1. **Student InfORMATION**

Name Surname:

Student ID:

Semester:

Design Topic:

Submission Date:

1. **ProJECT NAME**

Determine the lifetime of a battery you have obtained with an experiment you have designed.

* You can use any battery.
* Indicate under which conditions you calculated the battery life.
* Consider changes in the environment.

1. **Realistic Constraints and Conditions that can be used**

Depending on the nature of the design, realistic constraints and conditions include elements such as economy, environmental issues, sustainability, manufacturability, ethics, health, safety, social and political issues. In this document, our students are required to use at least 3 constraints in their Design studies by selecting at least 2 constraints that are appropriate for the study from the other titles below, with Cost Analysis being mandatory.

**Economy:** In the studies to be carried out within this scope, topics such as Cost Analysis, Recovery Rate, Depreciation and Depreciation Calculations, Renewal Analysis, Economic Feasibility Reports of Engineering Projects, Product and Processing Costs should be addressed.

**Cost Analysis:** Studies such as revealing the entire cost of the product as a result of all stages such as labor, raw materials, production facilities, facility economics, product processing costs, energy costs in the processes from product design to production.

**Environmental issues:** Studies such as reducing the energy consumed in stages such as processing and production of the product and thus reducing harmful substances discharged into the environment, reducing harmful gas emissions into the environment by using alternative and renewable energies, and selecting alternative materials for materials that have recycling problems.

**Sustainability:** Studies on how long the life of the material determined for a decided product design is, whether it will become scrap or garbage after it is used, or whether it is possible to be reprocessed and transformed into the same or another product, or if so, how long and in what amount it will be recycled.

**Manufacturability:** Studies on the stages that a design must go through, starting from the choice of material and production method, to be manufacturable.

**Ethics:** Evaluation of the work to be done in terms of engineering ethics.

**Health:** Examination of whether the methods and materials to be used in the studies have a negative impact on human health.

**Safety:** An assessment of the engineering safety criteria of the materials selected for the work being designed, and an assessment of whether the methods to be used in the work will cause any occupational accidents in terms of occupational safety.

1. **DESIGN METHOD**
2. **DESIGN AIM**
3. **REALISTIC CONSTRAINTS AND CONDITIONS**
4. **EXPERIMENTAL DESIGN**
5. **RESULTS**
6. **NOTES**