Akashi College	Year	2023	Course Title	Fundamental Experiments of Electrical & Computer Engineering

Course Information

Course Code	5132	Course Category	Specialized / Compulsory
Class Format	Experiment	Credits	School Credit: 1
Department	Electrical and Computer Engineering	Student Grade	1st
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	Distribute materials in class		
Instructor	KAJIMURA Yoshihiro,HIROTA Atsushi		

Course Objectives

1) Experientially understand the basics of electrical engineering through basic experiment exercises
2) Can research independently and actively matters related to conducted experiments
3) Learn to be cooperative and kind to others through collaborative work

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Fully and experientially understand the basics of electrical engineering through basic experiment exercises	Experientially understand the basics of electrical engineering through basic experiment exercises	Do not experientially understand the basics of electrical engineering through basic experiment exercises
Achievement 2	Can fully research independently and actively matters related to conducted experiments	Can research independently and actively matters related to conducted experiments	Cannot research independently and actively matters related to conducted experiments
Achievement 3	Fully learn to be cooperative and kind to others through collaborative work	Learn to be cooperative and kind to others through collaborative work	Fail to learn to be cooperative and kind to others through collaborative work

Assigned Department Objectives

Teaching Method

Outline	Students will experientially understand the basics of electrical engineering through basic experiment exercises, and learn the basic attitude for engineering experiments, including researching independently and actively matters related to conducted experiments . They will also learn to be cooperative, considerate to others, etc., through collaborative work. The instructors hold classes jointly.
Style	Lessons are done in the form of experiment exercises by teams. Quizzes will be conducted to test students' understanding.
Notice	Students are expected to work independently and actively, and learn the fundamentals and basics of experiments. They should attend classes in appropriate lab attire, and always behave with their own and others' safety in mind. All assignments are required to be submitted. Students are expected to develop the habit of properly fulfilling responsibilities, such as cleaning and putting away the equipment used. Students are required to bring a calculator (any model) and an A4 notebook for the experiments. It doesn't need to be a new notebook, but loose leaf paper is not allowed. 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
1st Semester	1st Quarter	1st	Course outline	Understand the outline of this course (objectives, goals, and notes)
		2nd	How to use a tester and measuring resistance and voltage	Learn how to use a tester and can measure resistance and voltage
		3rd	Breadboard 1	Learn the basic use of a breadboard
		4th	Breadboard 2	Can build a basic circuit using a breadboard
		5th	Oscilloscope 1	Learn the basic use of an oscilloscope
		6th	Oscilloscope 2	Learn the basic use of an oscilloscope and can measure circuits
		7th	Building electronics 1	Can build electronics using a soldering iron
		8th	Building electronics 2	Can build electronics using a soldering iron
	2nd Quarter	9th	Oscillator 1	Learn the basic use of an oscillator
		10th	Oscillator 2	Learn the basic use of an oscillator and can give high frequencies to a circuit
		11th	Making a blinking LED circuit 1	Understand the basic mechanism of a blinking LED circuit
		12th	Making a blinking LED circuit 2	Can make a basic circuit for a blinking LED circuit
		13th	Making a blinking LED circuit 3	Can make a blinking LED circuit
		14th	Amplified circuit using an operational amplifier	Can make a sine wave amplification circuit using an operational amplifier
		15th	Practice measuring voltage with a bridge circuit	Understand the equilibrium conditions of a bridge circuit
		16th	No final exam	

Evaluation Method and Weight (%)							
	Experiment efforts	Active learning	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	20	0	0	0	0	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	80	20	0	0	0	0	100
Cross Area Proficiency	0	0	0	0	0	0	0