

## MECH 5312: Solid Mechanics II

Textbook (Optional):	<b><u>Elasticity and Inelastic Stress Analysis</u></b> by H. Shames and F. Cozzarelli
Class/Lab Meeting:	TRs 10:30 to 11:50 am
Class Room:	Classroom Bldg C205
Prerequisite:	Mechanicals of Materials,
Instructor:	Yirong Lin, Ph.D. Department of Mechanical Engineering Office: A111 E-mail: ylin3@utep.edu Office Hours: 12:30 pm to 1:30 pm MWs

### Topics covered

1. Introduction to Continuum Mechanics
2. Linear Elastic Behavior
3. Plasticity and Visco-plasticity
4. Constrictive Equations
5. Energy Based Method
6. Fracture Mechanics
7. Failure Analysis

### Grades

Your grade for this course will be assessed based on your performance in quizzes (10 %), mid-term exams (50 %), project (20 %), and term paper (20 %). Four quizzes will be given throughout the semester. The content of a quiz could be the materials covered in previous sessions. There will be no make-up quizzes. Four exams will be given during the semester. Make-up exams will be given only for extremely credible reasons (no flat tire, no sudden sick or family member pass away). Otherwise, your final grade is calculated based on the criteria below,

Your final grade will be calculated based on the points you have accumulated as follows:

A	$\geq 90$
B	$\geq 80$ but $< 90$
C	$\geq 70$ but $< 80$
D	$\geq 60$ but $< 70$
F	$< 60$

**The instructor reserves the right to revise this grading plan.** However, students will be informed of any changes during the semester.

### Allowed Calculators

The following will be the only calculators allowed in exams:

- 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.

These are the same calculators that are currently being allowed in the Fundamental of Engineering (FE) and Professional Engineering (PE) exams (<http://www.ncees.org/exams/calculators/>). It is your responsibility to get acquainted with the features of the calculator you decide to use. I recommend that you use this calculator for all your work (including other courses) since this will help you learn how to use all the features of your calculator.

### **Study Guide**

Read the text to be discussed prior to the scheduled class and review the subject thoroughly after the class. Read the textbook carefully. Work on all examples given in the text and solve as many unassigned problems as you can. Expect to spend 10 to 15 after-class hours each week on the subject. Establish a good studying habit and you will do very well in the class.

### **Policy on Cheating**

Students are expected to be above reproach in all-scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts (Regents= Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). Scholastic dishonesty harms the individual, all students, and the integrity of the university; policies on scholastic dishonesty will be strictly enforced.

### **Class Schedule**

**Quiz:** Week 3 (02/06/13), Week 8 (3/13/13), Week 13 (4/17/13)

**Exam:** Week 4 (02/13/13), Week 9 (3/20/13), Week 14 (4/24/13)

**Project Due:** Week 14, 4/29/13.

**Term Paper Due:** Week 15, 5/01/13.

**The above schedule, policies, and assignments in this course are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.**

**Safety Statement:**

The Department of Mechanical Engineering at the University of Texas at El Paso is committed to a model of excellence in education that includes providing a safe and healthy environment for its students, staff, faculty and the general public.

Our goal is to maximize education and research training that can only occur if you, the individual, minimize hazards and risks. This can be done by:

- Providing adequate control of the health and safety risks arising from any and all activities;
- Consulting with employees on matters affecting their health and safety
- Providing and maintaining safe laboratories and equipment;
- Ensuring safe handling and use of substance;
- Ensuring all employees are competent to do their task and have adequate training; and
- Maintaining clean, safe and healthy working conditions

The principal investigator or individual in charge of each laboratory is ultimately responsible for safety in that respective lab. This includes training and ultimate release of the laboratory. Within the Department, we hold every employee (staff, faculty, student) responsible for implementing our safety practices and our departmental safety policy. We hold every employee (staff, faculty, student) responsible for providing leadership within our department to establish effective environmental safety and occupational health standards.