

TEXT: Mechanics of Materials 5th Edition, by Beer, Johnston, DeWolf, and Mazurek

Prerequisite: ESM 2104, Statics

LECTURE	DAY	DATE	ARTICLES	TOPICS	HW PROBLEMS
1	T	8/26	1.1 – 1.10, SP1.1-1.2	Introduction, normal, shear and bearing stress	1.3, 1.5, 1.7, 1.15, 1.17, 1.26
2	R	8/28	1.13, SP 1.3-1.4	Factors of safety, design	1.37, 1.41, 1.53
3	T	9/2	2.1-2.3, 2.5, 2.8, 2.9, EX 2.02-2.05, SP 2.3	Stress-strain diagrams, axial loading, Statically indeterminate probs (axial)	2.6, 2.17, 2.26
4	R	9/4	2.10, EX 2.06, SP 2.4	Statically indeterminate problems (axial), Effect of temperature	2.35, 2.41, 2.43, 2.45, 2.49, 2.51, 2.58
5	T	9/9	1.12, 2.11-2.12, 2.14-2.15, EX 2.07-2.08, 2.10, SP 2.5	Multiaxial loading	2.62, 2.69, 2.76
6	R	9/11	2.17, 2.18, Ex. 2.12	Stress concentration	2.94, 2.95, 2.98
7	T	9/16	3.1-3.4, SP 3.2-3.2	Torsional stress	3.1, 3.17, 3.22
-	W	9/17	<b>TEST 1—Time &amp; Location TBD</b>	-----	-----
8	R	9/18	3.5, EX 3.02-3.04, SP 3.3-3.4	Angle of twist	3.34, 3.35, 3.45
9	T	9/23	3.6-3.7, EX 3.05-3.07, SP 3.5	Statically indeterminate probs (torsion), Design (torsion)	3.51, 3.53, 3.63, 3.70, 3.71, 3.80
10	R	9/25	Appendix A.1 – A.5	Moment of inertia	4.5, 4.8, 4.9, Locate centroid and find I (composite sections)
11	T	9/30	4.1-4.4, 4.12, EX 4.07, SP 4.1-4.2, 4.8	Bending stresses, Eccentric axial loading	4.1, 4.7, 4.23, 4.106, 4.113, 4.118
12	R	10/2	4.14, Ex. 4.09, SP 4.9, Review	Eccentric axial loading, Review	4.140, 4.144, 4.189
13	T	10/7	5.1-5.3, SP 5.1-5.2	Shear and moment diagrams	5.2, 5.4, 5.19, 5.51
14	R	10/9	5.3, 5.4, SP 5.3-5.5, 5.7-5.8	Shear and moment diagrams, Design of beams for bending	5.55, 5.59, 5.68, 5.75, 5.87

15	T	10/14	6.1-6.5, EX 6.01-6.03, SP 6.1-6.2	Transverse shear stress	6.3, 6.6, 6.24
16	R	10/16	6.6, EX 6.04, SP 6.3	Transverse shear stress and Review	6.29, 6.33, 6.44
17	T	10/21	Review	-----	-----
-	W	10/22	<b>TEST 2—Time &amp; Location TBD</b>	-----	-----
18	R	10/23	7.1, 7.2	Stress transformation	7.17, 7.18, 7.21
19	T	10/28	7.3-7.4, EX 7.01, SP 7.1	Principal and maximum shear stress, Mohr's Circle	7.6, 7.23, 7.26, 7.32
20	R	10/30	7.4, 7.6, EX 7.02-7.03, SP 7.2-7.3	Mohr's Circle, Maximum shear stress	7.34, 7.48, 7.66, 7.68, 7.71
21	T	11/4	7.9, 8.1-8.2, SP 7.5	Pressure vessels, Principal stresses	7.107, 7.114, 7.120
22	R	11/6	SP 8.1-8.2	Principal stresses, Review	8.3, 8.6, 8.7
23	T	11/11	8.4, EX 8.01, SP 8.4-8.5	Combined loading	8.33, 8.35, 8.31, 8.40
24	R	11/13	8.4	Combined loading	8.44, 8.47, 8.51, 8.72, 8.74
25	T	11/18	Review	-----	-----
-	W	11/19	<b>TEST 3—Time &amp; Location TBD</b>	-----	-----
26	R	11/20	9.1-9.3, 9.5, EX 9.01-9.04, SP 9.1-9.2	Beam deflections – integration, Statically indeterminate beams	9.2, 9.3, 9.6, 9.17, 9.18
Thanksgiving break					
27	T	12/2	9.7-9.8, EX 9.05, SP 9.3	Beam deflections – superposition	9.21, 9.71, 9.83, 9.89, 9.90
28	R	12/4	10.1, 10.3-10.4	Buckling of columns	10.10, 10.13, 10.20, 10.24, 10.28
29	T	12/9	Review	-----	-----

SP – Sample Problem  
EX – Example Problem

**FINAL EXAM (Common-time): Wednesday, December 17, 2008, 11:05am – 1:05pm (location TBA).**