

King Fahd University of Petroleum & Minerals
CIVIL ENGINEERING DEPARTMENT

CE 203 STRUCTURAL MECHANICS I
First Semester 2009-2010

Text: Mechanics of Materials (6th ed. in SI Units) by R.C. Hibbeler (2005)
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COURSE OUTLINE & COORDINATION SCHEDULE (091)

Lect.	Date	Subject	Section(s)
1	Oct. 03	Introduction to Mechanics & Definitions of Stress in Deformable Bodies	1.1, 1.2
2	05	Normal Stress	1.3 (partial)
3	07	Average Normal Stress	1.4
4	10	Average Normal Stress (cont'd); Shear Stress	1.4; 1.5
5	12	Shear Stress (cont'd)	1.5
6	14	Factor of Safety; Bearing Stress; Structural <i>Design</i>	1.6, 1.7
7	17	Definition of Strain, Stress-Strain Diagrams	2.1,2.2,3.1,3.2
8	19	Hooke's Law; Material Behavior; Poisson's Ratio	3.3, 3.4, 3.6
9	21	Deformation of Axially Loaded Members	4.1 - 4.3
10	24	Statically Indeterminate Problems; Design Applications	4.4, 4.5
11	26	Thermal Stresses and Thermal Strain	4.6
12	28	Thermal Stress (cont'd)	4.6
13	Oct. 31	Stress Concentrations and applications	4.7
14	Nov. 02	Stress Components Under General Loading	1.3 (partial); 10.6
-	Nov. 3, 2009	First Major Examination (Tuesday Evening)	
15	04	Generalized Hooke's Law	10.6
16	07	Generalized Hooke's Law (cont'd); Applications	10.6
17	09	Circular Shafts (Deformation & Torsion Formula)	5.1, 5.2
18	11	Transmission Shafts and Gears	5.3
19	14	Transmission Shafts and Gears (cont'd)	5.3; 5.4
20	16	Angle of Twist	5.4
21	18	Statically Indeterminate Shafts	5.5
-	Nov. 19 - Dec. 04.	Eid Al-Adha (Hajj) Recess	-
22	Dec. 05	Torsion of Solid Non-Circular Sections	5.6 & handouts
23	07	Twisting of Thin-Walled Closed Sections (TWCS)	5.7
24	09	Twisting of TWCS. (cont'd); <i>Design</i> Applications	5.7;
25	12	Shear & Bending Moment Diagrams–Method of Summations	6.1, 6.2
26	14	Shear & Bending Moment Diagrams–Method of Summations	6.2
27	16	Shear & Bending Moment Diagrams–Method of Summations	6.2

Lect.	Date	Subject	Section(s)
28	19	Bending Stresses in Straight Beams	6.3
29	21	The Flexure Formula	6.4
30	23	The Flexure Formula (cont'd)	6.4
31	26	Shear in Straight Beams, Shear Formula	7.1, 7.2
32	28	Shear Stress in Beams	7.3
-	Dec. 29, 2009	Second Major Examination (Tuesday Evening)	
33	30	Shear Flow in Beams; Design of Beams; Applications	7.4;
34	Jan. 02, 2010	Thin-Walled Pressure Vessels & Compound Stresses	8.1; 8.2
35	04	Compound Normal Stress	8.2
36	06	Compound Shear Stress	8.2

37	09	Compound Normal/Shear Stress	8.2
38	11	Transformation of Plane Stress	9.1, 9.2
39	13	Mohr's Circle	9.4
40	16	Mohr's Circle (cont'd); Design Applications	9.4; 9.5 - 9.7
41	18	Beam Bending Deflection; Moment–Curvature Equation	12.1, 12.2
42	20	Moment – Curvature Equation & Singularity Functions	12.2; 12.3
43	23	Beam Bending Deflections by Singularity Functions	12.3 (cont'd)
44	25	Analysis of Beams' Indeterminate Problems	12.6
45	27	Analysis & Design Applications for Beams	12.6;

Course Grades Assignments are based on the following Distribution:

- Class Work [Attendance & Participation; Quizzes; Homework] = 20%
- First Exam [Tuesday, Nov. 3, 2009; Time: 7:00 p.m.] = 25%
- Second Exam [Tuesday, Dec. 29, 2009; Time: 7:00 p.m.] = 25%
- Final Exam [Material coverage & schedule are yet to be determined] = 30%

Remarks:

1. The University regulations regarding excessive absences will be strictly adhered to in this course. Read pages 38-40 of the Undergraduate Bulletin.
2. Homework assignments/solutions are distributed and collected every Monday (unless it is indicated otherwise). It is expected that each student will exert enough effort to prepare his assignments independently and submit the solutions in a suitable engineering format with a cover-page that includes adequate details about the assignment.
3. It is essential that students read text-book covered-materials regularly and solve as many problems from the textbook as possible and to seek faculty assistance as needs arise.
4. Applications from Chapter 11 (Design Concepts and Applications to Beams and Shafts) are inserted at appropriate times/topics through lecture, homework, tests, and examinations.