



**MARMARA UNIVERSITY
FACULTY OF ENGINEERING
ENVIRONMENTAL ENGINEERING DEPARTMENT**

**ENVE 4197/4198 ENGINEERING PROJECT
PROPOSAL FORM
FALL 2023-2024**

Instructor : Dr. Çiğdem Kalkan Aktan

Project Title : Phosphoric Acid Production from Sludge Ash by Using Biotechnological Methods

Proposal No. : 1

Number of Students : 2-3

Requirements (from students) : -

Scope of the Project :

The aim of the project is the production of phosphoric acid from sludge ash by using bio-H₂SO₄ that will be produced by using enriched sulfur oxidizing bacteria. Column bioleaching reactors will be conducted for phosphoric acid production from sludge ash. Also, nanofiltration for elimination of metals and heavy metals will be studied.

Hardware/Software/Lab/Equipment Requirements :

- Spectrophotometer
- Peristaltic Pumps
- Phosphate and Sulfate Kits
- Oven 105 and 550 °C,
- pH and Conductivity meter

Development Plan :

- Column Experiments
- Nanofiltration Membrane Experiments