Tsuyama College		Year	ar 2022		Course Title	Mechanics I					
Course Information											
Course Code	0064			Course Category	General	Compulsory					
Class Format	Lecture	Lecture			School C	School Credit: 2					
Department	Department of Integrated Science and Technology Communication and Informations System Program			Student Grade	3rd						
Term	Year-round			Classes per Week	2						
Textbook and/or	extbook and/or Textbook : Physics (Tokyo Shoseki), Let's Try Note 4 Units Physics, Yoichi Shibata et al. Mechanics II										
eaching materials (Daimppon Tosho).											
Learning purposes : Physics is one of the most basic fields in the natural sciences, and the achievements and methods of physics are applied to various fields of engineering technology. Therefore, it is necessary to fully understand the basics of physics when studying each specialized field.											
Course Objective : 1. Understand circular motion and solve related problems. 2. Solve simple problems related to simple harmonic motion and universal gravitation. 3. Solve simple problems related to the law of momentum conservation. 4. Can make an equation of motion in the form of a differential equation for a typical motion system, and obtain its solution.											
Rubric				•							
	]	Ideal Level		Standard Level		Unacceptable Level					
Achievement 1		Can explain circular motion and simple harmonic motion in detail, and can solve related problems.		Can solve standar using relational ex circular motion ar harmonic motion.	rd problems xpressions of nd simple	Has not reached the left.					
Achievement 2		Can explain the movement of celestial bodies based on the law of universal gravitation and solve related problems.		Can solve related problems based o universal gravitat	standard on the law of ion	Has not reached the left.					
Achievement 3		Can explain the law of momentum conservation in detail, and can solve related problems.		Can solve standar using the law of r conservation.	rd problems nomentum	Has not reached the left.					
Achievement 4		Can formulated the equation of motion for a simple dynamical system and solved as a 2nd- order differential equation.		Can formulate and solve equations of motion for standard dynamical systems		Has not reached the left.					
Assigned Departm	nent Obie	ctives	•	•							
Teaching Method											
	Relationship	with Educatio	nal Objectives :								
	This subject is equivalent to the learning and education goal "(2) Foundational academic ability".										
Outline	Class outline : First, deals with fictitious force and universal gravitation, Circular motion and single vibration, and momentum using high school textbooks. In continuation, the motion is analyzed by solving the equation of motion expressed by the 2nd-order differential equation.										
Style	Course method: Lecture-style classes are performed. Encourage students to discuss as much as possible to deepen their understanding. Classes will focus on understanding physics. Require an assignment report and proceed with the lesson while confirming the degree of understanding of the students. Grade evaluation method:										
	Exams (70%) + Exercises (30%). Retaking exams may be carried out for the students who get under 60% in total score.										
	Precautions on the enrollment : Students must take this class (the number of absentee hours is less than one-third of the prescribed number of class hours).										
Notice	Course advice : As a preparatory study, students are expected to work on the previous assignments and read the textbook to understand the study items. Be sure to solve the examples and problems in the class by yourself and think about them carefully.										
	Basic subjects : Physics I (1st year), Physics II (2), Differential and Integral (2), Fundermental Differential Equation (2)										
	Related subjects : Mechanics II (3rd year), Mechanics III (3)										
	Attendance advice : If students are late, treated as absent until 20 minutes after the class starts. Please note that three lateness will be treated as one hour absent. Not involved in grade evaluation.										
Characteristics of Class / Division in Learning											
□ Active Learning		□ Aided by IC	т	□ Applicable to F	Remote Class	Instructor Professionally Experienced					
Must complete subjects											
Course Plan											

			Theme			Goals				
1st Semeste r		1st	1st term guidanc Force acting on a Moment of force	1st term guidance Force acting on a rigid body Moment of force			Understanding moment of force			
		2nd	Rigid body baland	Rigid body balance, center of gravity, workbook			Understanding of balance and the center of gravity			
		3rd	Motion on a plane	e, workbook		Understanding vector notation				
	1st	4th	Parabolic movem	Parabolic movement, workbook			Understanding parabolic movement			
	Quarte	r 5th	Circular motion,	workbook		Understanding rad angle notation and angular velocity				
		6th	Circular motion, workbook Centripetal force			Understanding power of circular motion				
		7th	Inertial force, cer	Inertial force, centrifugal force, workbook			Understanding centrifugal force			
		8th	1st term midtern	1st term midterm exam			Requires a score of 60 points or higher.			
		9th	Return of answer exam. exam com	Return of answers for the 1st term midterm exam. exam commentary.			Review.			
		10th	Kepler's Law	Kepler's Law			Understanding Kepler's Law			
		11th	Universal gravita	Universal gravitational force, gravity			Understanding the law of universal gravitation			
	2nd	12th	Gravity, artificial satellites, workbook 1st cosmic velocity			Understanding the law of universal gravitation				
	Quarte	r 13th	Potential energy, workbook 2nd space velocity			Calculation using universal gravitation				
		14th	Summary of universal gravitation workbook			Calculation using universal gravitation				
		15th	1st term final exa	1st term final exam			Requires a score of 60 points or higher.			
		16th	Return of answer	s for the 1st term	final exam.	nal exam. Review.				
		1st	2nd semester gu	semester guidance, simple harmonic lation Understanding simple harmonic oscillatio				scillation		
		2nd	Spring vibration, simple pendulum			Understanding of spring vibration and simple pendulum				
		3rd	Impulse and mor	Impulse and momentum			Understanding of impulse and momentum			
50	3rd	4th	Impulse and mor	Impulse and momentum			Understanding of impulse and momentum Understanding of relationship with equation of motion			
	Quarte	r 5th	Law of conservat	.aw of conservation of momentum			Understanding of law of conservation of momentum			
		6th	Point mass dynar	oint mass dynamics			Understanding position, velocity, and acceleration using differential and integral			
2nd		7th	Point mass dynar	oint mass dynamics			Understanding equation of motion as differential equation			
Semeste		8th	2nd term midterr	nd term midterm exam			Requires a score of 60 points or higher.			
r		9th	Return of answer exam. exam com	eturn of answers for the 1st term midterm kam. exam commentary. Equation of motion			Review. Understanding equation of motion as differential equation			
		10th	Equation of motion	quation of motion			Calculation of falling motion in the air			
		11th	Equation of motion	on		Understanding damped oscillation				
	4th	12th	Equation of motion	uation of motion for rotation			Understanding the moment of force and angular momentum using vector product Understanding the equation of motion of rotation			
	Quarte	r 13th	Equation of motion	on for rotation		Understanding moment of inertia				
		14th	Coordinate transf	cordinate transformation and inertial force			Understanding constant acceleration coordinate system and rotating coordinate system			
		15th	2nd term final ex	am		Requires a score of 60 points or higher.				
		16th	Return of answer	Return of answers for the 2nd term final exam.			Review.			
Evaluati	ion Me	thod and	Weight (%)	,		•				
Examination		Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total			
Subtotal		70	0	0	0	30	0	100		
Basic		70	0	0	0	30	0	100		
Specialized Proficiency		D	0	0	0	0	0	0		
Cross Area Proficiency		0	0	0	0	0	0	0		