For entrants in AY 2022

Appended Form 1

Specifications for Major Program

Name of School (Program) School of Engineering, Cluster 4 (Social and Environmental Engineering)

Program name (Japanese)	
(English)	Program of Civil and Environmental Engineering
1 Academic degree to be A	equired Racholar's degree in Engineering

1. Academic degree to be Acquired Bachelor's degree in Engineering

2. Overview

In this program, students learn the engineering theory needed to plan, design, construct, and maintain social infrastructure facilities that create rich communities and social environments, while attempting to harmonize and coexists with natural environments. Students also learn about a wide range of technology for environmental preservation on a global basis, considering that there is a strong demand for technologies that can create advanced, circulatory society that makes effective use of limited resources. Therefore, this program produces professionals and future engineers or researchers who take the initiative in addressing various technical problems, whether global of local, related to coexistence between mankind's activities and the environment. This program produces professionals and future engineers or researchers who set goals on their own initiative, explore solution to problems in a scientific and rational way, and possess the leadership and vitality to achieve their goal in an ethical and harmonious way.

3. Academic Awards Policy (Policy for awarding degrees and goal of the program)

The Program of Civil and Environmental Engineering aims at developing engineers and researchers who are able, at their own discretion, to deal with the various problems faced when engaged in social infrastructure improvement in a comprehensive manner. This program awards a bachelor's degree in engineering to students who have acquired the number of credits necessary to meet the standard of the course and who, through learning the engineering theory needed to plan, design, construct, and maintain social infrastructure facilities, have acquired the liberal arts education and special education designed to achieve the following goals.

- (A) A wide range of general knowledge and a broad perspective: The ability to view the expanding and increasingly complex societies and natural environments from multiple scientific perspectives of nature, humanities, and society
- (B) The ability to identify issues: the ability to understand the relationship between nature, humankind, and technology, in both international and regional communities, and ability to identify issues
- (C) The ability to configure problems: The ability to organize problems logically and construct technical issues
- (D) The ability to analyze problems: The ability to gather the necessary data, and to abstract, model, and analyze technical issues
- (E) The ability to evaluate: The ability to propose multiple solutions, predict outcomes, and evaluate relative merits
- (F) Communication abilities: The ability to communicate to others the details of the proposed solutions, their rationale, their effects, and their feasibility
- (G) Implementation and problem-solving abilities: The ability to implement problem-solving processes in cooperation with other people, by making full use of a wide range of general knowledge and a broad perspective, as well as the ability to identify problems, the ability to configure problems, the ability to analyze problems, comprehensive communication abilities, and the ability to enhance problem-solving abilities voluntarily and continuously by learning the above processes,

4. Curriculum Policy

The abilities required to achieve the seven goals (a wide range of general knowledge and a broad perspective, the ability to identify issues, the ability to configure problems, the ability to analyze problems, the ability to evaluate, communication abilities, and implementation and problem-solving abilities) are

described below. The curriculum is organized in such a way that these abilities may be cultivated as required by engineers in civil and environmental engineering.

In the curriculum, teaching and learning will be implemented by utilizing active learning and online classes, depending on the delivery methods of the program, such as lectures and seminars.

In addition to strict grading using the standards clearly outlined in the syllabus, learning outcomes are evaluated based on the degree to which the goals set by the educational program are achieved.

(A) Wide range of general knowledge and broad perspective

Required abilities: the ability to view the expanding and increasingly complex societies and natural environments from multiple scientific perspectives, such as nature, humanities, and society

The ability to explain the current status of the natural environment and expected environmental problems

The ability to give examples where different scientific findings on the same subject conflict

The ability to list multiple scientific facts relevant to the resolution of research tasks

Applicable subjects: liberal arts education subjects, Graduation Thesis

(B) Ability to identify issues

Required abilities: the ability to understand the relationship between nature, humankind, and technology in the international and regional communities, and the ability to identify issues

The ability to understand the characteristics of civil engineering structures and the surrounding environment, and to list possible natural phenomena and disasters

The ability to explain the roles that civil engineering has played in coexistence with the environment

