The University of Jordan
School of Engineering
Industrial Engineering Department
Spring 2023/2024

Course name:	Engineering Mechanics		
Course code:	IE 0906231		
Credits hours	3		
Contact hours/room:	Section 1: 10:30 – 11:30 (Sun, Tue, and Thu @ Al-Mazar) Section 2: 10:00 – 11:30 (Mon, and Wed @ IE101) OH: Sun, Tue, and Thu: 09:30 – 10:30 or by appointment		
Course instructor's name, E-mail, and phone:	Dr. Yazan Al-Zain		
	y.alzain@ju.edu.jo		
	22732		
Course Coordinator:	Dr. Yazan Al-Zain		
Textbook:	Engineering Mechanics: Statics and Dynamics, 14th edition, by R. C. Hibbeler, Pearson.		
Other reference(s):	N/A		
Course Description:	In terms of teaching hours, the course is divided into two equal parts. Part one covers: General principles. Force systems, resultant, moment of a force, equivalent force- couple system. Particles and rigid body equilibrium in one plane. Trusses and frames. Beams; shear force and bending moment diagrams. Center of gravity and centroid. Area moment of inertia. Part two covers: Planar kinematics and kinetics (Newton's second law and work-energy method) of particles and rigid bodies in rectilinear and curvilinear motion (normal and tangential coordinates). (As per 2019/2020 plan catalog description).		
Providing Department:	Industrial Engineering		
Prerequisite Course:	*0301102		
Course type	Mandatory		
Assessment Methods:	**Method**	**Weight %**	**Date**

	Homework	20	To be announced
	Midterm	30	To be announced
	Final Exam	50	To be announced

	#	After successful completion of this course, the student will be able to	SO
Course Learning Outcomes:	**CLO1**	Analyze components of a force and the resultant force for a system of forces	**1**
	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**

	Week #	**Topic**
Brief list of topics	1	Introduction To Engineering Mechanics
	2-3	Force Vectors
	4-5	Equilibrium of a Particle
	6-7	Force-Resultant Systems

	8	Equilibrium of a Rigid Body
	9	Structural Analysis
	9	Internal Forces
	10	Center of Gravity and Centroid
	11	Moment of Inertia
	12	Kinematics of a Particle
	13	Kinematics of a Particle: Force and Acceleration
	14-15	Planar Kinematics of a Rigid Body
	16	Final Exam
Important Notes:	• Do not hesitate to ask questions • You are required to bring a notebook and take notes in classes. • Students are expected to attend every class session and they are responsible for all material, announcements, schedule changes, etc., discussed in class. • Discuss the assignments among yourselves • Don't Cheat; direct copying of others work will NOT be allowed or tolerated and will result in a reduction of grade. If you are found to be cheating in any way, on an exam or assignment, even signing the roll sheet for another student, you will be given an "F" for the course. There will be no exceptions. • All cases of academic dishonesty will be handled in accordance with university policies and regulations. JU policy requires the faculty member to assign ZERO grade (F) if a student misses 15% of the classes that are not excused, and 20% of the classes that are excused • Students are expected to be ready to take a quiz any time they have a class. There will be no make-up quizzes or home works. • Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.	

	The B.Sc. in industrial Engineering program enables students to achieve, by the time of graduation the following program learning outcome (SOs)	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
1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	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

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	6	An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
3	An ability to communicate effectively with a range of audiences	7	An ability to acquire and apply new knowledge as needed, using appropriate learning strategies