**MARMARA UNIVERSITY**

**FACULTY OF ENGINEERING**

**ENVIRONMENTAL ENGINEERING DEPARTMENT**

**ENVE 4197/4198 ENGINEERING PROJECT**

**PROPOSAL FORM**

**SPRING 2022-2023**

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| **Instructor :** Prof. Zehra Semra Can  **Project Title :** Evaluation of surface characteristics and heavy metal adsorption capacities of cellulose based adsorbents  **Proposal No. :** ZehraSCan-1  **Number of Students :** Maximum 4 students  **Requirements (from students) :** Each student is expected to spend minimum 6 hours in the laboratory at Building M4 each week. Once a week, one student will bring the samples to Göztepe laboratory for GCMS analysis. |
| **Scope of the Project :**  Cellulose is a natural, and abundant polymer. Therefore, researchers within the last few decades have focused on developing cheap, eco-friendly, cellulose-based sorbents with high sorption capacity (Aniagor et al., 2021). Cellulosic adsorbent materials propose a great deal in terms of small particle size, high combustibility and low ash content. This study aims to develop a novel foam like adsorbent material with ionic functional groups using cellulose, for the removal of heavy metals. |
| **Hardware/Software/Lab/Equipment Requirements :**  Atomic absorption spectrophotometer, UV-Vis spectrophotometer, thermostated shaker, ultrasonic water bath, pH meter |
| **Development Plan :**  Literature review on the subject  Preparation of cellulose based adsorbents  Surface characterization of adsorbents (Zeta Potential, XRD, SEM, sonication, FTIR)  Batch adsorption experiments (equilibrium and kinetics studies)  Determination of the best adsorption isotherm and kinetic models  Regeneration studies |