MEEN 2332: Mechanics for Materials for Mechanical and Energy Engineering

Spring 2020

Instructor: Nandika Anne D’Souza

Tuesday and Thursday 8:30 to 10:20 am

Office Hours: Thursday 7:30 to 8:30 am and Tuesday 10:30 to 11:30

Location: desk outside B192

Other times are by appointment through emailing ndsouza@unt.edu

Office: Deans office area, CENG, A160

COURSE DESCRIPTION:

Relationships among loads placed on structural components; shape and size of components; resultant stresses, strains and deflections of components.

COURSE OBJECTIVES:

Upon completion of this course, the student should be able to:

1. Understand the concepts of stress and strains, and the influence of loading direction on deformation.
2. Understand the impact of applied loads on design.
3. Know the final extensions on axially loaded members subjected to tensile or thermal stresses.
4. Understand the influence of torsional stresses on deformation of circular bars.
5. Understand shear force and bending moment diagrams.
6. Understand the principal stress based on applied loads.
7. Understand the influence of location of loads on the deflection.
8. Understand failure criterion for designs

Student Learning Outcomes: (Course Objectives Supported)

a) Calculate stress-strains relations for typical engineering applications. (1, 2, 3, 4, 6, 8)

b) Analyze tensile loading of members. (1, 2, 3)

c) Analyze torsion in beams. (1, 2, 4)
d) Analyze beams in deflection. (1, 5, 7)

e) Calculate principal stresses and angular dependence of stress. (1, 6)

Guidelines to do well in class

1. Use of the cellphone and computer for anything other than coursework and use of clicker is discouraged.
2. Lectures are valuable. If we save the written notes on pdf, they will be uploaded to canvas.
3. If you have a personal situation that makes attendance hard, contact me ahead of time or as soon as you learn of the situation.
4. Due date for the homework is before class starts.
5. Review the planned schedule for exam dates and ensure you don’t miss the class. Makeup examination will not be given. If you request an excused absence we will use the dean of students office. You will provide documentation of the absence and all instructors will be informed of the absence.

COURSE REQUIREMENTS:
REQUIRED TEXT: Mechanics of Materials, 10th Ed., Hibbeler, Pearson

Grading Criteria: the highest of the option a and b will be used for the cumulative grade

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<th>Option a</th>
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<td>Exam 1</td>
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<td>Exam 2</td>
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Expected Grade Distribution:

>= 90 grade points = A

>= 80 and < 90 grade points = B

>=70 and <80 grade points = C

>=60 and < 80 grade points = D

< 60 grade points = F
The instructor reserves the right to change this grade distribution at the end of the semester. If any changes occur, the changes will be less stringent that the distribution above.

Exams and Quizzes

1. Class exams and quizzes are written with the policy of closed textbook and notebooks.
2. Laptop or an iPhone or iPad or any other handheld computers and cell phones during the exams and quizzes are not allowed.
3. Bring a scientific/engineering calculator to classes and labs each time. Sharing calculators during the exams will not be permitted.
4. Grades are based in part on the student’s ability to communicate. You must present your entire solution in an orderly way for each problem to receive credit in all assignments and tests. You must show the complete process of your solution. Partial credits will be assigned for correct steps that have been taken in a solution.
5. Requests for the review of a graded exam problem must be submitted in writing no later than the next class day following the return of a graded exam. The graded exam should be attached to your request and you must explain your reason for requesting a grade review. In this matter, the review is not limited to a single problem requested by the student. Upon review, the exam score may increase, remain the same, or decrease.

Disabilities Accommodation:

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request reasonable accommodations at any time, however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. If you believe you have a disability requiring accommodation, please see the instructor and/or contact the Office of Disability Accommodation at 940.565.4323 during the first week of class.

Additional Policies:

1. The SPOT system is a requirement for all organized classes at UNT. This short survey will be made available to you at the end of the semester, providing you a chance to comment on how this class is taught. I am very interested in the feedback I get from students, as I work to continually improve my teaching. I consider the SPOT to be an important part of your participation in this class.

2. The UNT policy on academic integrity is applied with any violation of integrity during exams leading to a zero being applied to the exam. At the start of each exam, you will turn all electronic items off and put in your book bag which you will leave at the front of the class. You will have your writing utensils and the FE exam approved calculator. Paper will be provided to you as will equations that you are not expected to learn. Please review the process of appealing a determination of academic integrity by me reviewing the policy at https://vpaa.unt.edu/fs/resources/academic/integrity (Links to an external site.)
3. State common law and federal copyright laws protect this course lectures and materials. They have my own original expression and revisions to the textbook author(s) and I record them at the same time that I deliver them in order. Whereas you are authorized to take notes in class, thereby creating a derivative work from my lecture, and/or make a print of my lecture notes/slides. The authorization extends only to making one set of notes for your own personal use and no other use. You are not authorized to record my lectures, to provide your notes to anyone else or to make any commercial use of them without express prior permission from me.

4. This syllabus is subject to change at any time during the semester with changes to be announced during the class hours.

5. Cell phones, iPhones, iPods, iPads, laptops must be turned off or in silent mode before the start of the class and left in your pocket, purse, or book bag.

6. Each student should retain graded lecture notes, pop quizzes, homework, tests, software-generated files, and reports to document errors in recorded grades.

7. An I (incomplete) grade is given only for extenuating circumstances and in accordance with University and Departmental Policies.