



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

**ENVE 4197/4198 ENGINEERING PROJECT
PROPOSAL FORM
FALL 2019**

Instructor : Zehra Semra Can

Project Title : Combined Application of Ozone and Adsorption for the Treatment of Textile Wastewater

Proposal No. : ZehraSCan-1

Number of Students : 4

Requirements (from students): Students should spend a minimum of 6 hours in the lab each week.

Scope of the Project :

Waste minimization is of crucial importance for the textile industry. In most cases, individual treatment processes are not enough for complete treatment of textile wastewater. As a result, synergistic effects of combined processes are currently being investigated for the treatment of textile wastewater. In this study, combined application of ozone and adsorption will be evaluated for color and COD removal from textile wastewater. For this purpose, aqueous solution of methylene blue will be treated by ozonation followed by activated carbon adsorption. Optimum process conditions for ozonation will be determined by evaluating different ozone doses and contact times. After determination of the optimum ozonation conditions, batch adsorption studies will be applied for the removal of residual color. Effects of initial methylene blue concentration, adsorbent dose, contact time and temperature will be evaluated. Finally, real textile waste water samples will be treated by the suggested combined process. The efficiency of the process will be assessed by COD and color removal in the samples, before and after treatment.

Hardware/Software/Lab/Equipment Requirements :

Ozone generator
Temperature controlled shaker
UV-Vis spectrophotometer
COD thermoreactor

Development Plan :

Literature search on the subject to have a better understanding of the processes.
To perform controlled ozonation and batch adsorption tests.
To analyze the data and prepare a poster presentation and a written report.