Fr n o r en t a Yi n t A 2 0 2 1

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

Program name (Japanese) (English)	Program of Architecture and Building Engineering

1. Academic degree to be Acquired C Spau TJETQBT0.17 Tw 9.96 -0 0 9.96 45.12 534.36 Tm[(c)-8 (r)-6.4 (eat)-1.1 (i)3.1 (r

(E) Possession of comprehensive, individual expertise and abilities in architecture (acquisition of architectural

expertise and abilities)
“Overall ability”
(F) Possession of design capabilities (cultivation of design capabilities)
(G) Possession of Japanese communication skills and international communication skills (cultivation of communication skills)
(H) The ability to undertake personal development and continued training on a permanent basis (cultivation of ability to undertake personal development and continued training)
(I) Possession of the ability to make precise and rational plans, and to implement them (cultivation of ability to make plans and to implement them)

4. Curriculum Policy (Policy for Preparing and Implementing the Curriculum)

“Artistic Practice”, and ”Structural Design” offered from the third year through the fourth year.

•Students achieve goal G (cultivation of communication skills) through mastery of liberal arts education subjects, foreign languages, and “Introductory Seminar for First-Year Students” offered in the first year, the specialized basic subject “Exercise of Technical English” offered in the second year, and the specialized subject “Seminar in Architecture I, II” offered in the third year.

•Students achieve goal H (cultivation of the ability to undertake personal development and continued training) through mastery of the specialized basic subject “Architectural Project and Drawing I, II” offered in the second year, and the specialized subjects, “Field Exercises of Building”, “Field Work in Architecture”, and “Graduation Thesis” offered from the third year through the fourth year.

•Students achieve goal I (cultivation of the ability to make plans and to implement them) through mastery of the specialized subjects “Architectural Project and Drawing III, IV, V”, and “Graduation Thesis” offered from the third year through the fourth year.

5. Program Timing and Acceptance Conditions

○ When to start the program

This program starts from the first semester of the second year, when students have completed many subjects in the liberal arts course. Cluster 4 has two programs: Architecture and Building Engineering, and Civil and Environmental Engineering. Each program has an upper limit for the acceptable number of students. Assignment to each program is decided at the end of the first year, after taking into account the requests of students and their academic results. The subject that it is recommended to take in the first year of the Program of Architecture and Building Engineering is “Creation of Architectural Space”.

○ Credit Requirements

As architecture involves human living as a whole, it is desirable to learn as wide a range of subjects as possible in the liberal arts course, regardless of whether these subjects belong to humanities or science courses.

6. Qualifications to be Acquired

Students qualify for candidacy for the examination for class 2 and class 1 architects. Type-1 High School Teaching License (Industry) By completing “Vocational Guidance”, “Comprehensive Exercises”, and the prescribed liberal arts subjects, students can obtain the Type-1 High School Teaching License (Industry) upon graduation.

7. Class Subjects and Course Content

* For class subjects, see the subject list in the attached sheet 1. (Subject list to be attached.)
* For course content, see the syllabus published every academic year.

8 Academic Achievements

At the end of each semester, evaluation criteria are applied to each academic achievement evaluation item to clearly demonstrate the attainment level. Students’ grade calculation for each subject, from admission to the university until the current semester, is given as one of the three levels: “Excellent,” “Very Good,” and “Good,” based on evaluation criteria calculated by adding the weighted values to the numerically-converted values of their academic achievements (S = 4, A = 3, B = 2, and C = 1) in each subject being evaluated.

Evaluation of academic achievement	Converted values
S (Excellent: 90 points or higher)	4
A (Superior: 80-89 points)	3
B (Good: 70-79 points)	2
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.)

○ Purpose

The graduation thesis is intended to be a major subject for the achievement of the following learning and educational goals.

”Knowledge and Abilities” (D) Possession of basic engineering knowledge in architecture

“Abilities and Skills” (E) Possession of comprehensive, individual expertise and abilities in architecture

“Overall abilities” (F) Possession of design capabilities

“Overall abilities” (G) Possession of Japanese communication skills and international communication skills

“Overall abilities” (H) Possession of the ability to undertake personal development and continued training on an ongoing basis

“Overall abilities” (I) Possession of the ability to make precise and rational plans, and to implement them

○ When and how it is assigned

When it is assigned: At the start of fourth year (only those who meet the conditions for undertaking a graduation thesis are to be assigned.)

