

CE 130 – Mechanics of Materials I, Section 2

Date	Class #	Topic	Reading	Homework
1/17	1	Introduction	1-1-2	
1/19	2	Concept of stress	1-3, 1-6-8	1-9,19
1/22	3	Stress (cont.); stress-based design	1-4,1-9-11	1-32,53
1/24	4	Intro. to strain, stress-strain relations	2-1-5, 2-7	2-2,3
1/26	5	Axial bars; Saint-Venant principle	3-1-3	3-17,25
1/29	6	Statically indeterminate problems	4-1-4	4-7,22
1/31	7	Strain energy	3-5-6,5-3	3-30,33
2/2	8	General concept of strain	5-1-5	3-49,5-1
2/5	9	Generalized Hooke's law	2-6,5-6-8	5-4,8
2/7	10	Thin-walled pressure vessels	5-9-10	5-22,24
2/9	11	Elastic torsion of circular shafts (1)	6-1-4	6-1,3
2/12	12	Elastic torsion of circular shafts (2)	6-5-9	6-24,27
2/14	13	Inelastic torsion of circular shafts	6-13	6-35,48
2/16	14	Torsion of general bars	6-14-16	6-58,59
2/21	15	Equilibrium of beams; shear and moment diagrams	7-1-8	7-13,14,18
2/23	16	Review for Midterm #1		
2/26	17	Midterm exam (through # 14)		
2/28	18	Diagrams by integration	7-9-13	7-43,49,60
3/2	19	Pure bending (1)	8-1-3	8-2,6
3/5	20	Pure bending (2)	8-4-7, 8-9	8-12,52
3/7	21	Inelastic bending	8-8	8-38,45
3/9	22	Bending with axial loads	9-1-4	9-14,26
3/12	23	Shear stresses in beams (1)	10-1-4	10-2,3
3/14	24	Shear stresses in beams (2)	10-5-7	10-8,26
3/16	25	Transformation of stress	11-1-3	11-5,8
3/19	26	Principal stresses	11-4-5, 11-8	11-18,21
3/21	27	Mohr's circle	11-6-7, 11,9	11-25,39
3/23	28	Transformation of strain, rosettes	11-10-14	11-58
4/2	29	Yield and fracture criteria	12-1-7	12-7
4/4	30	The beam equation and integration	14-1-7	14-11,24
4/6	31	Review for Midterm #2		
4/9	32	Midterm exam (through #29)		
4/11	33	Singularity functions	7-14, 14-8	14-45,49
4/13	34	Superposition	14-9	14-52,56
4/16	35	Statically indeterminate beams	15-4	14-62,64
4/18	36	Influence of shear on beam deflections	14-11	14-65,70
4/20	37	Introduction to energy methods	17-1-3	17-1,2
4/23	38	Energy theorems	18-1-4	18-3,13
4/25	39	Virtual-work methods	17-4-6	17-23,27
4/27	40	Applications	17-7	17-37,49
4/30	41	Introduction to stability theory	16-1-3	16-1,3
5/2	42	Buckling of columns (1)	16-4-5	16-9,10
5/4	43	Buckling of columns (2)	1-6-8	16-14,16
5/7	44	Review		

Final Exam: Saturday, May 12, 12:30-3:30 PM.

Course information

Time and location: lecture MWF 1-2, 60 Evans; supplementary section W 5-6, 502 Davis

Web Page: <http://www.ce.berkeley.edu/~coby/CE130>

Textbook: Egor P. Popov, *Engineering Mechanics of Solids*, second edition, Prentice-Hall

Instructor: Jacob Lubliner <lubliner@ce.berkeley.edu>, office hours MWF 10:30–11:30 and by appointment (preferably via e-mail), 535 Davis Hall

GSI: Tracy Becker <tcbecker@gmail.com>, office hours TuTh 1–2:30, W 3–4:30, 504 Davis

Composition of grade: Homework 20%, midterms 30%, final 50%. Midterm and final exams are closed book except for material provided by instructor.

Homework: The problems assigned in any one week are due the following **Friday** at the beginning of the class. Exceptions: (1) the homework for class #29 is to be included with that of the preceding week, and (2) the last homework set is due on the last day of class, Monday, May 7. No late homework will be accepted unless excused by the instructor for good cause. The solutions will be available in the Engineering Library by the following Monday and will be posted on the course website.