

Tsuyama College		Year	2021		Course Title	Electronic Circuits II
Course Information						
Course Code	0075		Course Category	Specialized / Elective		
Class Format	Lecture		Credits	Academic Credit: 2		
Department	Department of Integrated Science and Technology Electrical and Electronic Systems Program		Student Grade	4th		
Term	Second Semester		Classes per Week	2		
Textbook and/or Teaching Materials	Textbooks : "Yoku waku Denshikairo no Kiso" (Denki Shoin)					
Instructor	MAEHARA Kenji					
Course Objectives						
Learning purposes : Feed analysis and design ability by learning the general knowledge of the electronic circuit which will become a stepping-stone to applied circuitry.						
Course Objectives : 1. To explain the purpose and use of an oscillation circuit, a modulation circuit and a demodulation circuit. 2. To explain the characteristics and the theory of the oscillation circuit. 3. To explain the characteristics and the theory of the modulation circuit and the demodulation circuit. 4. To understand the contents of the overall electronic circuit, and can analyze it.						
Rubric						
	Excellent	Good	Acceptable	Not acceptable		
Achievement 1	The student can explain the purpose and use of an oscillation circuit, a modulation circuit and a demodulation circuit in detail.	The student can explain the purpose and use of an oscillation circuit, a modulation circuit and a demodulation circuit quite well.	The student can explain the main points of the purpose and use of an oscillation circuit, a modulation circuit and a demodulation circuit.	The student cannot explain the purpose and use of an oscillation circuit, a modulation circuit and a demodulation circuit.		
Achievement 2	The student can explain the characteristics and the theory of the oscillation circuit in detail.	The student can explain the characteristics and the theory of the oscillation circuit quite well.	The student can explain the main points of the characteristics and the theory of the oscillation circuit.	The student cannot explain the characteristics and the theory of the oscillation circuit.		
Achievement 3	The student can explain the characteristics and the theory of the modulation circuit and the demodulation circuit in detail.	The student can explain the characteristics and the theory of the modulation circuit and the demodulation circuit quite well.	The student can explain the main points of the characteristics and the theory of the modulation circuit and the demodulation circuit.	The student cannot explain the characteristics and the theory of the modulation circuit and the demodulation circuit..		
Achievement 4	The student understands the overall electronic circuit and can analyze it in detail.	The student understands the overall electronic circuit and can analyze it quite well.	The student understands the main points of the electronic circuit and can analyze it.	The student cannot understand the overall electronic circuit and analyze it.		
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Electrical and Electronic Foundational academic disciplines : Engineering/Electricity and Electronics/Electronic devices, Electronic equipment Relationship with Educational Objectives : This class is equivalent to "(3) Acquire deep foundation knowledge of the major subject area". Relationship with JABEE programs : The main goal of learning / education in this class is "(A), A-2". Course outline : Various electronic circuits are used in the devices and facilities of many fields, with the examples of information and communication technology, but also including the automation of machine tools, the examination of products, and for measurement. In this class, the student will learn about the oscillation circuit as the basic element that realize the concrete function of the electronic application field. Modulation and demodulation circuits will also be covered in class. In addition, the student will develop analytical ability by practicing problem-solving on the overall electronic circuit learned so far.					
Style	Course method : This course is opened in the second semester for 2 credit hours(90 minutes) in a week. Class proceeds using the blackboard, while organaizing important items in electronic circuit theory, including examples. In addition, practices and reports are assigned so that understanding deepens. Grade evaluation method : Regular exams (70%) + Practice (30%). Examinations will be conducted a total of 2 times, and the evaluation ratios will be the same. Students with poor results may be retested. The limit of the score after retest is 60 points.					

