University Of California, Berkeley
Department of Mechanical Engineering

ME 107 - Mechanical Engineering Laboratory [3 units]

Required Course

Syllabus

CATALOG DESCRIPTION

Experimental investigation of engineering systems and of phenomena of interest to mechanical engineers. Design and planning of experiments. Analysis of data and reporting of experimental results.

COURSE PREREQUISITES

ME 102A, Senior standing

TEXTBOOK(S) AND/OR OTHER REQUIRED MATERIAL

Course material is distributed by instructor.

COURSE OBJECTIVES

Through a series of three experiments from a number of experiments students design, perform, analyze, and report on complex prototypical engineering systems as a group.

DESIRED COURSE OUTCOMES

The students will have experienced the many stages in designing a process, planning and carrying out experiments, and eventually reporting the results both orally and written in a team environment. They will have also have seen the importance of fundamental science and complex engineering skills that are needed in engineering. Equally important, they will work in a team environment where the success of the team depends on the success of every team member.

TOPICS COVERED

List of experiments cover current mechanical engineering topics of interest to the faculty. Specific list changes from semester to semester.

CLASS/LABORATORY SCHEDULE

Two hours of lecture, three hours of laboratory per week, 1 hour of optional discussion.

SAMPLE SCHEDULE

Meeting #	Item	Notes
1	Course Organizational Meeting	Group & Experiment assignments posted at Class Website
2	1st EXPERIMENT: Orientation [1]	
3	Laboratory Familiarization	
4	[2]Planning Report due on Monday	1st Laboratory Session
5	Monday Holiday no lab all week	No Labs
6	[2] Group Interim Report	2nd Lab Session (Interim Data Returned)
7	Prepare Reports & Presentation	Oral Lab Presentations
8	2nd EXPERIMENT: Orientation [1]	
9	Laboratory Familiarization	
10	[2] Submit Planning Report	1st Laboratory Session
11	Spring Break	
12	[2] Group Interim Report	2nd Lab Session (Interim Data Returned)
13	Prepare Reports & Presentation	Oral Lab Presentations
14	3rd EXPERIMENT: Orientation [1]	
15	Laboratory Familiarization	
16	[2] Submit Planning Report	1st Laboratory Session
17	[2] Group Interim Report	2nd Lab Session (Interim Data Returned)
18	Prepare Reports & Presentation	Oral Lab Presentations
Final Week	FINALS (No EXAM)	

CONTRIBUTION OF THE COURSE TO MEETING THE PROFESSIONAL COMPONENT

Provides a platform where students work on complex system as teams, and make formal oral presentation and submit complete technical reports.

RELATIONSHIP OF THE COURSE TO ABET PROGRAM OUTCOMES

(a) an ability to apply knowledge of mathematics, science, and engineering
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(e) an ability to identify, formulate, and solve engineering problems
(g) an ability to communicate effectively
(i) a recognition of the need for, and ability to engage in life-long learning
(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

ASSESSMENT OF STUDENT PROGRESS TOWARD COURSE OBJECTIVES

Interim reports, laboratory participation, oral presentation, written repots, and at times, peer evaluation.

PERSON(S) WHO PREPARED THIS DESCRIPTION

Jyh-Yuan Chen and Ralph Greif, October 5, 2009
Optional discussion approved by Prof. Dames (VC), Spring 2016.

ABBREVIATED TRANSCRIPT TITLE (19 SPACES MAXIMUM): ME Lab
TIE CODE: LABS
GRADING: Letter
SEMESTER OFFERED: Fall, Spring
COURSES THAT WILL RESTRICT CREDIT: None
INSTRUCTORS: Staff
DURATION OF COURSE: 15 weeks
EST. TOTAL NUMBER OF REQUIRED HRS OF STUDENT WORK PER WEEK: 12
IS COURSE REPEATABLE FOR CREDIT? No
CROSSLIST: None