

Tsuyama College		Year	2020		Course Title	Information System Engineering Experiments		
Course Information								
Course Code	0086		Course Category		Specialized / Compulsory			
Class Format	Experiment		Credits		School Credit: 3			
Department	Department of Integrated Science and Technology Communication and Informations System Program		Student Grade		4th			
Term	Year-round		Classes per Week		3			
Textbook and/or Teaching Materials	Textbook(s): "Information system engineering experiment," written by a teacher belonging to our college. Reference book(s): Reference book is ordered for each experiment theme in needing.							
Instructor	KAWANAMI Hiromichi,TANAKA Kuniaki							
Course Objectives								
Learning Purposes: The aim of this course is to help students acquire the necessary background, basic knowledge and technique in the information system-engineering field. It also enhances the students' abilities in recognizing and solving of problems through performing experimental plans.								
Course Objectives: ◎1. To explain experimental results and considerations logically. ◎2. To acquire experimental knowledge and skill, i.e., collection, analysis, processing and arrangement, for information. ◎3. To find a problem through an experimental plan and formulate solutions without help. ◎4. To resolve a problem with a restriction by utilizing hardware and software properly.								
Rubric								
	Excellent		Good		Acceptable		Not acceptable	
Achievement 1	The student can logically explain the reasonability and considerations in terms of experiment results.		The student can logically explain the reasonability and considerations in terms of experiment results, with through supported of others.		The student can logically understand the reasonability and considerations in terms of experiment results.		The student cannot logically understand the reasonability and considerations of experiment results.	
Achievement 2	The student can properly carry out collection, analysis, processing and arrangement of problems using experimental knowledge and techniques.		The student can properly carry out collection, analysis, processing and arrangement in of problems using experimental knowledge and techniques while revising slightly.		The student can properly carry out collection, analysis, processing and arrangement of problems using experimental knowledge and techniques, with help.		The student cannot properly understand collection, analysis, processing and arrangement of problems using experimental knowledge and techniques.	
Achievement 3	The student can find a problem through performing an experimental plan and action without help.		When a problem is pointed out by others during an experiment plan or experiment work, the student can understand the essence of problem.		When a problem is pointed out during an experiment plan or experiment work, the student can understand the problem.		When a problem occurs during an experiment plan or experiment work, the student cannot understand it.	
Achievement 4	The student can properly resolve a problem of with a restriction by utilizing hardware and software.		The student can properly resolve a problem, with help from others, by utilizing hardware and software.		To solve a problem, the student can, by utilizing hardware and software, relate to a solution suggested by others.		The student cannot understand a method of utilizing hardware and software to find used a solution.	
Assigned Department Objectives								
Teaching Method								
Outline	General or Specialized: Specialized Field of learning: Experiment & Practice Required, Elective: Required subjects Foundational academic disciplines: Information science, Information engineering and related fields/Calculator system, Information network. 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 goals of learning/education in this class are "(A) ..., A-3: ..." and also "D-2" is involved. Course outline: The fourth grade that the acquisition of the specialized field takes root in one's studies performs the engineering experiment in four application fields.							

Style	<p>Course method: Students are divided into four groups and perform four experiment themes sequentially. The themes are as follows:            (1) Hardware experiment (Teramoto)            The students design a logical circuit with a PC. Then the students assemble the circuit in a PLD (Programmable Logic Device) and actually operate it.            (2) Software experiment (Hata)            The students learn the development method using a debugger and profiler in the IDE (integrated development environment). The students understand a basic concept of object-oriented programming.            (3) Measurement/Control experiment (Kawanami)            The students create an experiment to control a signal input-output device, such as a sensor and a motor, with a PC.            (4) Network experiment (Tanaka)            The students learn the communication method of using TCP/IP/Ethernet and a network design method. In addition, they actually construct a communication network.</p> <p>Grade evaluation method: The grade is based on experiment reports (100%). All reports in the 1st half of the year and the 2nd half are evaluated equally.</p>
Notice	<p>Precautions on enrollment: This class employs a practical skill mainly. Students must take this class (no more than one-third of the required number of class hours missed) and earn the credit in order to complete the 4th-year course. And as this is a "class that requires study outside of class hours," students should look to the instructor for advice on what to do.</p> <p>Course advice: Since this class is focused on practical experiments, it is important for students to prepare for the next experiment and to review the experiment report.</p> <p>Foundational subjects: Information System Engineering Experiment Practice 1 (2nd-year).</p> <p>Related subjects: Graduation Thesis (5th)</p> <p>Attendance advice: Experiment reports should include not only the results, but also trace the experiment progress (experiment procedure and progress along the way) The students must submit a timely report or be marked down. Students must perform all assigned experiments. Tardy: Tardiness is an absence after 10 minutes. Attendance advice:</p>

#### Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	(After this the 1st group is shown as a typical example in four groups.) Guidance 1 : Outline of Measurement & Control Experiment	
		2nd	Experiment 1-1 : Learning of development environment using Arduino, LED control	The student will be able to understand micro board (Arduino), electronic circuit, a flow of program development, and make simple controller circuit.
		3rd	Experiment 1-2 : Control of full color LED	The student will be able to control basic output signal.
		4th	Experiment 1-3 : Control of Piezoelectric speaker and analog input-signal measurement	The student will be able to handle both basic analog input signal and output signal.
		5th	Experiment 1-4 : Measurement with temperature sensor and Control of servomotor	The student will be able to use temperature sensor and servomotor.
		6th	Experiment 1-5 : Production of fan with air volume adjustment function	The student will be able to understand sketching of the practical application and make a circuit.
		7th	Experiment 1-6 : Production and improvement of baseball-game	The student will be able to understand the practical sketch and circuit, and to apply to various aspects.
		8th	Instruction of report writing	
	2nd Quarter	9th	Guidance 2 : Outline of Network Experiment	(* For revising contents, the following is in consideration now.)
		10th	Experiment 2-1 :	
		11th	Experiment 2-2 :	
		12th	Experiment 2-3 :	
		13th	Experiment 2-4 :	
		14th	Experiment 2-5 :	
		15th	Experiment 2-6 :	
		16th	Instruction of report writing	
2nd Semester	3rd Quarter	1st	Guidance 3 : Outline of Hardware Experiment	
		2nd	Experiment 3-1 :	
		3rd	Experiment 3-2 :	
		4th	Experiment 3-3 :	
		5th	Experiment 3-4 :	
		6th	Experiment 3-5 :	
		7th	Experiment 3-6 :	
		8th	Instruction of report writing	
	4th Quarter	9th	Guidance 4 : Outline of Software Experiment	
		10th	Experiment 4-1 :	
		11th	Experiment 4-2 :	

		12th	Experiment 4-3 :	
		13th	Experiment 4-4 :	
		14th	Experiment 4-5 :	
		15th	Experiment 4-6 :	
		16th	Instruction of report writing	

Evaluation Method and Weight (%)							
----------------------------------	--	--	--	--	--	--	--

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