The ability to position the existing technology related to research tasks, and to set goals

Applicable subjects: liberal arts education subjects, specialized basic subjects such as "Fundamentals of Environmental Science", and "Infrastructure Planning", specialized subjects such as "Design of Infrastructures", and "Project Management in Civil and Environmental Engineering", Graduation Thesis (C) Ability to configure problems

Required abilities: the ability to organize problems logically and construct technical issues

The ability to use knowledge about mathematics and physics, and select equation systems that control major elements of phenomena

The ability to mathematically express and understand diverse phenomena, including disasters The ability to accurate The ability to explain knowledge gained from research an its applicability, and the limitations and social significance of civil engineering technology

Applicable subjects: specialized subjects such as "Design of Infrastructures", and "Civil and Environmental Engineering and Engineer's Ethics", Graduation Thesis

(F) Communicating abilities

Required abilities: The ability to communicate to others details of proposed solutions, their rationale, their effects, and their feasibility

The ability to use information processing equipment, and prepare accurate charts, tables, and sentences with a certain level of quality

The ability to make one's ideas understood in a discussion forum and presentation

The basic ability to communicate in Japanese and English

Applicable subjects: Liberal arts education subjects such as "Communication Courses", and "Second Foreign Languages", specialized basic subjects such as "Experiments in Civil and Environmental Engineering", specialized subjects such as "Design of Infrastructures", "Exercise of Technical English", and "Civil and Environmental Engineering and Engineer's Ethics", Graduation Thesis

(G) Implementation and problem-solving abilities:

Required abilities: the ability to implement problem-solving processes in cooperation with other people by making full use of (A) to (F) above. The ability to enhance problem-solving abilities voluntarily and continuously by learning the above processes.

The ability to consider one's role in a group, and proceed with work in a planned manner The ability to evaluate problem-

Evaluation of academic	Converted
achievement	values
S (Excellent: 90 points or higher)	
A (Superior:80-89 points)	
B (Good: 70-79 points)	
C (Fair: 60-69 points)	1

Academic achievement	Evaluation
	criteria
Excellent	3.00 4.00
Very Good	2.00 2.99
Good	1.00 1.99

- * See the relationship between evaluation items and evaluation criteria in the attached sheet 2.
- * See the relationship between evaluation items and class subjects in the attached sheet 3.
- * See the curriculum map in the attached sheet 4.
- 9. Graduation Thesis (Graduation Research) (Purpose, when and how it is assigned, etc.)

This program approves graduation and awards a bachelor's degree in engineering to students who have completed four years' learning according to the standard of the course as described in student handbook, who have met graduation requirements, and who have acquired a total of 46 credits in liberal arts education, a total of 79 credits in specialized education, and an overall total of 125 credits or more.

Goal of the Course Students are assigned to one of the various educational courses of Program of Civil and Environmental Engineering and to a supervisor. They select the subjects in their specialized field, apply their acquired knowledge and abilities, acquire new knowledge, enhance their problem-solving abilities voluntarily and continuously, and conduct their research. Thereby, the program aims at cultivating the abilities described below. Correspondence of these abilities to the learning and educational goals of Program of Civil and Environmental Engineering is also described.

- 1. Ability to identify issues: the ability to understand the relationship between nature, humankind, and technology in the international and regional communities, and to identify issues
- 2. Ability to configure problems: the ability to organize problems logically and construct technical issues
- 3. Ability to analyze problems: the ability to gather necessary data and to abstract, model, and analyze technical issues.
- 4. Ability to evaluate: the ability to propose multiple solutions, predict outcomes, and evaluate relative merits
- 5. Communication abilities: the ability to communicate to others details of proposed solutions, their rationale, their effects, and their feasibility
- 6. Implementation and problem-solving abilities: the ability to implement problem-solving processes in cooperation with other people by making full use of a wide range of general knowledge and a broad perspective, the ability to identify problems, the ability to construct problems, the ability to analyze problems, comprehensive communication abilities, and the ability to enhance problem-solving abilities voluntarily and continuously by learning the above processes

When and how it is assigned

In principle, the educational subject is decided based on the student's request. However, the acceptable number of students for each educational subject is limited due to the requirement of providing sufficient guidance, so when the students' requests are distributed disproportionately some adjustment is made. The following is the schedule for the graduation thesis.

