**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** | Prof. Dr. Kutlay SEVER |

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| **Project Title** | Fabrication and Mechanical Characterization of Polymer Composites Reinforced with Industrial Inorganic Waste Fillers |
| **Purpose and Scope** | Inorganic filler materials have attracted great attention due to their cost efficiency, abundance. The inorganic fillers generally increase stiffness, strength, and hardness of polymer composites. Inorganic fillers can help resolving environmental issues and taking economic advantage over those artificial fibers. Inorganic fillers can produce a significant amount of solid waste during the machining, cutting processes during manufacturing. Recycling the inorganic powder produced during machining, cutting is an important issue due to the development of environmental awareness and costs for filler. If potential inorganic waste material is evaluated in industry, it is provided important gains to the economy. Also, the unused inorganic wastes have significant environmentally effects. In this study, the mechanical properties of polypropylene (PP)/industrial inorganic waste composites will be studied. The weight percentage of the filler was varied as 5, 10 , 15 and 20%. The composites were characterized by flexural, tensile, and dynamic mechanical testing.  |
| **Work Packages** | * Literatur survey
* Grinding of inorganic waste
* Composite production
* Composite testing
* Conclusion and Recommendations
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| **Max Number of Students** | 3 |
| **Student info** | Student ID | Name/Surname | Signature |
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