**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 |
| **Advisors** | Assoc. Dr. Ebubekir Atan, Dr. Mustafa Öncül (iki şube) |

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| **Project Title** | Investigation of the use of alternative filler materials in thermoplastic composites |
| **Purpose and Scope** | Lignocellulosic fiber-filled thermoplastic composites have attracted significant interest in academia and industry over the past two decades. These fibers are eco-friendly, biodegradable, abundant, renewable, lightweight, and cost-effective. Their biodegradability supports a healthy ecosystem, while their low cost and high performance provide economic advantages for industries. Biocomposites are used in applications like construction materials and automotive parts, often replacing traditional synthetic fiber composites. This study will investigate the mechanical properties of alternative lignocellulosic fiber-filled thermoplastic composites, varying fiber weight percentages at 5%, 10%, 15%, and 20%. Characterization will include tensile testing, flexural testing, and dynamic mechanical analysis. |
| **Work Packages** | • Preparation of fillers• Manufacturing of biocomposites• Characterization of biocomposites |
| **Max Number of Students** | 5 |
| **Student info** | Student ID | Name/Surname | Signature |
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