Faculty of Engineering & Technology

Mechanical Design (1)

Information :

Course Code :	MAN 341	**Level :**	Undergraduate	**Course Hours :**	3.00- Hours

Department : Department of Mechanical Engineering

Instructor Information :

Title	Name	Office hours
Lecturer	Hassan Mohamed Shams Eldin Elsayed Eleashy	9
Lecturer	Hassan Mohamed Shams Eldin Elsayed Eleashy	9
Assistant Lecturer	Zakaria Mostafa Abdo Salim Marouf	4
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Area Of Study :

Prepare student to analyze a given mechanical elements under different design considerations.
Develop studentsôknowledge about stress calculations in different elements of machine design
Prepare students to deal with mechanical design software

Description :

Introduction to Mechanical Engineering Design. Design Philosophy and Methodology: Phases of design process, design considerations, standards and codes. Engineering materials; classification, specification and selection. Factors affecting construction details, manufacturing and assembly processes, safety, aesthetics and economy. Design of Mechanical Elements: Shafts and shaft- components, Screws, fasteners, design of non-permanent joints, welding and design of permanent joints. Thin pipes and pressure vessels Application of CAD and Solid Works Group design project.

Course outcomes :

a.Knowledge and Understanding: :	
1 -	Define the fundamentals of stress calculation for variable loads and power screws.
2 -	Identify the principles of shaft design and shaft component design and types of bearing
b.Intellectual Skills: :	
1 -	Analyze different factors taken into consideration in variable loads, fasteners, joints and power screws.
2 -	Calculate all forces, moments, torques and dimensions for shaft components.
3 -	Apply rules of bearing selection in shaft design problems.
c.Professional and Practical Skills: :	
1 -	Create software models for some mechanical systems.
2 -	Use a construction drawing to illustrate components of mechanical systems.
d.General and Transferable Skills: :	
1 -	Demonstrate efficient IT capabilities.

2 -	Efficiently manage tasks, time and resources.

Course Topic And Contents :

Topic	No. of hours	Lecture	Tutorial / Practical
Introduction & Design Basics	8	4	4
Variable Loads	6	2	4
Bolts & Fasteners	6	2	4
Power Screw Design	8	4	4
Shaft component design	10	6	4
Fits & Tolerance	6	4	2
bearing	12	6	6
Project	4	2	2

Teaching And Learning Methodologies :

Interactive Lecturing
Problem solving
Discussion
Project

Course Assessment :

Methods of assessment	Relative weight %	Week No	Assess What
Assignment	5.00		
Final Exam	40.00		
Mid- Exam 1I	15.00		
Mid- Exam I	15.00		
Participation	5.00		
Project	10.00		
Quizzes	10.00		

Course Notes :

2. Lecture notes on the course Moodle page, FUE website.