- 1. In mid-February of the third year, students attend the final meeting for graduation thesis presentations given by the fourth-year students in order to deepen their understanding of the subject of graduation theses.
- 2. In early March of the third year, how assignment and graduation theses in each educational course are conducted is explained.
- 3. At the end of March of the third year, after judging students' qualification to embark on a graduation thesis, where to assign students who meet the required standard is decided at an explanatory meeting.
- 4. How to proceed with graduation research varies depending on subject of research in educational course. Students begin with literature research, attend seminars, conduct surveys and experiments, and continue to work actively on research under the guidance of their supervisors. (The supervisors evaluate annual learning

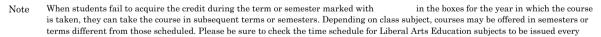
The external advisory committee examines whether the details of learning and the educational goals and standards can respond to the requirements of society and industry, and gives advice as needed to the educational program assessment and improvement committee. It checks the functioning of the educational assessment and improvement system in this group, and gives advice as needed about its improvement.

Cluster 4 (Civil Engineering and Architecture

Required subject (period of registration specified)

Compulsory elective subject (any of these subjects shall be registered) $% \left(\frac{1}{2}\right) =\left(\frac{1}{2}\right) \left(\frac{1$

					1											stere	_
					Require		No. of credits	Type of course registratio		grad		grad		er fig Brd s		ester) th g	
	S	ubje	ect Ty	pe	d No. of	Class subjects	Jo.	Type of course gistrati		F	Spr		all	ring	all		
					credits		cı V	T c								2T	
			cience	Courses	2		2	Compuls ory elective									
	Basic Courses in University Education	Intr Uni	oducti versity	Z Education	2	Introduction to University Education	2	Require d									
	Ba Cours Unive Educ	Intr	oducto First-Y	ory Seminar	2	Introductory Seminar for First-Year	2	Require d									
					4	Courses in Arts and Humanities/Social Sc	2	Compuls									
		Are	a Cour	ses	4	Courses in Natural Sciences	2	ory elective									
L i				Basic		Basic English UsageI	1	Free									
b e				English Usage	0	Basic English UsageII	1	elective									
r a	cts	ages	English (Note2 3)	Communic	2	CommunicationI	1	Require									
1	Subje	angn	Eng (Not	ation I	2	Communication I	1	d									
A	Common Subjects	Foreign Languages		Communic	2	Communication II	1	Require									
r	Com	Fore		ation	2	Communication II	1	d									
s			(Select or	reign Languages ne language from French, Spanish,	2	1 subjects from Basic language I	1	Compuls ory									
E d				Chinese, Korean	2	1 subjects from Basic language II	1	elective									
u			rmation nce Cou	and Data rses	2	Introduction to Information and Data Sciencies	2	Requir ed	0								
a			alth an irses	d Sports	2		1or 2	Compuls ory elective									
i						CalculusI	2										
o n						CalculusII	2										
s						Linear AlgebraI	2										
u b						Linear AlgebraII	2										
j		_	. ~ 1.			Seminar in Basic Mathematics I	1	Require d									
e c		Basi	ic Subj	ects	16	Seminar in Basic Mathematics II	1										
t s						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	1										
				ubjects	6	From all Subject Type Note 5		Free elective									
	No. of		dits 1 aduatio	required for on	46												



Note 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 or 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 in the student handbook.

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

Note Students can calculate the credits of Basic English Usage.

