

1. Course Name:	
Mechanics of Materials 2	
2. Course Code:	
CIV22204	
3. Semester / Year:	
2 nd / second year	
4. Description Preparation Date:	
6-12-2025	
5. Available Attendance Forms:	
Weekly (Theory: 3 hours, Tutorial: 1 hours)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theory: 45 Hours Tutorial: 15 hours Total: 60 hours ECTS: 5	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lect. Hussein Ali Hussein Email: Hussein.a.hilfi@muc.edu.iq	
8. Course Objectives	
Course Objectives	Graduation of civil engineers qualified to work in their various fields of specialization: 1. Utilize mathematical, scientific, and engineering knowledge. 2. Serve on inter-professional teams. 3. Identify, formulate, and solve engineering problems. 4. Employ the techniques, abilities, and contemporary engineering instruments required for engineering practice. 5. Communicate successfully.
9. Teaching and Learning Strategies	
Strategy	The primary strategy for delivering this module will be to encourage student participation in the tasks, while also honing and enhancing their critical thinking skills. This will be accomplished through courses and student-oriented interactive tutorials. The primary objective of studying engineering mechanics is to develop the ability to predict the effects of force and motion while performing engineering's creative design functions.

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	Demonstrate an understanding of the effects of applying a torsional loading to a long straight member having circular and noncircular cross sections and how to determine both the stress and strain distribution within the member.	Torsion	Theoretical	Exam
2	4		Torsion	Theoretical	Quiz
3	4		Torsion	Theoretical	Homework
4	4		Torsion	Theoretical	Exam
5	4	Demonstrate an understanding of complex stress states in structural members subjected to combined loadings	Combined loadings	Theoretical	Quiz
6	4		Combined loadings	Theoretical	Homework
7	4	Demonstrate an understanding of the stress transformation and establish the Necessary transformation equations. Determine the maximum normal and maximum shear stress at a point and find the orientation of elements upon which they act.	Stress transformation	Theoretical	Exam
8	4		Stress transformation	Theoretical	Quiz
9	4		Stress transformation	Theoretical	Homework
10	4	Demonstrate an understanding of the strain transformation and establish the necessary transformation equations. Determine the principal strain and the maximum in-plane shear stress at a point and find the orientation of elements upon which they act.	Stress transformation	Theoretical	Exam
11	4		Stress transformation	Theoretical	Quiz
12	4		Stress transformation	Theoretical	Homework

13	4	Demonstrate and discuss various methods for determining the deflection and slope at specific points on beams and shafts.	Deflection of beams	Theoretical	Exam
14	4		Deflection of beams	Theoretical	Quiz
15	4	Preparatory	Preparatory week before the final exam	Theoretical	Homework

2. Course Evaluation

The grade distribution is as follows:

Assessment: Formative 40 marks, Mid-term exam 10 marks

Final exam: Theory 50 marks.

3. Learning and Teaching Resources

Required textbooks (curricular books any)	Hearn, E. J., "Mechanics of Materials" Pergamon Press, Headington Hill Hall, Oxford OX 3 0 BW, UK, 1985.
Main references (sources)	Hibbeler, R.C., "Mechanics of materials", 9 th Edition, Person, Singapore, 2013.
Recommended books and references (scientific journals, reports...)	
Electronic References, Websites	

Course Description Form

(Mechanics of Materials 2)