For entrants in AY 2023

Cluster 4 (Civil Engineering and Architecture)

◎ Required subject (period of registration specified)

○ Compulsory elective subject (any of these subjects shall be registered)

△ Free elective subject (any of these subjects shall be registered)

Subject Type					Required No. of credits	Class subjects	No. of credits	Type of course registration	Year in which the subject is taken(*The lower figure means semester)(Note 1)													
									1st grade				2nd grade				3rd grade				4th grade	
									Spring		Fall		Spring		Fall		Spring		Fall		Spring	Fall
									1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T
Liberal Arts Education Subjects	Peace Science Courses				2		2	Compulsory elective		○																		
	Common Subjects	Basic Courses in University Education	Introduction to University Education		2	Introduction to University Education	2	Required	◎																			
			Introductory Seminar for First-Year		2	Introductory Seminar for First-Year	2	Required	◎																			
			Advanced Seminar		0		1	Free elective			△	△																
		Area Courses			4	Courses in Arts and Humanities/Social Sc	2	Compulsory elective	○		○																	
					4	Courses in Natural Sciences	2			○		○																	
		Foreign Languages	English (Note2・3)	Basic English Usage	0	Basic English UsageI	1	Free elective	△	△																		
						Basic English UsageII	1				△	△																
				Communication I	2	CommunicationIA	1	Required	◎	◎																		
						Communication IB	1		◎	◎																		
				Communication Ⅱ	2	Communication IIA	1	Required			◎	◎																
						Communication IIB	1				◎	◎																
			Initial Foreign Languages (Select one language from German, French, Spanish, Russian, Chinese, Korean and Arabic)		2	1 subjects from Basic language I	1	Compulsory elective	○																			
						1 subjects from Basic language II	1			○																			
		Information and Data Science Courses			2	Introduction to Information and Data Sciencies	2	Required		◎																		
		Health and Sports Courses			2		1or 2	Compulsory elective	○	○	○	○																
	Basic Subjects				16	CalculusI	2	Required	◎																			
						CalculusII	2				◎																	
						Linear AlgebraI	2			◎																		
						Linear AlgebraII	2					◎																
						Seminar in Basic Mathematics I	1			◎																		
						Seminar in Basic Mathematics II	1					◎																
						General Mechanics I	2			◎																		
						General Mechanics II	2					◎																
						Experimental Methods and Laboratory Work in Physics I(Note 4)	1						◎															
						Experimental Methods and Laboratory Work in Physics II(Note 4)	1							◎														
	Free elective subjects				6	From all Subject Type(Note 5)		Free elective	△	△	△	△	△	△	△	△												
	No. of credits required for graduation				46																							

Note 1: When students fail to acquire the credit during the term or semester marked with ◎, ○, △ in the boxes for the year in which the course is taken, they can take the course in subsequent terms or semesters. Depending on class subject, courses may be offered in semesters or terms different from those scheduled. Please be sure to check the time schedule for Liberal Arts Education subjects to be issued every

Note 2: The credit obtained by mastery of "English-speaking Countries Field Research" or self-directed study of "Online Seminar in English A・B" cannot be counted towards the credit necessary for graduation. The credit obtained by Overseas Language Training can be recognized as Communication Ⅰor Ⅱ if application is made in advance. For more details, please refer to the article on English in Liberal Arts Education in the student handbook.

Note 3: We have a recognition of credit system for foreign language proficiency tests. For more details, please refer to the article on Foreign Language in Liberal Arts Education in the student handbook.

Note 4: Students must take both「Experimental Methods and Laboratory WorkⅠ(1credit)」and「Experimental Methods and Laboratory WorkⅡ (1credit)」.

Cluster 4　Specialized Basic Subjects

◎　Required subjects
①, ②, ③　Compulsory Elective subjects
○, Ⓐ, Ⓑ, Ⓓ　Compulsory Elective subjects
△　Request Subjects

