Akashi College	Year	2023	Course Title	Experiments of Mechanical Engineering Ⅱ B

Course Information

Course Code	5430	Course Category	Specialized / Compulsory
Class Format	Experiment	Credits	School Credit: 1
Department	Mechanical Engineering	Student Grade	4th
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials			
Instructor	KATOH Takahiro,SEKIMORI Daisuke,TANAKA Seiichi,FUJIWARA Seiji,MATSUZUKA Naoki		

Course Objectives

1) Understand the principles and procedures of each experiment, and can conduct experiments accurately and safely, and process and aggregate data.
2) Can logically examine the validity of experimental data, and compile them into a report.
Can work together as a group and actively contribute to fulfill their responsibilities.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Can explain fully on the principles and procedures of each experiment, and can conduct experiments accurately and safely, and process and aggregate data.	Understand the principles and procedures of each experiment, and can conduct experiments and process and aggregate data.	Cannot understand the principles and procedures of each experiment. Moreover, cannot conduct experiments and to process or aggregate data.
Achievement 2	Can logically examine and analyze the validity of experimental data, and can compile them into a understandable report.	Can logically examine the validity of experimental data and compile them into reports.	Cannot logically examine the validity of experimental data. Also, cannot compile them into a report.
Achievement 3	Can work together as a group and actively contribute to fulfill their responsibilities, and lead the group by encouraging others to cooperate appropriately.	Can work together as a group and actively contribute to fulfill their responsibilities.	Cannot work together as a group and actively contribute. Also, cannot fulfill their responsibilities for the roles assigned to them.

Assigned Department Objectives

Teaching Method

Outline	Students will learn basic academic knowledge in the main fields of mechanical engineering at Department of Mechanical Engineering empirically through experiments. In addition, learn the methods and sensibility of engineering analysis through the organization and analysis of experimental results. Also develop teamwork spirit and leadership through the group work.
Style	The experimentation will be carried out by six small groups, and six themes will be carried out in order. The column of plan and contents of the class shows typical examples.
Notice	As it's an experiment subject learned empirically, it's prerequisite that students attend classes. Also, students must submit a report by the due date, as an assignment can only complete when a report is submitted. Students who miss 1/3 or more of classes will not be eligible for evaluation.

Characteristics of Class / Division in Learning

☐ Active Learning	☐ Aided by ICT	☑ Applicable to Remote Class	☑ Instructor Professionally Experienced

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Thermal engineering experiment (2) (Fujiwara) Basic experiments on heat-dissipating fins	Can gain knowledge of the experiment by visiting experimental facilities of companies.
		2nd	Thermal engineering experiment (2)(Fujiwara) Basic experiments on heat-dissipating fins	Understand the basic principles and procedures of the experiments, and can jointly measure the necessary data while taking safety into consideration.
		3rd	Measurement and Control Engineering Experiment (2) (Sekimori) PID control for motor	Can analyze experimental data, and prepare and submit reports including logical considerations using appropriate charts on time.
		4th	Measurement and Control Engineering Experiment (2) (Sekimori) PID control for motor	Understand the basic principles and procedures of the experiments, and can jointly measure the necessary data while taking safety into consideration.
		5th	Report writing Examine and compile the results of the experiment into a report.	Understand and consider corrections and additional instructions and can compile them into a more effective and easy-to-understand report.
		6th	Report writing Examine and compile the results of the experiment into a report.	Understand and consider corrections and additional instructions and can compile them into a more effective and easy-to-understand report.
		7th	Report writing Examine and compile the results of the experiment into a report.	Understand and consider corrections and additional instructions and can compile them into a more effective and easy-to-understand report.
		8th	Factory tour	A tour of the actual production site will allow better understanding of production.

	4th Quarter	9th	Design Engineering Experiment (1) (Shi) Dynamic System Simulation with MATLAB / Simulink	Understand the basic principles and procedures of the experiments, and can jointly measure the necessary data while taking safety into consideration.
		10th	Design Engineering Experiment (1) (Shi) Dynamic System Simulation with MATLAB / Simulink	Can analyze experimental data, and prepare and submit reports including logical considerations using appropriate charts on time.
		11th	Machining Experiment (Katoh) Basic experiments on cutting mechanisms in two-dimensional cutting	Understand the basic principles and procedures of the experiments, and can jointly measure the necessary data while taking safety into consideration.
		12th	Machining Experiment (Katoh) Basic experiments on cutting mechanisms in two-dimensional cutting	Can analyze experimental data, and prepare and submit reports including logical considerations using appropriate charts on time.
		13th	Report writing Examine and compile the results of the experiment into a report.	Understand the basic principles and procedures of the experiments, and can jointly measure the necessary data while taking safety into consideration.
		14th	Report writing Examine and compile the results of the experiment into a report.	Can analyze experimental data, and prepare and submit reports including logical considerations using appropriate charts on time.
		15th	Report writing Examine and compile the results of the experiment into a report.	A tour of the actual production site will allow better understanding of production.
		16th	No final exam	

Evaluation Method and Weight (%)

	Efforts・Behavior	Analysis・Consideration	Report	Total
Subtotal	20	40	40	100
Basic Proficiency	0	0	0	0
Specialized Proficiency	10	40	40	90
Cross Area Proficiency	10	0	0	10