Akashi College	Year	2022	Course Title	Microcomputer

Course Information

Course Code	4216	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Electrical and Computer Engineering	Student Grade	2nd
Term	First Semester	Classes per Week	2
Textbook and/or Teaching Materials	Keitaro HORI, Illustrated PIC Microcomputer Practice 2nd Edition, Morikita Publishing Co., Ltd.		
Instructor	HIRANO Masatsugu		

Course Objectives

(1) Understand the configuration and operating principles of computers.
(2) Understand the basics of the assembler language and can perform basic programming.
(3) Can create a control program using assembler language.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Achievement 1	Fully understand the configuration and operating principles of computers.	Understand the configuration and operating principles of computers.	Do not understand the configuration and operating principles of computers.
Achievement 2	Fully understand the basics of assembler language and can fully perform basic programming.	Understand the basics of assembler language and can perform basic programming.	Do not understand the basics of assembler language and cannot perform basic programming.
Achievement 3	Can create an efficient control program using assembler language.	Can create a control program using assembler language.	Cannot create a control program using assembler language.

Assigned Department Objectives

Teaching Method

Outline	Students will understand the basics of computer architecture and learn assembler programming techniques using microcomputers.
Style	The class will be taught by explaining basic matters in accordance with the textbook. Programming using assembler language will involve exercises using actual devices in addition to lectures.
Notice	This course's content will amount to 90 hours of study in total. These hours include the learning time guaranteed in classes and the standard self-study time required for pre-study / review, and completing assignment reports. Students who miss 1/3 or more of classes will not be eligible for a passing grade.

Characteristics of Class / Division in Learning

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

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Microcomputer basics	Can explain microcomputer basics.
		2nd	How to do radix conversions	Can explain how to do a radix conversion.
		3rd	The basics of logical operations	Can explain the basics of logical operations.
		4th	Hardware configuration of a PIC microcomputer	Can explain the hardware configuration of a PIC microcomputer.
		5th	Assembler language basics, flowchart basics	Can explain the assembler language basics and flowchart basics.
		6th	Assembler programming exercise 1 (how to create a program)	Can explain how to create a program using the assembler language.
		7th	How to create a timer program	Can explain how to create a timer program.
		8th	Midterm exam	
	2nd Quarter	9th	Behaviors of subroutines	Can explain the behaviors of subroutines.
		10th	Assembler programming exercise 2 (I/O control)	Can create I/O control programs.
		11th	Assembler programming exercise 3 (timer program basics)	Can create a timer program.
		12th	Pulse motor basics	Can explain the pulse motor basics.
		13th	Assembler programming exercise 4 (application of timer programs)	Can create an applied timer program.
		14th	Assembler programming exercise 5 (pulse motors)	Can create a pulse motor.
		15th	Assembler programming exercise 6 (advanced program)	Can create an advanced program.
		16th	No final exam	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Exercises	Total
Subtotal	50	0	0	0	0	50	100

Basic Proficiency	10	0	0	0	0	10	20
Specialized Proficiency	40	0	0	0	0	40	80
Cross Area Proficiency	0	0	0	0	0	0	0