

## CE 2334: Mechanics of Materials

Class Meeting: 8:30-9:20 am, MWF

Class Room: Liberal Arts Building 306

Textbook: **Mechanics of Materials, 11<sup>th</sup> ed.**, by R.C. Hibbeler

Instructor: Soheil Nazarian, [nazarian@utep.edu](mailto:nazarian@utep.edu), Office: Kelly 413  
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Office Hours: Students are always welcome

Prerequisite: MATH 1411: Calculus, CE 2315: Statics

**Course Objectives:** At the end of the course, students will learn the following:

1. Solve basic axial, torsion, and beam bending stress analysis and deflection problems.
2. Solve simple combined loading stress analysis and deflection problems.
3. Have a good understanding of stress and strain components, and stress transformation in 2D and 3D.
4. Solve statically indeterminate problems.
5. Resolve internal tractions (stresses) with properly chosen free-body diagrams.

### Topics Covered

- |                                       |              |
|---------------------------------------|--------------|
| 1. Stress                             | (Chapter 1)  |
| 2. Strain                             | (Chapter 2)  |
| 3. Mechanical Properties of Materials | (Chapter 3)  |
| 4. Axial Load                         | (Chapter 4)  |
| 5. Torsion                            | (Chapter 5)  |
| 6. Bending                            | (Chapter 6)  |
| 7. Transverse Shear                   | (Chapter 7)  |
| 8. Combined Loading                   | (Chapter 8)  |
| 9. Stress Transformations             | (Chapter 9)  |
| 10. Strain Transformations            | (Chapter 10) |
| 11. Design of Beams and Shafts        | (Chapter 11) |
| 12. Deflection of Beams and Shafts    | (Chapter 12) |

**Preparation for Semester:** Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser.

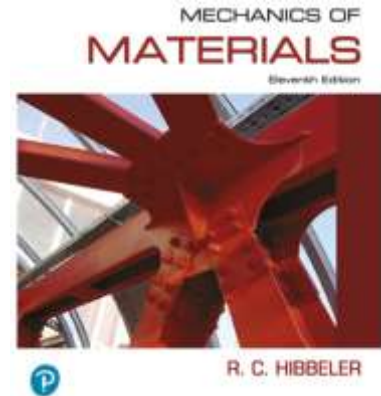
**Grade:** Your grade for this course will be assessed based on your performance in the homework (15%), quizzes (15%), mid-term exams (45%), and final exam (25%).

- Almost all classes will have an assigned **homework**. The homework should be completed on time.
- **Quizzes** will be given throughout the semester. The content of a quiz could be the materials covered in previous sessions or to be covered that day. There will be no make-up quizzes. Your worst quiz will not be counted for your grade.
- **Three mid-term exams** will be given during the semester. Make-up exams will be given only for extremely credible reasons, you are up to date with your homework, and only if I am notified before the test is given.
- Every student is required to take the **final exam** at the end of the semester.

**Approved Scientific Calculators:** You are only allowed a simple calculator such as Casio fx-115, Hewlett-Packard HP33s, and Texas Instruments TI-36X models.

Your final grade will be calculated based on the points you have accumulated in the following manner:

**A** > 90, **B** > 80 but < 90, **C** > 65 but < 80, **D** > 50 but < 65, and **F** < 50



**Homework:** Students are encouraged to solve as many problems in the book as possible. The assigned homework problems need to be completed *online* before the due date. All problems are pre-assigned at the end of this syllabus. Late homework assignment submissions will receive a deduction of 5% per day after the due date, but never lower than 70% credit.

Start a problem with one new sheet and write down all procedures and calculations before entering the answer online. All problems should contain a free-body diagram. Neatness is essential. Give necessary details in the solution for ease of checking for calculation errors or other possible mistakes. You will be given an unlimited number of opportunities to enter the correct answer online. Use the hints provided on the *MasteringEngineering website* for the problems. Discuss the problems with your classmates, the teaching assistant, or the instructor, but do not copy answers from each other. You will do well in the class if you understand thoroughly all the problems you solved.

*MasteringEngineering website* can be accessed at <https://mlm.pearson.com/enrollment/nazarian60306> with **Course ID:** *nazarian60306*

**Course Portfolio:** Students are strongly advised to prepare a course portfolio documenting all materials relevant to the course. The portfolio shall contain the class notes, quizzes, exams, homework, study notes, and any relevant materials accumulated during the semester. The instructor believes the students will benefit from the portfolio years later when they need to review the learned subjects for advanced courses or professional engineer licensure exams.