Cluster 4 Specialized Basic Subjects

Required subjects Compulsory Elective subjects

Request Subjects

		Туре	e of																ects	
		cour registr						\mathbf{C}	as	s F	Tot	urs	s/ V	Ve	ek					
	its			15	st g	rra	dе	2r	d s	rra	de	3r	d e	rra	de	4t	h s	rra	dе	
Class Subjects	Credits	Civil and Environmental Engineering	Architecture and Building Engineering			1												- 		Note
	C	Civil viron ngine	hited ing E	Sp	ring	г	all	Spr	ng	17	311	Spi	ing	га	ll1	Spi	ring	га	all	
		Eng.	Arc Build	1T	2T	ЗТ	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	ЗТ	4T	
Applied Mathematics I	2					4														
Applied Mathematics II	2							4												
Applied Mathematics III	2								4											
Engineering Mathematics A	2											4								
Probability and Statistics	2							4												
Environmental Theory	2									2	2			2	2					1
Basic Engineering Computer Programming	2									4		4								2
Synthesis of Applied Mathematics	2									4										
Technical English	1									4										
Creation of Architectural Space	2					4														
Lifestyle and the city	2					4														
Exercise of Mathematics	2												4							
Exercise of Technical English	1												4							
Civil and Environmental Engineering and Engineer's Ethics	2														4					
Strength of Materials	2								4											
Exercise of Strength of Materials	1								4											
Structural Mechanics	2									4										
Exercise of Structural Mechanics	1									4										
Hydraulics	2									4										
Exercise of Hydraulics	1									4										
Soil Mechanics	2										4									
Exercise of Soil Mechanics	1										4									
Materials Science	2								4											
Concrete Engineering	2									4										
Fluid Mechanics	2							4												
Infrastructure Planning	2										4									
Fundamentals of Environmental Science	+										4									
Land Survey	2							4												
Exercise of Surveying	_							8												
Field Work at Construction Sites	1													4						
Experiments in Civil and Environmental Engineering	2												8							
Building Material	2									4										
Experiments on Building Materials	+											3	3							
Introduction of Building Structure	$\frac{1}{2}$								4											

Required subjects Compulsory Elective subjects

Request Subjects

		Trmo	of	II .											ne	que	SLD	ubj	ects	
		Type cour registra	se					\mathbf{C}	las	s I	Ιοι	ars	s/ V	Ve	ek					
Class Subjects	dits	d ntal ng	and eering	1s	t g	gra	de	2r	ıd ş	gra	de	3r	d g	gra	de	4t	h g	gra	de	Note
Class Subjects	Credit	Civil and Environmental Engineering	Architecture and Building Engineering	Spi	ing	Fa	all	Spi	ring	Fa	all	Spi	ring	Fa	all	Spi	ing	Fa	all	note
		C. Envi Eng	Archi Buildin	1T	2T	3Т	4T	1T	2T	ЗТ	4T	1T	2T	3Т	4T	1T	2T	3Т	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	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.

Cluster 4 Specialized Subjects Program of Civil and Environmental Engineering

Required subjects
Compulsory Elective subject
Free elective subject

															ctiv	e sı	ıbje	ct	
		se c					(Cla	ss	Ho	urs	/ W	[ee]	K					Not
Class Subjects	dits	cour	18	st g	rac	de	2	nd	gra	de	31	rd g	gra	de	4t	h g	grac	de	
Class Subjects	Credits	Type of course registration	Spr	ing	Fa	all	Spi	ring	F	all	Spi	ring	Fa	all	Spr	ing	Fa	all	
		£ ~	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	1T	2T	3T	4T	e
Reinforced Concrete Mechanics and Exercises	3										8								
Geotechnical Engineering	2										4								
Bridge and Earthquake-resistance	2												4						
Disaster Prevention Geotechnology	2												4						
Energy Method for Structural Analysis	2										4								
Maintenance Engineering of Structures	2														4				
Environmental Chemistry of Concrete	2														4				
Sanitary and environmental engineering and exercise	3										8								
Environmental Hydraulics	2										4								
Transportation System Engineering	2											4							
Coastal Engineering	2													4					
River Engineering	2													4					
Fundaments of Environmental Engineering	2													4					
Urban and Regional Engineering	2													4					
Hydrology and Water Resource Engineering	2														4				
Ecology and civil engineering	2														4				
Exercises in Algorithm	2														6				
Project Management in Civil and Environmental Engineering	2												4						
Design of Infrastructures	2												8						
Graduation Thesis	5																		

Academic Achievements in Civil and Environmental Engineering The Relationship between Evaluation Items and Evaluation Criteria

A	cad	lemic Achievements		Evaluation Criteria	
	E	valuation 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.
Abilit	(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.
	(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
ilities	(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.
Overall Abilities	(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.
Ove	(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.

