**MARMARA UNIVERSITY**

**FACULTY OF ENGINEERING**

**ENVIRONMENTAL ENGINEERING DEPARTMENT**

**ENVE 4197/4198 ENGINEERING PROJECT**

**PROPOSAL FORM**

**SPRING 2022-2023**

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| **Instructor : Prof. Dr. Kozet BAKIRCI**  **Project Title : A study to determine the chemical speciation of a selected heavy metals in Anammox reactor**  **Proposal No. :** KY-1  **Number of Students :** 2  **Requirements (from students) :** |
| **Scope of the Project :**  The scope of this project is to evaluate the inhibition of Anammox system in the presence of Cd and Cu heavy metals. Heavy metal toxicity, as well as its bioavailability to Anammox bacteria, depends on the degree of heavy metal partitioning between its solid and bulk phases. Modelling will be done using a chemical speciation software to determine the behaviour of a hevay metal (an inhibitor for bacteria) when present in an anammox reactor. |
| **Hardware/Software/Lab/Equipment Requirements :**  **Visual Minteq Software** |
| **Development Plan :**  Heavy metal free-ion concentrations, as well as those of the other inorganic metal complexes, will be predicted using a chemical equilibrium software application (e.g. Visual MINTEQ). The heavy metal concentrations, temperature, pH, and all other chemical species will be used as input data. The model will be run at different values of temperature, pH and concentrations to evaluate the effect of all of these variables on the speciation. |