Western University
Department of Mechanical & Materials Engineering

MME 2202A - "Mechanics of Materials"

COURSE OUTLINE – Fall 2025

CALENDAR DESCRIPTION: Stress and strain, Mohr's stress circle, behavior of structures, axial loading of columns and struts, torsion of shafts, bending of beams, buckling of columns and combined loading of components.

COURSE INFORMATION:

Instructor: Prof. Emily Lalone
Room: TEB 353
Email: emily.lalone@uwo.ca

PREREQUISITES: ES 1022 a/b/y, NMM 1412A/B or the former Applied Mathematics 1412A/B

Unless you have either the requisites for this course or written special permission from your Dean to enroll it in, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the prerequisites.

ACCREDITATION UNITS: Engineering Science = 100%

ANTIREQUISITES MSE 2212A, CEE 2202A/B

TOPICS: Concepts of stress and strain (normal and shear); Hooke's Law; axially loaded members; second moment of area; elastic torsion of shafts; bending and shearing stresses in beams; design of beams and introduction to beam deflection; principle of superposition; statically indeterminate problems; columns; Euler's formula.

LEARNING OBJECTIVES: The Mechanical and Materials Engineering Program has been accredited by Canadian Engineering Accreditation Board (CEAB) of Engineers Canada. Accredited programs provide the academic requirements for licensure as a professional engineer in Canada. Western Engineering has defined indicators of the 12 Graduate Attributes (GAs) that the CEAB expects graduating engineering students to demonstrate. The connections between course learning outcomes and Western Engineering's GA Indicators are identified below. Upon successful completion of this course, students will be able to

1. Assimilate fundamental concepts of statics and apply fundamental principles of statics to solve mechanics problems. (KB3, PA2, PA3)
2. Develop skills necessary for stress and strain analysis for mechanical members in a variety of different loading situations (axial, pure bending, torsion, transverse loading and combined loads) within a given material's elastic limit. (KB3, PA2, PA3, I3)
3. Apply these skills to analyze and solve the engineering problems related to the design of various mechanical components. (KB3, PA2, PA3)

CONTACT HOURS: 3 lecture hours, 2 tutorial hours, 3 x 3hr laboratory hours, half course

TEXT: No textbook is required for this course, but some students find this textbook useful for additional background and practice questions: Mechanics of Materials, R.C. Hibbeler. 10th edition. Prentice Hall, ISBN 978-0-13-4319650

COURSE POLICIES

Laboratory Sessions:

- Reports are due by 5pm on due days (will be posted on OWL)
- Late submissions of lab reports will receive a grade no higher than 50%
- Students who show up to the lab time 15 min later or more, will receive a grade of 50% for that laboratory session
- Missing of a laboratory session without academic consideration will translate into a zero mark for that laboratory session

Quizzes:

- No make-up quiz option will be offered regardless of the circumstances for which the quiz was missed
- Missing of a quiz without academic consideration will translate into a zero mark for that quiz
- If a quiz is missed with academic consideration, its weight will be shifted to the next quiz. If no quizzes remain, its weight will be shifted to the final exam.

Midterm Examination:

- There is no make-up midterm option offered regardless of the circumstances for which the midterm was missed.
- Missing the midterm with academic consideration will result in automatic reweighting to the final exam.
- Missing the midterm without academic consideration will result in a grade of 0 for the midterm.
- Only non-programmable calculators will be allowed during the examination
- "No questions asked absence" cannot be used for midterm.

Final Examination:

- Only non-programmable calculators will be allowed during the final examination
- If a minimum of 50% is not obtained on the final examination, the student cannot receive a final mark greater than 48%

EXAMINATIONS AND QUIZZES: 2 hour Closed Book mid-term examination; 3-1 hour quizzes;
3 hour Closed Book final examination

EVALUATIONS

Course Component	Weight
Homework Assignments	5%
Quizzes	15%
Laboratory	10%
Midterm Test	20%
Final Examination	50%

The final grade is computed as follows:

Assignments 5%

Assign 1: due Sept. 19; Assign 2: due Oct. 3; Assign 3: due Oct. 17; Assign 4: due Oct. 31; Assign 5: due Nov. 21; Assign 6: Dec. 5

Laboratories 10%

Laboratory 1: in the week of Oct. 20-Oct. 24 (2.5%)
Laboratory 2: in the week of Nov. 10-Nov. 14 (full length report)(5%)
Laboratory 3: in the week of Nov. 24-Nov. 28 (2.5%)

Quizzes 15%
Quiz 1: on Sept. 26 during the tutorial hours (5.5%)
Quiz 2: on Oct. 24 during the tutorial hours (5.5%)
Quiz 3: on Nov. 21 during the tutorial hours (4%)

Mid-term examination 20%
This is a designated assessment for this course, meaning requests for academic consideration without supporting documentation will be denied.
Time: 6:30 pm-8:30 pm on Oct 30, 2025; Place: TBA

Final exam 50%

CONSULATION HOURS Office Hours: Mondays 1:30-2:30 pm

ENGLISH: In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests and examinations for the improper use of English. Additionally, poorly written work with the exception of final examinations may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

ATTENDANCE: Any student who, in the opinion of the instructor, is absent too frequently from class or laboratory periods in any course, will be reported to the Dean (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Dean, the student will be debarred from taking the regular examination in the course.

General Faculty / University Policies

The Faculty of Engineering and Western University have overarching policies that prescribe how undergraduate courses should run. The course-specific policies described above should be considered *in addition to* those overarching policies, or as course-specific interpretations of them. In the event of contradictions or confusion between course-specific policies above and general Faculty / University policies, please contact your course instructor for clarification.

Western Engineering's undergraduate polices can be found by navigating to:
https://www.eng.uwo.ca/undergraduate/academic-support-and-accommodations/policies.html

and then clicking the "*Engineering Undergraduate Policies framework*" link.