Exercise for Electrical and Electronic Engineering 2

Basic Course Information

Course Number	01005141	Subject Category	Elective Compulsory (M)
Class Format	Lecture	Credit Type and Number of Credits	1
Department	Mechatronics	Student Category	Year 5
Period of Study	Semester 1	Classes per Week	1
Required Materials			
Instructor	Kenji Kashine	Teerapong Orachon	

Course Objective

The course provides students with opportunity to practice calculation of circuits and electromagnetism to deepen their understanding of practical electrical and electronic engineering.
Through this course, students can be achieved two main objectives as follows.
(1) To be able to explain the basic theory of design the electronic circuit.
(2) To be able to explain the basic theory of design the printed circuit board.

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
To be able to explain the basic theory of design the electronic circuit.	To be able to explain the basic theory of design the electronic circuit and design a simple electrical circuit with the appropriate electronic components.	To be able to explain the basic theory of design the electronic circuit.	Cannot explain the basic theory of design the electronic circuit.
To be able to explain the basic theory of design the circuit board design.	To be able to explain the basic theory of design the printed circuit and design a simple printed circuit board with the appropriate method.	To be able to explain the basic theory of design the printed circuit board.	Cannot explain the basic theory of design the printed circuit board.

Relationship with Learning Outcomes

M(2) Ability to design, propose and develop electrical and electronic systems for robotics/ mechatronic systems

Please change

Please change

Teaching Method

Outline:	The course provides students with opportunity to practice calculation of circuits and electromagnetism. Students study the basic theory of electronic circuit design and manufacturing the printed circuit board. The topic covered in this course. Diode and Transistor circuit and their application, circuit board design by electronic design automation (EDA) software.
Class Format:	Lecture and Exercises
Please Note :	All materials will be posted on the Google classroom

Course Plan

Semester 1	Contents and Method of Course	Goals	Related MCC		
1st week	Guidance, Introduction to circuit design	To be able to explain the basic items necessary for electronic circuit design and their importance.			
2nd week	Diode circuits and their application	To be able to design a simple diode circuit using appropriate components.	V-C	3	43
3rd week	Transistor circuit	To be able to explain transistor characteristics of using datasheet.	V-C	3	44
4th week	Transistor circuit application	To be able to design a simple transistor circuit using appropriate components.	V-C	3	47
5th week	Coaxial cable	To be able to explain the importance of impedance matching in electric circuit.	VI-C	1	9
6th week	Various electronic circuit 1	To be able to design a simple electronic circuit using appropriate components.	VI-C	1	13
7th week	Various electronic circuit 2	To be able to design a simple electronic circuit using appropriate components.	VI-C	1	13
8th week	Midterm Examination	For week 1~7			
9th week	Midterm Examination (Feedback)	Review learning			
10th week	Introduction to circuit board design	To be able to explain the basic items necessary for circuit board design.			
11th week	Circuit board design 1	To be able to apply a circuit simulator to circuit design.			
12th week	Circuit board design 2	To be able to design a simple circuit board using circuit simulator.			
13th week	Circuit board processing 1	To be able to explain the basic process for manufacturing the circuit board.			
14th week	Circuit board processing 2	To be able to explain the basic process for manufacturing the circuit board.			
15th week	Circuit assembly 1	To be able to explain the basic method for assembling the electric component on circuit board.			
16th week	Circuit assembly 2	To be able to mount the electric component on the circuit board with appropriate method.			
17th week	Test and adjustment 1	To be able to explain the basic test methods for assembled electronic circuits board.	VI-C	1	13
18th week	Test and adjustment 2	To be able to perform basic tests on assembled electronic circuit boards.	VI-C	1	14
19th week	Final Examination	For week 10-18			
20th week	Return Exam Papers and Feedback, and special sessions	Review and summarize learning			

Do not c

	Examination	Quiz	Mutual Evaluations between students	Report	Portfolio	Other
Basic Ability						
Technical Ability	70			30		
Interdisciplinary Ability						