The University of Jordan
School of Engineering

Department	Course Name	Course Number	Semester
Mechanical Engineering	Elasticity and Plasticity	0904916	

2025 Course Catalog Description

Stress and strain tensors; Strain-displacement relations; Compatibility equations; Constitutive equations; Plane strain; plane stress; Biharmonic equation; Polynomial solutions; Fourier series solutions; Axisymmetric problems, torsion, bending, yield criteria; Plastic-stress strain relations; Work-hardening; Extremum principles; Plastic potential and uniqueness; Elasto-plastic problems; Plane stress and plane strain (theory of slip-line field with some applications); Geometric effects; Plastic anisotropy.

Instructors

Name	E-mail	Section	Office Hours	Lecture Time

Prerequisites

Prerequisites by topic	
Prerequisites by course	
Co-requisites by course	
Prerequisite for	

Topics Covered

Week	Topics
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Evaluation

Assessment Tools	Expected Due Date	Weight

Contribution of Course to Meet the Professional Components

Relationship to Student Outcomes

SOs	1	2	3	4	5	6	7
Availability							

Relationship to Aeronautical Engineering Program Objectives (AEPOs)

AEPO1	AEPO2	AEPO3	AEPO4	AEPO5

ABET Student Outcomes (SOs)

1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
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
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

Updated by ABET Committee, 2025