Conditions for undertaking a graduation thesis

(1) Students must acquire 46 credits in liberal arts education.

(2) Students must acquire 38 or more credits (including all compulsory subjects) in the basic special courses of the specialized education.

(3) Students must complete “Architectural Project and Drawing III, IV”.

(4) Out of the total number of credits in basic special education and special education to be acquired before graduation (excluding the 5 credits for graduation thesis), the number of credits yet to be obtained should be 10 or fewer.

○ How students are assigned

Details of each laboratory to which students can be assigned, as well as details of research undertaken by supervisors and the assignment policy (the number of students acceptable to each laboratory and supervisor, etc.) are to be explained by the provided guidance given to students. Depending on academic results in Architectural Project and Drawing, about 10% of students who can undertake a graduation thesis will be able to submit graduation designs as their thesis.

Assignment is decided according to the requests of students who can undertake a graduation thesis. However, since the number of acceptable students is limited, adjustments may be made.

10. Responsibility System

(1) PDCA responsibility system (“Plan,” “Do,” “Check,” and “Act”)

In this program, the architectural studies group, consisting of the teachers in charge. and its subsidiary, the self-assessment evaluation committee, are organized in order to check and improve the program. Under these committees, a curriculum examination working group, a planning examination working group for faculty development (FD), and an external evaluation working group are established. For the smooth running of the educational program in each area, these committees and working groups check and evaluate the learning and educational goals, the evaluation methods used to judge levels of attainment, and the whole educational system (educational methods, educational environment, etc.) (Check), examine educational improvement methods (Act), make improvement plans to improve learning and educational goals, educational methods, and the educational environment (Plan), and implement these plans (Do). In this way, the PDCA improvement cycle is established. This program has a system under which all the teachers in charge, centering on the program manager, cooperate and move forward.

(2) Program evaluation

○ Criteria for program evaluation

In this program, evaluation is carried out according to the following evaluation criteria.

•Whether an education evaluation system exists that is able to check the program based on the evaluation results of learning and the attainment level of educational goals, whether its mechanism is disclosed, and whether the related activities are being implemented

•Whether the education evaluation system contains mechanisms that take into consideration the requirements of society or requests from students, and whether it is organized so as to check the functioning of the education check system itself

•Whether the teachers involved in this program are able to view the records of the meetings

or committees that constitute the education evaluation system

•Whether there is a system in place that improves the program continuously based on the results of education evaluations, and whether the related activities are being conducted

○How the program is evaluated (relationship to class evaluation to be described)

The architectural studies group and each committee focus on evaluation and improvement of the program. The most important things are the following two points.

•Evaluation and improvement of the program are conducted on a daily basis and in a systematic manner.

•Revision and improvement of the learning and educational goals, evaluation methods, and evaluation standard for attainment levels are conducted continuously.

•The self-assessment evaluation committee implements the following unique questionnaires as part of the program evaluation.

•A questionnaire targeted at students, about the learning environment

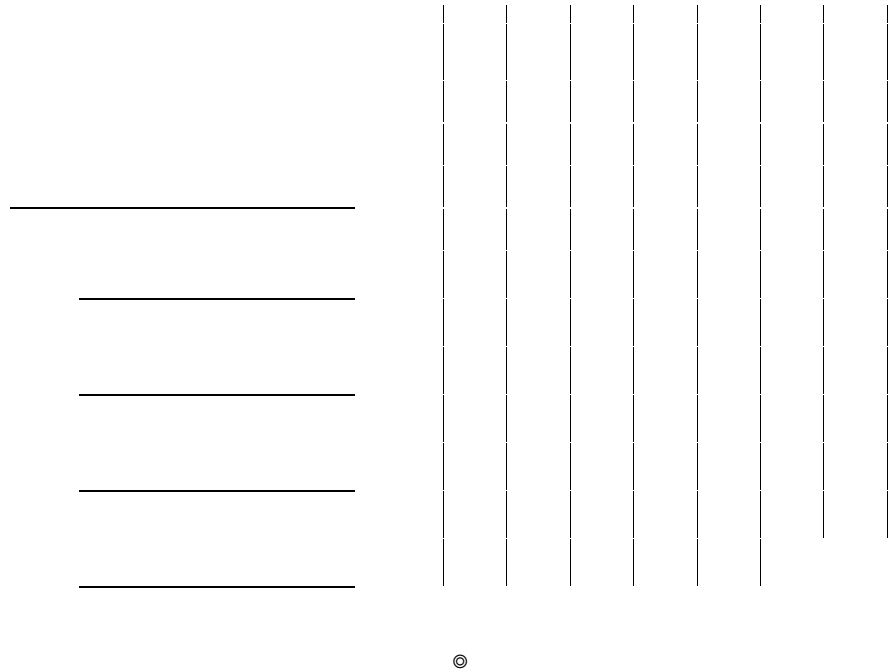
•A questionnaire targeted at teachers, about lecture implementation status, lecture improvement plans, opinions about other lectures, etc.

