

CE 130 – Mechanics of Materials I
Section I

Date	Class #	Topic	Reading	Homework	Movie
8/28	1	Introduction	1.1-1.3		Yes
8/30	2	Stress (I)	1.1-1.9	TBA	
9/1	3	Stress (II), stress based design	1.11-1.13	TBA	
9/4	4	Holiday			
9/6	5	Strain (I), stress-strain relations	2.1-2.5	TBA	
9/8	6	Axial deformation	2.8-2.10	TBA	Yes
9/11	7	Statically Indeterminate Problems	2.8-2.10,2.12,2.17	TBA	
9/13	8	Strain Energy	2.12,2.13	TBA	
9/15	9	Strain (II)	2.12	TBA	
9/18	10	Generalized Hooke's law	2.12,2.14,2.15,2.17	TBA	
9/20	11	Torsion of circular elastic bars (I)	3.1-3.3	TBA	Yes
9/22	12	Torsion of circular elastic bars (II)	3.4-3.8	TBA	
9/25	13	Inelastic torsion of circular bars	3.9-3.10	TBA	
9/27	14	Torsion of other bars	3.13	TBA	
9/29	15	Equilibrium of beams	4.1-4.6	TBA	Yes
10/2	16	Shear and bending-moment diagrams	5.1-5.2	TBA	
10/4	17	Midterm Exam I (through # 14)			
10/6	18	Pure bending (I)	5.3,5.4,4.5,4.6	TBA	
10/9	19	Pure bending (II)	5.3,5.4,5.5	TBA	
10/11	20	Inelastic bending	4.8,4.9.4.10,4.11	TBA	
10/13	21	Bending with axial loads	4.13,4.14	TBA	
10/16	22	Shear flow in beams	6.1-6.4	TBA	
10/18	23	Shear stresses in beams	6.4,6.5,6.6,6.7	TBA	
10/20	24	Equations for beam deflections	9.1-9.4	TBA	Yes
10/23	25	Deflections by integration	9.2-9.6	TBA	
10/25	26	Singularity functions	9.6,9.7,9.8	TBA	
10/27	27	Deflections by superposition	9.7,9.8	TBA	
10/30	28	Transformation of stress	7.1-7.3	TBA	
11/1	29	Midterm II (through #27)			

Date	Class #	Topic	Reading	Homework	Movie
11/3	30	Principal stresses	7.3-7.5	TBA	
11/6	31	Mohr's circle of stress (I)	7.5-7.6	TBA	
11/8	32	Mohr's circle of stress (II)	7.5,7.6,7.9	TBA	
11/10	33	Holiday			
11/13	34	Principle stress under a given load	8.1-8.4	TBA	Yes
11/15	35	Transformation of strain	7.10,7.11	TBA	
11/17	36	Yield and fracture criteria	7.7,7.8	TBA	
11/20	37	Stability: introduction	10.1-10.3	TBA	
11/22	38	Buckling of columns (I)	10.3,10.4	TBA	
11/24	39	Holiday			
11/27	40	Buckling of columns (III)	10.5	TBA	
11/29	41	Buckling of columns (III)	10.5	TBA	Yes
12/1	42	Introduction to energy methods	11.1-11.3	TBA	
12/4	43	Energy method (I)	11.3-11.5	TBA	
12/6	44	Energy method (II)	11.6,11.9,11.10	TBA	
12/8	45	Energy Theorems	11.12-11.14	TBA	

Required Textbook: F. P. Beer, E.R. Johnston, Jr. and J. T. DeWolf *Mechanics of Materials*, McGraw Hill, 2006, 4nd Edition.

Homework assignment: The **HW** is assigned each week through class email and class website. The due-day of each HW varies based on each assignment.

Suggested problems are not to be handed in, but doing them will provide greater understanding of the course material. There are two midterm examinations, as shown in the outline, and a final. All exams will be closed book with an instructor provided equation sheet.

Course grade is from three aspects of your performance : Homework 30%, Midterms 30%, Final 40%.

Limited **Collaboration** is permitted on homework assignments. You may discuss the homework with each other but may not show your written work to others. Similarly, the use of solution keys or solution sets of any type is expressly forbidden. Misconduct on examinations will likewise be reported to the Student Conduct Office and result in a failing grade for the course.

Office Hours:

Prof. Li: Email: li@ce.berkeley.edu ;

Wednesday: 3:30-5:00 pm;

Friday: 3:30-5:00 pm;

Additional office hour may be available upon notice.

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Tuesday: 2:30-4:30 am, 544 Davis Hall;

Thursday: 4:00-5:00 am, 504 Davis Hall;

Discussion sessions:

Thursday: 4:00 pm - 5:00 pm, 406 Davis Hall;

Friday: 9:00 am – 10:0 am; 100 GPB .

Readers: Mr. Sangjoon Park; sangjoon@berkeley.edu

Class web-page <http://www.ce.berkeley.edu/Courses/CE130/>