

AME341bL: Mechoptronics II (Measurement and Instrumentation Laboratory)

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: MW 12-1:50 pm THH 301

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

Instructors:

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Week	Date	Lecture	Lab	Assn. Due	%
1	M 1/13	(1) Introduction	E9: LabView I - Motor Control (Moving the Dials)		
	W 1/15	(2) Wheatstone Bridge & Strain Gauges			
2	M 1/20	MLK Day	No Lab		
	W 1/22	(3) 2nd Order Systems			
3	M 1/27	(4) Turbulence, Jets and Plumes	E10: LabView II - Linear Motion	A13 Prelab	4
	W 1/29	(5) LabView I			
4	M 2/3	(6) LabView II; Dyn Pressure & Measurement	E11: LabView III - Automation	A10 LabView	2
	W 2/5	(7) LabView III			
5	M 2/10	(8) Minitalks?	E12: Turbulent Jets		
	W 2/12	(9) Vibrating beams Prep & A13 Prelab Recap			
6	M 2/17	President's Day	No Lab... but MiniTalks	A12 MiniTalk	12
	W 2/19	(10) Thermocouples & A10 Recap			
7	M 2/24	(11) Arduino	E13: Strain gauges/Vibrating Beams		
	W 2/26	(12) Convective Heat Transfer & A12 Recap			
8	M 3/3	(13) SE & Junior Project Proposal Info	E14: Themocouples	A13 Report A13.5 Arduino @ Home	8 4
	W 3/5	(14) Optics I - Light and Lenses			
9	M 3/10	(15) Optics II - Digitization and Correlation	SE1: Digital Image Correlation	A14 Spreadsheet	10
	W 3/12	(16) SMA 1			
10	M 3/17	SPRING BREAK	No Lab		
	W 3/19				
11	M 3/24	(17) SMA 2 & A13 Recap	SE1: Digital Image Correlation SE2: SMAs	JP-P Proposal	4
	W 3/26	(18) Wind Tunnel I - Engineering Aerodynamics			
12	M 3/31	(19) Wind Tunnel II - Lift and Drag of Airfoils	SE2: SMAs SE3: Wind Tunnel	SE1 Report	12
	W 4/2	(20) SE Spreadsheet and Presentation Details			
13	M 4/7	(21) Something Fascinating I	SE3: Wind Tunnel	SE2 Report Equipment List	1
	W 4/9	(22) Something Fascinating II			
14	M 4/14	(23) No Lecture - Planning for E15 in Lab	No Lab ... but SE: 1-on-1 Spreadsheet Presentations	SE3 Report	12
	W 4/16	(24) AME 441			
15	M 4/21	(25) JP Presentation Details - How to Present?	E15: Junior Project		
	W 4/23	(26) AME 441: Top Groups!			
16	M 4/28	(27) Final Exam Review	No Lab ... but Junior Project Presentations	A15 Presentations 441-bb Piazza Post	12 1
	W 4/30	(28) Grad School?			
17	M 5/5	Study Days			
18	F 5/9	Final Exam: 11am - 1pm		Final Exam	15

• 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. Each student must complete 2 of the 3 Special Experiments.

• A full written report, worth 12% of the course grade, is required for one of the Special Experiments. The penalty for not submitting the Equipment list is 5% on the Junior Project Presentation grade.

• A 1-on-1 presentation/demo of data analysis, worth 12% of the course grade, is required for a second SE. It is given during a 10-minute timeslot on your regular lab day during week 14.

RECOGNIZED STUDENT ORGANIZATIONS POLICY AND GUIDELINES

Policy on requests for rescheduling labs, deadlines, and exams

Multi-student Recognized Student Organizations (RSO) events, such as conferences, contests, etc., and varsity athletic competitions that conflict with the posted course schedule must be discussed with the instructor at the beginning of the semester. RSOs requesting accommodations must have their **RSO President** send event dates and a participating student list to instructors **before Week 3** of the semester to review scheduling and potential resolutions. Requests for accommodations are not automatically granted; it is at the discretion of the instructor(s).