				Weighter values of evaluation items in	values of evaluation	Weighted values of evaluation items in	Weightsed values of evaluation items	Weighted values of evaluation items in	Weightsed values of evaluation	Weighted values of evaluation items in	Weightsed values of evaluation							
				the subje		the subject	items	the subject	items	the subject	items	the subject	tems	the subject	items	the subject	items	
	Introductory Seminar for First-Year Students	2	Required 1semse	00	1					33	1			34	1			100
	Peace Science Courses CommunicationI	1	Required 1 semse	ster 50	1 1					50	1			50	1			100 100
Liberal Arts Education		1	Required 1semse		1									50	1			100
	Communication II	1	Required semse		1									50	1			100
	Communication II	1	Required semse		1									50	1			100
	Basic language I Basic language II	1	Required 1semse Required	ter 50	1 1									50 50	1 1			100 100
	Information and Data Science Courses	2	Required 1semse		-									100	1			100
	Area Courses	2	Elective 1 semi	ster 100														100
Liberal Arts Education	1100 olocolite bablicoto	6	Elective 1 semi	ster 100	1													100
Liberal Arts Education Liberal Arts Education	Health and Sports Courses CalculusI	2	Required 1semse Required 1semse	ter 100	1			100	1									100 100
Liberal Arts Education		2	Required semse	ter				100	1									100
	Linear AlgebraI	2	Required 1semse	ter				100	1									100
	Linear AlgebraII	2	Required semse	ter				100	1									100
Liberal Arts Education		1	Required 1semse	ter				100	1									100
Liberal Arts Education Liberal Arts Education		1 2	Required 1semse	ter				100	1									100
	General Mechanics I General Mechanics II	2	Required 180mss Required 00mss	ter				100 100	1									100 100
Liberal Arts Education		1	Required semse	ter				100	1									100
Specialized Education	Creation of Architectural Space	2	Elective semse	ter 50	1					50	1							100
	Lifestyle and the city	2	Elective semse	ter 50	1					50	1							100
	Applied Mathematics I	2	Required semse	ter				100	1									100
Specialized Education	rippired manifemation in	2	Elective semse	ter				100	1									100
Specialized Education Specialized Education	Applied Mathematics III	2	Elective semse	ter				100	1									100 100
Specialized Education		2	Elective semse					100 100	1									100
Specialized Education		2	Elective semse	ter				100	1									100
Specialized Education		2	Elective semse	ter				100	1									100
Specialized Education		2	Required 4semse	ter				33	1					33	1	34	1	100
Specialized Education	microise of recimient migner	1	Required semse	ter										100	1			100
	Civil and Environmental Engineering and Engineer's Ethics	2	Elective semse	ter		100				33	1	33	1	34	1			100
Specialized Education Specialized Education	or engin of materials	2	Required semse	ter		100	1	100	1									100
Specialized Education		1 2	Elective semse Required 4semse			100	1	100	1									100 100
	Exercise of Structural Mechanics	1	Elective 4semse			100	1	100	1									100
	Hydraulics	2	Required 4semse			100	1	100	•									100
	Exercise of Hydraulics	1	Elective 4semse	ter				100	1									100
Specialized Education		2	Required 4semse	ter		100	1											100
Specialized Education	Exercise of Soil Mechanics	1	Elective 4semse	ter				100	1									100
Specialized Education	Materials Science	2	Required semse	ter		50	1			50	1							100
Specialized Education																		

