**DESIGN PROJECT PROPOSAL FORM**

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| **Academic Year** | **2024-2025** | **Semester** | Fall Spring X |
| **Project Type** |  **Research**  |  **Application** |
|  ME 411 Thermal & Fluid Design |  ME 412 Thermal & Fluid Design |
|  ME 413 Mechanical Design | X ME 414 Mechanical Design |
|  ME 415 Robotics & Control Design |  ME 416 Robotics & Control Design |
| **Advisor** | Dr. Aydın ÜLKER |
| **Project Title** | Design and manufacturing of a machine climbing over a stranded polyester rope. |
| **Purpose and Scope** | The purpose of the project is to design and manufacturing of a machine which is climbing over an unstretched (free ended) and randomly knotted polyester rope suspended from the ceiling. The machine is also expected to descend on the same path with an adjustable speed.**Design Data and Constrains for the Project:**

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| Rope diameter | : | 10 -12 mm |
| Min. rope length  | : | 3000 mm |
| Rope material | : | Stranded polyester for nautical applications. |
| Max. machine weight | : | 1,000 g |
| Max. operation time | : | 20 minutes |
| Min. # of knots | : | 8 |
| Positions of the knots | : | Random |
| Min. height of the free end of the rope on the floor.  | : | 400 mm |
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\* The machine cannot be supplied by main voltage. |
| **Work Packages** | * Project Plan
* Literature survey with a complete description of concepts that will be planned to use.
* Conceptual design
* Feasibility study
* Embodiment design
* Detailed design calculations (mechanical, electrical etc.)
* Detail engineering drawings (Exploded, assembly and part drawings including electrical and wiring diagrams) and bill of materials.
* Cost analysis
* User’s manual
* Complete Project Report
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| **Max Number of Students** | Maximum four senior students. (The students should have successfully completed ME 413 offered in Fall 2024 semester). |
| **Student info** | Student ID | Name/Surname | Signature |
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