**Attendance and Tardiness:** Attendance is mandatory. Absence can be checked by the instructor through exams, roll calls, randomly picked names for problem-solving in class, or other mechanisms. You could receive an F grade if you miss more than three classes without the instructor's consent. The instructor appreciates all efforts to attend the class. Part of being a professional is being on time and being prepared to do your job. This applies to your career as a student as much as it does to your future career as an engineer. Coming to class late is unprofessional and is disruptive to the class. It interferes with the instructor's presentation, but more importantly, it interferes with the other students' concentration. You are expected to be in class and prepared to participate when the class bell rings. If you are late to class, you are to come in quietly and take a seat in the back of the room. There will be no penalty for being late. However, all exams and quizzes may be given at the beginning of the classes. No additional time will be allowed for late attendees.

**Study Aids:** Please take advantage of the following resources:

- **Instructor's Office Hours:** You are always welcome to visit me. Please show up organized and with specific questions that you have doubts about.
- **Teaching Assistant:** The TA will assist the instructor in grading quizzes, proctoring exams, and answering questions. There will be TA's office hours to answer your questions. The TA's schedule will be announced in the second week of the class.
- **ACES and the Tutoring Center:** Students are reminded of the tutoring services available in the ACES and the library. These services are provided to you by the University. Check the schedules and make use of the services.

**Study Guide:** Expect to spend 8 to 10 hours each week on the subject. Read the text to be discussed before 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. Establish a good studying habit and you will do very well in the class.

**Scholastic Integrity:** Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook Operating Procedures It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as one's solution involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) for possible disciplinary action. To learn more, please visit HOOP: Student Conduct and Discipline.

*A student having any mobile communication device out during an exam or quiz will be considered to be engaged in academic dishonesty.*

**Accommodation for Disability:** UTEP is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services, and activities with documented disabilities to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship to the University. Students requesting accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, or email them at [cass@utep.edu](mailto:cass@utep.edu), or apply for accommodations online via the CASS portal.

**Internet Learning:** One of the websites the students may want to visit is <http://cw.prenhall.com/hibbeler/>. There are many exercises (multiple-choice and true-or-false) problems designed to help the students.

**Final Comment:** Good luck to all of you in this course. Please do not hesitate to ask questions in class, or, if necessary, to see me outside of class. Any specific comments that students may have on how the course may be improved are particularly welcome.



## Student Registration Instructions

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### To register for **Mechanics of Materials**:

1. Go to <https://mim.pearson.com/enrollment/nazarian60306>
2. Sign in with your Pearson student account or create your account.  
For Instructors creating a Student account, do not use your instructor credentials.
3. Select any available access option, if asked.
  - » Enter a prepaid access code that came with your textbook or from the bookstore.
  - » Buy instant access using a credit card or PayPal.
  - » Select **Get temporary access without payment**.
4. Select **Go to my course**.
5. Select **Mechanics of Materials** from My Courses.

If you contact Pearson Support, give them the course ID: **nazarian60306**

### To sign in later:

1. Go to <https://mim.pearson.com>
2. Sign in with the same Pearson account you used before.
3. Select **Mechanics of Materials** from My Courses.

Week	Day	Topic	Homework Assigned
1	17-Jan	Syllabus	
	19-Jan	Chapter 1	HW 1
2	22-Jan	Chapter 1	
	24-Jan	Chapter 2	HW 2
	26-Jan	Chapter 2	
3	29-Jan	Chapter 3	HW 3
	31-Jan	Chapter 3	
	2-Feb	Chapter 3	
4	5-Feb	Chapter 4	HW 4
	7-Feb	Chapter 4	
	9-Feb	Chapter 4	
5	12-Feb	Review 1 (Chapters 1-4)	
	14-Feb	Chapter 5	HW5
	16-Feb	Chapter 5	
6	19-Feb	Exam 1 (Chapters 1-4)	
	21-Feb	Chapter 5	
	23-Feb	Chapter 5	
7	26-Feb	Chapter 6	HW 6
	28-Feb	Chapter 6	
	1-Mar	Chapter 6	
8	4-Mar	Chapter 7	HW 7
	6-Mar	Chapter 7	
	8-Mar	Chapter 7	
9	10-Mar	Spring Break	
	12-Mar		
	14-Mar		
10	18-Mar	Review 2 (Chapters 5-7)	
	20-Mar	Chapter 8	HW 8
	22-Mar	Chapter 8	
11	25-Mar	Exam 2 (Chapters 5-7)	
	27-Mar	Chapter 8	
	29-Mar	Chapter 8	
12	1-Apr	Chapter 9	HW 9
	3-Apr	Chapter 9	
	5-Apr	Chapter 9	
13	8-Apr	Chapter 9	
	10-Apr	Chapter 11	
	12-Apr	Chapter 11	
14	15-Apr	Review 3 (Chapters 8, 9, 11)	
	17-Apr	Chapter 12	
	19-Apr	Chapter 12	
15	22-Apr	Exam 3 (Chapters 8, 9, 11)	
	24-Apr	Chapter 12	
	26-Apr	Chapter 12	
16	29-Apr	Review Final Exam	
	1-May	Review Final Exam	
	3-May	Review Final Exam	
17	Final Exam		