

Tsuyama College		Year	2020		Course Title	Digital Engineering
Course Information						
Course Code	0049		Course Category	Specialized / Compulsory		
Class Format	Lecture		Credits	School Credit: 1		
Department	Department of Integrated Science and Technology Communication and Informations System Program		Student Grade	3rd		
Term	First Semester		Classes per Week	2		
Textbook and/or Teaching Materials	Textbooks : Baba Takanobu"Computer no sikumi wo rikai suru tameno 10 chapters"(Gijutsu-Hyohron), Reference books : N/A					
Instructor	MAEHARA Kenji,MINATOHARA Tetsuya,YAMAMOTO Tsunayuki					
Course Objectives						
Learning purposes : To understand the structures of digital-expression of information and a computer. Course Objectives : 1. To understand how to express numerical data in digital. 2. To understand how to express data such as image, character in digital. 3. To understand a relationship between a mechanism of a computer and logical circuits. 4. To make a basic program with a programming language.						
Rubric						
	Excellent		Good		Acceptable	Not acceptable
Achievement 1	A student can perfectly do mutual conversion between binary number, decimal number, and hexadecimal number.		A student can do mutual conversion between binary number, decimal number, and hexadecimal number.		A student can do mutual conversion between binary number, decimal number, and hexadecimal number, using a transformation-table.	A student cannot do mutual conversion between binary number, decimal number, and hexadecimal number.
Achievement 2	A student can perfectly do mutual conversion in digital between image data, character data.		A student can convert image data and character data in digital.		A student can convert simple image data and character data in digital.	A student cannot convert image data and character data in digital.
Achievement 3	A student can explain a relationship between the mechanism of a computer and logical circuits and can write truth tables.		A student can explain a relationship between the mechanism of a computer and logical circuits and understand truth tables.		A student can explain a relationship between the mechanism of a computer and logical circuits.	A student cannot explain a relationship between the mechanism of a computer and logical circuits.
Achievement 4	A student can explain in detail regarding the mechanism of a computer and can make a program.		A student can explain regarding the mechanism of a computer and can make a program.		A student can explain regarding the mechanism of a computer and can make a simple program.	A student cannot explain regarding the mechanism of a computer and cannot make a program.
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Information / Programming / Network Required, Elective, etc. : Must complete subjects Foundational academic disciplines : Infomatics / Computing base / Computer system 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)". Course outline : In the modern society, so many of information are processed in digital. In this subject, the basic of digitization and the mechanism of a computer are lectured.					
Style	Course method : Mainly, board-writing is used. Sometimes, practices regarding digitization, logical circuits, programming will be held. Grade evaluation method : Exams (70%) + Practices (30%). Examinations will be conducted a total of 2 times, and the evaluation ratios will be the same. A reexamination will be conducted as necessary. The limit of the score after reexamination is up to 60 points.					
Notice	Precautions on the enrollment : Students must take this class (no more than one-third of the required number of class hours missed) in order to complete the 3rd year course. Course advice : It is important that Information Literacy is reviewed. Foundational subjects : Information litelacy (1st year) Related subjects : N/A Attendance advice : Digital Application (3rd year)					
Course Plan						
			Theme		Goals	

1st Semester r	1st Quarter	1st	Guidance	Deepen understanding each content below
		2nd	Features of digital data, mutual transformation between binary/decimal/hexadecimal numbers, complement of a binary number, negative number	Features of digital data, mutual transformation between binary/decimal/hexadecimal numbers, complement of a binary number, negative number
		3rd	Practices of mutual transformation between binary/decimal/hexadecimal numbers	mutual transformation between binary/decimal/hexadecimal numbers
		4th	Study and Practice of digitization of image	digitization of image
		5th	Study and Practice of digitization of character	digitization of character
		6th	Study of digitization of various data and D/A A/D transformations	D/A and A/D transformation
		7th	Mechanism of a computer	Mechanism of a computer
		8th	1st semester mid-term exam	
	2nd Quarter	9th	Return and commentary of exam answers	
		10th	Study of logical circuits, equations, and truth table	Logical circuits, equations, and truth table
		11th	Study of combinational logic circuits and equations	Combinational logic circuits and equations
		12th	Mechanism of a computer program nad Programming language	Mechanism of a computer program nad Programming language
		13th	Study of programming	Programming
		14th	Practice of programming	Practice of programming
		15th	(1st semester final exam)	
		16th	Return and commentary of exam 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	