



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

**ENVE 497/498 ENGINEERING PROJECT  
PROPOSAL FORM  
FALL 2016**

**Instructor :** Prof.Dr. Barış ÇALLI

**Project Title :** Ammonia separation from anaerobic digestate by using membrane contactors

**Proposal No. :** BarışÇallı-2

**Number of Students :** 3-4

**Requirements (from students):** Enve 302 'Environmental Engineering Unit Processes' course, CSE 123 'Introduction to Computing'

**Scope of the Project:**

The purpose of the proposed project is to remove and/or separate ammonia exists in digestate by using hydrophobic membranes. Two different membrane contactor will be compared. By these practices, it is intended to use the digestate as a dilution water.

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

UV/Vis spectrophotometer, Magnetic stirrer, Incubator, Peristaltic pumps, Vacuum pumps, Portable pH meter, GC-FID.

**Development Plan:**

- 1- Design, manufacture and operate membrane contactors
  - a. Flat sheet membrane contactor
  - b. Hollow fiber membrane contactor
- 2- Comparison of ammonia removal efficiencies of membrane contactors