Class Subjects	Credits	Type of course registration		Class Hours/ Week																Note
		Civil and Environmental Engineering	Architecture and Building Engineering	1st grade				2nd grade				3rd grade				4th grade				
				Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		
				1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	
Applied Mathematics I	2	◎	◎			4														
Applied Mathematics II	2	①	○					4												
Applied Mathematics III	2	①	○						4											
Engineering Mathematics A	2	①	○									4								
Probability and Statistics	2	①	○					4												
Environmental Theory	2		○							2	2			2	2					※1
Basic Engineering Computer Programming	2	◎	◎							4		4								※2
Synthesis of Applied Mathematics	2	①	○							4										
Technical English	1		◎							4										
Creation of Architectural Space	2	③	○			4														
Lifestyle and the city	2	③	○			4														
Introduction of Civil and Environmental Engineering	2	◎						4												
Mathematics of Civil Engineering	2	①							4											
Exercise of Technical English	1	◎											4							
Strength of Materials	2	◎							4											
Exercise of Strength of Materials	1	②							4											
Structural Mechanics	2	◎								4										
Exercise of Structural Mechanics	1	②								4										
Hydraulics	2	◎									4									
Soil Mechanics	2	◎									4									
Exercise of Soil Mechanics	1	②									4									
Construction Materials	2	◎							4											
Concrete Engineering	2	◎								4										
Fluid Mechanics	2	◎								4										
Exercise of Fluid Mechanics	1	②								4										
	2		Ⓐ						4											

◎ Required subjects
①, ②, ③ } Compulsory Elective subjects
○, Ⓐ, Ⓑ, Ⓓ }
△ Request Subjects

Class Subjects	Credits	Type of course registration		Class Hours/ Week																Note
		Civil and Environmental Engineering	Architecture and Building Engineering	1st grade				2nd grade				3rd grade				4th grade				
				Spring		Fall		Spring		Fall		Spring		Fall		Spring		Fall		
				1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	
Architectural Project and Drawing I	2		◎					6	6											
Architectural Project and Drawing II	2		◎							6	6									
Architectural Structural Mechanics I	4		◎					4	4											
Architectural Structural Mechanics II	4		◎							4	4									
Vibration Theory of Buildings	2		○												4					
Reinforced concrete structure	2		Ⓐ										4							
Geotechnical and Architectural Foundation Engineering	2		○												4					
Building Administration	2		◎										4							
Field Exercises of Building	1		Ⓓ									1	1	1	1					
History of Architecture I	2		◎							4										
Architectural Planning I	2		◎						4											
Town Planning	2		○								4									
Architectural Environments I	2		Ⓑ					4												
Architectural Environments II	2		Ⓑ							4										
Exercises in Environmental Science	1		Ⓑ										4							
Field Work in Architecture	1		○											3	3					
Computer Technology in Architecture	2		○								4									
Design Concepts of Steel Structures	2		Ⓐ							4										
Architecture drawings	2		○					4												
Timber structure	2		Ⓐ								4									

※1 As the course is offered every other year, you should take either of the courses.
※2 Civil and Environmental Engineering is offered in the second semester of the second year, while Architecture and Building Engineering is offered in the first term of the first semester of the third year.

◎Required subjects
○ Compulsory Elective subjec
△Free elective subject

1T 2T 3T 4T 1T 2T 3T 4T 1T 2T 3T 4T 1T 2T 3T 4T

Reinforced Concrete Mechanics and

Academic Achievements in Civil and Environmental Engineering

The Relationship between Evaluation Items and Evaluation Criteria

Academic Achievements			Evaluation Criteria		
Evaluation Items			Excellent	Very Good	Good
Knowledge and	(1)	General culture and breadth of vision	Being able to see broadened and complicated society and natural environment multilaterally from cross-disciplinary point of views such as nature, culture and society.	Being able to see broadened and complicated society and natural environment multilaterally from cross-disciplinary point of views such as nature, culture and society.	To be able to consider a society and its natural environment from cross-disciplinary perspectives such as nature, the humanities, and community.
Abilities and Skills	(1)	Ability to structuralize problems	Based on knowledge of mathematics or physics, to be able to structuralize technical problems by organizing the knowledge logically.	To be able to organize problems logically and explain them based on knowledge of mathematics or physics.	To be able to understand the relations between mathematical or physical equations and the problem.
	(2)	Ability to analyze problems	By collecting necessary information, to be able to abstract and simulate technical problems and to be able to analyze them.	By collecting necessary information, to be able to abstract and simulate technical problems and to be able to analyze them.	By collecting necessary information, to be able to analyze technical problems.
Overall Abilities	(1)	Ability to discover problems	To be able to understand the relationship among nature, human beings and technology in international society・regional society and to be able to find issues in them.	Being able to understand the relationship among nature, human beings and technology in international society and regions.	To be able to understand the relationships among nature, humans, and technology in regional society
	(2)	Ability for evaluation	To be able to propose more than one solutions and predict the results of them and to be able to evaluate the solutions.	Being able to set a standard her/him self for evaluation and predict the result of proposed solutions	Being able to understand the criteria for evaluation on solutions.
	(3)	Abbility of communication	To be able to present the contents, reasonableness, effect, and feasibility of a proposed solution.	To be able to present the contents and reasonableness of proposed solutions. To other people.	To be able to present the contents of proposed solutions.
	(4)	Ability to achieve and ability to solve the problem	To be able to handle the problem-solving process with the best use of available knowledge, understanding, ability and skills under the collaboration with others. To be able to improve ability to solve problems and ability to achieve, voluntarily and continuously.	To be able to handle the problem-solving process with the best use of available knowledge, understanding, ability and skills under the collaboration with others.	With the best use of available knowledge, understanding, abilities and skills to be able to handle the problem-solving process.

