




DESIGN PROJECT PROPOSAL FORM

Academic Year	2022 - 2023	Semester	Fall <input type="checkbox"/> Spring <input checked="" type="checkbox"/>
Project Type	Research <input type="checkbox"/> ME 411 Thermal & Fluid Design <input type="checkbox"/> ME 413 Mechanical Design <input type="checkbox"/> ME 415 Robotics & Control Design	Application <input type="checkbox"/> ME 412 Thermal & Fluid Design <input checked="" type="checkbox"/> ME 414 Mechanical Design <input type="checkbox"/> ME 416 Robotics & Control Design	
Advisor	Prof. Dr. Mehmet Çevik		
Project Title	Design and Fabrication of a Gearless Transmission Using Elbow Mechanism		
Purpose and Scope	<p>The purpose of the project is to design and manufacture a gearless transmission using elbow mechanism. The elbow mechanism is an efficient design of gearless transmission technique and the kinematic system that allows for efficient power/motion transmission at any required angle. This mechanism should allow for motion transmission from 90° to 180° angles between the driver and the driven shafts. Use a motor powered by 12V supply, rotate a shaft, and transmit this rotation at the given angles between the driver and the driven shafts. The design success criterion is that the motion transmission will be from 90° to 180° angles.</p> 		
Work Packages	<ul style="list-style-type: none">• Make a literature review about excavators• Determine design criteria• Prepare a Solidworks model that is working• Manufacture the excavator and test it• Prepare the project report.		
# of Team Members	2		
This section will be filled by the Commission	The Project Proposal <input type="checkbox"/> fulfills the regulations of the Department <input type="checkbox"/> should be revised according to the following suggestions:		



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FACULTY OF ENGINEERING ARCHITECTURE
MECHANICAL ENGINEERING DEPARTMENT**

Form No: FRM-1

First Pub Date: 15/11/2016

Rev. No/Date: 25/01/2017

The projects are aimed to prepare students to attain the following program educational objectives:

- (a) an ability to apply knowledge of mathematics, science, and engineering
- (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
- (d) an ability to function on multidisciplinary teams
- (e) an ability to identify, formulate, and solve engineering problems
- (f) an understanding of professional and ethical responsibility
- (g) an ability to communicate effectively
- (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
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Therefore, the final report of the project should contain the followings:

- i. Definition of the design problem and its limitations
- ii. Theoretical information about the topic, standards and patents
- iii. Different design options and selection criteria
- iv. Optimal solution with appropriate selection criteria
- v. Cost accounting, feasibility, compliance with regulations and standards, environmental impacts, and compliance with ethical rules
- vi. Engineering drawing and presentation methods for presenting