



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

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

Instructor : Rosa M. Flores

Project Title : Investigating the chemical composition of urban atmospheric particles

Proposal No. : *RMFlores-1*

Number of Students : 3

Requirements (from students) : ENVE-340, and ENVE-341 are recommended. If you haven't taken one of these courses, basic knowledge of air quality is recommended. You will need to do research on your own. We will have meetings as necessary and you will give presentations once a month showing your progress.

Scope of the Project :

Atmospheric particles have important effects on human health, climate, and the environment. Fine particles can penetrate into the circulatory system and cause respiratory problems. Particles can interact with solar radiation and affect the energy balance by reflecting or absorbing radiation. They can also interact with water vapor in the atmosphere and affect the water cycle. All these effects depend on their chemical composition and changes in concentration during the day. In this project students will extract particle samples and study their chemical composition with ion chromatography. Data analysis will include making graphs and comparing results with meteorological variables and with other results found in other cities around the world.

Hardware/Software/Lab/Equipment Requirements :

Particulate matter sampler
Mechanical shaker and sonication for extraction of samples
Filtering device and centrifuge
Ion chromatography
Software to create graphs and write your thesis

Development Plan :

1. Literature review, reading, and writing throughout the term
2. Preparation of filters, calibration of sampler, and collection of samples.
3. Analysis of standards in blanks with ion chromatography
4. Extraction, filtering, and analysis of samples
5. Analysis of the results and writing thesis