

Akashi College		Year	2022	Course Title	Building Services and Air Conditioning A
Course Information					
Course Code	4515		Course Category	Specialized / Compulsory	
Class Format	Lecture		Credits	School Credit: 1	
Department	Architecture		Student Grade	5th	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials	建築設備 大塚雅之著 市ヶ谷出版社				
Instructor	HIRAISHI Toshihiro				
Course Objectives					
(1) To understand the type and purpose of water supply and drainage sanitation equipment, disaster prevention equipment, energy saving equipment, and general construction equipment. (2) To make a presentation about water supply and drainage sanitation equipment, disaster prevention equipment and energy saving equipment. (3) To listen and question other students presentation.					
Rubric					
	Excellent		Good		Insufficient
Achievement 1	The student can perfectly understand the type and purpose of water supply and drainage sanitation equipment, disaster prevention equipment, energy saving equipment, and general construction equipment.		The student can understand the type and purpose of water supply and drainage sanitation equipment, disaster prevention equipment, energy saving equipment, and general construction equipment.		The student can not understand the type and purpose of water supply and drainage sanitation equipment, disaster prevention equipment, energy saving equipment, and general construction equipment.
Achievement 2	The student can make an excellent presentation about water supply and drainage sanitation equipment, disaster prevention equipment and energy saving equipment.		The student can make a good presentation about water supply and drainage sanitation equipment, disaster prevention equipment and energy saving equipment.		The student can not make a presentation about water supply and drainage sanitation equipment, disaster prevention equipment and energy saving equipment.
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 acquire basic knowledge related to water supply and sanitary drainage system, electrical equipment, light equipment, fire-prevention equipment, heating and cooling air conditioning equipment. The objective is to give the students the necessary knowledge about energy conservation and understand major theories and phenomena related to ambient comfort for use in architectural design and construction. This topic includes the contemporary theme of new energy utilization and is related to all specialized field of architecture. It is fundamental knowledge for building a comfortable environment and at the same time conserve global environment.				
Style	Weeks 1-8 Lectures: Basic knowledge of water supply and drainage sanitation, hot-water supply, and disaster prevention. Understanding water and hot-water supply system, sanitation equipment, drainage, ventilation system, and basic designing skills. Weeks 9-15: 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. Students' understanding checked through execution of exercises from the level 2 architect license test.				
Notice	To review the content learned on Environmental Engineering in Architecture I and II. Students attendance is required, and only a maximum of 5 absences is excused.				
Characteristics of Class / Division in Learning					
<input checked="" type="checkbox"/> Active Learning		<input checked="" 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	Overview of building equipment: building equipment different types and function.	To understand the different types and function of building equipment.	
		2nd	Water supply and drainage, sanitation equipment purpose Hydraulics Basics, circulation of water on the planet, structure, and role of water supply, drainage and sanitation facilities, basic principles to be careful when designing.	To understand sanitation equipment and the water supply system.	
		3rd	The hot water supply system Different types and characteristics (advantages and disadvantages), hot water supply temperature (suitable temperature at the time of use and suitable temperature for hot water supply). Sheath tube header system and the latest piping systems.	To understand the amount of water used, and different types of hot water supply system.	

		4th	Water drainage ventilation system The function of the drain pipe and trap. The ventilation system for protecting the trap from breaking. Description of special joint drainage system where ventilation pipe is unnecessary.	To know how to determine the pipe diameter of the water supply and drainage pipes. To understand the septic tank.
		5th	Sanitary equipment, septic tank, and gas equipment: Sanitary equipment, wastewater septic tank, and water quality standards, legal regulations. Gas supply system and gas supply safety measures.	To understand the diversion and combined drainage methods existent inside and outside the residential site.
		6th	Fire extinguishing equipment: Types of fire and different functions of fire extinguishing equipment required.	To understand the types of fire extinguishing equipment, smoke exhaust equipment, and fire alarm system.
		7th	Choice and division of the topic to be studied and presented.	To do a presentation about a topic, and to listen and make questions about other students presentations.
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
	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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		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 understand and make questions about equipment (renewable energy, water supply, and drainage).
		16th	End-term Exam	To evaluate the content learned.

#### 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