



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

**ENVE 4197/4198 ENGINEERING PROJECT  
PROPOSAL FORM  
FALL 2025-2026**

**Instructor : Prof. Dr. Kozet BAKIRCI**

**Project Title : Investigation of Anammox process in the presence of Granular Activated Carbon (GAC)**

**Proposal No. : 1**

**Number of Students : Max 3-4 students**

**Requirements (from students) : Tubitak 2209-A project can be written by the students for this topic.**

**Scope of the Project :**

The scope of this project is to test the Anammox process in the presence of Granular Activated Carbon (GAC). Possible outcomes of GAC addition can be shortening the start-up time of biological process (which can be a major drawback during Anammox studies) and improve nitrogen removal efficiency.

**Hardware/Software/Lab/Equipment Requirements :**

Background knowledge on ammonia, nitrite and nitrate measurement will be required to conduct experiments.

**Development Plan :**

- Four laboratory-scale Anammox reactors will be implemented: two with varying granular activated carbon types for experimental purposes, and two without GAC as control groups. Potential reduction in start-up time will be investigated.
- The reactors will be operated for an extended period to evaluate the disparities in nitrogen removal performance.