Notice	<p>Precautions on the enrollment : Students must take this class (no more than one-third of the required number of class hours may be missed) in order to complete the 4th year course. This is a class that requires study outside of class hours. A total of 45 hours of study is required per credit, including both class time and study outside class time. Follow the instructions of the instructor regarding study outside of class hours.</p> <p>Course advice : In this subject, it is important to develop the ability to analyse circuits by practice as well as to gain knowledge and understanding of the circuit theory. It is necessary to review and make careful preparations for lessons, and to work on problems actively.</p> <p>Foundational subjects : Electrical and Electronic Circuits(2nd year), Electric Circuits I (3rd), Electronic Circuits I (3rd) Related subjects : Communication Engineering(5th year), Advanced Communication Engineering(5th)</p> <p>Attendance advice : If you are late for the start time, you will be treated as absent after 10 minutes. Understanding a class of every time steadily, asking about an ignorance point.</p>
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Characteristics of Class / Division in Learning

<input type="checkbox"/> Active Learning	<input type="checkbox"/> Aided by ICT	<input checked="" type="checkbox"/> Applicable to Remote Class	<input type="checkbox"/> Instructor Professionally Experienced
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Elective must complete subjects

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Gives an outline. Principle of the oscillation circuit. [learning out of the school hour] Understanding of the oscillation condition.	Can explain a purpose, a use, a characteristic, the theory of the oscillation circuit.
		2nd	CR oscillation, other oscillation circuit. [learning out of the school hour] CR oscillations, practice of other oscillation circuits.	Understand the oscillation condition of various oscillation circuits, and can calculate oscillatory frequency.
		3rd	Principle of the LC three element form oscillation circuit. [learning out of the school hour] Practice of the principle of the oscillation circuit.	Can explain the oscillation condition of the LC three element form oscillation circuit.
		4th	Hartley oscillation circuit, Colpitts oscillation circuit. [learning out of the school hour] Practice of Hartley oscillation circuit and Colpitts oscillation circuit.	Understand the oscillation condition of Hartley oscillation circuit and Colpitts oscillation circuit, and can calculate oscillatory frequency.
		5th	A summary and practice of oscillation circuits. [learning out of the school hour] Practice of chapter end problem.	General understanding of oscillation circuits.
		6th	Practice of the problem of the electronic circuit for Employment or entrance into a school of higher grade. [learning out of the school hour] Practice of the problem of the electronic circuit.	Can explain the operation of the basic circuit using the op-amp and can analyze various op-amp circuits.
		7th	Practice of the problem of the electronic circuit for Employment or entrance into a school of higher grade. [learning out of the school hour] Practice of the problem of the electronic circuit.	Can explain the basic matter of the amplification circuits such as a gain, frequency band, input or output impedance, and analyze circuits.
		8th	2nd semester mid-term exam.	
	4th Quarter	9th	Return and commentary of exam answers. [learning out of the school hour] Modulation and Demodulation.	Understand the purpose and use of Modulation and Demodulation.
		10th	Theory of the amplitude modulation circuit. [learning out of the school hour] Understanding of the base modulation and the collector modulation.	Can explain the characteristic and operation principle of the amplitude modulation circuit.
		11th	Theory of the AM wave. [learning out of the school hour] Practice of the frequency spectrum, modulation degree and electricity.	Understand the frequency spectrum of the AM wave, an modulation degree and electricity, and can explain a characteristic.
		12th	Demodulation circuit of the AM wave. [learning out of the school hour] Demodulation of the AM wave.	Can explain the characteristic and operation principle of the amplitude demodulation circuit.
		13th	Theory of the frequency modulation circuit, Frequency spectrum. [learning out of the school hour] Modulation index.	Understand the characteristic of the FM wave, the mmodulation index, the frequency spectrum, and can explain the theory of the modulation circuit.
		14th	Demodulation circuit of the FM wave, other modulation. [learning out of the school hour] Demodulation circuit of the FM wave.	Can explain the characteristic and theory of the FM demodulation circuit, and the characteristic of other modulation.
		15th	(2nd semester final exam)	
		16th	Return and commentary of exam answers.	Understand accurately for the insufficient point of own answers.

Evaluation Method and Weight (%)

	Examination	Practice	Total
Subtotal	70	30	100
Basic Proficiency	0	0	0
Specialized Proficiency	70	30	100

Cross Area Proficiency	0	0	0
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