

Mechanics of Materials - Syllabus

ENGR 232 Fall 2025

Instructor	Megan Voss-Warner	Email	mv110@evansville.edu
Course Meeting Days and Time	MW 3:30-4:45 PM	Student Drop-In Office Hours	Monday 2:00-3:00 PM Tues, Wed, Thurs 8:30-11:30 AM
Course Mode	In-person Harlaxton Remote synchronous Evansville	Office Location	Visiting Faculty Office

Course Information

Catalog Description:

Covers general principles of stress and strain, including elastic and inelastic behavior stress and strain transformation, stress calculations for direct shear and torsion; analysis of beam behavior, including flexural stresses and deflections, combined stresses, applications involving statically indeterminate systems, and buckling of compression members.

Credit Hour Policy Statement:

This class meets the federal credit hour policy of 1 hour of class with an expected 2 hours of additional student work outside of class each week for approximately 15 weeks for each hour of credit, or a total of 45-75 total hours for each credit.

Course Learning Outcomes:

By the end of this course, students will be able to:

1. Differentiate between stress and strain and describe the relationship between the two
2. Identify important points on a stress vs. strain curve
3. Know the difference between elastic and plastic behavior
4. Calculate deformations due to axial loads, shear loads, torsional loads and temperature changes
5. Solve statically indeterminate problems
6. Calculate stress concentrations due to axial and torsional loadings
7. Calculate axial stresses due to bending of uniform and composite members
8. Calculate and draw shear and moment diagrams
9. Design members for axial, flexural, and torsional loading
10. Understand the role of safety factors in design
11. Calculate vertical and horizontal shear stresses in flexural members
12. Transform 2- and 3-dimensional stresses to find principal stresses
13. Use integrals to determine shear, moment, rotation, and deflection of statically determinate and indeterminate beams
14. Design columns to avoid buckling

Required Materials:

Mechanics of Materials, by Beer, Johnston, and DeWolf, any edition. 8th edition will be followed in class. ISBN: 1259977269

Methods of Instructions:

Class will be delivered in person for students on Harlaxton campus. Students at the University of Evansville campus will join virtually. Students on either campus may be expected to watch videos of course content as part of homework assignments, and homework submissions will be primarily electronic.

Withdrawal and Attendance policies:

The last day to withdraw from the course without a W on a transcript is the 8th of September. The last day to withdraw from the course with a W is_____.

Harlaxton College expects regular class attendance by all students. Students are considered sufficiently mature to appreciate the necessity of regular and punctual attendance, to accept this personal responsibility and to accept the consequences of failure to attend. When absences occur due to emergency or medical reasons, students are expected to notify their instructors of the absence prior to class or to seek the assistance of the College nurse or a member of the Student Experience Team for help in notifying instructors.

Instructors have the authority to grant excused absences for medical, psychological, or personal reasons upon review of appropriate documentation and professional recommendation supporting such a request. In the event of long-term illness, reasonable accommodations will be made to allow a student to complete a course. In these cases, the Dean will need to approve the long term nature of the accommodation.

The Dean of Harlaxton College has the authority to grant excused absences for medical, psychological, or personal reasons.

Each instructor is expected to maintain an attendance policy in keeping with the nature of the Harlaxton program and may consider it in evaluating performance in their courses.

Policy Governing Unexcused Absences:

Harlaxton College operates an attendance policy that is binding on all faculty and students. The number of unexcused absences that are allowed before incurring a penalty is related to the number of times a class meets each week. For courses which meet three times a week, students are allowed a maximum of three unexcused absences during the semester without attracting penalty points. For courses meeting twice a week two such absences are permitted, and for courses meeting once a week a single absence is allowed. Additional unexcused absences will attract a grade penalty.

Each absence beyond the two allowed will result in a third-letter grade deduction (A- to B+).

Policy Governing Excused Absences.

- Excused absences are not given to facilitate student travel independent of College-sponsored travel.
- Students may be permitted to miss class because of participation in academic field trips.
- Instructors must co-ordinate and confirm academic fieldtrips with the Dean, prior to the commencement of the Semester to ensure their inclusion in the Semester timetable.
- Where authorization for an academic fieldtrip is requested after the commencement of the semester, the request must be submitted to the Dean.

The following information is required:

- Purpose and brief description of the official Harlaxton event or academic fieldtrip.
- Dates, location, and times (as applicable).
- Alphabetical list of students involved [Last Name/First Name] along with their student identification number.

If approval is granted:

- Instructors affected will be notified at least one week prior to the class period during which absence is anticipated, or as soon as possible.
- Missed class time due to student participation is to be considered an excused absence.
- The grade of a student may not be lowered in any class due to excused absences.
- It is the student's responsibility - to take the initiative by consulting with their instructors before the absence occurs, and - to do what is required by the instructor to make up all missed assignments and/or examinations.
- Instructors are required to assist students in these occasional situations of excused absences.

Grading Criteria:

Homework = 10%

Quizzes = 15%

Exams (3) = 25% each for 75% total

The grading scale is below. The minimum percentage required to get each letter grade is listed below the grade.

A	A-	B+	B	B-	C+	C	C-	D+	D	F
93.00	90.00	87.00	83.00	80.00	77.00	73.00	70.00	67.00	60.00	0

Honor Code:

All students at the University of Evansville agree to the University honor code: *I will neither give nor receive unauthorized aid, nor will I tolerate an environment that condones the use of unauthorized aid.*

For ENGR 232 homework, authorized aid is any tool or resource, including but not limited to: classmates, notes, textbooks, online resources, software, professors, or other humans/robots. You are encouraged to use tools available to you to learn the course material through the homework.

