**DESIGN PROJECT PROPOSAL FORM**

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| **Academic Year** | **2024 - 2025** | **Semester** | | Fall 🗷 Spring |
| **Project Type** | **Research** | | **Application** | |
| ME 411 Thermal & Fluid Design | | ME 412 Thermal & Fluid Design | |
| ME 413 Mechanical Design | | 🗷 ME 414 Mechanical Design | |
| ME 415 Robotics & Control Design | | ME 416 Robotics & Control Design | |
| **Advisor** | Prof. Dr. Mehmet Çevik | | | |

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| **Project Title** | Self-leveling Machine for Plastic Molding |
| **Purpose and Scope** | This project entails designing a system in collaboration with a small-sized enterprise specializing in plastic molding. The objective is to develop a mechanism that ensures the self-leveling of plastic granule raw material within the mold during the spreading process. The system may be manual or automated, with a preference for automation. The student will work closely with the company to deliver a reliable solution for uniform granule distribution, addressing material inconsistencies and improving the efficiency and quality of the molding process. The design will prioritize precision in leveling, adaptability to various mold shapes, and seamless integration into the company's existing production workflow. |
| **Work Packages** | * Contact the small-sized enterprise and observe the existing system * Make a literature review about similar machines * Determine design steps * Prepare a Solidworks model * Manufacture the machine apparatus and test it * Prepare the project report. |
| **# of Team Members** | 2 |
| **This section will be filled by the Commission** | The Project Proposal   * fulfills the regulations of the Department * should be revised according to 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:

1. Definition of the design problem and its limitations
2. Theoretical information about the topic, standards and patents
3. Different design options and selection criteria
4. Optimal solution with appropriate selection criteria
5. Cost accounting, feasibility, compliance with regulations and standards, environmental impacts, and compliance with ethical rules
6. Engineering drawing and presentation methods for presenting