



The Hashemite University
Faculty of Engineering
Course Syllabus
Department of Mechanical Engineering

Course Title:	Machine Design II 3 (3,0, 0)	Course Number:	110402447
Designation:	Compulsory	Prerequisite(s):	110402440, 110402445, 110402446
Instructor:	Dr. Hitham Tlilan	Instructor's e-mail::	
Office Hours:	*****		

Required Course:

Course Description (catalog): This course is a continuation to the machine design I course. Students will be introduced to the analysis and design concepts of various types of machine elements that include: bearings (journal and anti-friction); spur, helical and bevel gears; flexible drives and flywheels; clutches and brakes; shafts.

Textbook(s) and/or Other Supplementary Materials:

Shigley's Mechanical Engineering Design; by Budynas & Nisbett; 7th, 9th, or 10th Edition; McGraw-Hill.

References: *****

Major Topics Covered:

Topic	No. of Weeks	Contact hours*
Ch. 10. Mechanical Springs	2	6
Ch. 11. Rolling-Contact Bearings	2	6
Ch. 12. Lubrication and Journal Bearings	2	6
Ch. 13. Gears –General	1	3
Ch.14. Spur and Helical Gears	2	6
Ch.15. Bevel and Worm Gears	2	6
Ch.16. Clutches and Axles	2	6
Ch.17. Flexible Mechanical Elements	2	6
Total	15	45

*Contact hours include lectures, quizzes and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

After completing the course, the student will be able to:

- analyze mechanical systems and select proper machine element (springs, bearings, gears, brakes, belts and pulleys, chains and sprockets) from commercial catalogs . **(a, c, e, f, j)**
- design machine elements by their types, geometry, material and heat treatment and to integrate these elements to build a mechanical system. **(c, e)**
- work in a design team and communicate effectively by means of a project. **(c, e, j)**
- communicate the implemented design ideas through technical reports and oral presentations. **(e, f, g j)**

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	an ability to apply knowledge of mathematics, science, and engineering	H
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	M
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	H
(f)	an understanding of professional and ethical responsibility	L
(g)	an ability to communicate effectively	L
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	L
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	
H=High, M= Medium, L=Low		

Grading Plan:

Midterm Exam	30 Points
*****	*****
HWs. & Qs	15 Points
Design Project	15 Points
Final exam	40 Points

General Notes:

A team design project is required. The project will require the integration of several types of machine elements to design a mechanical system that is expected to perform a certain task. Each team is required to turn in a technical report and to give an oral presentation of their project.

Prepared by:*Dr. Hitham Nisan***Date:** 11th Oct., 2020.