

Toyama College		Year	2022	Course Title	Electromagnetic Wave Engineering
Course Information					
Course Code	0123		Course Category	Specialized / Elective	
Class Format	Lecture		Credits	School Credit: 1	
Department	Department of Electronics and Computer Engineering		Student Grade	5th	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials					
Instructor	Shina Toru				
Course Objectives					
At the completion of this course, students will be able to					
(1) Calculate the inductance and magnetic energy (2) Explain the basic terms of electromagnetic plane waves and polarization (3) Explain the Maxwell equations					
Rubric					
	Ideal Level of Achievement (Very Good)		Standard Level of Achievement (Good)		Unacceptable Level of Achievement (Fail)
Evaluation 1	Can calculate the inductance and magnetic energy almost perfectly.		Can calculate the inductance and magnetic energy correctly.		Can't calculate the inductance and magnetic energy.
Evaluation 2	Can explain the basic terms of electromagnetic plane waves and polarization almost perfectly.		Can explain the basic terms of electromagnetic plane waves and polarization correctly.		Can't explain the basic terms of electromagnetic plane waves and polarization.
Evaluation 3	Can explain the Maxwell equations almost perfectly.		Can explain the Maxwell equations correctly.		Can't explain the Maxwell equations.
Assigned Department Objectives					
MCCコア科目 JABEE B2 ディプロマポリシー 1					
Teaching Method					
Outline	In this course, you will learn about the principles, properties and fundamental physics of electromagnetic waves.				
Style	For the purpose of understanding the Electromagnetic waves, lectures and exercises facilitate the learning of principles and examples.				
Notice	The recognition of credit requires 60 points or more rating. Based on the knowledge of basic electromagnetics and wave.				
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	Guidance Inductance	To explain inductance	
		2nd	Calculation of inductance	To calculation of inductance	
		3rd	Magnetic energy	To explain magnetic energy	
		4th	Displacement current and Maxwell's law	To explain displacement current and Maxwell's law	
		5th	Maxwell's law	To explain Maxwell's law	
		6th	Differential Maxwell equation	To explain differential Maxwell equation	
		7th	Integral Maxwell equation	To explain integral Maxwell equation	
		8th	Boundary conditions	To explain boundary conditions	
	2nd Quarter	9th	Generation of electromagnetic waves	To explain generation of electromagnetic waves	
		10th	Wave equations	To explain wave equations	
		11th	Wave functions	To explain wave functions	
		12th	Plane electromagnetic waves Reflection and refraction	To explain plane electromagnetic wave, reflection and refraction	
		13th	Polarization Energy of the electromagnetic waves	To explain polarization and energy of the electromagnetic waves	
		14th	Comprehensive exercise	Comprehensive exercise	
		15th	Final exam	Final exam	
		16th	Return and explanation of answer sheets, evaluation and confirmation of results	Summarize the study content and confirm grades.	
Evaluation Method and Weight (%)					

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	60	0	0	0	0	40	100
Basic Ability	0	0	0	0	0	0	0
Technical Ability	60	0	0	0	0	40	100
Interdisciplinary Ability	0	0	0	0	0	0	0