

Akashi College		Year	2022	Course Title	Environmental Engineering in Architecture I
Course Information					
Course Code	4321		Course Category	Specialized / Compulsory	
Class Format	Lecture		Credits	Academic Credit: 2	
Department	Architecture		Student Grade	3rd	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials	建築環境工学 (初学者の建築講座) 倉淵 隆著				
Instructor	TOBITA Kunihiro				
Course Objectives					
(1) To acquire basic knowledge of architecture environmental engineering, and to give concrete examples. (2) To make a presentation about architecture environmental engineering. (3) To listen and question other students presentation.					
Rubric					
	Excellent		Good		Insufficient
Achievement 1	The student can entirely understand architecture environmental engineering. The student can give specific examples.		The student can understand architecture environmental engineering. The student can give specific examples.		The student can not architecture environmental engineering. The student can not give specific examples.
Achievement 2	The student can make an excellent presentation about architecture environmental engineering.		The student can make a good presentation about architecture environmental engineering.		The student can not make a presentation about architecture environmental engineering.
Achievement 3	The student can listen with attention and pose good questions to other students presentation.		The student can listen and pose questions to other students presentation.		The student can not listen or pose questions to other students presentation.
Assigned Department Objectives					
Teaching Method					
Outline	In this course, students will acquire the knowledge necessary to achieve both energy conservation and comfort. The students will investigate and present on the theme chosen, and deepen their understanding by asking questions about other students presentations. The contents of the lectures deals with social problems related to architecture environmental engineering and include themes of global environmental conservation, the use of new energy, etc.The students will understand how to achieve both comfort and energy saving, understand the architectural method, and perform steady-state forecast calculations.				
Style	Weeks 1-7 Lectures: Basic knowledge about the urban environment, thermal environment, humidity, air environment. Understand air conditioning equipment and electrical equipment systems, and develop basic design skills. Weeks 8-14: Each student chooses a topic of interest among the building service learned at the previews week and makes a 5-minute presentation about that equipment. Adjust in the eighth week so that the topics do not overlap.				
Notice	To be resourceful on the way to present the topic studied, listen and make questions. The students will mutually deepen the knowledge acquired. This course requires 90 hours of self-study time to do preliminary reviews, reviews, and assignments. Students attendance is required, and only a maximum of 5 absences is excused.				
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	Climate and architecture, climate, weather, temperature due to rain and snow, humidity	To understand climate and architecture, climate, weather, temperature due to rain and snow, humidity.	
		2nd	Heat island phenomenon, history, and phenomena of air pollution, the role of green in the urban environment.	To understand the heat island phenomenon, history, and phenomena of air pollution, the role of green in the urban environment.	
		3rd	Transfer of heat by conduction, radiation, convection, and mass transfer, and thermal properties of materials. Measurement method and experiment method of temperature and humidity. To measure the temperature of an object using a radiation thermometer.	To understand heat by conduction, radiation, convection, and mass transfer, and thermal properties of materials, and the measurement method and experiment method of temperature and humidity.	
		4th	Wet air, Air chart, Thermal environment factor, Thermal environment index	To understand wet air, air chart, thermal environment factor, thermal environment index.	
		5th	Types of air pollution and indoor air quality standards	To understand the types of air pollution and indoor air quality standards.	
		6th	Natural ventilation and mechanical ventilation Calculate the required ventilation Choice and division of the topic to be studied and presented.	To understand light, outlet equipment, information, and communication equipment.	
		7th	Natural ventilation and mechanical ventilation Calculate the required ventilation Choice and division of the topic to be studied and presented.	To understand natural ventilation and mechanical ventilation, and calculate the required ventilation.	

		8th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
	2nd Quarter	9th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		10th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		11th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		12th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		13th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		14th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		15th	Students presentation about building equipment Presentation 5 min, Q&A 3 min, questions that were not answered should be answered on the next week.	To choose a topic from the content learned from weeks 1 to 7, and make a presentation. Presentation 5 min, Q&A 3 min.
		16th	End-term Exam	

#### Evaluation Method and Weight (%)

	Examination	Presentation	Participation (questions)	Total
Subtotal	50	40	10	100
Basic Proficiency	0	0	0	0
Specialized Proficiency	50	40	10	100
Cross Area Proficiency	0	0	0	0