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MENG 3306 - Mechanics of Materials Course Syllabus

Semester / Year	*Spring/ 2026*
Catalog Description	*A required course providing undergraduate mechanical engineering students with fundamentals of internal forces and deformation of solids, concepts of stress and strain, formulas for stress and deflection for elastic bars, shafts, and beams, stress and strain transformation, and theories of failure.*
Prerequisites	*Grade C or better in ENGR/EENG 2301 Mechanics - Statics*
Section Number	*001*
Instructor Name	*Dr. Ibrahim*
Contact Information	*Email: aibrahim@uttyler.edu, Office: RBN 3008*
Class Type / Instruction Mode / Location	*Face to face* *Ratliff Building North 03039*
Class Time	*T/Th 9:30 AM - 10:50 AM*
Office Hours	*Mo 9:20 AM - 11:00 AM* *Mo 12:15 PM-1:35 PM* *or by appointment.*
No. of Credits	*3*
Required Textbook	*Mechanics of Materials, 11th edition, by Russell C. Hibbeler, Pearson (July 7, 2022) © 2023*
Optional References	*NA*
Additional Rules and Requirements	1. *The instructor reserves the right to modify the syllabus at any time during the semester to accommodate unforeseen circumstances, enhance the learning experience, or ensure the course objectives are met. Any changes will be communicated promptly to all students.* 2. *Since the mechanical engineering program is designed to prepare students for professional practice, all submitted work (e.g., homework, lab reports, projects, presentations) is expected to meet professional standards. Work that does not reflect professional quality may be subject to grade reductions, even if professionalism is not explicitly listed in the grading rubric.* 3. *AI tools are allowed to support students' learning and productivity, provided that their use aligns with academic integrity standards. When required, students must disclose their use of AI.*
Evaluation Method	*30% First Exam* ***Thursday, February 12th, 2026*** *30% Second Exam* ***Thursday, March 19th, 2026*** *40% Final Exam As assigned by UT Tyler for the Final Exam (TBD)*

Grading Policy / Scale	*Letter grades, scale:* *A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60*
Important Events / Dates	• *Check the University academic calendar before entering the dates: https://www.uttyler.edu/academics/academic-calendar-25-26/academic-calendar-15-week-and-summer.php* • *Census date: Jan 26, 2026* • *First Exam **Thursday, February 12th, 2026*** • *Second Exam **Thursday, March 19th, 2026*** • *Final Exam As assigned by UT Tyler for the Final Exam* • *Last date to withdraw from one or more 15-week courses: March 30, 2026* • *Final date: April 27-30, 2026* • *Martin Luther King, Jr. Holiday, all offices closed, no classes: Janu 19, 2026* • *Spring break for faculty and students: March 9-13, 2026*
Attendance / Makeup policy / other rules	1. ***Mandatory Attendance**: Regular attendance **is required** for this course. Students are expected to attend every class session on time and stay for the entire duration.* 2. ***Absences**: Students are allowed a maximum of **3 unexcused absences** during the semester. Any additional unexcused absence will result in failing the course and an **F as a final grade**.* 3. ***Excused Absences**: Excused absences include illness (**with a doctor's note**), family emergencies, university-sponsored events, or other circumstances approved by the instructor **in advance**. Documentation must be provided within one week of the missed class.* 4. ***Tardiness**: Arriving late at class is disruptive and will be recorded. Three instances of tardiness will count as one unexcused absence. If you arrive more than 10 minutes late, it will be considered an absence.* 5. ***Participation:** Active participation is strongly encouraged to enhance your learning experience and requires regular attendance. Attending classes consistently and engaging in discussions will greatly benefit your understanding of the course material.* 6. ***Pop Quizzes**: The instructor reserves the right to administer **unannounced quizzes anytime throughout the semester.** These quizzes may cover recent material, reinforce key concepts, or **assess attendance**.* 7. ***Other Classes**: Engagement in other classes' activities, including related exams, meetings, or presentations, **will not***

	be accepted as an excuse *for missing class. Any absence due to these commitments will count as a missed class.* 8. ***Make-Up Work****: Students who miss a class with a valid, documented excuse may be allowed to make up missed work at the instructor's discretion. It is the student's responsibility to contact the instructor to arrange for any make-up work.* 9. ***Notification of Absence****: If you anticipate missing a class, please notify the instructor and provide the excuse note as soon as possible. Failure to inform the instructor* ***in advance*** *may result in the absence being marked unexcused.* 10. ***Withdrawal****: If your absences become excessive and are impacting your performance, the instructor may recommend withdrawing from the course. Be mindful of the university's deadlines for course withdrawal.*
Course Learning Objectives / ABET & PEOs Relation	*By the end of this course, students will be able to:* 1. *Use various external loads to determine internal forces and related stress and deformation for a variety of structures.* 2. *Determine the state of stress at a point and calculate principal stresses and directions.* 3. *Relate stress to strain using material properties and calculate deformations.* 4. *Design and analyze beams and shafts based on strength and deformation requirements.* 5. *Use Failure Theories to predict ductile or brittle material failure.* 6. *Use elastic instability and column buckling analysis to design columns.*
Tentative Topics / Course Plans	1. *Normal and shear stress* 2. *Normal and shear strain* 3. *Mechanical properties of materials* 4. *Axial load* 5. *Torsion* 6. *Bending* 7. *Stress and strain transformation* 8. *Beam and shaft design* 9. *Deflections of beams and shafts*
University Policies	*https://www.uttyler.edu/offices/academic-affairs/files/syllabus-information-rev122025.pdf*