For ENGR 232 tests and quizzes, authorized aid is your own brain, an approved equation sheet, and a calculator that is not connected to the internet.

Course AI Policy:

AI may be used for homework, as it can be a useful tool for learning. However, it is recommended that AI be primarily used to check work and not to solve homework problems. If AI is doing the homework, what are you, the student, doing to practice the concepts learned in this course? You won't be prepared for exams or quizzes, which make up the majority of your final grade.

Course Schedule:

In addition to the listed exams, quizzes will be announced in-class prior to their scheduling. Students can expect daily homework assignments to practice concepts learned in class.

Class #	Date	Day	Topic
1	9/1	M	Syllabus, Review of Statics and FBDs, deformation discussion
2	9/3	W	Types of stress and stress components
3	9/8	M	Factors of safety and design with stress
4	9/10	W	Stress/strain diagrams, hook's law, and young's modulus
5	9/15	M	Statically indeterminate problems
6	9/17	W	Temperature change, Poisson's ratio, and Hooke's law
7	9/22	M	Shear Strain and modulus
8	9/24	W	Stress concentrations and plastic deformation
9	9/29	M	Torsion and angle of twist
10	10/1	W	Transmission shafts and stress concentrations
11	10/6	M	Bending stresses
12	10/8	W	Exam 1, Chapters 1-3
13	10/13	M	Eccentric axial loading and unsymmetric loading
14	10/15	W	Shear and moment diagrams
	10/20	M	<i>Fall Break</i>
	10/22	W	<i>Fall Break</i>
15	10/27	M	Shear and moment diagrams
16	10/29	W	Beam design with shear and moment diagrams
17	11/3	M	Beam shear
18	11/5	W	Horizontal beam shear (horizontal and vertical)
19	11/10	M	Transformation of 2D stresses with Mohr's circle
20	11/12	W	Mohr's circle applications, 3D Mohr's circle, pressure vessels
21	11/17	M	Failure theories
22	11/19	W	Beam deflections
23	11/24	M	Exam 2, Chapters 4-7
24	11/26	W	Beam deflections 2
25	12/1	M	Statically indeterminate beams
26	12/3	W	Stresses due to combined loads
27	12/8	M	Column buckling and design
28	12/10	W	Final Exam, cumulative, chapters 1-10

University Policy Statements

Disability Policy:

The University of Evansville is committed to providing an accessible and supportive environment for students with disabilities. It is the policy and practice of the University of Evansville to make reasonable accommodations for students with properly documented disabilities. Students should contact Disability Services at 812-488-2663 to seek services or accommodations for disabilities. Written notification to faculty from Disability Services is required for academic accommodations.

Institutional Equity and Title IX

UE is committed to fostering an atmosphere free from harassment and creating an inclusive campus for all members of the University community regardless of their sex, sexual orientation, gender identity, race, religion, ethnicity, country of origin, ability, or veteran status. All Faculty members are considered Responsible Employees and required to report instances of discrimination, harassment, or sexual violence to the Office of Institutional Equity

You may also choose to speak to a Confidential Resource about your experience. Confidential Resources at the University include:

Counseling Services: 812-488-2663, counselingservices@evansville.edu

Crayton E. and Ellen Mann Health Center: 812-488-2033, healthcenter@evansville.edu

Spiritual Formation Coordinator: 812- 488-5265, spiritualformation@evansville.edu

If you or someone you know has been harassed, assaulted, or discriminated against you can find the appropriate resources by contacting the Assistant Director of Institutional Equity and Title IX Coordinator: email titleix@evansville.edu ; phone (812) 488-5261. For more information visit <https://www.evansville.edu/offices/titleix/policy.cfm> .

Non-discrimination Statement

The University of Evansville expects all members of its community to treat each other with respect and civility. Harassing behaviors directed towards any member of our community will not be tolerated. As part of its commitment to non-discrimination, the University specifically prohibits harassment based on any other characteristics set forth in its nondiscrimination statement as follows: including race, color, gender, gender identity and expression, sexual orientation, creed or religion, national origin, age, disability, veteran status and all federally protected groups/classes. Any form of harassment undermines the mission of the University and negatively impacts the University community as a whole. For more information contact the [Center for Inclusive Excellence](#).

Campus Safety

All members of the UE community are automatically enrolled in the Ace Alerts Emergency Alert System. When the system is activated, emergency notification information is sent in the following manner: calls to campus IP phones, text messages, emails, campus housing speaker system, active threat sirens (non-weather related), digital signage, and AlertUS desktop on campus-owned computers.

To contact the Office of Public Safety:

Emergencies: 812-488-6911

Non-emergencies: 812-488-2051

Complaints, Grievances, and Appeals

The University of Evansville seeks to resolve all student concerns in a timely and effective manner through policies and processes documented in the University [Course Catalog](#) and [Student Handbook](#).

Student Resources.

Access the links below to connect with departments and resources that are here to support all UE students.

Academic Services: Contact the Center for Academic Advising to connect with academic support services including supplemental instruction, tutoring, and time management and study skills help.

Blackboard Guides: Blackboard is the University of Evansville's course management system for online courses. Guides on using Blackboard can be found within [MyUE](#).

Counseling Services: Counseling Services provides general, short-term counseling that assists students in identifying barriers and setting goals while improving coping strategies to achieve personal and academic goals.