

Akashi College		Year	2022	Course Title	Building Materials
Course Information					
Course Code	4316		Course Category	Specialized / Compulsory	
Class Format	Lecture		Credits	School Credit: 1	
Department	Architecture		Student Grade	3rd	
Term	First Semester		Classes per Week	2	
Textbook and/or Teaching Materials	野口貴文ほか『ベーシック建築材料』彰国社				
Instructor	KAKUNO Yoshinori				
Course Objectives					
The materials (architecture) area studies the manufacturing methods, compositions, properties, etc. of the materials used in buildings. It is an area that fosters the ability to select materials appropriately according to the purpose of the building, and how to use materials systematically and economically. (1) To understand structural performance and the factors necessary to exert the required performance of structural materials (wood, concrete, metal). (2) In the finishing material field (interior, exterior), to understand the functionality and applied environment to select properly finishing materials.					
Rubric					
		Ideal Level	Standard Level	Unacceptable Level	
Achievement 1		The student perfectly understands structural performance and the factors necessary to exert the required performance of structural materials.	The student understands structural performance and the factors necessary to exert the required performance of structural materials.	The student doesn't understand structural performance and the factors necessary to exert the required performance of structural materials.	
Achievement 2		The student perfectly understands the functionality and applied environment to select properly finishing materials.	The student understands the functionality and applied environment to select properly finishing materials.	The student doesn't understand the functionality and applied environment to select properly finishing materials.	
Assigned Department Objectives					
Teaching Method					
Outline	To know the features and major products of building materials. To know the performance required of the materials for each building site.				
Style	Lecture Style				
Notice	The students should observe the building environment and show interest in what and how materials are used.				
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	Orientation (classification of building materials)	To understand the changes and development of building materials.To describe the specifications and required performance of building materials.	
		2nd	Wood (1)	To understand the types of wood. To understand the growth and organization of timber and the difference in physical properties.	
		3rd	Wood (2)	To understand wounds (such as clauses). To understand durability (rot, depletion, insect damage, etc). To understand durability. To be able to explain the types of wood products in recent years (laminated wood materials, layered materials, etc.).	
		4th	Concrete (1)	To understand how to make cement. To understand the type and characteristics of cement. To understand that there are lightweight aggregates for concrete. To be able to explain the types of additives (agents). To calculate the water-cement ratio to make concrete. To understand slump and air quantity and the effects in terms of strength or durability.	
		5th	Concrete (2)	To understand how to make cement. To be able to name the phenomenon of durability. To be able to name the various types of concrete. To understand the characteristics of concrete products.	
		6th	Steel (1)	To be able to name the phenomenon of durability for steel. To understand the stress-strain relationship of steel materials, singular points, the specification and the nature of steel materials.	

		7th	Steel (2)	To understand the types and properties of architectural structure steels. To understand the features and properties of architectural steel products.
		8th	Mid-term Exam	
	2nd Quarter	9th	Metal material (stainless steel, aluminum, copper etc.)	To know the classification and characteristics of non-ferrous metals.
		10th	Stone, glass	To understand different kinds and the nature of the stone materials. To understand how to use stone. To know the manufacturing method and types of glass.
		11th	Baked products (tiles, bricks, tiles, etc)	To understand the characteristics of baked clay materials. To know the types of tiles and their features.
		12th	Plasterer material (earth wall, plaster etc)	To know interior material (mortar, plaster, cloth, diatomaceous earth, plywood, board, etc.).
		13th	Polymer based materials	To identify the types and characteristics of polymer materials.
		14th	New Material / High Performance Material	To know the features of new materials and highly functional materials.
		15th	Building materials and environment	To understand the relationship between building materials and environmental issues.
		16th	End-term Exam	

Evaluation Method and Weight (%)

	Examination	short test	Total
Subtotal	70	30	100
Basic Proficiency	0	0	0
Specialized Proficiency	70	30	100
Cross Area Proficiency	0	0	0