Tsuyama College	Year	2022	Course Title	Information System

Course Information

Course Code	0085	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Department of Integrated Science and Technology Communication and Informations System Program	Student Grade	4th
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	Textbook: Keitaro HORI, "Zukai Computer Architecture Nuumon (Illustrated Introduction to Computer Architecture) 2nd Edition" (Morikita Shuppan)		
Instructor	MORI Yoshiya		

Course Objectives

Learning purposes : Learn structures and mechanisms of computer systems systematically from the standpoin of architecture-design philosophy and understand the relationship between hardware and software.

Course objectives :
1. To understand and explain a fundamental structure of a computer system.
2. To understand and explain major designs of CPUs.
3. To understand and explain major designs of memory systems.

Rubric

	Excellent	Good	Acceptable	Not acceptable
Achievement 1	The student can concretely explain structures of major computer systems and their advantages and disadvantages.	The student can concretely explain structures of major computer systems.	The student can explain general structures of major computer systems.	The student does not reach the the acceptable level.
Achievement 2	The student can concretely explain designs of major CPUs and their advantages and disadvantages.	The student can concretely explain designs of major CPUs.	The student can concretely explain general designs of major CPUs.	The student does not reach the the acceptable level.
Achievement 3	The student can concretely explain designs of major memory systems and their advantages and disadvantages.	The student can concretely explain designs of major memory systems.	The student can concretely explain general designs of major memory systems.	The student does not reach the the acceptable level.

Assigned Department Objectives

Teaching Method

Outline	General or Specialized : Specialized Field of learning : Information systems, Programming, Networks Foundational academic disciplines : Informatcs/Computer System, Information Networks Relationship with Educational Objectives: This class is equicalent to "(3) Acquire deep foundation knowledge of the major subject area". Course outline : Deepen knowledge on a computer systems and learn structures and mechanisms of computer systems systematically from the standpoint of architecture design philosophy.
Style	Course method : This class is conducted mainly using a blackboard. To deepen understanding of content, the students are expected to work on exercises. Grade evaluation method : Two times regular exams (75%) + Exercises (25%). Regular examinations will be conducted 2 times, equally weighted. The final evaluation can be updated via supplementary examinations.
Notice	Precautions on the enrollment : Students must take this class (no more than one-thirds of the required number of class hours missed) in order to complete the 4th grade 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. Course advice : The contents of this class deeply relate to subjects on computer systems in the lower grades. Fundamental subjects : Digital Engineering (3rd year), Applied Digital Circuits (3), Introduction to Computers (3), Mathemarical Information (4) Related subjects : Information System Analysis (5th year, Network), System Programming (5th) Attendence advice : The studens are expected to understand technical terms appeared in the "Information-Technology Engineers Examination". If you try to study considering with your own PC , your understanding can be deepen. If you are late for the start time, your absence will be counted on every half class hour.

Characteristics of Class / Division in Learning

☐ Active Learning	☑ Aided by ICT	☐ Applicable to Remote Class	☐ Instructor Professionally Experienced

Must complete subjects				
Course Plan				
			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance. History and classification of a computer system.	Can explain the outline and the goal of this class.
		2nd	Characteristics of von Neumann architecture.	Can explain the characteristics of a von Neumann architecture computer system.
		3rd	Instruction set (1) - Structure of an instruction form. - Structure set.	Can explain a structure of an instruction set.
		4th	Instruction set (2) - Evaluation of machanism of an instruction. - Addressing.	Can explain a mechanism of instruction and addressing.
		5th	CPU architecture - Harvard architecture. - RISC and CISC.	Can explain CPU architectures.
		6th	Control architecture (1) - Wired logic control system and its structure.	Can explain a wired logic controy system.
		7th	Control architecture (2) - Micro-program control system and its structure.	Can explain a micro-program contol system.
		8th	Semester mid-term exam	
	4th Quarter	9th	Return and commentary of exam answers	
		10th	Cache memory (1) - Mechanism of cache memory. - First and second level cache.	Can explain a mechanism of cache memory.
		11th	Cache momory (2) - Mapping method of cache memory - Transmission method to main mamory.	Can explain a mapping system of cache momory.
		12th	Virtual memory (1) - Mechanism of virtual memory. - Paging method.	Can explain a paging method of virtual memory.
		13th	Virtual memory (2) - Segmentation method. - Mapping method.	Can explain a segmentation method of virtual memory.
		14th	Interrupt processing and pipeline processing - Mechanism of interrupt processing - Mechanism of pipeline processing	Can explain an interrupt processing and a pipeline processing.
		15th	Semester final exam	
		16th	Return and commentary of exam answers	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Exercise	Other	Total
Subtotal	75	0	0	0	25	0	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	75	0	0	0	25	0	100
Cross Area Proficiency	0	0	0	0	0	0	0