

Akashi College		Year	2022		Course Title	Introduction to Physics B		
Course Information								
Course Code		4427		Course Category		Specialized / Elective		
Class Format		Lecture		Credits		School Credit: 1		
Department		Architecture		Student Grade		4th		
Term		Second Semester		Classes per Week		2		
Textbook and/or Teaching Materials								
Instructor		OGASAWARA Hiromichi						
Course Objectives								
(1) Understand the concept of electromagnetic fields and the basic laws concerning them, and can deal with them using formulas. (2) Understand the basic aspects of the behavior of substances in electromagnetic fields (electromagnetic properties).								
Rubric								
		Ideal Level		Standard Level		Unacceptable Level		
Achievement 1		Fully understand the concepts and laws of electromagnetic fields, and can handle appropriately by formulas.		Understand the concepts and laws of electromagnetic fields and deal with them through formulas.		Do not understand the concepts and laws of electromagnetic fields or handle them by formulas.		
Achievement 2		Can explain the basics of electromagnetic properties in detail.		Can explain the basics of electromagnetic properties.		Cannot explain the basic things about electromagnetic properties.		
Assigned Department Objectives								
Teaching Method								
Outline		In this course, the first steps in electromagnetism will be taught, including the necessary mathematical techniques (vector calculation and calculus).						
Style		Classes will be taught in a lecture style, and there will also be exercises and quizzes.						
Notice		Instead of learning each knowledge (the result of applying the law to a particular situation, how to solve the problem) by memorizing it individually, students should understand the laws that govern them (including being able to apply them to specific situations). Also, students should be aware of the relationships between the various laws, and try to understand concepts in physics systematically. Students can earn extra points by submitting voluntary assignments, and lose their points depending on their attitude, etc. in the class. Students who miss 1/3 or more of classes will not be eligible for a passing grade.						
Characteristics of Class / Division in Learning								
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input checked="" type="checkbox"/> Applicable to Remote Class		<input type="checkbox"/> Instructor Professionally Experienced		
Course Plan								
			Theme		Goals			
2nd Semester	3rd Quarter	1st	Charges and electric fields		Learn about the Coulomb's law.			
		2nd	Charges and electric fields		Learn about the Gauss's law.			
		3rd	Potential		Learn about works done by electrostatic forces and potentials.			
		4th	Potential		Learn how to handle potentials in spaces.			
		5th	Some topics about electricity		Learn the basics of conductors and capacitors.			
		6th	Some topics about electricity		Learn about electrostatic energy.			
		7th	Some topics about electricity		Learn the basics of dielectric substances.			
		8th	Midterm exam					
	4th Quarter	9th	Magnetic poles and magnetic fields, and magnetism		Learn about the relationship between magnetic fields and magnetic moments and the magnetic properties of materials.			
		10th	Currents		Learn about current and voltage and Ohm's law.			
		11th	Magnetic field by current		Learn about the Ampere's law.			
		12th	Magnetic field by current		Learn about the Biot-Savart law.			
		13th	Fluctuating electromagnetic fields		Learn about the electromagnetic induction.			
		14th	Fluctuating electromagnetic fields		Learn about the electromagnetic wave.			
		15th	Lorentz force		Learn about the Lorentz force, which works on electrical charges that move in an electromagnetic field, and the magnetic force, which works on electric currents.			
		16th	Final exam					
Evaluation Method and Weight (%)								
	Examination		Exercises / Little test		Total			
Subtotal		60		40		100		
Basic Proficiency		0		0		0		
Specialized Proficiency		60		40		100		
Cross Area Proficiency		0		0		0		