

**TEXTS:** Advanced Strength and Applied Elasticity, A.C. Ugural and S.K. Fenster, Prentice-Hall, 4<sup>th</sup> ed., 2003.

**REFERENCES:** Theory of Elasticity, S. Timoshenko and J. Goodier, McGraw-Hill Book Co.  
Applied Elasticity, C.T. Wang, McGraw-Hill Book Co.

WEEK	TOPICS	READING ASSIGNMENT	PROBLEMS
1	Introduction, stress tensor, equilibrium of stresses	1.1-1.8	8,9,10,11
2	State of stress at a point, principal stresses, transformation of stresses, Mohr's Circle	1.9-1.16,	25,36,47
3	Strain tensor, normal and shearing strains, compatibility	2.1-2.4	1,3,4,5
4	State of strain at a point, stress-strain relations	2.5-2.9	6,12,14
5	Measurement of strain, strain energy, St. Venant's Principle	2.10-2.14	25,28,29,39
6	Plane stress, plane strain, generalized plane strain	3.1-3.4	1a,5,6
7	<b>MIDTERM EXAM</b>		
8	Airy stress function, thermal stresses	3.5-3.7	14,16,19
9	Stress and strain relations in polar coordinates	3.8-3.9	13,25
10	Axisymmetrically loaded members, thick-walled cylinders	8.1-8.4	1,4,11,13
11	Shrink and force fit, compound cylinders	8.5	24; Wang (Pg. 58) Prob. 1,2
12	Stress concentration, small hole in a large plate	3.11	Wang (Pg. 62) Prob. 1,2,3
13	Rotating disks, constant and variable thickness, uniform stress	8.6-8.8	25,31; Wang (Pg. 67) Prob. 1,2
14	Introduction to bending of plates and shells	13.1-13.6	-----
15	<b>FINAL EXAM</b>		

**Homework will be assigned, collected and graded.**

**Grading will be based on the Mid-term Exam (40%)**

**Final Exam (40%), and Homework/Classwork (20%)**

**The NJIT Honor Code and Professional Conduct will be strictly enforced.**