•A questionnaire to confirm the learning and educational goals and the validity of the evaluation of attainment levels (targeted at graduates and companies)

The architectural studies group requests the committees to check the program, present their improvement plans, and prepare FD proposals, and, after discussing the reports and proposals submitted by the committees, the group decides on the improvement strategy. As the group consists of all teachers in charge of the program, the evaluation and improvement strategy decided here is considered to have been explained to all members, and is then put into action. In particular, regarding matters associated with the curriculum, the curriculum examination working group in the self-assessment evaluation committee makes its own checks and proposes the necessary improvement plan. The validity of this program from the point of view of society is checked by the external evaluation working group, evaluated by external academics, and checked by means of a questionnaire targeted at employers and graduates. These activities are conducted on an ongoing basis.

○Thinking on feedback to students and how it is conducted

In this program, tutors keep track of students' obtained credits on a constant basis, and, through interviews with students at the end of the semester, tutors give guidance so that students can achieve the learning and educational goals. Tutors also respond to students' questions and provide consultation for students. Students' requests are obtained from tutors, which are reflected in the improvement of this program. Furthermore, based on the results of the class evaluation questionnaire targeted at students, an improvement questionnaire about class improvement measures, etc. targeted at teachers is carried out. This program improves classes in response to student requests.



Cluster 4 Specialized Basic Subjects

E, Required subjects
D H D H D! } Compulsory Elective
E•H DuH DvH DwH Dx } subjects
Eg 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	E,	E,			4														
Applied Mathematics II	2	D	E•					4												
Applied Mathematics III	2	D	E•						4											
Engineering Mathematics A	2	D	E•									4								
Probability and Statistics	2	D	E•					4												
Environmental Theory	2		E•							2	2			2	2					B 1
Basic Engineering Computer Programming	2	E,	E,								4	4								B 2
Synthesis of Applied Mathematics	2	D	E•							4										
Technical English	1		E,							4										
Creation of Architectural Space	2	D!	E•			4														
Lifestyle and the city	2	D!	E•			4														
Exercise of Mathematics	2	D											4							
Exercise of Technical English	1	E,											4							
Civil and Environmental Engineering and Engineer's Ethics	2	E,													4					
Strength of Materials	2	E,							4											
Exercise of Strength of Materials	1	D							4											
Structural Mechanics	2	E,								4										
Exercise of Structural Mechanics	1	D								4										
Hydraulics	2	E,								4										
Exercise of Hydraulics	1	D								4										
Soil Mechanics	2	E,									4									
Exercise of Soil Mechanics	1	D									4									
Materials Science	2	E,							4											
Concrete Engineering	2	E,									4									
Fluid Mechanics	2	E,						4												
Infrastructure Planning	2	E,									4									
Fundamentals of Environmental Science	2	E,									4									
Land Survey	2	E,						4												
Exercise of Surveying	2	E,						8												
Field Work at Construction Sites	1	Eg												4						
Experiments in Civil and Environmental Engineering	2	E,											8							
Building Material	2		E,							4										
Experiments on Building Materials	1		Dx									3	3							
Introduction of Building Structure	2		Du						4											

E, Required subjects

D H D H D! } Compulsory Elective

E•H DuH DvH DwH Dx } subjects

Eg 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		E,					6	6											
Architectural Project and Drawing II	2		E,							6	6									
Architectural Structural Mechanics I	4		E,					4	4											
Architectural Structural Mechanics II	4		E,							4	4									
Vibration Theory of Buildings	2		E•												4					
Reinforced concrete structure	2		Du										4							
Geotechnical and Architectural Foundation Engineering	2		E•												4					
Building Administration	2		E,										4							
Field Exercises of Building	1		Dx									1	1	1	1					
History of Japanese Architecture	2		Dw							4										
Architectural Planning H%	2		E,						4											
Town Planning	2		E•								4									
Architectural Environments I	2		Dv					4												
Architectural Environments II	2		Dv							4										
Exercises in Environmental Science	1		Dv										4							
History of contemporary architecture I	2											4								
Field Work in Architecture	1		E•											3	3					
Computer Technology in Architecture	2		E•								4									
Design Concepts of Steel Structures	2									4										
Architecture drawings	2		E•					4												
Timber structure	2		Du								4									

B 1FAs the course is offered every other year, you should take either of the courses.

