Tsuyama College	Year	2020	Course Title	Electric and Electronic System Engineering Experiments and Practice Ⅱ

Course Information

Course Code	0045	Course Category	Specialized / Compulsory
Class Format	Experiment	Credits	School Credit: 3
Department	Department of Integrated Science and Technology Electrical and Electronic Systems Program	Student Grade	3rd
Term	Year-round	Classes per Week	3
Textbook and/or Teaching Materials	Textbook of Electric and Electronic System Engineering Experiments and Practice Ⅱ		
Instructor	HARADA Kanji,NISHIO Kimihiro,MAEHARA Kenji,MINATOHARA Tetsuya,SHIMADA Takao,KUBO Toshihiro		

Course Objectives

Learning purposes :
Students will deepen their understanding of what they have learned through experiments. Students will develop the ability to organize the data obtained and consider the results.

Course Objectives :
Acquire techniques for various measurements and test methods related to electricity and electronics. Understand what you have learned about specialized subjects through experiments.
1. To learn how to handle devices and equipment, and acquire the ability to solve problems independently and collaboratively.
2. To acquire the ability to express data using graphs, sentences, formulas, etc. by compiling experimental results in a report.
3. To be able to consider and explain engineering from experimental results.
4. To be able to act in collaboration with others to achieve goals.

Rubric

	Excellent	Good	Acceptable	Not acceptable
Achievement 1	The student can understand and accurately use the required equipment such as experimental device, information apparatus.	The student can understand and use the required equipment such as experimental device, information apparatus.	The student can almost use the required equipment such as experimental device, information apparatus.	The student cannot understand and use the required equipment such as experimental device, information apparatus.
Achievement 2	The student can accurately report the results of the experiment.	The student can report the results of the experiment.	The student can almost report the results of the experiment.	The student will not report the results of the experiment.
Achievement 3	The student can accurately consider and explain the results of the experiment.	The student can consider and explain the results of the experiment.	The student can consider and explain the results of the experiment.	The student can not consider the results of the experiment.
Achievement 4	The student can actively cooperate and collaborate with others to achieve their goals.	The student can cooperate and collaborate with others to achieve their goals.	The student can generally cooperate and collaborate with others to achieve their goals.	The student will not cooperate and collaborate with others to achieve their goals.

Assigned Department Objectives

3

Teaching Method

Outline	General or Specialized : Specialized Field of learning : Experiments , Practice Required, Elective, etc. : Required subjects Foundational academic disciplines : Engineering / Electrical and Electronic Engineering Relationship with Educational Objectives : This class is equivalent to "(3) Acquire deep foundation knowledge of the major subject area", and "(6) Develop problem solving ability". Relationship with JABEE programs : The main goals of learning / education in this class are "(A), A-2". Course outline : In this subject, the student will deepen their understanding of fields such as electric circuits, electronic circuits, electronic engineering, and electric power through experimental and practice.
Style	Course method : Experiments will be conducted in 3 groups. Summarize the experimental results in a report and submit it to the teacher. Grade evaluation method : Report (70%) + Attendance and class attitude (30%).

Notice	Precautions on the enrollment : Students must take this class (no more than one-third of the required number of class hours may be missed) and earn the credit in order to complete the 3rd year course. Course advice : Wear clothes that allow you to safely do experiments in the laboratory. Especially for "electromechanical experiments", be sure to wear appropriate training clothes and a hat. Also, wear protective shoes such as athletic shoes. Sandals must not be worn. Bring a calculator. Foundational subjects : Fundamentals of Integrated Science and Technology (1st year), Experimental Practice for Science and Engineering (1st), Integrated Science and Technology Practice (2nd), Electrical Apparatus I (2nd), Basic Electrical Controls (2nd), Electrical and Electronic Circuits (2nd) Related subjects : Electric and Electronic System Engineering Experiments (4th year), Trans Exercise of All Programs I (3rd), Trans Exercise of All Programs II (4th) etc. Attendance advice : Read the experiment text carefully in advance to understand the content and how to proceed. It is important to be careful about what you have not learned in the classroom and to be prepared to learn by doing the experiment. If you are late, you will be treated as absent after 15 minutes.

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	
		2nd	Electronic circuit design (1)	
		3rd	Electronic circuit design (2)	
		4th	Electronic circuit design (3)	
		5th	Electronic circuit design (4)	
		6th	Experiments with LEGO Mindstorms (1)	
		7th	Experiments with LEGO Mindstorms (2)	
		8th	Preliminary experiment day, report guidance	
	2nd Quarter	9th	Experiments with LEGO Mindstorms (3)	
		10th	Experiments with LEGO Mindstorms (4)	
		11th	Experiment using PIC (1)	
		12th	Experiment using PIC (2)	
		13th	Experiment using PIC (3)	
		14th	Experiment using PIC (4)	
		15th	Preliminary experiment day, report guidance	
		16th	Preliminary experiment day, report guidance	
2nd Semester	3rd Quarter	1st	Guidance	
		2nd	Experiment using a biped robot (1)	
		3rd	Experiment using a biped robot (2)	
		4th	Experiment using a biped robot (3)	
		5th	Experiment using a biped robot (4)	
		6th	Experiments on semiconductors (1)	
		7th	Experiments on semiconductors (2)	
		8th	Experiments on semiconductors (3)	
	4th Quarter	9th	Experiments on semiconductors (4)	
		10th	Preliminary experiment day, report guidance	
		11th	Experiments on electrical equipment (1)	
		12th	Experiments on electrical equipment (2)	
		13th	Experiments on electrical equipment (3)	
		14th	Experiments on electrical equipment (4)	
		15th	Preliminary experiment day, report guidance	
		16th	Preliminary experiment day, report guidance	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Attitude	Report	Other	Total
Subtotal	0	0	0	30	70	0	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	0	0	0	30	70	0	100
Cross Area Proficiency	0	0	0	0	0	0	0