Experiments in Mechanical Engineering2

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1. Course Description

This course is to understand mechanical engineering through experiments as follows:

Experiment 1: Heat Transfer in Double Pipe Heat Exchanger
Experiment 2: Experimental Modal Analysis and CAE Vibration Analysis
Experiment 3: Starting Friction of Rolling Bearing
Experiment 4: Pressure Loss in Piping System

Students will learn knowledge, technique, and manner for DP2, DP3, DP4, and DP5.

2. Course Objectives

Students will perform experiments of material mechanics, fluid dynamics, thermal dynamics, mechanical dynamics, and machine element. Through experiments, the students will deepen their understanding of theories learned in lectures. Moreover, students will learn safe manners, experiment methods, and use of experimental equipment and measuring instruments. In addition, students will learn the analysis of experimental data, graph making, experimental consideration, and presentation skills.

3. Grading Policy

Grading is determined with reports of each experiment. If the report is inadequate, it must be resubmitted. We will explain points that should be revised.

4. Textbook and Reference

Textbook
Japanese textbook: 機械・精密システム工学実験（産図テクスト）

5. Requirements(Assignments)

Students must review strength of material, fluid dynamics, thermal dynamics, mechanical dynamics, machine element, physics, and mathematics. In addition, students must study a textbook and handouts (1.5 hours).

6. Note

7. Schedule

[1]	Guidance
[2]	First day of 1st experiment
[3]	Second day of 1st experiment
[4]	Third day of 1st experiment
[5]	First day of 2nd experiment
[6]	Second day of 2nd experiment
[7]	Third day of 2nd experiment
[8]	First day of 3rd experiment
[9]	Second day of 3rd experiment
[10]	Third day of 3rd experiment
[11]	First day of 4th experiment
[12]	Second day of 4th experiment
[13]	Third day of 4th experiment
[14]	Preparation of presentation
[15]	Presentation