Toyama College	Year	2022	Course Title	Computer system II#

Course Information

Course Code	0056	Course Category	Specialized / Elective
Class Format	Lecture	Credits	School Credit: 1
Department	Department of Electronics and Computer Engineering	Student Grade	2nd
Term	Second Semester	Classes per Week	2
Textbook and/or Teaching Materials	飯高成男　「ディジタル回路の計算」　（オーム社）		
Instructor	Shinkai Junko,Akiguchi Shunsuke		

Course Objectives

At the completion of this course, students will be able to
1) Configure the logic circuit of a synchronous counter.
2) Configure the encoder or decoder logic circuit.

Rubric

	Ideal Level	Standard Level	Unacceptable Level
Flip flop	Can understand and explain the operation of flip-flops almost perfectly.	Can understand and explain the operation of flip-flops correctly.	Can't understand and explain the operation of flip-flops correctly.
Counter	Can understand and design the operation of typical sequential circuits such as counters almost perfectly.	Can understand and design the operation of typical sequential circuits such as counters correctly.	Can't understand and design the operation of typical sequential circuits such as counters correctly.
Encoder / decoder	Can understand and design the operation of typical combination logic circuits such as encoders and decoders almost perfectly.	Can understand and design the operation of typical combination logic circuits such as encoders and decoders correctly.	Can't understand and design the operation of typical combination logic circuits such as encoders and decoders correctly.

Assigned Department Objectives

Teaching Method

Outline	Logic circuits can be said to be an introduction to computer hardware. Develop the ability to operate and calculate digital circuits, and acquire ideas and technologies that can be applied to complex digital circuits.
Style	Lectures led by teacher.
Notice	The recognition of credit requires 50 points or more rating.

Characteristics of Class / Division in Learning

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

Course Plan

			Theme	Goals
2nd Semester	3rd Quarter	1st	Syllabus description. RS flip flop	Can explain the operation of RS flip-flops and synchronous RS flip-flops.
		2nd	Master-slave RS flip-flop	Can explain the operation of the master-slave RS flip-flop.
		3rd	JK flip flop	Can explain the operation of JK flip-flops and master-slave JK flip-flops.
		4th	D flip-flop, T flip-flop	Can explain the operation of D flip-flops and T flip-flops.
		5th	Sequential logic circuit	Can explain the concept of sequential logic circuits consisting of flip-flops and Combinational logic circuits.
		6th	Asynchronous binary counter	Can explain the behavior of asynchronous binary counters.
		7th	Asynchronous n-ary counter	Can explain the behavior of asynchronous n-ary counters.
		8th	Semester midterm exam.	Midterm examination. Measure the ability to analyze sequential circuits and the degree of understanding of flip-flop operation.
	4th Quarter	9th	Synchronous binary counter	Can explain the behavior of synchronous binary counters.
		10th	Synchronous decimal counter	Can explain the operation of the synchronous decimal counter.
		11th	Synchronous n-ary counter	Can explain the operation of the synchronous n-ary counter.
		12th	Shift register	Can explain the operation of the shift register.
		13th	Encoder and decoder	Can explain how the encoder works. Can explain how the decoder works.
		14th	Various input / output methods	Can explain the concept of the various input and output scheme used in digital circuits.
		15th	Semester final exam.	Terminal examination.

		16th	Return and explanation of the final exam.	Return of the final exam.

Evaluation Method and Weight (%)

	Midterm exam	Final exam	Submissions.	Behavior	Portfolio	Other	Total
Subtotal	35	35	30	0	0	0	100
Basic Proficiency	35	35	30	0	0	0	100
Specialized Proficiency	0	0	0	0	0	0	0
Cross Area Proficiency	0	0	0	0	0	0	0