



### DESIGN PROJECT PROPOSAL FORM

<b>Academic Year</b>	<b>2022 - 2023</b>	<b>Semester</b>	Fall <input type="checkbox"/> Spring <input checked="" type="checkbox"/>
<b>Project Type</b>	<b>Research</b> <input type="checkbox"/> ME 411 Thermal & Fluid Design <input type="checkbox"/> ME 413 Mechanical Design <input type="checkbox"/> ME 415 Robotics & Control Design	<b>Application</b> <input type="checkbox"/> ME 412 Thermal & Fluid Design <input checked="" type="checkbox"/> ME 414 Mechanical Design <input type="checkbox"/> ME 416 Robotics & Control Design	
<b>Advisor</b>	Prof. Dr. Mehmet Çevik		
<b>Project Title</b>	Geneva Mechanism Based Automatic Paper Punching Machine		
<b>Purpose and Scope</b>	<p>The purpose of the project is to design and manufacture a Geneva mechanism which converts continuous circular motion into fixed step circular motion and adopt the mechanism to a paper punch. Geneva mechanism requires a rising circular connector extending above the rotating disc to lock between slots in the Geneva wheel and drive it. Then another part is added to the system to punch form paper at regular time intervals. The system uses a motorized disc to drive the Geneva wheel. The Geneva wheel is thus driven at regular time intervals and is connected to a roller mounted to the paper punch. As the wheel rotates the paper also moves at fixed intervals and punched.</p> <p>The design success criterion is that the punch moves approximately 3 cm each 3 seconds and the paper is punched.</p>		
<b>Work Packages</b>	<ul style="list-style-type: none"><li>• Make a literature review about Geneva mechanism and paper punching</li><li>• Perform a kinematic-dynamic formulation of the system</li><li>• Prepare a Solidworks model that is working</li><li>• Manufacture the system</li><li>• Prepare the project report.</li></ul>		
<b># of Team Members</b>	2		
<b>This section will be filled by the Commission</b>	<p>The Project Proposal</p> <input type="checkbox"/> fulfills the regulations of the Department <input type="checkbox"/> should be revised according to the following suggestions:		



**İZMİR KÂTİP ÇELEBİ UNIVERSITY  
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