



The University of Jordan
School of Engineering
Industrial Engineering Department
Fall 2019/2020

Course name:	Industrial Machine Design		
Course code:	0906437		
Credits hours	3		
Contact hours/room:	9:00 – 10:00 Sun 11:00-12:00 Tue & 11:00 – 12:00 Mon		
Course instructor's name, E-mail, and phone:	Dr. Walid Khraisat		
	w.khraisat@ju.edu.jo		
	22872		
Course Coordinator:	Dr. Walid Khraisat		
Text book:	Shigley's Mechanical Engineering Design, R.G. Budynas, <i>J.K.Nisbett</i> , 10 th edition in SI Units, McGraw Hill, 2011		
Other reference(s):			
Course Description:	Transmission mechanisms and kinematics. Joints, pulleys, and belts. Gears, gear trains, cams, clutches, brakes and flywheels. Hydraulic components and circuits, bolts, shafts, keys, and springs. System integration. Design project is part of the course.		
Providing Department:	Industrial Engineering		
Prerequisite Course:	Materials Science		
Course type	Mandatory		
Assessment Methods:	Method	Weight %	Date
	Mid-term Exam	30	
	Quizzes	5	N/A
	Creo 2 Lab assignments	15	
	Final Exam	50	TBD
Course Learning Outcomes:	#	After successful completion of this course, the student will be able to	SO
	CLO1	Identify loadings of machine elements and perform stress analysis	1
	CLO2	Calculate the life of ball ,roller bearings and tapered bearings	2
	CLO3	Perform fatigue failure analysis both finite and infinite life distributions	1
	CLO4	Use the CAD/CAM package Creo 2 as a tool to visualize and design machine elements	7
	CLO5	Determine shaft parameters so that design conditions for performance are met	1,2
	CLO6	Identify thread Standards, Power Screws, Threaded Fasteners, Fastener and member stiffnesses, Tension and shear connections, Setscrews, Keys and Pins	2

Brief list of topics	# of Weeks	Reading Material	Topic
	1	Ch1	Introduction to Basic Mechanical Engineering Design
	1	Ch2	Materials
	1	Ch3	Load and Stress Analysis and Flywheels
	2	Ch4	Deflection and Stiffness
	2	Ch5	Failure Theories
	2	Ch6	Fatigue
	2	Ch7	shafts, keys
	2	Ch 8	Bolts, Screws, Fasteners and the design of Non permanent Joints
	2	Ch 11	Rolling-Contact Bearings
This part will be covered during Creo 2 sessions	2sessions	Ch10	Springs
	3sessions	Ch14	Gears+ gear trains + System integration
	3sessions	Ch 16	Clutches, Brakes, Couplings,
Important Notes:	<ul style="list-style-type: none"> • Passing grade must earn in all the components (Lectures and lab) of this class. • Prompt, regular attendance is necessary for the lecture, and the exams. There is no makeup for the Midterm exam, missing them will give you zero grade. • Any students needing assistance because of any disabilities must notify the instructor, and follow established university procedures. • Cheating and Honor Code • Any student caught cheating, or helping someone cheat, will be reported to the Dean Council 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)			
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
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.		