Placement of the Liberal Arts Education in the Major Program

This program is designed so that abilities that correspond to the above evaluation items may be continuously enhanced by liberal arts education, specialized education, and the graduation thesis. The liberal arts education subject group, along with specialized basic subject group, constitutes the first cycle associated with all items described above, and cultivates the basic abilities associated with learning outcomes.
Design subjects, built on specialized subject group, constitute the second cycle and cultivate the applicable abilities associated with the learning outcomes.
Graduation thesis, as the third cycle, enhances the abilities associated with the learning outcomes in a comprehensive way.

Relationships between the evaluation items and class subjects

Subject type	Class subjects	credits	Type of course registration	Period	Evaluation items														Total weighted values of evaluation items in the subject
					Knowledge and Understanding		Abilities and Skills				Comprehensive Abilities								
					(1)		(1)		(2)		(1)		(2)		(3)		(4)		
					Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	Weighted values of evaluation items in the subject	Weightsed values of evaluation items	
Liberal Arts Education	Introductory Seminar for First-Year Students	2	Required	1semsester	33	1					33	1			34	1			100
Liberal Arts Education	Peace Science Courses	2	Required	1~2semester	50	1					50	1							100
Liberal Arts Education	CommunicationI	1	Required	1semsester	50	1									50	1			100
Liberal Arts Education	Communication I	1	Required	1semsester	50	1									50	1			100
Liberal Arts Education	Communication II	1	Required	2semsester	50	1									50	1			100
Liberal Arts Education	Communication II	1	Required	2semsester	50	1									50	1			100
Liberal Arts Education	Basic language I	1	Required	1semsester	50	1									50	1			100
Liberal Arts Education	Basic language II	1	Required	1semsester	50	1									50	1			100
Liberal Arts Education	Information and Data Science Courses	2	Required	1semsester											100	1			100
Liberal Arts Education	Area Courses	2	Elective	1~2semester	100	1													100
Liberal Arts Education	Free elective subjects	6	Elective	1~6semester	100	1													100
Liberal Arts Education	Health and Sports Courses	2	Required	1semsester	100	1													100
Liberal Arts Education	CalculusI	2	Required	1semsester					100	1									100
Liberal Arts Education	CalculusII	2	Required	2semsester					100	1									100
Liberal Arts Education	Linear AlgebraI	2	Required	1semsester					100	1									100
Liberal Arts Education	Linear AlgebraII	2	Required	2semsester					100	1									100
Liberal Arts Education	Seminar in Basic Mathematics I	1	Required	1semsester					100	1									100
Liberal Arts Education	Seminar in Basic Mathematics II	1	Required	2semsester					100	1									100
Liberal Arts Education	GeneralFMechanics I	2	Required	1semsester					100	1									100
Liberal Arts Education	GeneralFMechanics II	2	Required	2semsester					100	1									100
Liberal Arts Education	Experimental Methods and Laboratory Work in Physics IGB	1	Required	3semsester					100	1									100
Specialized Education	Creation of Architectural Space	2	Elective	2semsester	50	1					50	1							100
Specialized Education	Lifestyle and the city	2	Elective	2semsester	50	1					50	1							100
Specialized Education	Applied Mathematics I	2	Required	2semsester					100	1									100
Specialized Education	Applied Mathematics II	2	Elective	3semsester					100	1									100
Specialized Education	Applied Mathematics III	2	Elective	3semsester					100	1									100
Specialized Education	Engineering Mathematics A	2	Elective	3semsester					100	1									100
Specialized Education	Probability and Statistics	2	Elective	3semsester					100	1									100
Specialized Education	Synthesis of Applied Mathematics	2	Elective	4semsester					100	1									100
