

Tsuyama College		Year	2021		Course Title	Electrical and Electronic Circuits
Course Information						
Course Code	0024		Course Category	Specialized / Compulsory		
Class Format	Lecture		Credits	School Credit: 2		
Department	Department of Integrated Science and Technology Advanced Science Program		Student Grade	2nd		
Term	Year-round		Classes per Week	2		
Textbook and/or Teaching Materials	Basic Electric(Tokyo Denki University Press), Electrical and Electronic Circuit Basics (Denkishoin)					
Instructor	NISHIO Kimihiro,MURAKAMI Katsuhiko					
Course Objectives						
Learning purposes : To acquire basic knowledge used in electrical and electronic circuits. The purpose is to understand the basic operating principles of circuits and to acquire the design ability of electrical and electronic circuits.						
Course Objectives : 1. To understand and explain electrical signals such as direct current and alternating current. 2. To understand and explain the electronic components used in electrical and electronic circuits. 3. To understand and explain the operating principle of basic electric circuits. 4. To understand and explain the operating principles of basic electronic circuits.						
Rubric						
	Excellent	Good	Acceptable	Not acceptable		
Achievement 1	The student can understand and accurately explain DC and AC electrical signals.	The student can understand and explain DC and AC electrical signals.	The student can almost explain DC and AC electrical signals.	The student will not understand and explain DC and AC electrical signals.		
Achievement 2	The student can understand and accurately explain the electronic components used in electrical and electronic circuits.	The student can understand and explain the electronic components used in electrical and electronic circuits.	The student can almost explain the electronic components used in electrical and electronic circuits.	The student will not understand and explain the electronic components used in electrical and electronic circuits.		
Achievement 3	The student can understand and accurately explain the operating principle of basic electric circuits.	The student can understand and explain the operating principle of basic electric circuits.	The student can almost explain the operating principle of basic electric circuits.	The student will not understand and explain the operating principle of basic electric circuits.		
Achievement 4	The student can understand and accurately explain the operating principles of basic electronic circuits.	The student can understand and explain the operating principles of basic electronic circuits.	The student can almost explain the operating principles of basic electronic circuits.	The student will not understand and explain the operating principles of basic electronic circuits.		
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Electrical and Electronic Required, Elective, etc. : Must complete subjects Foundational academic disciplines : Engineering / Electrical and Electronic Engineering / Electronic Devices / Electronic Equipment Relationship with Educational Objectives : This class is equivalent to "(3) Acquire deep foundational knowledge of the major subject area". Relationship with JABEE programs : The main goal of learning / education in this class are "(A), A-2". Course outline : Many robots and electric appliances are realized by using electric and electronic circuits. In this lecture, the student will learn about the electrical signals and electronic components used in electrical and electronic circuits. In addition, the student will deal with basic circuits using electronic components and learn the basic contents of electrical and electronic circuits.					
Style	Course method : Classes are centered around textbooks. Solve the exercises during class. Students are required to submit a report. Grade evaluation method : Regular exams (70%) + Report (30%). Regular examinations will be conducted a total of 4 times, and the evaluation ratios will be the same. Textbooks and notebooks are not allowed into the exam. Retaking exams may be required for the poor grades.					

Notice	<p>Precautions on the enrollment : Students must take this class in order to complete the 2nd year course.</p> <p>Course advice : For electrical and electronic circuits, it is important not only to understand the knowledge of circuit theory, but also to cultivate circuit analysis ability through exercises, and it is also necessary for participants to voluntarily and proactively tackle problems.</p> <p>Foundational subjects : Fundamentals of Integrated Science and Technology (1st year), etc. Related subjects : Digital Engineering (3rd year), Introduction to Electricity and Magnetism (3rd)</p> <p>Attendance advice : It is recommended that you take notes while understanding the contents explained in the class. If you do not understand the content of the lesson, ask the teacher. If you are late for the start time, you will be treated as lateless within 25 minutes.</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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Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Guidance	
		2nd	Electric signal (direct current and alternating current)	DC signal, AC signal
		3rd	Electronic components (1)	Resistor, capacitor, inductor
		4th	Electronic components (2)	Diode, transistor, IC
		5th	Electronic components (3)	Various sensors
		6th	Electrical and electronic circuits AC basics (1)	AC circuit (1)
		7th	Electrical and electronic circuits AC basics (2)	AC circuit (2)
		8th	1st semester mid-term exam	
	2nd Quarter	9th	Return and commentary of exam answers	
		10th	Electrical and electronic circuits AC basics (3)	AC circuit (3)
		11th	Electrical and electronic circuits AC basics (4)	AC circuit (4)
		12th	Electrical and electronic circuits AC basics (5)	AC circuit (5)
		13th	Electrical and electronic circuits AC basics (6)	AC circuit (6)
		14th	Electrical and electronic circuits AC basics (7)	AC circuit (7)
		15th	(1st semester final exam)	
		16th	Return and commentary of exam answers	
2nd Semester	3rd Quarter	1st	Electrical and electronic circuit Basic circuit (1)	Diode circuit
		2nd	Electrical and electronic circuit Basic circuit (2)	Bipolar transistor circuit (1)
		3rd	Electrical and electronic circuit Basic circuit (3)	Bipolar transistor circuit (2)
		4th	Electrical and electronic circuit Basic circuit (4)	Bipolar transistor circuit (3)
		5th	Electrical and electronic circuit Basic circuit (5)	MOS transistor circuit (1)
		6th	Electrical and electronic circuit Basic circuit (6)	MOS transistor circuit (2)
		7th	Electrical and electronic circuit Basic circuit (7)	MOS transistor circuit (3)
		8th	2nd semester mid-term exam	
	4th Quarter	9th	Return and commentary of exam answers	
		10th	Electrical and electronic circuits Application circuits (1)	Operational amplifier circuit (1)
		11th	Electrical and electronic circuits Application circuits (2)	Operational amplifier circuit (2)
		12th	Electrical and electronic circuits Application circuits (3)	Operational amplifier circuit (3)
		13th	Electrical and electronic circuits Application circuits (4)	Operational amplifier circuit (4)
		14th	Electrical and electronic circuits Application circuits (5)	Operational amplifier circuit (5)
		15th	(2nd semester final exam)	
		16th	Return and commentary of exam answers	

Evaluation Method and Weight (%)

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