

Anan College		Year	2024		Course Title	Engineering Mechanics
Course Information						
Course Code	1514B01		Course Category	Specialized / Compulsory		
Class Format	Lecture		Credits	Academic Credit: 2		
Department	Course of Civil Engineering		Student Grade	4th		
Term	First Semester		Classes per Week	前期:2		
Textbook and/or Teaching Materials	Aoki Hiroshi, Kitani Susumu : Kogyo Rikigaku [Dai 4 Han] (Morikita Shuppan)					
Instructor	Moriyama Takuro					
Course Objectives						
1. Able to understand the concepts of balance of forces and balances of moments. 2. Able to understand the concept of the center of gravity of an object. 3. Able to understand the concept of the motion of points. 4. Able to understand the concepts of work and energy. 5. Able to understand the basic theory of vibration.						
Rubric						
	Ideal Level		Standard Level		Unacceptable Level	
Achievement 1	Able to understand the concepts of force balance and moment balance, and to confirmly calculate the problems related to them.		Able to understand the concepts of force balance and moment balance, and to almost calculate the problems related to them.		Able to almost understand the concept of balance of forces and balance of moments.	
Achievement 2	Able to understand the concept of the center of gravity of an object and to confirmly calculate the problems related to them.		Able to understand the concept of the center of gravity of an object and to almost calculate the problems related to them.		Able to almost understand the concept of the center of gravity of an object.	
Achievement 3	Able to understand the concept of the motion of a point and to confirmly calculate the problems related to them.		Able to understand the concept of the motion of a point and to be able to calculate the problems related to them.		Able to almost understand the concept of the motion of a point.	
Achievement 4	Able to understand the concepts of work and energy, and to confirmly calculate the law of conservation of energy.		Able to understand the concepts of work and energy, and can almost calculate the law of conservation of energy.		Able to almost understand concepts such as work and energy and the law of conservation of energy.	
Achievement 5	Able to understand of the basic theories of vibration, such as period and frequency, and to confirmly calculate the problems related to them.		Able to understand of the basic theories of vibration, such as period and frequency, and to almost calculate the problems related to them.		Able to almost understand of the basic theories of vibration, such as period and frequency.	
Assigned Department Objectives						
学習・教育到達度目標 B-3						
Teaching Method						
Outline	Mechanics, which is one of the foundations of engineering, is an important concept that serves as the basis for acquiring knowledge in specialized fields such as structural mechanics, soil mechanics, hydraulics, and concrete structure in the construction field. It is a concept that students who aim to become engineers who will play an active role in the construction field in the future must naturally master. In this lecture, students will deepen their understanding of the concept of basic force, but we will also explain examples of their application to the structural field of construction, especially in the field of construction, such as vibration and earthquakes, as necessary.					
Style	In class, we will explain as many examples as possible, and ask students to deepen their understanding by giving them exercises as self-study assignments. If necessary, there will be time for students to solve exercises during class. [Class time: 30 hours] Since this course is a learning credit course, reports will be conducted as post-study.					
Notice	Since this course is a review and application of physics, physics experiments, and exercises in the second year, it is desirable to thoroughly review the basic knowledge of these subjects. I want you to answer homework and exercises while thinking about it thoroughly with your own mind using paper and pencil and try to understand the content.					
Characteristics of Class / Division in Learning						
☐ Active Learning		☐ Aided by ICT		☐ Applicable to Remote Class		☐ Instructor Professionally Experienced
Course Plan						
			Theme	Goals		
1st Semester r	1st Quarter	1st	forces	Able to understand the concept of composition and decomposition of force, and moment.		
		2nd	equilibrium of force	Able to understand the concept of equilibrium of force.		
		3rd	equilibrium of moment	Able to understand the concept of equilibrium of monent.		
		4th	center of gravity	Able to understand the center of gravity and centroid.		
		5th	motion of point	Able to understand the concepts of point velocity and acceleration.		

		6th	dynamics of rigid body	Able to understand the balance of rigid bodies and the moment of inertia.
		7th	dynamics of rigid body	Able to understand the motion of rigid bodies and the law of conservation of angular momentum.
		8th	【Midterm examination】	
	2nd Quarter	9th	work and energy	Able to understand the concept of work.
		10th	work and energy	Able to understand the concept of energy.
		11th	work and energy	Able to understand the concept of the law of conservation of energy.
		12th	vibration	Able to understand the concept of simple harmonic motion.
		13th	vibration	Able to understand the concept of free vibration.
		14th	vibration	Able to understand the concept of damped vibration.
		15th	vibration	Able to understand the concepts of forced vibration and resonance.
		16th	【Final examination】	

Evaluation Method and Weight (%)

	Examination	Presentation	Mutual Evaluations between students	Behavior	Portfolio	Other	Total
Subtotal	70	0	0	0	30	0	100
Basic Proficiency	35	0	0	0	15	0	50
Specialized Proficiency	35	0	0	0	15	0	50
Cross Area Proficiency	0	0	0	0	0	0	0