

Industrial Engineering Department
Fall 2022/2023

Course name:	Engineering Mechanics		
Course code:	IE 0906231		
Credits hours	3		
Contact hours/room:	Section 1: 11:30 - 12:30 (Sun, Tues and Thurs) @ Mechatronics 001 OH:		
Course instructor's name, and E-mail:	Prof. Ahmad Al-Qaisia		
	alqaisia@ju.edu.jo		
Course Coordinator:	Prof. Ahmad Al-Qaisia + Dr. Ali Al-Hadidi		
Textbook:	Engineering Mechanics: Statics and Dynamics, 14th edition, by R. C. Hibbeler, Pearson.		
Other reference(s):	N/A		
Course Description:	<p>The course is divided into two equal parts (<i>Statics & Dynamics</i>)</p> <p><i>Statics:</i> General principles., Force Vectors, Equilibrium of a Particle, Force systems and Resultants, Equilibrium of a Rigid Body, Structural Analysis, Internal Forces, Friction, Center of Gravity and Centroid, Moment of inertia.</p> <p><i>Dynamics:</i> Kinematics of Particles, Rectilinear and Curvilinear Motions, Kinetics of Particles (Newton's 2nd Law and Energy Principle), Planar Kinematics and Kinetics of Rigid Bodies. (As per 2019/2020 plan catalog description).</p>		
Providing Department:	Industrial Engineering		
Prerequisite Course:	*0301102		
Course type	Mandatory		
Assessment Methods:	Method	Weight %	Date
	Quizzes	20	TBD
	Midterm	30	TBD
	Final Exam	50	TBD

Course Learning Outcomes:

CLO2	Analyze moment caused by a force acting on a rigid body and Moment due to several concurrent forces	1
CLO3	Analyze force and moment reactions at the supports and connections of a rigid body, and force in members of a truss using the Method of Joints and the Method of Sections	1
CLO4	Understand and calculate centroid and center of gravity for an area and a rigid body and moment of inertia and radius of gyration of a composite area	1
CLO5	Understand and calculate problems related to kinematic quantities of rectilinear and curvilinear motion of particle such as: position, displacement, velocity, and acceleration, kinematics of rigid bodies, and kinetics of particles: Newton's second law, work and kinetic energy, impulse and momentum, gravitational and elastic potential energy	1

Brief list of topics	Week #	Topic
		1
	2-3	Force Vectors & Equilibrium of a Particle
	4-5	Force-Resultant Systems & Equilibrium of a Rigid Body
	6-7	Structural Analysis & Internal Forces
	8	Friction, Center of Gravity and Moments of Inertia
	9	Kinematics of Particles (Rectilinear and Curvilinear)
	10	Kinetics of Particles (Newton's 2 nd Law)
	11	Kinetics of Particles (Energy Method)
	12-13	Planar Kinematics of Rigid Bodies
	14-15	Planar Kinetics of Rigid Bodies