

Tsuyama College		Year	2021		Course Title	Advanced Programming	
Course Information							
Course Code		0087		Course Category		Specialized / Elective	
Class Format		Lecture		Credits		Academic Credit: 2	
Department		Department of Integrated Science and Technology Electrical and Electronic Systems Program		Student Grade		4th	
Term		Second Semester		Classes per Week		2	
Textbook and/or Teaching Materials		Textbooks : None , Reference books : None					
Instructor		KIKUCHI Yosuke					
Course Objectives							
Learning purposes : To acquire description and reading-comprehension capability in computer programming based on basic skills in programming.							
Course Objectives : 1. To be able to describe a computer program using theoretical evidence and read programs written by someone else. 2. To be able to create a program with suitable variables and data types. 3. To be able to understands procedures and can create a program that includes procedures. 4. To be able to create a program to solve a given problem. 5. To be able to design an efficient program that satisfies required specifications using the standerd method.							
Rubric							
	Excellent		Good		Acceptable		Not acceptable
Achievement 1	Student can make a program with suitable variables and data types.		Student can make program with suitable variables or data types.		Student can make a program with variables and data types.		Student cannot make a program with suitable variables and data types.
Achievement 2	Student understands procedures and can make readable program that includes procedures.		Student understands procedures and can make program that includes procedures.		Student understands procedures.		Student does not understand procedures.
Achievement 3	Student can make readable program to solve given problem.		Student can make program to solve given problem.		Student can write flowchart for program to solve given problem.		Student can not write flowchart for program to solve given problem.
Achievement 4	Student can design efficient and readable program that satisfies required specifications using standard method.		Student can design efficient program that satisfies required specifications using standard method.		Student can design program that satisfies required specifications using standerd method.		Student cannot design program that satisfies required specifications using standerd method.
Assigned Department Objectives							
Teaching Method							
Outline	General or Specialized : Specialized  Foundational academic disciplines : Integrated Disciplines/Informatics/Principles of Informatics/Software Field of learning : Infomation systems・Programming・Networks Relationship with Educational Objectives :This class is equivalent to "(3) Acquire deep foundation knowledge of the major subject area".  MCC Goals(Based on the guideline 4/28/2017 version, number in brackets is MCC level) : V-D-1 Programming(4), V-D-2 Software/Algorithms(3), Data structures(3), Software engineering(4), Program analysis(3)  Relationship with JABEE programs : The main goal of learning / education in this class is "A".  Course outline : This course provides basic knowledge and skills for programming and how to read or write programming. Moreover this course provides what is readable program and how to make it. Sometimes students are called upon to present their program codes and exchange views with other studentsabout the codes.						
Style	Course method : This course is a lecture with presentations and exercises mainly. Sometimes students need to solve problems and submit assignments.  Grade evaluation method : Exams(70%) + Mutual evaluation(5%) + Self-evaluation(5%) + Assignment(20%). Above ratio may change. Examinations are based on the evaluation rubric but there is no guarantee that examinations will reflect the rubric.						
Notice	Precautions on the enrollment : It is desirable that students ohave basic knowledge of programming.  Course advice : Assingments will be opened as pdf files. Students make programs for assignment with surveying the assignment and understanding past study. Students need to describe program codes outside class hours.  Foundational subjects : Information Literacy(1st year), Fundamentals of Integrated Science and Technology(1st), Computational Science(3rd), Algorithms and Data Structures(3rd) Related subjects : System Programming(5th year), Graduation Thesis(5th)  Attendance advice : Course advice : Programming skills can be improved by self-study. It is desirable that students have home environments conducive to making programs there. Students need to try assignments themselves initially. Copying of other reports will result in severe punishment. If late for the start time, students will be treated as absent 1 period. If students are 50 minutes late, they will be treated as absent 2 periods. Consult with BlackBoard (LMS) and check the theme of the lesson before attendance.						

Characteristics of Class / Division in Learning				
<input checked="" type="checkbox"/> Active Learning		<input checked="" type="checkbox"/> Aided by ICT		<input type="checkbox"/> Applicable to Remote Class
<input checked="" type="checkbox"/> Instructor Professionally Experienced				
E l e c t i v e   m u s t   c o m p l e t e   s u b j e c t s				
Course Plan				
			Theme	Goals
2nd Semester	3rd Quarter	1st	Guidance Programming to solve GCD and LCM	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make readable program to solve given problem.
		2nd	Presentation of programming to solve GCD and LCM Programming to approximate Pi	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem.
		3rd	Exercise of reading computer program	Student understands procedures and can read program to solve given problem.
		4th	Presentation of programming to approximate Pi Primality test	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		5th	Exercise of reading computer program	Student understands procedures and can read program to solve given problem.
		6th	Presentation of primality test ElGamal encryption	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		7th	ElGamal encryption	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		8th	2ndsemester mid-term exam	
	4th Quarter	9th	Return and commentary of exam answers	
		10th	Presentation of ElGamal encryption programming of tic tac toe	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		11th	Programming of tic tac toe with computer player	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		12th	Presentation of programming of tic tac toe with computer player Making game program	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		13th	Making game program	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		14th	Presentation of game program	Student can make program with suitable variavles and data types. Student understands procedures and can make program that include procedures. Student can make program to solve given problem. Student can design efficient program that satisies required specifications by standerd method.
		15th	(2nd semester final exam)	
		16th	Return and commentary of exam answers	
Evaluation Method and Weight (%)				

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	0	5	0	0	25	100
Basic Proficiency	0	0	0	0	0	0	0
Specialized Proficiency	70	0	0	0	0	20	90
Cross Area Proficiency	0	0	5	0	0	5	10