B 2FCivil 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

H Program of Architecture and Building Engineering H

E, Required subjects

E•, Dy, DzF Compulsory Elective subjects

Class Subjects	Credits	Type of course registration	Class Hours/ Week																Note
			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	
Methods of Structural Analysis	2	E•											4						
Earthquake Resistant Structures	2	E•												4					
Structural Design	2	E•														6			
Building Construction	2										4								
Disaster Prevention of Buildings	2	E•													4				
Seminar in Architecture I	2											4							
Design of Steel Structures	2	E•									4								
History of contemporary architecture II	2	Dz											4						
Architectural Planning II	2	Dz								4									
Building Services I	2	E,									4								
Building Services II	2												4						
Architectural Project and Drawing III	3	E,									9	9							
Architectural Project and Drawing V	2	E•													6	6			
Architectural Project and Drawing IV	3	E,											9	9					
Seminar in Architecture II	2												4						
Seminar in Architecture III	1														1	1			
Ethics of Architecture	2	E,												4					
Graduation Thesis	5	E,																	

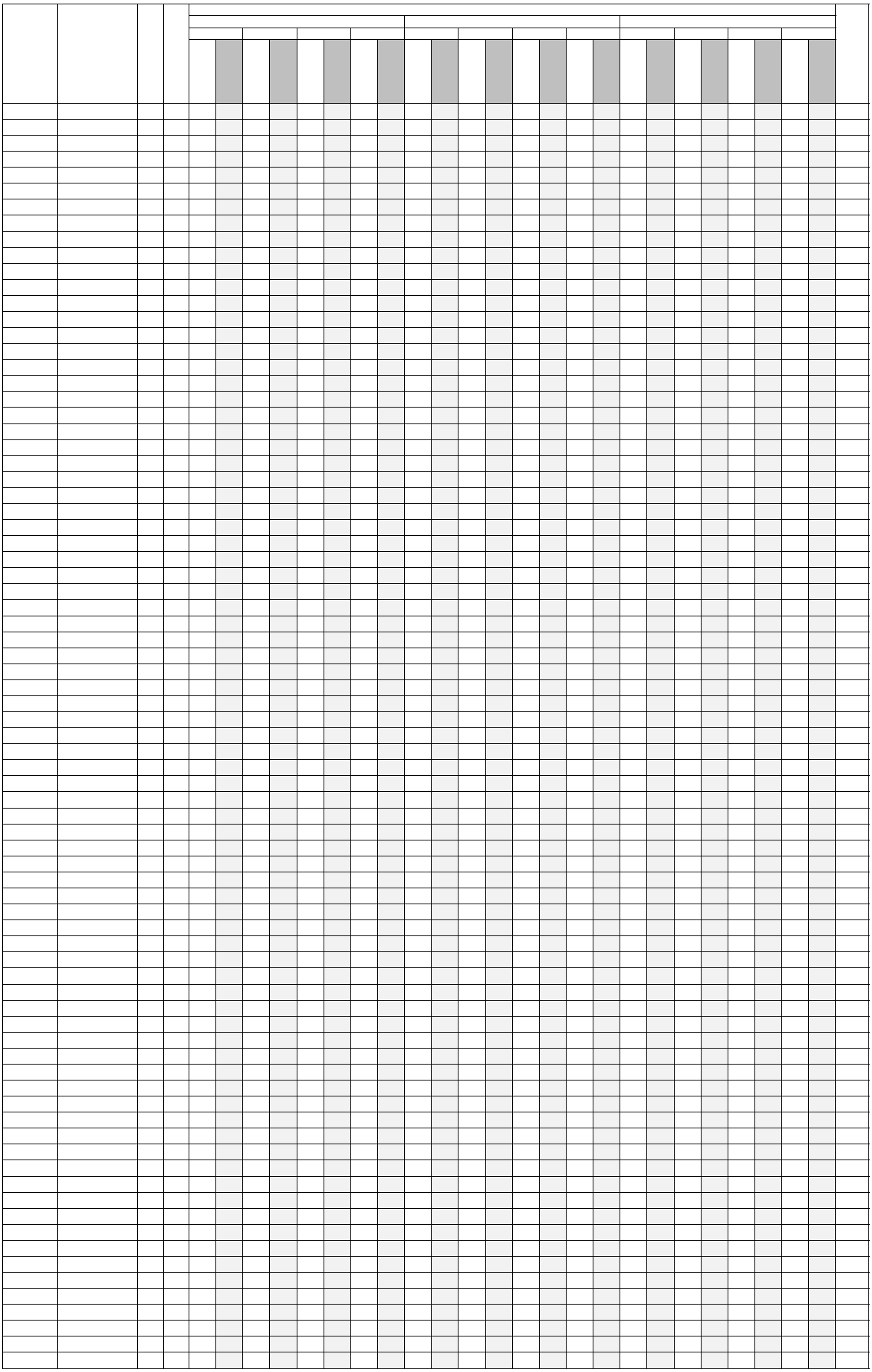
Academic Achievements in Architecture and Building Engineering

