

MECH 6300/MECH 6306/MECH 5300: Advanced Mechanics of Materials

Prerequisite: MECH 3130 or equivalent

Fall 2008

Instructor: Hareesh Tippur, Professor of Mechanical Engineering, Auburn U., AL

Office: 270, Ross Hall, Tel: 4-3327, email: htippur@eng.auburn.edu ,

website: <http://www.eng.auburn.edu/users/htippur/>

Office Hours: MWF 11-12

Tentative Course Outline

1. Introduction
2. Review of Elementary Mechanics of Materials
3. Stress analysis
4. Strain analysis
5. Stress-strain relations
6. Strain energy and failure theories
7. Stress function approach for 2D problems
8. Axisymmetric problems - thick walled pressure vessels, shrink fits, rotating members
9. Stress concentration problems
10. Torsion
11. Bending of beams - asymmetric sections, curved beams
12. Energy Methods – deflections, statically indeterminate problems

Text Book:

Advanced Strength and Applied Elasticity, Ugural and Fenster, 4th Ed., Prentice Hall, 2003.

Reference:

Advanced Strength and Applied Stress Analysis, Richard Budynas, 2nd Ed., McGraw Hill, 1999.

Grading and Evaluation Procedure:

Test/s 40%, Home works 40%, Final 20%

Above Class Average: A, B

Equal to or Below Class Average: C, D, F

Class attendance is expected but not recorded. Late submission of assigned work, project report or make-up of examinations will be allowed only if accompanied by an approved University excuse.

Accessibility:

It is the policy of Auburn University to provide accessibility to its programs and activities, and reasonable accommodation for persons defined as having a disability under Section 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act of 1990. Students who need special accommodations should make an appointment to see the instructor as soon as possible or contact the Student with Disabilities Program office at (334) 844-5943 (Voice/TT)