



The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus



Course Title:	Structural Mechanics	Course Number:	CE-1212
Designation:	Civil Engineering	Prerequisite(s):	CE-211
Instructor:	Iqbal Marie	Instructor's e-mail:	iqbal@hu.edu.jo
Office Hour	1:30-2:30 Sun , Tue.		

Course Description (catalog): The structural Types of loads, structures and supports, axial stress and strain, normal and bending moment diagrams, torsion, bending of beams, combined stresses, shearing stress and strain, Mohr's circle of stress, thin-walled pressure vessels, deflection of simple beams, buckling of columns.

Textbook(s) and/or Other Supplementary Materials: Mechanics of Materials, F. P. Beer et al, Mc Graw Hill.

Major Topics Covered:

Topics	No. of Weeks	Contact hours*
1. Introduction - Concept of Stress	2	6
2. Stress and strain – axial loading	2	6
3. Torsion	1 2/3	5
4. Pure Bending	1 1/3	4
5. Analysis and design of beams for bending	1	3
6. Shearing stresses in beams and thin-walled members	1.1/3	4
7. Transformations of stress	1 2/3	5
8. Principal stresses under a given loading	1	3
9. Deflection of beams	1	3
10. Columns	1	3
Total	14	42

Specific Outcomes of Instruction (Course Learning Outcomes):

CLO1: Recognize the different types of loading and their effects on the structural systems (axial loading, transverse loading, bending moments, torsion torques).find stress and strain in different types of structural components. Be able to analyze statically determinate and statically indeterminate structures under different types of loading. Be familiar with the stress transformations and Mohr's circle and find the principal stresses and the maximum shear stress.

CLO2. Analyze the stress and strain in order to design mechanical system that can withstand a given set of loading. Recognize the different types of deformations and study their relations to stress and strain. Relate the beam deflection to the internal moment and derive the elastic curve of the beam.

(2)

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
1	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	(H)
2	an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	(M)
3	an ability to communicate effectively with a range of audiences	
4	an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	
5	an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	
6	an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	
7	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	
H=High, M= Medium, L=Low		



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**Grading
Plan:**

Mid	25 Points
Quiz	25 points
HWs.	10 Points
Final exam	40 Points

General Notes:

Quizzes and homework should be submitted on high quality A4 paper with neat sketches. Neatness will count and messy unorganized problems will reduce credit. **NO Makeup Exams**

I. Marie 26/2/2023