Electrical Circuits and Electronics 2

Basic Course Information

Course Number	02005127	**Subject Category**	Compulsory (C)
Class Format	Lecture	**Credit Type and Number of Credits**	1
Department	Computer	**Student Category**	Year 2
Period of Study	Semester 2	**Classes per Week**	1
Required Materials	Internet connection is required		
Instructor	Warachai Pattanasiriboon	Hitoshi Nishizawa	

Course Objective

This course provides students with Electrical Circuits and Electronics. The topic covered in this course: able to covert between phasor and sinusoid waveform. Students can analysis AC circuit using basic,mesh, node and superposition methods. In the final term student will learn basic electronics for computer engineering and they are able to design and analysis electronics circuits.

Evaluation(Rubric)	Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)	Unacceptable Level of Achievement (Fail)
	Ideal level of achievement (Grade A: verygood)	Standard level of achievement (Grade	Unacceptable level of achievement (Grade C:
Ability to calculate AC circuits	Can analyze complex circuits and calculate the related all parameters	Can analyze simple circuits up to intermediate and calculate some parameters	Cannot calculate and understand simple circuits
Ability apply knowladge to the solution of real problems	Can clearly identify which methods are better for each problem.	Can solve some real problem by using accustomed method.	Cannot apply knowledge to solve any real problem
Ability to design a easy circuit for basic applications, such as AC meter, voltage divider and current divider.	Understanding well how to design correctly a circuit for basic applications.	Understanding how to design a easy circuit for basic applications.	Cannot understand how to design any basic circuits.
Ability to design and apply basic electronics for each applications	Understand well how to design and apply basic electronics for each applications	Can explain how to design and apply basic electronics for each applications	Cannot explain how to design and apply basic electronics for each applications

Relationship with Learning Outcomes

C(1) Ability to operate and administer the computer software and hardware
Please change
Please change

Teaching Method

Outline:	Lecture and Practice
Class Format:	Lecture, Practice and Homework Assignments
Please Note :	Students are expected to ask any questions after sufficient self-learning.

Course Plan

Semester 2	Contents and Method of Course	Goals	Related MCC
1st week	Sinusoid waveform	Able to identify a sinusoid's amplitude, frequency, and phase angle.	V-C 1 7
2nd week	Phasor converting	Able to convert between sinusoids and phasor expressions.	V-C 1 9
3rd week	Analysis AC circuit by using phasor	Able to analysis AC circuit by using phasor	V-C 1 9 V-C 1 12
4th week	Mesh and nodal analysis, superposition theorem	Able to apply these methods to analyze the complex circuit and network circuit.	V-C 1 17 V-C 1 18
5th week	Ho - Thevenin's theorem, Norton's theorem, and maximum power transfer *	Able to transform a complex circuit into the equivalent circuit by using Ho - Thevenin's theorem and Norton's theorem. Can find a particular resistance value for the maximum power transfer.	V-C 1 14 V-C 1 19
6th week	National holiday *		
7th week	AC Power analysis	Can calculate apparent power, real power, reactive power as well as improve the power factor.	V-C 1 7 V-C 1 8 V-C 1 9 V-C 6 89 V-C 6 90
8th week	Preparing for Mid-term examination *	Review problems for the mid term examination.	
9th week	Holiday *		
10th week	Midterm exam week *	Can slove problems at the mid-term examination.	
11th week	Return exam papers and feedback,review of radian	Review and summarize the learning.	
12th week	intro to electronics	Understand basic electronics and able to apply suitable devices for each cases	V-C 3 43 V-C 3 44 V-C 3 45
13th week	Semiconductor and Diodes	Understand the basic principles of the physics for semiconductor devices and use diode to design the Full-wave	V-C 3 43
14th week	Bipolar Junction Transistor and circuit models	Understand the basic principles the transistor and apply it for applications	V-C 4 60 V-C 4 61 V-C 4 62 V-C 3 44 V-C 3 45
15th week	Grounded Transister and Static characteristics of transistor	Understand the effect about grounded Base, Emitter and Collector.	V-C 4 60 V-C 4 61 V-C 4 62
16th week	h-parameter (1)	Understand about h-parameter which is hfe, hie and so on.	V-C 3 49 V-C 1 13
17th week	Holiday *		
18th week	h-parameter (2)	Can Calculate about h-parameter which is hfe, hie and so on	V-C 3 49 V-C 1 13
19st week	Preparing for final examination *	Review related circuit problems for the final examination.	
20th week	Final Examination *	Can slove problems at the final examination.	
21st week	Return exam papers and feedback,review of radian	Review and summarize the learning.	

Do not

	Examination	Quiz	Mutual Evaluations between students	Report	Portfolio	Other
Basic Ability	70	10	0	20		
Technical Ability	0	0	0			
Interdisciplinary Ability	0	0	0			