

 OSTİM TECHNICAL UNIVERSITY

**2023-2024 SEMESTER**

**GRADUATION PROJECT PROPOSAL FORM FOR MECHANICAL ENGINEERING DEPARTMENT**

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| **Lecture Code: MEC 400** | **Lecture Name: Graduation Project** |
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| **Project Title / Number of Students:** | **Investigation of Thermal and Dynamic Properties Carbon Fiber Epoxy Composites** / 1 student |
| **WORKS AND PROCEDURE TO BE DONE IN THE PROJECT****(Put the item number on the left and write it in order)** |
| **Item**1. Literature review on the thermal/dynamic behavior of carbon fiber reinforced epoxy composites (CFRPs) and its usage through Vacuum Assisted Resin Infusion Transfer Molding method will be surveyed.
2. Mechanical/physical properties like hardness and density of CFRP composites will be calculated and theoretical density of CFRP composites will be estimated and determined the porosities.
3. Thermo-mechanical properties of the material will be measured with the “Dynamic Mechanical Analyser” to measure the damping capacity of the materials. The effect of storage modulus, loss modulus and tan delta with temperature will be determined at 25-200°C.
4. Thermo Gravimetric Analysis (TGA)/Differential Scanning Calorimetry (DSC) tool will be carried out. For to do this, they are heated from room temperature to 800oC under N2 environment. Specimens weighing is approximately 10 mg. Thin square samples are prepared, and mass loss is recorded versus temperature.
5. Prediction of dynamic mechanical and thermal properties of the composites is done.
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| PROJECT AIMS |
| **Item**1. To investigate its dynamic thermo-mechanical and physical properties under different conditions.
2. To identify the different mechanical & physical tests, and develop their skills about experimental study.
3. To determine the storage modulus, loss modulus and damping behaviors at higher temperature and realize their behaviors
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| **THE STUDENT TO WORK ON THE PROJECT** |
| Number | Name Surname | Signature |
| 1.2. |  |  |

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| **SUPERVISOR** |
| TitleProf.Dr. | Name SurnameYusuf ŞAHIN | Signatureysahin |