**MARMARA UNIVERSITY**

**FACULTY OF ENGINEERING**

**DEPARTMENT OF MECHANICAL ENGINEERING**

**ME4111/ME4011/ME411 EXPERIMENTAL METHODS IN MECHANICAL ENGINEERING**

**EXPERIMENTAL DESIGN PROJECT**

**EXPERIMENTAL DESIGN FOR INVESTIGATING THE EFFECT OF THE LENGTH OF A CANTILEVER BEAM ON ITS DAMPING RATIO**

* In this project, students will design and perform a series of experiments for investigating the effect of the length of a cantilever beam on its damping ratio.
* For each beam length, the damping ratio will be calculated by employing the logarithmic decrement technique for all the adjacent peaks, and then it will be represented as Mean ± Standard Error of the Mean (SEM).
* The average damping ratios will be plotted against the corresponding beam lengths.
* A regression analysis and curve fit will be performed for understanding the relation between the length and the damping ratio of the beam.
* The hypothesis and assumptions should be stated clearly.
* The equation of the curve fit will be obtained.
* The coefficient of determination of the curve fit will be calculated and used for the discussion of the findings.
* The standard experiment report format of the course will also be followed during the preparation of this report.
* Students should perform the experiments and submit their reports during the laboratory hours of their registered sections.