

Akashi College		Year	2023		Course Title	Environmental Engineering
Course Information						
Course Code	5519			Course Category	Specialized / Elective	
Class Format	Lecture			Credits	School Credit: 1	
Department	Mechanical Engineering			Student Grade	5th	
Term	Second Semester			Classes per Week	2	
Textbook and/or Teaching Materials						
Instructor	OHNISHI Keizo					
Course Objectives						
(1) Understand the environmental impact of machinery, and understand the basic knowledge of noise and vibration from machinery. (2) Understand the contents of the laws and regulations governing the environmental impact of machinery, and understand the responsibilities as an engineer. (3) Acquire knowledge of noise and vibration measurement and measures to reduce the environmental impact of machinery.						
Rubric						
	Ideal Level		Standard Level		Unacceptable Level	
Achievement 1	Fully understand the environmental impact of machinery and the basic knowledge of the noise and vibration that the machine is generating.		Understand the environmental impact of machinery and the basic knowledge of the noise and vibration that the machine is generating.		Do not understand the environmental impact of machinery and the basic knowledge of the noise and vibration that the machine is generating.	
Achievement 2	Fully understand the laws and regulations governing the environmental impact of machinery and I am fully aware of my responsibilities as an engineer.		Understand the laws and regulations governing the environmental impact of machinery and I am fully aware of my responsibilities as an engineer.		Do not understand the laws and regulations governing the environmental impact of machinery and I am fully aware of my responsibilities as an engineer.	
Achievement 3	Fully learn knowledge of noise and vibration measurements and measures to reduce the environmental impact of machinery.		Learn knowledge of noise and vibration measurements and measures to reduce the environmental impact of machinery.		Do not learn knowledge of noise and vibration measurements and measures to reduce the environmental impact of machinery.	
Assigned Department Objectives						
Teaching Method						
Outline	Noise and vibration from machinery are substantially affecting our daily living, such as factory noise and traffic noise. This course will be held in a lecture style, and taught by an instructor who was engaged in the development of machinery noise and vibration-related products using his experience. It will deal with measurement and countermeasures for the conservation of the living environment due to machine noise and vibration.					
Style	Classes will involve lectures on the basics and exercises as appropriate. Liaison: Kanji Kunimine					
Notice	Environmental problems are inevitable in today's society. Attend this course with the awareness to acquire basic knowledge of measurement and countermeasures for the conservation of the living environment by noise and vibration of machinery. Students who miss 1/3 or more of classes will not be eligible for evaluation.					
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 checked="" type="checkbox"/> Instructor Professionally Experienced	
Course Plan						
			Theme	Goals		
2nd Semester	3rd Quarter	1st	Noise and vibration of machinery affecting the environment	Understand the outline of the lecture in connection with examples.		
		2nd	Environmental noise (1) The characteristics of the noise	Understand the technical characteristics of environmental noise.		
		3rd	Environmental noise (2) Measurement of noise (1)	Understand the method of measuring environmental noise.		
		4th	Environmental noise (3) Measurement of noise (2)	Understand the method of measuring environmental noise.		
		5th	Environmental noise (4) Assessment of noise and related laws and regulations	Understand environmental noise assessment techniques and related laws and regulations.		
		6th	Environmental noise (5) Small test, noise prediction and countermeasures (passive noise control)	Can solve the content questions from weeks 1 to 5. Understand the concept of environmental noise prediction and countermeasures in connection with examples.		
		7th	Environmental noise (6) Noise reduction (active noise control)	Understand the concept of environmental noise reduction in connection with examples.		
		8th	Midterm exam			
	4th Quarter	9th	Traceability and weighing of measuring instruments	Understand the conditions required for measuring instruments for environmental noise and vibration.		
		10th	Environmental vibration (1) the nature of vibration	Understand the technical characteristics of environmental vibration.		

		11th	Environmental vibration (2) Measurement of vibration	Understand the method of measuring environmental vibration.
		12th	Environmental vibration (3) Assessment of vibration and related laws and regulations	Understand environmental vibration assessment techniques and related laws and regulations.
		13th	Environmental vibration (4) Small test, vibration prediction and countermeasures	Can solve the content questions from weeks 9 to 13. Understand the concept of predicting and countering environmental vibration.
		14th	Internationality of science and technology, and patents	Understand the internationality and patents of science and technology, with the example in the field of noise and vibration.
		15th	Summary	Can review the key points as a summary for the entire 14 weeks. Can think of various environmental issues caused by noise and vibration of machinery.
		16th	Final exam	

Evaluation Method and Weight (%)

	Examination	Little test	Behavior	Total
Subtotal	60	30	10	100
Basic Proficiency	0	0	0	0
Specialized Proficiency	60	30	10	100
Cross Area Proficiency	0	0	0	0