The Relationship between Evaluation Items and Evaluation Criteria

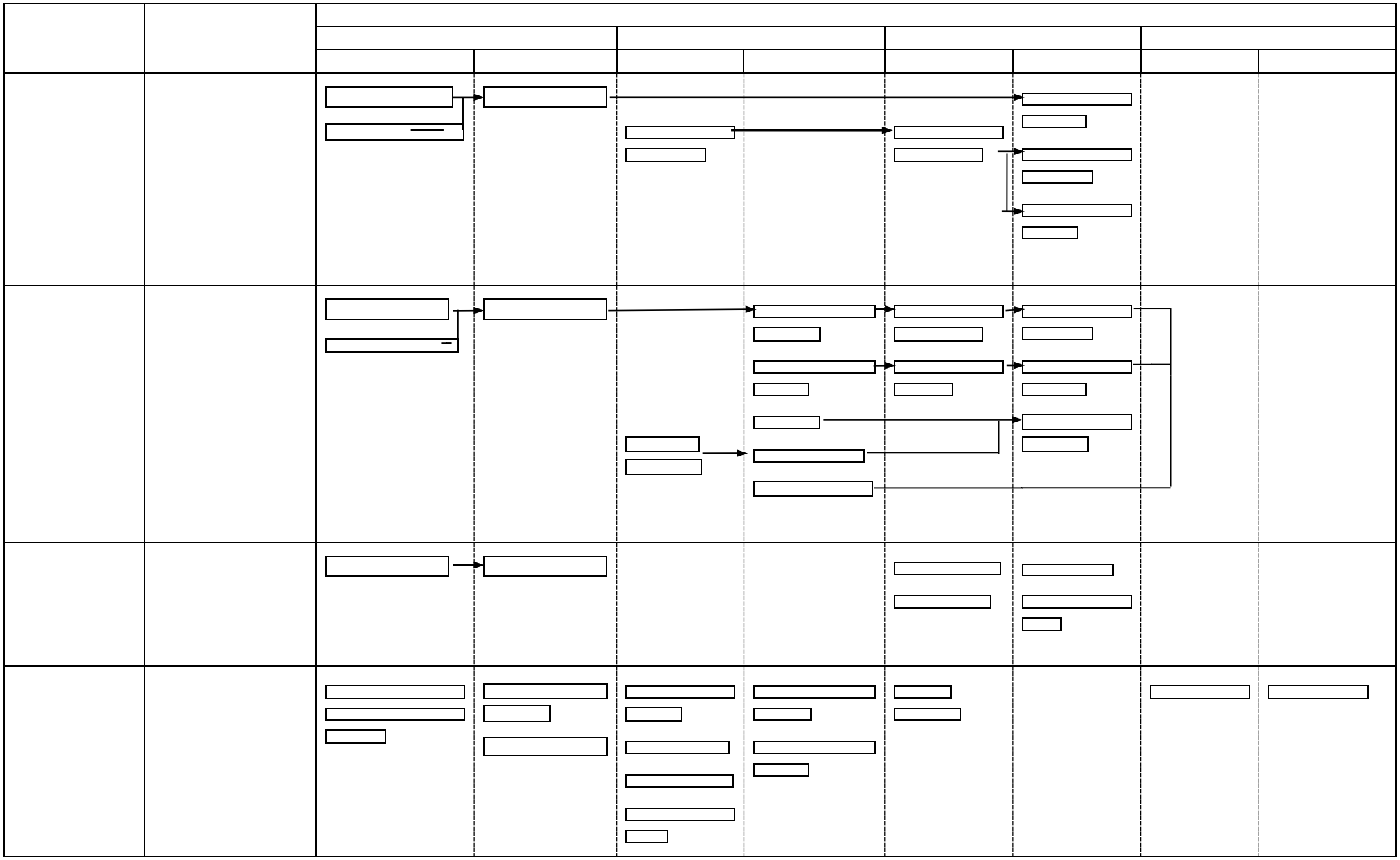
Academic Achievements			Evaluation Criteria		
Evaluation Items			Excellent	Very Good	Good
Knowledge and Understanding	(A)	Understanding on development of human resources who can contribute to a peaceful global environment. (Being able to name symbolic buildings of peace city Hiroshima and to describe their characteristics. Being able to explain the city planning and histrory designed for peace. Being able to express their opinions to create a peaceful environment)	Understand and be able to explain development of human resources who can contribute to a peaceful global environment. (Being able to name symbolic buildings of peace city Hiroshima and to describe their characteristics. Being able to explain the city planning and histrory designed for peace. Being able to express their opinions to create a peaceful environment)	Understand development of human resources who can contribute to a peaceful global environment. (Being able to name symbolic buildings of peace city Hiroshima and to describe their characteristics. Being able to explain the city planning and histrory designed for peace. Being able to express their opinions to create a peaceful environment)	Understand outline of development of human resources who can contribute to a peaceful global environment. (Being able to name symbolic buildings of peace city Hiroshima and to describe their characteristics. Being able to explain the city planning and histrory designed for peace. Being able to express their opinions to create a peaceful environment)
	(B)	Understanding on development of human recourses who can contribute to human happiness. (Being able to explain domestic and global issues, and to express their opinions. Learning liberal arts for social science to find a direction from a global point of view)	Understand and be able to explain on development of human recourses who can contribute to human happiness. (Being able to explain domestic and global issues, and to express their opinions. Learning liberal arts for social science to find a direction from a global point of view)	Understand development of human recourses who can contribute to human happiness. (Being able to explain domestic and global issues, and to express their opinions. Learning liberal arts for social science to find a direction from a global point of view)	Understand outline of development of human recourses who can contribute to human happiness. (Being able to explain domestic and global issues, and to express their opinions. Learning liberal arts for social science to find a direction from a global point of view)
	(C)	Understanding on cultivation of a sense of ethics for engineers (Being able to enumerate and explain examples for effects of actions and products of engineers on our society and to express their opinions. Learning liberal arts for humanities and social science to find their directions from a global point of view)	Understand and be able to explain cultivation of a sense of ethics for engineers (Being able to enumerate and explain examples for effects of actions and products of engineers on our society and to express their opinions. Learning liberal arts for humanities and social science to find their directions from a global point of view).	Understand cultivation of a sense of ethics for engineers (Being able to enumerate and explain examples for effects of actions and products of engineers on our society and to express their opinions. Learning liberal arts for humanities and social science to find their directions from a global point of view)	Understand outline of cultivation of a sense of ethics for engineers (Being able to enumerate and explain examples for effects of actions and products of engineers on our society and to express their opinions. Learning liberal arts for humanities and social science to find their directions from a global point of view)
