Course Description:
The main focus of this course is on the stress and deformation of engineering structures and the influence of the mechanical behavior of materials. This course is designed to introduce sophomores to solid mechanics, and prepare them for design of structures and components in Mechanical Design (MEC 410), Laboratory Courses (MEC 316 and MEC 317), and higher-level elective courses in Solid Mechanics such as MEC 455. The prerequisite for MEC 363 is a grade of “C” or better in Statics (MEC 260).

Topics covered include concepts of stress and strain, constitutive relations, analysis of statically indeterminate systems, study of simple bars and beams, and stability conditions. The course emphasizes force equilibrium, elastic response of materials, geometric compatibility, Mohr's circle, stresses and deflections in beams, and torsion and buckling of rods, with the objective of designing for bending, shear and combined states of stress.

Textbook:

Grading Policy:
Grades are based on scores from Homework (20%), two Midterm Exams (25% each), and a Final Exam (30%).

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Lectures:
Tuesdays and Thursdays 8:20-9:40 am; 102 Light Engineering

Recitation, Section 01:
Monday 9:35-10:30 am; P127 Physics.

Recitation, Section 02:
Monday 11:45-12:40 am; S218 Social Behavioral Sciences.

Topics (number of lectures are approximate)

- Introduction to Stress (2 lectures)
- Stress and Strains, Axially Loaded Members (3 lectures)
- Torsion (3 lectures)
- Bending Moments (4 lectures)
- Shear Forces and Stresses in Beams (3 lectures)
- Transformation of Stress and Strain (3 lectures)
- Deflections of Beams (3 lectures)
- Statically Indeterminate Beams (2 lectures)
- Columns –Buckling (2 lectures)
Academic Integrity Statement:
Academic dishonesty is an extremely serious offense and will not be tolerated in any form. Academic dishonesty in general is the presentation of intellectual work that is not originally yours. Examples include, but are not limited to, copying or plagiarizing class assignments including homework, reports, designs, computer programs, and other submitted materials; copying or otherwise communicating answers on exams with other students; bringing unapproved aids, either in physical (written) or electronic form to an exam; obtaining copies of an exam prior to its administration, etc. Academic dishonesty violates both the ethical and moral standards of the Engineering profession and all infractions related to academic dishonesty will be prosecuted to the fullest via the CEAS CASA committee. For you, the honest student, academic dishonesty results in lower class curves, hence a depression in your GPA and class standing, while cheapening the degree you earn.

Calculator Policy:
Effective spring, 2008 only the following calculators will be permitted to be used on all midterm and final exams in the Department of Mechanical Engineering. There will be no exceptions! This list of calculators is identical to that allowed for the National Council for Examiners for Engineering and Surveying (NCEES) Fundamentals of Engineering (FE) exam that many of you will take in your senior year, as well as the Professional Engineering (PE) exam that you may take several years from now. The sooner you become comfortable on one of these calculators, the better.

NCEES Allowed calculators as of spring, 2008:

- Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name
- Hewlett Packard: The HP 33s and HP 35s models, but no others.
- Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name

The NCEES policy on calculators can be found here: [http://www.ncees.org/exams/calculators](http://www.ncees.org/exams/calculators)