

AME341aL: Mechoptronics Laboratory I

Textbook: (optional) *Introduction to Mechatronics and Measurement Systems*, Alciatore & Histan (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: ZHS 159

Lab Room: BHE 301

Professors: C. Radovich

O. Franke

Office: RRB 202

OHE 400C

Grading: Lab Assignments.....45%

Telephone: (213) 740-5359

(213) 740-5324

Reports (2).....30%

Email: radovich@usc.edu

ofranke@usc.edu

Quiz (1).....20%

Office Hours: MW 10a-12p

M 10:30a-12p, Th 10-11:30a

Lab Performance.....5%

LECTURE/LAB SCHEDULE

Week	Date	Lecture Topic	Lab	Assignment
1	M 8/25	(0) The Basic Ideas	(0) Introduction to Lab	
	W 8/27	(1) Error Analysis I		
2	M 9/1	Labor Day		A0 Due
	W 9/3	(2) Error Analysis II	NO LAB	
3	M 9/8	(3) Error Analysis III	(1) Physical Measurements	
	W 9/10	(4) Elements of Electronics		
4	M 9/15	(5) Linear Circuits I	(2) Real and Virtual Instruments	A1 Due
	W 9/17	(6) Linear Circuits II		
5	M 9/22	(7) Phasors and Complex Exponentials	(3) Linear Circuits	A2 Due
	W 9/24	(8) How to Write a Report		
6	M 9/29	(9) 1st Order Systems I - Principles	(3.5) Excel & the Engineer	
	W 10/1	(10) 1st Order Systems II - Practical examples		
7	M 10/6	(11) Op-Amps I - Steady state	(4) Transfer function of a 1st order system	A3.5 Due
	W 10/8	(12) Op-Amps II - Frequency response		
8	M 10/13	(13) Op-Amps III	(5) Properties of Op-Amps	A4 Due
	W 10/15	(14) What have we done? Quiz Preview		
9	M 10/20	Terror Quiz		Report #1 Outline Review in Lab
	W 10/22	(15) Digital Circuits I - How to build a computer		
	F 10/24	(16) TQ1 post mortem		
10	M 10/27	(17) Digital Circuits II - Analog-to-Digital converters	(6) Digital Circuits	A5 Due (Report #1)
	W 10/29	(18) Digital Circuits III - Analysis of discrete signals		
11	M 11/3	(19) Digital Signal Processing	(7) Analysis of Discrete Time Series	A6 Due
	W 11/5	(20) Acoustics I - The wave equation		
12	M 11/10	(21) Acoustics II - Plane waves	NO LAB	A7 Due
	W 11/12	(22) Acoustics III - Production/measurement of pressure waves		
	F 11/14	Last day to drop a class with a mark of W		
13	M 11/17	(23) How to Write a Report II	(8) Making Noise - Acoustic Waves	
	W 11/19	(24) Something fascinating		
14	M 11/24	(25) Not sure yet.	NO LAB	
	W 11/26	Thanksgiving Recess		
15	M 12/1	(26) Course Summary/Results	NO LAB	A8 Due (Report #2)
	W 12/3	(27) Still not sure, tbd.		