	(D)	Understanding on learning basic engineering knowledge. (Being able to explain basic contents of mathematics, physics and information technology. Being able to apply the basic contents to architecture and building engineering)	Understand and be able to explain learning basic engineering knowledge. (Being able to explain basic contents of mathematics, physics and information technology. Being able to apply the basic contents to architecture and building engineering)	Understand learning basic engineering knowledge. (Being able to explain basic contents of mathematics, physics and information technology. Being able to apply the basic contents to architecture and building engineering)	Understand outline of learning basic engineering knowledge. (Being able to explain basic contents of mathematics, physics and information technology. Being able to apply the basic contents to architecture and building engineering)
Abilities and Skills	(E-1)	Understanding on cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability a) Basic knowledge and ability for architectural design and planning)	Understand and be able to explain cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability a) Basic knowledge and ability for architectural design and planning)	Understand cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability a) Basic knowledge and ability for architectural design and planning)	Understand outline of cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability a) Basic knowledge and ability for architectural design and planning)
	(E-2)	Understanding on cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability a) Basic knowledge and ability for architectural design and planning)	Understand and be able to explain cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability b) Basic knowledge and ability for architectural environments)	Understand cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability b) Basic knowledge and ability for architectural environments)	Understand outline of cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability b) Basic knowledge and ability for architectural environments)
	(E-3)	Understanding on cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability c) Basic knowledge and ability for structural engineering)	Understand and be able to explain cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability c) Basic knowledge and ability for structural engineering)	Understand cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability c) Basic knowledge and ability for structural engineering)	Understand outline of cultivation of expert knowledge and ability for architecture and building engineering. ((1) General and basic knowledge and ability c) Basic knowledge and ability for structural engineering)
	(E-4)	Understanding on cultivation of expert knowledge and ability for architecture and building engineering. ((2) Comprehensive and advanced knowledge and ability to develop basis for building engineers. Being able to summarize documents of the advanced contents on either a , b or c	Understand and be able to explain cultivation of expert knowledge and ability for architecture and building engineering. ((2) Comprehensive and advanced knowledge and ability to develop basis for building engineers. Being able to summarize documents of the advanced contents on either a , b or c	Understand cultivation of expert knowledge and ability for architecture and building engineering. ((2) Comprehensive and advanced knowledge and ability to develop basis for building engineers. Being able to summarize documents of the advanced contents on either a , b or c	Understand outline of cultivation of expert knowledge and ability for architecture and building engineering. ((2) Comprehensive and advanced knowledge and ability to develop basis for building engineers. Being able to summarize documents of the advanced contents on either a , b or c
Overall Abilities	(F)	Understanding on cultivation of design capacity. (Being able to indicate issues and to propose solutions for given subjects from various points of views. Being able to understand the social background of their researchs and to propose the research plans for their theses.)	Understand and be able to explain cultivation of design capacity. (Being able to indicate issues and to propose solutions for given subjects from various points of views. Being able to understand the social background of their researchs and to propose the research plans for their theses.)	Understand cultivation of design capacity. (Being able to indicate issues and to propose solutions for given subjects from various points of views. Being able to understand the social background of their researchs and to propose the research plans for their theses.)	Understand outline of cultivation of design capacity. (Being able to indicate issues and to propose solutions for given subjects from various points of views. Being able to understand the social background of their researchs and to propose the research plans for their theses.)
