

# **ME220L - STRENGTH OF MATERIALS LAB SYLLABUS**

Dr. Todd D. Coburn, (909) 869-2235, [tdcoburn@csupomona.edu](mailto:tdcoburn@csupomona.edu), Office: 17-2111, Office Hours: 11 AM - 1 PM TTh, 10-11 AM W, or by appointment

**Instructor:** Dr. Todd D. Coburn

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**Phone:** (909) 869-2235

**Office Hours:** 11 AM – 1 PM TTh, 10-11 AM W, or by appointment

**Office:** Bldg 17, Office 2111

**Required Text & Tools:**

- Stover, Cliff. (2010). ME 220L Strength of Materials Laboratory Manual. Revision 12/2010. Mechanical Engineering Department, California State Polytechnic University Pomona. (Available from Bronco Copy N Mail Center for about \$10).
- Pencil, Paper (Quad or Quint Pad Recommended), Engineering or Scientific Calculator

**Prerequisites:**

- ME major or MTE minor
- ENG 105 (Freshman English II) or PHL 202 (Critical Thinking) or ME 231 (ME Communications)
- Passing grade in GWT.

**Corequisites:**

- ME 219 (Strength of Materials II)

**Course Description:** Standard physical tests of engineering materials including torsion, tension, compression and bending. Experimental stress analysis using strain gages. Three-hour laboratory.

**Course Comment:** Strength of Materials I and II are fundamental courses for many careers in Mechanical, Civil, & Aeronautical Engineering. This laboratory gives the student the opportunity to apply principles learned in these courses. Each experiment reinforces one or more of these principles. Be sure to take the time to understand how each experiment relates to the principles learned. This will maximize the value of this class to your education and subsequent career.

**Classroom Rules:**

- Cheating is unacceptable at any time, and will result in immediate failure of the class.
- Attendance is required. Students who do not attend class may be dropped from the class.
- Any student who wishes to drop the class must do so by October 10, 2012.
- Cell Phones and pagers may not be used in class.
- Eating or drinking is not allowed in the classroom.

Course Grading -----	-----	Grading Scale -----	-----
Lab Reports    70%		A    100 % - 93 %	A-    92 % - 90 %
Final Exam    30%	B+    89 % - 87%	B    86 % - 83%	B-    82 % - 80%
	C+    79 % - 77%	C    76 % - 73%	C-    72 % - 70%
	D+    69 % - 66%	D    65 % - 61%	D-    60 % - 56%
		F    55 % - 0%	

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Phone: (909) 869-2235

Office: Bldg 17, Office 2111

Class: ME 220L, Section 4

Class Number: 71516

Lecture: 8:00 am – 10:50 am Tu

Location: Bldg 17, Room 1455

## **Work Standards:**

- All experiments, except experiment C, are group efforts. This means the students on each team are expected to work together, to collaborate well, and to help each other to get the work done.
- Each group is expected to organize itself in an efficient manner to expedite the work, adjusting for individual skills, abilities and experience.
- Ideally, leadership in the group should rotate for the various experiments, although this should also be evaluated against efficiency goals.
- Any students not making reasonable efforts to participate and contribute should be reported to the instructor.
- It is each student's responsibility to read the lab manual ahead of time and be prepared to begin work when class begins. Students who appear ill-prepared, or who do not participate, will have points docked from the corresponding lab assignment.
- Unexcused absences will result in an individual score of zero for the missed lab. Students who are unable to attend a lab for a justified reason need to contact the instructor before the lab meeting to arrange for a make-up.
- At the conclusion of each experiment, a copy of the original data sheet should be made for each group member.
- Group members are expected to collaborate and to put together a single lab report for each experiment. With the exception of lab C which is done entirely individually, all group members receive the same grade for each lab report.
- Lab reports should be neat, clear, concise, and easy to follow.
- Lab reports are due at the beginning of the next scheduled class meeting.
- It is the responsibility of the group to ensure that lab reports are completed and turned in on time. Late labs lose 30% credit per calendar day late.
- The lab schedule below specifies which labs each group will be performing on each day. Group assignments will be made the first day of class.
- There are three major components to this class; teamwork, applying test procedures, and understanding & application of analytical principles governing results. The lab reports measure all three of these components, but obscures individual performance due to other strengths and weaknesses on the team. The final measures the third component, and is based solely on individual performance. Each student should take care to fully understand the theory, concepts, test procedures and data analysis for each of the labs, as these will form the basis of the final.

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**CLASS SCHEDULE**

Lab Schedule below may be changed as we go along to maximize value of course.

Group	Names	Date ->	9/25	10/2	10/9	10/16	10/23	10/30	11/6	11/13	11/20	11/27	12/4 7AM- 9AM
1	Lab ----->	0	C	E	F	D	B	A	SD	SD	SD	SD	FINAL
2	Lab ----->	0	C	D	A	E	F	B	SD	SD	SD	SD	FINAL
3	Lab ----->	0	C	A	B	F	D	E	SD	SD	SD	SD	FINAL
4	Lab ----->	0	C	B	D	A	E	F	SD	SD	SD	SD	FINAL

**Code for Lab Experiments:**

- A = Tension Experiment
- B = Torsion Experiment
- C = Cantilever Beam Experiment
- D = Simply Supported Beam Experiment
- E = Combined Loading Experiment
- F = Short Column Experiment
- G = Column Buckling Experiment
- H = Crippling Experiment
- SD = Student Designed Experiment

**Note on Final Exam:**

Final exam is Tuesday 12/4 from 7 AM to 9 AM. Mark your calendars and don't miss this.