

Toyama College		Year	2022		Course Title	Applied Physics I
Course Information						
Course Code	0075			Course Category	Specialized / Elective	
Class Format	Lecture			Credits	School Credit: 1	
Department	Department of Electronics and Computer Engineering			Student Grade	3rd	
Term	First Semester			Classes per Week	2	
Textbook and/or Teaching Materials						
Instructor	Yoshii Yotsumi					
Course Objectives						
At the completion of this course, students will be able to 1) Perceive the displacement, velocity, and acceleration of an object as a variable of time and can solve basic problems related to constant-velocity motion and isokinetic motion by using calculus 2) Calculate moment of inertia on the basic shape of a rigid body 3) Solve fundamental problems related to rigid body motion described by the equation of motion of the center of gravity and rotation						
Rubric						
		Ideal Level of Achievement (Very Good)	Standard Level of Achievement (Good)		Unacceptable Level of Achievement (Fail)	
Evaluation 1		Students can perceive the displacement, velocity, and acceleration of an object as a variable of time and can solve basic problems related to constant-velocity motion and isokinetic motion by using calculus almost perfectly	Students can perceive the displacement, velocity, and acceleration of an object as a variable of time and can solve basic problems related to constant-velocity motion and isokinetic motion by using calculus correctly		Students can't perceive the displacement, velocity, and acceleration of an object as a variable of time and can solve basic problems related to constant-velocity motion and isokinetic motion by using calculus	
Evaluation 2		Students can calculate moment of inertia on the basic shape of a rigid body almost perfectly	Students can calculate moment of inertia on the basic shape of a rigid body correctly		Students can't calculate moment of inertia on the basic shape of a rigid body	
Evaluation 3		Students can solve fundamental problems related to rigid body motion described by the equation of motion of the center of gravity and rotation almost perfectly	Students can solve fundamental problems related to rigid body motion described by the equation of motion of the center of gravity and rotation correctly		Students can't solve fundamental problems related to rigid body motion described by the equation of motion of the center of gravity and rotation	
Assigned Department Objectives						
ディプロマポリシー 3						
Teaching Method						
Outline	Learning Objectives (Aim of Class) (Educational Objectives) A3, B1 Physical thinking is fostered by introducing a mathematical description of physical phenomena, taking into account the continuity of contents up to the second year. The purpose of the previous phase is to focus on dynamics and to deepen the theoretical and practical understanding and application of the phenomena in nature. To develop the ability to explain the phenomenon as a tool for mathematics, a problem exercise and a small test are carried out.					
Style	Lectures by teachers alone are conducted.					
Notice	The portfolio is evaluated as 20%, and the test is evaluated as 80%. The evaluation of the test is the average of the evaluation of the interim and the end of the study. A person who has a rating of less than 60 points may be subjected to an approval test by a request. As the result of the approval test, the evaluation is made to be 60 points in the person who the mastery of the unit is recognized.					
Characteristics of Class / Division in Learning						
<input type="checkbox"/> Active Learning		<input type="checkbox"/> Aided by ICT		<input type="checkbox"/> Applicable to Remote Class		<input type="checkbox"/> Instructor Professionally Experienced
Course Plan						
			Theme	Goals		
1st Semester r	1st Quarter	1st	Guidance Fundamentals of Dynamics : Speed and Acceleration	Can express the relationship between position vectors, velocity and acceleration by calculus, and estimate the force that works on the drop motion, and analyze the principle.		
		2nd	Fundamentals of Dynamics : Law of motion	Can explain Newton's laws of motion. By a mathematical description of the force, it is possible to construct a motion equation.		
		3rd	Fundamentals of Dynamics : Solution of the equation of motion	Can solve the equation of motion given by differential equations.		
		4th	Fundamentals of Dynamics : Problem exercise	Can derive and solve equations of motion in dynamical problems.		
		5th	Fundamentals of Dynamics : Energy	Can explain the relationship between work and kinetic energy and position energy.		
		6th	Fundamentals of Dynamics : Energy conservation law	Can explain the relationship between conservation power and position energy, and energy conservation law.		
		7th	Mechanics of a point system : Multi-system problem	Can describe the center of gravity and equation of motion in a multi-system problem and can derive momentum conservation law.		

		8th	Midterm exam	Can solve the problem by focusing on the basic range of dynamics, focusing on the equation of motion and the conservation law of energy.
	2nd Quarter	9th	Mechanics of a point system : Momentum conservation law	Can solve collision problems by using the momentum conservation law on multi-system problems.
		10th	Mechanics of a point system : Equation of motion of rotation	Can derive an equation of motion for a rotational motion introducing angular momentum
		11th	Mechanics of a point system : Problem exercise	Can solve problems centered on the preservation of momentum.
		12th	Rigid Mechanics : Equation of motion of a rigid body	Can derive the equation of motion of the rotation when the rigid body rotates by extending the equation of motion of the rotation of the quality point system.
		13th	Rigid Mechanics : Moment of inertia	Can calculate the moment of inertia according to the shape of the rigid body.
		14th	Rigid Mechanics : Rigid body exercise	Can solve the problem of describing the motion equation of the center of mass and the equation of motion of the rotation.
		15th	Final exam	Can solve problems related to quality point system and rigid body.
		16th	Return of answer sheets, explanation, class questionnaire, etc.	Evaluation and confirmation

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	80	0	0	0	20	0	100
Basic Ability	80	0	0	0	20	0	100
Technical Ability	0	0	0	0	0	0	0
Interdisciplinary Ability	0	0	0	0	0	0	0