

Akashi College		Year	2022		Course Title	Introduction to Physics A	
Course Information							
Course Code		4414		Course Category		Specialized / Compulsory	
Class Format		Lecture		Credits		School Credit: 1	
Department		Architecture		Student Grade		4th	
Term		First Semester		Classes per Week		2	
Textbook and/or Teaching Materials							
Instructor		OGASAWARA Hiromichi					
Course Objectives							
(1) Understand the description of motion of an object and the fundamental laws of mechanics. (2) Understand the basics of how to handle the system of particles including the rigid body, based on the fundamental laws of mechanics. (3) Understand the basics of thermodynamics.							
Rubric							
		Ideal Level		Standard Level		Unacceptable Level	
Achievement 1		Can explain the description of the motion of an object and the fundamental laws of dynamics correctly, and apply them to specific questions accurately.		Can explain the description of the motion of an object and the fundamental laws of dynamics, and apply them to specific questions.		Cannot explain the description of the motion of an object and the fundamental laws of dynamics, or apply them to specific questions.	
Achievement 2		Can explain the basics of how to handle point masses based on the fundamental laws of mechanics correctly, and apply them to specific questions accurately.		Can explain the basics of how to handle point masses based on the fundamental laws of mechanics, and apply them to specific questions.		Cannot explain the basics of how to handle point masses based on the fundamental laws of mechanics, or apply them to specific questions.	
Achievement 3		Can explain the basic concepts of thermodynamics correctly and apply them to specific questions accurately.		Can explain the basic concepts of thermodynamics and apply them to specific questions.		Cannot explain the basic concepts of thermodynamics or apply them to specific questions.	
Assigned Department Objectives							
Teaching Method							
Outline		In this course, mechanics and the first steps in thermodynamics will be taught, including the necessary mathematical techniques (calculus and vector calculation). Mechanics is continued from Science IIIA (the second semester).					
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		
1st Semester	1st Quarter	1st	Motion of an object, and force and energy		Learn how to handle motion of objects in planes and spaces.		
		2nd	Motion of an object, and force and energy		Learn about the laws of motion.		
		3rd	Motion of an object, and force and energy		Learn the basics of mechanical energy.		
		4th	Law on momentum and angular momentum		Learn about the laws of momentum.		
		5th	Law on momentum and angular momentum		Learn about the laws of angular momentum.		
		6th	Law on momentum and angular momentum		Learn about the laws of angular momentum in the system of particles.		
		7th	Rigid body dynamics		Learn how to handle rigid bodies with a fixed axis.		
		8th	Midterm exam				
	2nd Quarter	9th	Rigid body dynamics		Learn how to handle rigid bodies without fixed axes.		
		10th	Rigid body dynamics		Learn the basics of momentum, angular momentum, and energy in the mechanics of rigid bodies.		
		11th	Waves		Learn how to derive wave equation based on the law of motion.		
		12th	Waves		Learn the basics of wave phenomena.		
		13th	Basics in thermodynamics		Learn the basics of thermodynamics.		
		14th	Basics in thermodynamics		Learn how to handle the Carnot cycle.		
		15th	Basics in thermodynamics		Learn about the irreversible change.		
		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