**MARMARA UNIVERSITY**

**FACULTY OF ENGINEERING**

**ENVIRONMENTAL ENGINEERING DEPARTMENT**

**ENVE 4197/4198 ENGINEERING PROJECT**

**PROPOSAL FORM**

**FALL 2025-2026**

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| **Instructor:** Selda Yiğit Hunce**Project Title:** Development of Simple and Reproducible Methods for the Quantitative Analysis of Microplastics (2209 – Helin Dilan Polatbilek)**Proposal No.:** **Number of Students:** 1**Requirements (from students):** * Careful laboratory work following standard safety protocols.
* Ability to prepare synthetic water samples and perform controlled experiments.
* Accurate data collection, documentation, and analysis.
* Writing and presenting results clearly.
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| **Scope of the Project:** This project focuses on the development of simple and reproducible laboratory-scale methods for the quantitative analysis of microplastics in synthetic water samples. The study will evaluate basic separation, filtration, visualization, counting, and gravimetric approaches, with the aim of creating low-cost and easily applicable procedures. The results are expected to provide baseline methods that can be applied in educational laboratories or extended to future environmental monitoring studies. |
| **Hardware/Software/Lab/Equipment Requirements:*** Laboratory glassware
* Filtration unit and filter papers
* Synthetic microplastic particles (commercial or prepared)
* Stereo microscope
* Drying oven and analytical balance
* Computer with spreadsheet/statistical software for data processing.
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| **Development Plan:****Literature Review:** Collect and summarize current methods used for microplastic quantification.**Experimental Design:** Define sample preparation steps and establish analysis parameters.**Method Development:** Conduct experiments using synthetic water samples spiked with microplastics, applying filtration and gravimetric analysis.**Validation:** Assess reproducibility by repeating experiments under similar conditions.**Data Analysis:** Compare results across trials and evaluate accuracy and consistency.**Reporting:** Prepare a final thesis report including methodology, results, discussion, and recommendations. |