	(G)	Understanding on cultivation of communication ability. ((1) International communication ability. Being able to introduce themselves to foreigners and make communications. Being able to read and write technical papers on architecture and building engineering using dictionaries.) ((2) Communication ability in Japanese. Being able to introduce their own ideas to audience and to have questions and answers session. Being able to prepare persuasive materials. Being able to fully understand technical papers on architecture and building engineering (graduation theses for example) and to prepare manuscripts to convey the research results.)	Understand and be able to explain cultivation of communication ability. ((1) International communication ability. Being able to introduce themselves to foreigners and make communications. Being able to read and write technical papers on architecture and building engineering using dictionaries.) ((2) Communication ability in Japanese. Being able to introduce their own ideas to audience and to have questions and answers session. Being able to prepare persuasive materials. Being able to fully understand technical papers on architecture and building engineering (graduation theses for example) and to prepare manuscripts to convey the research results.)	Understand cultivation of communication ability. ((1) International communication ability. Being able to introduce themselves to foreigners and make communications. Being able to read and write technical papers on architecture and building engineering using dictionaries.) ((2) Communication ability in Japanese. Being able to introduce their own ideas to audience and to have questions and answers session. Being able to prepare persuasive materials. Being able to fully understand technical papers on architecture and building engineering (graduation theses for example) and to prepare manuscripts to convey the research results.)	Understand outline of cultivation of communication ability. ((1) International communication ability. Being able to introduce themselves to foreigners and make communications. Being able to read and write technical papers on architecture and building engineering using dictionaries.) ((2) Communication ability in Japanese. Being able to introduce their own ideas to audience and to have questions and answers session. Being able to prepare persuasive materials. Being able to fully understand technical papers on architecture and building engineering (graduation theses for example) and to prepare manuscripts to convey the research results.)
	(H)	Understanding on education for self-development and self-improvement. (Being able to collect materials related to recent problems)	Understand and be able to explain education for self-development and self-improvement. (Being able to collect materials related to recent problems)	Understand education for self-development and self-improvement. (Being able to collect materials related to recent problems)	Understand outline of education for self-development and self-improvement. (Being able to collect materials related to recent problems)
	(I)	Understanding on cultivation of ability for planning and exercising (Being able to accomplish their subjects and to summarize the results within a time limit. Experiencing collaborative works through experiments, practices and graduation theses.).	Understand and be able to explain cultivation of ability for planning and exercising (Being able to accomplish their subjects and to summarize the results within a time limit. Experiencing collaborative works through experiments, practices and graduation theses.).	Understand cultivation of ability for planning and exercising (Being able to accomplish their subjects and to summarize the results within a time limit. Experiencing collaborative works through experiments, practices and graduation theses.).	Understand outline of cultivation of ability for planning and exercising (Being able to accomplish their subjects and to summarize the results within a time limit. Experiencing collaborative works through experiments, practices and graduation theses.).

