Course Notes: <i>Fabulous Foamcore, Forces, Moments, Free Body Diagrams</i>		Pre-Lab 2
6 Tue. 26/Jan/2010 Digital Inputs, Outputs & Power Drivers	H&H Sections 9.02, 9.03, 9.04, 8.1-8.11, 8.16-8.19	Lab 3	Lab 2 (Wed.)
7 Thur. 28/Jan/2010 Solenoids and DC Motors	CKO Ch. 19, 20, 21, Rorabaugh: Ch. 3 & 6		Pre-Lab 3
8 Tue. 02/Feb/2010 Stepper Motors	CKO Ch. 23, Rorabaugh Ch. 5		Lab 3 (Wed.)
9 Thur. 04/Feb/2010 A/D, D/A, Timers	CKO Ch. 16, H&H Sections 9.15-9.26	Mid-Term & Project	Mid-Term (Sun.)
10 Tue. 9/Feb/2010 Mechanical Components	Rorabaugh Ch 7 & 8, Course Notes: <i>1.2 Materials</i>		
11 Thur. 11/Feb/2010 Project Planning and Organization	CKO Ch. 27, 28		Preliminary Designs
12 Tue. 16/Feb/2010 Design Review	No Reading, but be prepared to present your preliminary project design ideas		
13 Thur. 18/Feb/2010 Modular Software Design in C	CKO Ch. 6, Handout "Chapter 4 Steps in Building a Routine", "Chapter 5 Characteristics of High-Quality Routines"		
14 Tue. 23/Feb/2010 Noise, Grounding & Isolation	H&H Sections 7.11, 7.23-7.25, 9.10(Opto-Couplers and Relays) Course Notes: <i>Summary of Noise Reduction Techniques</i>		

CMPE 118 Course Syllabus

15	Thur.	25/Feb/2010	CKO Ch. 4		
HLL, Interpreters, Compilers & Assembly Language					
16	Tue.	02/Mar/2010	Be prepared to demonstrate the 'Project Preview' level of functionality for your project.		Project Preview
17	Thur.	04/Mar/2010	CKO Ch. 7, H&H p719 -736		
Communications, Serial & Otherwise					
18	Tue.	09/Mar/2010	Bring your finished project to class for an up-close review by the other members of class and teaching staff.	Project Demo!!	Demo (Wed.)
19	Thur.	11/Mar/2010	None, though might move 09/Mar/2010 to this day and change demonstration date		Project Report (Tues. 16 th)
Course Review, evals, feedback					

LAB DESCRIPTIONS

Number	Material	Due Date
Lab 0	Event Driven Programming: The Cockroach	13/Jan/2010
Lab 1	Analog Signal Conditioning, Filtering	20/Jan/2010
Lab 2	FoamCore, Mechanical, and Electronic Prototyping	27/Jan/2010
Lab 3	DC & Stepper Motors	3/Feb/2010

PRESENTATIONS

Project Tentative: Public presentation, 11-Mar-2009. Guests are welcome. Location: JBE-152

EXAMINATIONS

Quizzes will be given at unannounced and irregular intervals during the quarter (expect one per week on reading material)

Midterm Take Home, Out on Thursday, 04/Feb/2009 after review session, Due 09/Feb/2009 @ 6PM at beginning of Class. Review Session will be on Date, Time and Location TBD.