

AME341bL: Mechoptronics Laboratory II

v4 1/2/16

Textbooks: (optional) *Introduction to Mechatronics and Measurement Systems*, Alciatore & Hstand (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.

Lecture: MWF 8-8:50 or 9-9:50 **ZHS 159**

Lab: M, T, W or Th 2-4:50 **BHE 301**

Instructors: Dr. M. Gilpin VHE M24 (213) 740-4920 gilpin@usc.edu Office hours: see Blackboard
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Wk	Date	Lecture	Lab	Assn. Due	%
1	M 1/11	Introduction	E0: LabVIEW I – Basics (A9)		
	W 1/13	2 nd Order Systems I			
2	M 1/18	MLK Day	No Lab.	A9	2
	W 1/20	Strain Gauges			
	F 1/22	Wheatstone Bridge			
3	M 1/25	2 nd Order Systems II	E1: Strain gauges/Vibrating Beams (R1)		
	W 1/27	Turbulence, Jets and Plumes			
4	M 2/1	Dynamic Pressure	E2: Turbulent Jets I (SS1)	R1	12
	W 2/3	Thermocouples			
	F 2/5	R1 recap			
5	M 2/8	Convective Heat Transfer	E3: Thermocouples/Heat Transfer (T1)	SS1	10
	W 2/10	Proposal (TJP) Info			
	F 2/12	SS1 recap			
6	M 2/15	President's Day	No Lab but ... MiniTalks from TC	T1	10
	W 2/17	Lab View I / Electric Motors			
	F 2/19	Quiz Preview / T1 Recap			
7	M 2/22	Lab View II	E4: LabVIEW II – Motor Control	TJP TQ	5 16
	W 2/24	Terror Quiz			
8	M 2/29	More on Turbulent Jets	E5: Turbulent Jets 1.5 (A10)	E4b	2
	W 3/2	Terror Quiz Post-Mortem			
9	M 3/7	No lecture – plan E6 in lab	E6: Turbulent Jets II (T2)	A10	2
	W 3/9	How to present for 341/TJ2			
10	M 3/14	SPRING BREAK	No Lab.		
	W 3/16				
11	M 3/21	Engineering Aerodynamics	SE1		
	W 3/23	Lift and Drag of Airfoils			
12	M 3/28	Compressible Flows	Presentation from E6: TJ2	T2	12
	W 3/30	Shock Tube Measurements			
	F 4/1	TJ2 recap, SS2 Details			
13	M 4/4	Example Spreadsheets	SE1 & SE2	(SE1)	
	W 4/6	Optics 1 - Basics			
14	M 4/11	Lecture Pending...	SE2 & SE3	(SE1,2)	12
	W 4/13	Optics 2 – Digital Optics			
15	M 4/18	AME 441 - 1	SE3	(SE2,3)	
	W 4/20	AME 441 - 2	Sign-up for SS2		
16	M 4/25	Something Fascinating	Final Spreadsheet/Presentation (SS2)	SS2 (SE3) 441-bb	12 2
	W 4/27	Grad School (9am section only)			

- 3% of the total grade will be determined by a Performance measure compiled by staff over the whole semester. It includes all aspects of engagement in lectures, labs, the discussion board and office hours.
- The last three Special Experiments (SE1, SE2 and SE3) are run for two weeks each. There will be sign-up sheets for each. Each student must complete at least 2 of the 3 Special Experiments.
- A full written report (12% of course grade) is required for one of the Special Experiments and is due one week after the experiment is performed.
- A presentation with data analysis demonstration (SS2, also 12%) is required for the other Special Experiment and is given in a 10-minute timeslot on your regular lab day during the last week of classes.