



### 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>	Doç.Dr.Levent AYDIN		
<b>Project Title</b>	Optimum design and modeling of structures utilized in military applications by stochastic search algorithms		
<b>Purpose and Scope</b>	The lightweight design of structures utilized military applications will be achieved through material selection, geometrical parameters and optimization technique. Each student will solve an optimization problem for different structure in use.		
<b>Work Packages</b>	<ul style="list-style-type: none"><li>• Modeling relevant data by neuro-regression approach</li><li>• Define the optimization problems</li><li>• Use Stochastic Optimization Algorithms</li></ul>		
<b># of Team Members</b>	1-3 students		
<b>This section to be filled by the Commission</b>	The Project Proposal <input type="checkbox"/> is approved. <input type="checkbox"/> should be revised considering the following suggestions:		



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