Curriculum Map

cademic Achievement	1st	grade	2no	d grade	3r	d grade	4th gra	de
Evaluation Items	Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
an and an	Introductory Seminar for First-Year Students ()	Peace Science Courses(O)	Free elective subjects (△)	Free elective subjects (Δ)			Graduation Thesis(◎)	Graduation Thesis
	Peace Science Courses(O)							
	Area Courses(O)	Free elective subjects (Δ)						
General culture								
and breadth of	Health and Sports Courses(O)	Lifestyle and the city(O) Creation of Architectural Space(O) Communication IIA(O)						
vision	Communication IA(©)	Communication IIA(©)					1	1
		Communication IIB(©)						
	Basic language I(O)							
	Basic language I (O)							
	Basic language 2 (0)		Materials Science(@)	Fundamentals of Environmental Science (@)	Experiments in Civil and Environmental Engineering(©)	Design of Infrastructures(©)	Graduation Thesis(◎)	Graduation Thesis(
						Bridge and Earthquake-resistance(O)	Maintenance Engineering of Structures (△)	Gradation Theory
41.11.				Soil Mechanics (©)		Disaster Prevention Geotechnology(O)		
Ability to			berongen of materials (6)		Geotechnical Engineering(O)		$Meteorology(\Delta)$	
structuralize					Environmental Hydraulics(O)		Ecology and civil engineering (Δ)	
problems				Hydraulics(©)		Fundaments of Environmental Engineering(Q)		
				Trydraunes(@)	Transportation Dystom Engineering (3)	Energy Method for Structural Analysis(O)	Invironmental elembery of concrete (12)	
		<u> </u>	i 		<u> </u>	Urban and Regional Engineering(O)	<u> </u>	
problems Ability to	CalculusI(©)	CalculusII(©)	Applied Methometics II(()	Synthogic of Applied Mathematics (O)	Engineering Mathematics A(O)	Design of Infrastructures(©)	Graduation Thesis(◎)	Graduation Thesis
		Linear AlgebraII(©)				Bridge and Earthquake-resistance(O)	Graduation Thesis(@)	Graduation Thesis
,						Disaster Prevention Geotechnology(O)		
Ability to		General Mechanics II(©)		Hvdraulics(©)	Reinforced Concrete Mechanics and Exercises(Q)	River Engineering(O)		
analyze	Seminar in Basic Mathematics II (©)	Seminar in Basic Mathematics II(©)		Basic Engineering Computer Programming (©)		Coastal Engineering(O)		<u>i</u>
problems		Seminar in basic Mathematics II(@)	Exercise of Surveying(©)	basic Engineering Computer Frogramming (@)		Fundaments of Environmental Engineering(O)		<u> </u>
problems			Exercise of Surveying (©) Exercise of Strength of Materials (O)			Urban and Regional Engineering(O)		
			Exercise of Strength of Materials (O)		Transportation System Engineering (O)			
					Transportation System Engineering (O)	Energy Method for Structural Analysis(O)		<u> </u>
		I :ft1 1 th:t(O)	Matariala Caianas (@)	Fundamentals of Environmental Science (©)		Civil and Environmental Engineering and Engineer's Ethics(®)	Graduation Thesis(◎)	C 1 4: M1 : /
		Creation of Architectural Space(O)		Concrete Engineering(©)		Design of Infrastructures(③)	Maintenance Engineering of Structures (△)	Graduation Thesis
Ability to				Concrete Engineering(@)		Design of Imrastructures(@)	Maintenance Engineering of Structures (Δ)	
discover	Health and Sports Courses(O)	Pea EMe rcise of Surveying(וש					
problems								ļ
Ability for								
evaluation								1
Ability for evaluation Abbility of communication								
Abbility of								1
Abbility of								
communication					 		ļ	<u> </u>
A b.: 1:4 4 -						D : (1 () ()	g l :: m : (C)	
Ability to				Basic Engineering Computer Programming ()	Experiments in Civil and Environmental Engineering ()	Design of Infrastructures(©)	Graduation Thesis(◎)	Graduation Thesis
achieve and						Field Work at Construction Sites(Δ)		<u> </u>
ability to solve	/- \	Libonal Anta Education	Rocia Specialized		İ	Exercises in Algorithm(O)	İ	<u> </u>
	(Ex)	Liberal Arts Education Subjects	Basic Specialized Subjects	Specialized Subjects	Graduation Thesis	(@)Required (O)Cor	npulsory elective (Δ)Free	elective