

CE 2313

MECHANICS OF MATERIALS

Spring 2013

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Office hours : Tu Th 11:00 AM – 12:30 PM, NH 240
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Section: CE 2313 - 001

Class meeting: TuTh 9:30AM - 10:50PM, ERB 208

Objectives:

- To introduce the concepts of internal forces, stress, strain, deformation in deformable bodies, torsion, flexure, shear, and stability of the systems
- To familiarize the student with the application of the above concepts
- To analyze the behavior of basic structural components. This course will also prepare students with adequate background to take design courses in structural and mechanical systems.

This course will focus on the following student educational outcomes:

- An ability to apply knowledge of mathematics, science, and engineering T_I
- An ability to design a system, component, or process to meet desired needs T_I
- An ability to identify, formulate and solve engineering problems T_I
- An understanding of professional and ethical responsibility C_I
- The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context C_I
- A recognition of the need for, and an ability to engage in life-long learning C_I
- A knowledge of contemporary issues C_I
- An ability to use the techniques, skills and modern engineering tools necessary for engineering practice T_I

**Covered Implicitly (C_I): The outcome is implicitly covered*

Covered Explicitly (C_E): The outcome is explicitly covered

Tested Implicitly (T_I): The outcome is covered and implicitly assessed for by one or more means (assignments, test questions, essay questions, presentation evaluations, lab reports, etc.)

Topics Covered:

- Concepts of stress and strain
- Mechanical properties of materials
- Axial loading
- Linear and nonlinear torsion
- Bending
- Transverse shear
- Combined loads
- Transformation of stress and strain
- Mohr's Circle
- Principal stress and strain
- Design of beams and shafts
- Beam and frame deflection
- Buckling of columns

Homework:

Assignments will be collected in class at the beginning of a lecture in hard copy. Late Homework will NOT be accepted.

Homework must be presented in standard format. This includes: (a) statement of the problem (with a sketch); (b) quantities with given values; (c) quantities to be found; and (d) solution of the problem.

Work MUST be done in pencil on engineering paper and must be neat and readable. Draw a box around the answer(s). DO NOT WRITE IN THE BACK OF THE PAGE

Prerequisites: CE 2311 and MATH 2425

Textbook: "Mechanics of Materials", 8th ed., by R. C. Hibbeler, Prentice Hall

Grading policy:

<u>Weighting of grades</u>		<u>Final grades</u>
Quiz and Class Participation	10%	
Homework	20%	B 80 - 89.99 %
Midterm I+II	20% + 20%	C 70 - 79.99 %
Final exam	30%	D 60 - 69.99 %
Total weight	100 %	< 59.99 % F

Attendance Policy: Regular attendance is required.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. Contact the Financial Aid Office for more information.

Americans with Disabilities Act: The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Academic Integrity: It is the philosophy of the University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, and 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 attempted to commit such acts." (Regents' Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available: The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transmission, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

E-Culture Policy: The University of Texas at Arlington has adopted the University "MavMail" address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. Students are responsible for checking their MavMail regularly. Information about activating and using MavMail is available at <http://www.uta.edu/oit/email/>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

Final Review Week: A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in class syllabi. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week.

Librarian to Contact: Barbara Howser, Science and Technology Library.

Make-up exam Policy: Make-up exams quizzes and homework are not allowed.

Grade Grievance Policy: Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog.