



**SYLLABUS**  
**MENG 2223 – 301: MECHANICS OF SOLIDS**  
**(Required Course)**  
**Summer I - 2021**

**COURSE INSTRUCTOR**

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Office: McCoy Hall 219E  
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**TEACHER ASSISTANT**

To be announced.

**CLASS SCHEDULE**

<i>Days</i>	<i>Time</i>	<i>Location</i>
Monday	12:20 pm – 02:20 pm	MY 207
Tuesday	12:20 pm – 02:20 pm	MY 207
Wednesday	12:20 pm – 02:20 pm	MY 207
Thursday	12:20 pm – 02:20 pm	MY 207
Friday		

**OFFICE HOURS**

<i>Days</i>	<i>Time</i>	<i>Location</i>
Monday	11:00 am – 12:00 pm	MY 219E
Tuesday	11:00 am – 12:00 pm	MY 219E
Wednesday	11:00 am – 12:00 pm	MY 219E
Thursday	11:00 am – 12:00 pm	MY 219E
Friday		

**DELIVERY MODE: “FACE TO FACE”**

This course has been planned to be delivered predominantly in “face-to-face” mode, which permits *socially distant classroom* and an *assigned seating chart*. Students are highly encouraged to attend face-to-face course sessions; however, *livestreaming option* is still possible via [Zoom](#) for students who are unable to be in class due to illness and/or COVID-quarantine/recovery. *Students are expected to come to class to take the mid-term and final exams unless they have a valid medical excuse or a major conflict to attend an athletic/academic event.*

Detailed instructions on how to connect with [Zoom](#) is posted in D2L. Simply click on the link provided in D2L to livestream the lectures. Note that the same link could also be used to join office hours virtually without need for pre-coordinating with the instructor.

**MASK REQUIREMENT**

During class, each student must comply with MSU’s requirement for wearing a face covering as mandated in the [MSU Taskforce to Return to Campus](#).

**ATTENDANCE POLICY**

Attendance (in-class or virtual) is mandatory for this class; hence, it represents a part of your overall grade. Attendance will be checked randomly on select lectures using the [AttendMe](#) app. (detailed instructions will be made available). However, for the health and safety of the others, *please consider following the class online whenever you are feeling sick, showing COVID-related symptoms, or having a positive COVID test result.*

**D2L (DESIRE 2 LEARN) & PULSE APP**

I will use [D2L](#) platform for posting syllabi, course communication, lecture notes, assignments, and grades. Mobile version of the D2L platform is the [Pulse](#) app, which is available for free on iPhone, iPad, and Android devices. Consider downloading Pulse for instant notifications on course announcements, new content, grades, and more.

## TECHNOLOGY REQUIREMENT

For the online portion of this class, students are required to have access to a hardware (computer, laptop, or iPad with webcam, microphone, and/or speakers), a basic scanning device and/or software such as [CamScanner](#). Be sure to review [D2L technology requirements](#) at MSU Texas website for online students.

## CATALOG DESCRIPTION

Analysis of structures using stress-strain diagrams, generalized Hooke's law, stress and strain due to axial, torsional, shear, and flexural loads.

## COURSE PRE-REQUISITES

MENG 2113 – Statics

## REQUIRED TEXTBOOK

Mechanics of Materials by R. C. Hibbeler, 10<sup>th</sup> Edition, Pearson (2016). ISBN-13: 978-0134319650

## LIST OF TOPICS COVERED\*

- Stress and Strain
- Mechanical Properties of Materials
- Axial Loads
- Torsional Loads
- Shear Force – Bending Moment Diagrams
- Bending Loads
- Transverse Shear
- Combined Loadings

*\*Additional material might be covered as the time permits.*

## GRADING SCHEME

The overall grade for the course will be based on the scores earned on the tests, homework assignments, and the class attendance. The contribution of each grade item to the overall score is provided in Table 1.

Table 1: Percentage contribution of each grade item to the overall grade.

Grade Items	Contribution
Test 1	25%
Test 2	25%
Final Exam	30%
Homework	10%
Attendance (online or in-class)	10%
<b>TOTAL</b>	<b>100%</b>

## FINAL EXAM

Thursday, July 1, 12:20 pm – 02:20 pm

## CONFLICT RESOLUTION PROCESS

1. In the event of an issue with the course or the instructor, the student should first contact the instructor face to face or via e-mail. The faculty and the student will discuss the issue, and hopefully, a resolution is reached.
2. The student should notify the faculty via email again if the issue still did not get resolved after step 1.
3. If not resolved, the student could then contact the Chair of the McCoy School of Engineering, Dr. Desai, face to face or via email, ([raj.desai@msutexas.edu](mailto:raj.desai@msutexas.edu)) and discuss the issue.
4. Dr. Desai will discuss the issue at hand with the faculty member. Dr. Desai will discuss the result of this discussion with the student. Hopefully, a resolution is reached on the issue after this step.
5. The student should notify the Chair via email if the issue still did not get resolved.
6. The Chair will contact the Dean and try to resolve the conflict. In case the conflict deals with the student grade, she will forward the case to the Grade Appeals Committee, if necessary.

## COURSE ORGANIZATION AND ASSESMENT

- **Course Format:** This course consists of four 120-minute sessions each week. Class meetings will contain lecture sessions that cover the relevant topics for that particular class. Not all material can be covered during the class session, hence, expect to spend extra time outside of class to finish reviewing the material.
- **Student Attitude:** Once class starts, the use of cell phones, conducting private discussions, using the computer (unless requested by the instructor), working on anything that is not directly related to the course, and making derogatory remarks about your classmates or instructor will not be accepted and may result in your dismissal from the class.
- **Midterm Progress Reports:** To help students keep track of their class progress, the instructor for this class could provide an unofficial Midterm Progress Report for at-risk students via D2L email after the Test 1. Midterm grades will not be reported on the students' transcript; nor will they be calculated in the cumulative GPA. They simply give students an idea of where they stand at the midpoint of the semester. Students earning below a C at the midway point should schedule a meeting with the professor and seek out tutoring.
- **Homework Evaluation Method:** Your performance will be tested regularly throughout the semester by homework assignments. While several homework problems may be assigned as part of a homework assignment, it may be the case that only a subset of problems will be graded. However, you must attempt all problems. *Do not try to guess which problems will not be graded.*
- **Late Assignments:** Homework assignments must be turned in on the due date, at the due time. Late assignments will *NOT* be accepted. However, depending on the number of assignments and the overall class progress, *one (or two) of the lowest graded assignments may not be included in the final grade.*
- **Exam Make-up:** Make-up exams will be given only in case of a *medical emergency* (accompanied by a doctor's report) or a major conflict due to a scheduled *athletic event* or a *conference*.
- **General Study Guidelines:** Plan on spending few hours outside of class each week to review the material weekly, and to work on homework assignments. Do not wait until the last day to start the homework or to prepare for exams. Utilize office hours throughout the semester whenever you need help about the assignments or the course material.
- **Academic Integrity Policy:** Scholastic dishonesty will not be tolerated and will be prosecuted to the fullest extent. You are expected to have read and understood the current issue of the student handbook regarding student responsibilities & rights, and the intellectual property policy information about procedures and what constitutes acceptable on-campus behavior.
- **Disability Support Services:** If you have a documented disability that will impact your work in this class, please contact the [Disability Support Services](#) and the instructor to accommodate your needs.
- **Disclaimer Statement:** Information contained in this syllabus, other than grading policies, may be subject to change with advance notice, as deemed appropriate by the instructor.
- **Campus Carry Rules/Policies:** Senate Bill 11 passed by the 84th Texas Legislature allows licensed handgun holders to carry concealed handguns on campus, effective August 1, 2016. Areas excluded from concealed carry are appropriately marked, in accordance with state law. For more information, please refer to [campus carry rules and policies](#).

## COURSE OBJECTIVES IN RELATIONSHIP TO ABET STUDENT OUTCOMES

Table 2: Specific outcomes of instruction matched with the ABET student outcomes (1-7)

SPECIFIC OUTCOMES OF INSTRUCTION	1	2	3	4	5	6	7
Define normal and shear stresses and strains.	X						X
Apply Hooke's law and understand the relationship between stress and strain.	X						X
Calculate normal stresses and strain for axially loaded member.	X						X
Calculate the shear stresses and angle of twist for torsional loaded member.	X						X
Find the internal shear force and bending moment in a beam.	X						X
Estimate the stresses and deformation of a beam.	X						X
Estimate shear stresses and shear flow in a beam.	X						X
Apply superposition and estimate stresses caused by combined loadings.	X						X
Define the principal stresses and the maximum in-plane shear stresses.	X						X
Define the principal strains and the maximum in-plane shear strains.	X						X
Define the buckling load for a beam column.	X						X

Table 3: Detailed descriptions of the ABET student outcomes (1-7) listed in Table 2.

OUTCOME	DESCRIPTION
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2	an ability to apply engineering design to produce solutions that meets specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3	an ability to communicate effectively with a range of audiences.
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgements, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.