

Tsuyama College		Year	2024		Course Title	Computer System Engineering
Course Information						
Course Code	0016		Course Category	Specialized / Elective		
Class Format	Lecture		Credits	Academic Credit: 2		
Department	Advanced Electronics and Information System Engineering Course		Student Grade	Adv. 1st		
Term	Second Semester		Classes per Week	2		
Textbook and/or Teaching Materials	Textbook: Ken Kasuga and Yuji Tateizumi, "Computer System (written in Japanese)" Corona Publishing					
Instructor	MIYASHITA Takuya					
Course Objectives						
Learning purposes : Understand the structure of a computer and the functions of the components actually used, and understand the main technologies used in it. In addition, be able to explain the correspondence between logical formulas and logic circuits, and be able to design logic circuits.						
Course Objectives : 1. Explain the role of each of the five major devices and the flow of data between them. 2. A simple combination logic circuit and a simple sequential circuit can be designed. 3. Explain the position of the operating system in the computer system. 4. Explain the role and mechanism of the compiler.						
Rubric						
	Excellent	Good	Acceptable	Not acceptable		
Achievement 1	Explain the roles of each of the five major devices, including peripheral devices, and the flow of data between them.	Explain the role of each of the five major devices and the flow of data between them.	A brief explanation can be given for each of the five major devices.	It has not reached the left.		
Achievement 2	It is possible to design applied combination logic circuits and simple sequential circuits.	A simple combination logic circuit and a simple sequential circuit can be designed.	Explain the operation of a given simple combinational circuit.	It has not reached the left.		
Achievement 3	Explain concretely the functions and roles of the operating system in computer systems.	Explain the position of the operating system.	Explain the operating system, albeit with minor mistakes.	It has not reached the left.		
Achievement 4	Explain programming using a compiler in detail.	Be able to give an overview of the role and mechanism of the compiler.	Explain the differences between compilers, interpreters, and assemblers.	It has not reached the left.		
Assigned Department Objectives						
Teaching Method						
Outline	General or Specialized : Specialized Field of learning : Information system, control Foundational academic disciplines : Informatics / Information Science, Information Engineering and Related Fields / Computer Systems Related. Relationship with Educational Objectives : This class is equivalent to "(2) Acquire knowledge in specialized technical fields related to electricity / electronics and information / control, and acquire the ability to utilize it for the design, manufacture, and operation of machines and systems". Relationship with JABEE programs : The main goal of learning / education in this class are "(B)". Course outline : Lectures will be given on basic technology related to software and basic knowledge on hardware such as logical formulas and logic circuits.					
Style	Course method : Classes will be conducted using textbooks, centered on board writing. In addition, related technologies will be supplementarily explained as necessary. Also, impose exercises to deepen understanding. Grade evaluation method : Equally evaluate the results of the two regular exams (80%, mid-term exams: final exams = 1:1). ・ Each exam does not allow notebooks to be brought in. ・ For those who have less than 60 points in each Regular Exams, the points may be changed if their understanding can be confirmed by supplementary lessons and re-exams. However, the evaluation after the change shall not exceed 60 points. Evaluate by exercises and reports assignment (20%).					

Notice	Precautions on the enrollment : 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.
	Course advice : There are many contents related to fields other than your own specialty, but you should study with interest in order to broaden your horizons as an engineer. Make sure to check the contents of the basic subjects listed as preparatory learning in advance.
	Foundational subjects : Electronic Information Circuit (3rd year of electrical and electronic), Special Theory of Electronic Information Circuit (5th year of electrical and electronic), Introduction of Computer (3rd year of information), Digital Engineering I (2nd year of information), Digital Engineering II (3rd year of information), etc.
	Related subjects : Information System Exercise I, II (2nd year), Special Lecture on Numerical Analysis (2nd year).
Attendance advice : The content of the study is something that has already been learned in this department, but I would like you to think deeply and learn the essence rather than superficial shallow learning and understanding. Late arrivals are handled in 1/4 (= 0.5 hour) of class time (= 2 hour).	

Characteristics of Class / Division in Learning

☐ Active Learning	☐ Aided by ICT	☒ Applicable to Remote Class	☐ Instructor Professionally Experienced
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E l e c t i v e s u b j e c t s

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance, computer overview Learning content outside class hours: Report assignments are assigned to each learning content as appropriate. The report must be submitted by the specified date.	Understand the purpose of education, learning content, evaluation method, etc. Also, understand the outline of computers.
		2nd	Data representation on a computer	Understand how to convert and handle binary numbers.
		3rd	Boolean algebra and digital circuits (1)	Understand simple combination logic circuits.
		4th	Boolean algebra and digital circuits (2)	Understand simple combination logic circuits.
		5th	Binary arithmetic and arithmetic circuits	Understand binary adders and subtractors.
		6th	Microprocessor architecture	Understand the instruction set of microprocessors.
		7th	Microprocessor instructions and addressing	Understand various addressing.
		8th	Memory	Understand the types and characteristics of memory.
	4th Quarter	9th	2nd semester mid-term exam	Check what you have learned so far
		10th	Interface	Understand the connection relationship between computers and peripheral devices.
		11th	Peripherals	Understand peripheral devices based on specific examples.
		12th	Software, Network	Understand the structure and features of software. Understand the outline of the network based on the IP address and so on.
		13th	Computer System (1)	Analytical understanding of the relationship between failure rate and system reliability.
		14th	Computer System (2)	Analytical understanding of the relationship between failure rate and system reliability.
		15th	(2nd semester final exam)	Check what you have learned so far
		16th	Return and commentary of exam answers	Check and repair areas where learning is insufficient

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	0	0	0	20	0	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	80	0	0	0	20	0	100
Cross Area Proficiency	0	0	0	0	0	0	0