Advanced Solid Mechanics (MEEN 4800/MEEN 5410)

Instructor: Yijie Jiang, Ph. D.

Office: F101T

Office Hours: Mondays 2:00-4:00 PM

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Spring 2022

Time: (MW) 4:00 PM-5:20 PM

Classroom: B157

Course Description

This course introduces the principles on advanced mechanics of solid materials. This course will enable graduate students and senior level undergraduate students to understand the fundamental solid mechanics and solve elastic problems of solids and structures.

Course prerequisite

Mechanics of Materials (ENGR 2332)

Course Objectives

Introduce advanced solid mechanics of materials. When completed, students would be able to understand and solve elastic mechanics problems in complex conditions, such as torsion, beam bending, column stability, and contact problems.

Course Requirements

Attendance – Attendance is mandatory. Lectures and class discussions will contain vital information needed to do well on the exams.

Textbook

Advanced Mechanics of Materials (6th Edition), by Arthur P. Boresi and Richard J. Schmidt, ISBN-10: 0471438812.

Exams

There will be three exams, including two quizzes and one final exam, and one course project. Exams will be based on text readings, handouts, class exercises, and class lectures and discussions. Students are responsible for all text materials, regardless of whether we review the text material in class or not. Final exam: 04/21/2021.

Missed Exams

You will be allowed to make up a missed exam only if you have a documented university excused absence.

Assignments

In addition to the readings from the text, there will be homework assignments. No late assignments will be accepted.

Grade

Attendance	5%	Homework Assignments	15%
Two Quizzes	15% each	Course Project	20%
Final Exam	30%		

Distribution: 90 - 100 = A, 80 - 89 = B, 70 -79 = C, 60 - 69 = D, Below 60 = F

Course Policies:

Face Coverings

UNT encourages everyone to wear a face covering when indoors, regardless of vaccination status, to protect yourself and others from COVID infection, as recommended by current CDC guidelines. Face covering guidelines could change based on community health conditions.

Attendance

Students are expected to attend class meetings regularly and to abide by the attendance policy established for the course. It is important that you communicate with the professor and the instructional team prior to being absent, so you, the professor, and the instructional team can discuss and mitigate the impact of the absence on your attainment of course learning goals. Please inform the professor and instructional team if you are unable to attend class meetings because you are ill, in mindfulness of the health and safety of everyone in our community.

If you are experiencing any symptoms of COVID-19 (https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html) please seek medical attention from the Student Health and Wellness Center (940-565-2333 or askSHWC@unt.edu) or your health care provider PRIOR to coming to campus. UNT also requires you to contact the UNT COVID Team at COVID@unt.edu for guidance on actions to take due to symptoms, pending or positive test results, or potential exposure.

Course Materials for Remote Instruction

Remote instruction may be necessary if community health conditions change or you need to self-isolate or quarantine due to COVID-19. Students will need access to a webcam to participate in fully remote portions of the class. Information on how to be successful in a remote learning environment can be found at https://online.unt.edu/learn

Academic Integrity Policy

Academic Integrity Standards and Consequences. According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

ADA Policy

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a

new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the ODA website (https://disability.unt.edu/).

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Blackboard for contingency plans for covering course materials.

Additional Policies and Procedures

The Student Evaluation of Teaching Effectiveness (SETE) is a requirement for all organized classes at UNT. Tardiness: If you arrive late, please enter quietly and sit down. Do not walk in front of speakers or disrupt the class in any other way. Cell Phones: Please remember to mute or turn off phones prior to class.

Extra Help: Please do not wait until the last minute. If you are having trouble with this class, please stop by my office during office hours or send me an email (Yijie.Jiang@unt.edu).

Course Outline

1. Introduction and overview
2. Stress and strain relations
3. Energy method
4. Torsion
5. Beam bending
6. Stability of columns
7. Stress concentration
8. Contact