AME341aL: Mechoptronics Laboratory I

Textbook: (optional) ***Introduction to Mechatronics and Measurement Systems***, Alciatore & Histand (2011) McGraw-Hill.
(optional) ***Theory and Design for Mechanical Measurements***, Figliola & Beasley (2010) Wiley.
(optional) ***The Art of Electronics***, Horowitz & Hill (1989) Cambridge University Press.

Meeting Time: MWF 8-8:50 ***or*** 9-9:50 (Lecture) M, T, W ***or*** Th 2-4:50 (Lab)
Lecture Room: SLH 102 Lab Room: BHE 301

Professors:	C. Radovich	O. Franke
Office:	RRB 202	OHE 400C
Telephone:	(213) 740-5359	(213) 740-5324
Email:	radovich@usc.edu	ofranke@usc.edu
Office Hours:	MW 10am-12pm	MW 12-1:30pm

Grading:
Lab Assignments……...45%
Reports (2)……..30%
Quiz (1)…… 20%
Lab Performance……... 5%

LECTURE/LAB SCHEDULE

Week		Date		Lecture Topic	Lab	Assignment
1	M	8/26	(0)	The Basic Ideas	(0) Introduction to Lab	
	W	8/28	(1)	Error Analysis I		
2	M	9/2		**Labor Day**		**A0 Due**
	W	9/4	(2)	Error Analysis II		
3	M	9/9	(3)	Error Analysis III	(1) Physical Measurements	
	W	9/11	(4)	Elements of Electronics		
4	M	9/16	(5)	Linear Circuits I	(2) Real and Virtual Instruments	**A1 Due**
	W	9/18	(6)	Linear Circuits II		
5	M	9/23	(7)	Phasors and Complex Exponentials	(3) Linear Circuits	**A2 Due**
	W	9/25	(8)	How to Write a Report		
6	M	9/30	(9)	1st Order Systems I - Principles	(3.5) Excel & the Engineer	
	W	10/2	(10)	1st Order Systems II - Practical examples		
7	M	10/7	(11)	Op-Amps I - Steady state	(4) Transfer function of a 1st order system	**A3.5 Due**
	W	10/9	(12)	Op-Amps II - Frequency response		
8	M	10/14	(13)	Op-Amps III	(5) Properties of Op-Amps	**A4 Due**
	W	10/16	(14)	What have we done? Quiz Preview		
9	M	10/21		**Terror Quiz**	Report #1 Outline Review in Lab	
	W	10/23	(15)	Digital Circuits I - How to build a computer		
	F	**10/25**	(16)	TQ1 post mortem		
10	M	10/28	(17)	Digital Circuits II - Analog-to-Digital converters	(6) Digital Circuits	**A5 Due (Report #1)**
	W	10/30	(18)	Digital Circuits III - Analysis of discrete signals		
11	M	11/4	(19)	Digital Signal Processing	(7) Analysis of Discrete Time Series	**A6 Due**
	W	11/6	(20)	Acoustics I - The wave equation		
12	M	11/11	(21)	Acoustics II - Plane waves		**A7 Due**
	W	11/13	(22)	Acoustics III – Production/measurement of pressure waves		
	F	**11/15**		**Last day to drop a class with a mark of W**		
13	M	11/18	(23)	How to Write a Report II	(8) Making Noise - Acoustic Waves	
	W	11/20	(24)	Something fascinating		
14	M	11/25	(25)	Course Summary/Results		
	W	11/27		**Thanksgiving Recess**		
15	M	12/2	(26)	Not sure yet.	NO LAB	**A8 Due (Report #2)**
	W	12/4	(27)	Still not sure, tbd.		