Specialized Education	Mathematics for Civil Engineering	2	Elective	3semsester					100	1									100
Specialized Education	Basic Engineering Computer Programming	2	Required	4semsester					33	1					33	1	34	1	100
Specialized Education	Introduction of Civil and Environmental Engineering	2	Required	3semsester			50	1			50	1							100
Specialized Education	Exercise of Technical English	1	Required	5semsester											100	1			100
Specialized Education	Strength of Materials	2	Required	3semsester			100	1											100
Specialized Education	Exercise of Strength of Materials	1	Elective	3semsester					100	1									100
Specialized Education	Structural Mechanics	2	Required	4semsester			100	1											100
Specialized Education	Exercise of Structural Mechanics	1	Elective	4semsester					100	1									100
Specialized Education	Hydraulics	2	Required	4semsester			~~100~~	~~1~~											100
Specialized Education	Exercise of Fluid Mechanics	1	Elective	4semsester					100	1									100
Specialized Education	Soil Mechanics	2	Required	4semsester			100	1											100
Specialized Education	Exercise of Soil Mechanics	1	Elective	4semsester					100	1									100
Specialized Education	Construction Materials	2	Required	3semsester			50	1			50	1							100
Specialized Education	Fluid Mechanics	2	Required	3semsester			100	1											100
Specialized Education	Concrete Engineering	2	Required	4semsester			50	1			50	1							100
Specialized Education	Environmental Chemistry for Atmosphere and Water	2	Required	3semsester			50	1			50	1							100
Specialized Education	Microbiology and Ecology for Engineering	2	Required	5semsester			50	1			50	1							100
Specialized Education	Infrastructure Planning	2	Required	4semsester			50	1			50	1							100
Specialized Education	Land Surveying and Exercise	~~2~~ 3	Required	3semsester					40	1	15	1	15	1	15	1	15	1	100
Specialized Education	Applied Surveying and Advanced Measurement	2	Required	3semsester			50	1			50	1							100
Specialized Education	Experiments in Civil and Environmental Engineering	4	Required	5semsester			16	1	16	1	17	1	17	1	17	1	17	1	100
Specialized Education	Field Work at Construction Sites	1	Elective	6semsester							25	1	25	1	25	1	25	1	100
Specialized Education	Energy Methods for Structural Analysis	2	Elective	6semsester			50	1	50	1									100
Specialized Education	Geotechnical Engineering	2	Elective	5semsester			50	1	50	1									100
Specialized Education	Reinforced Concrete Mechanics and Exercises	4	Elective	5semsester			50	1	50	1									100
Specialized Education	Disaster Prevention and Mitigation	2	Elective	6semsester			50	1	50	1									100
Specialized Education	Bridge and Earthquake-resistance	2	Elective	5semsester			50	1	50	1									100
Specialized Education	Maintenance Engineering of Structures	2	Elective	6semsester							100	1							100
Specialized Education	Environmental Chemistry of Concrete	2	Elective	6semsester							100	1							100
Specialized Education	Environmental Hydraulics	2	Elective	5semsester			50	1	50	1									100
Specialized Education	Transportation System Engineering	2	Elective	5semsester			50	1	50	1									100
Specialized Education	Water and Wastewater Engineering and Exercises	4	Elective	5semsester			50	1	50	1									100
Specialized Education	Urban and Regional Engineering	2	Elective	6semsester			50	1	50	1									100
Specialized Education	River Engineering	2	Elective	5semsester			50	1	50	1									100
Specialized Education	Coastal Engineering	2	Elective	6semsester			50	1	50	1									100
Specialized Education	Fundaments of Environmental Engineering	2	Elective	6semsester			50	1	50	1									100
Specialized Education	Hydrology and Water Resources Engineering	2	Elective	6semsester							100	1							100
Specialized Education	Exercises in Algorithms of Civil Engineering	2	Elective	7semsester					33	1					33	1	34	1	100
Specialized Education	Seminar in Civil and Environmental Engineering	4	Elective	6semsester			16	1	16	1	17	1	17	1	17	1	17	1	100