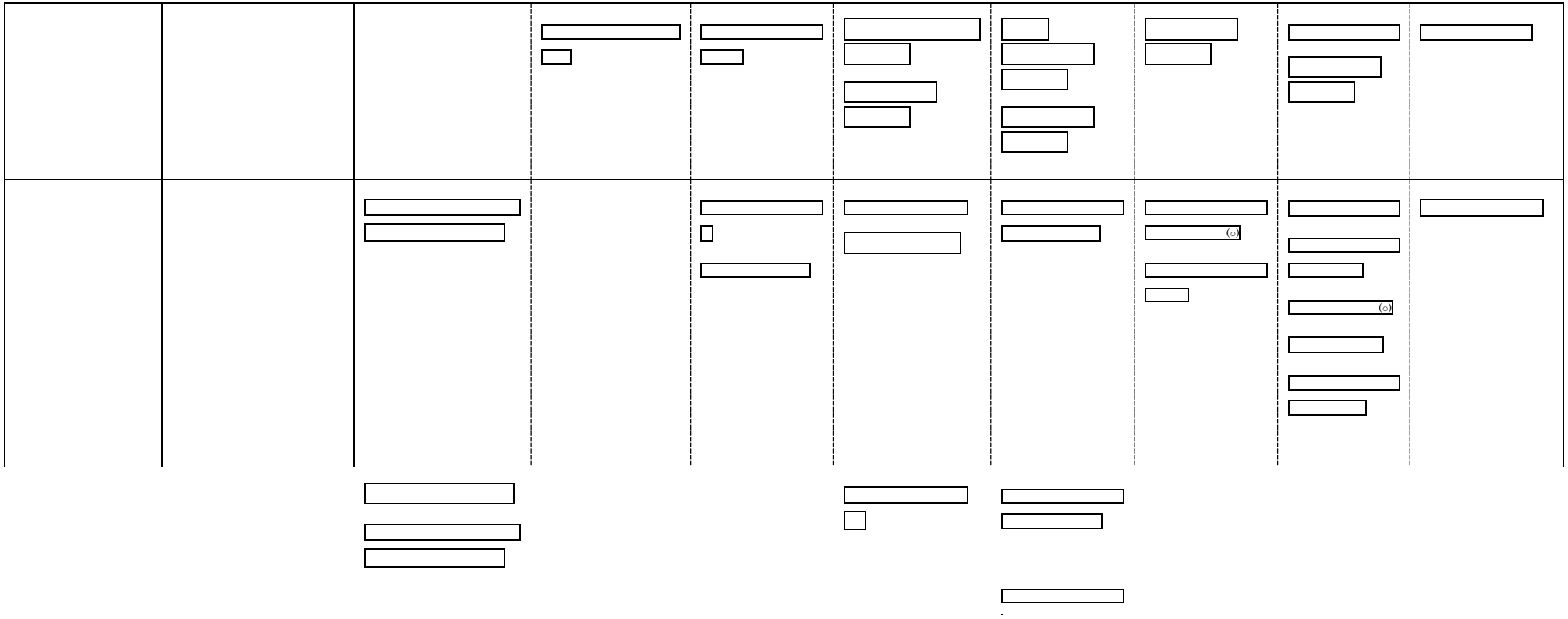
Placement of the Liberal Arts Education in the Major Program

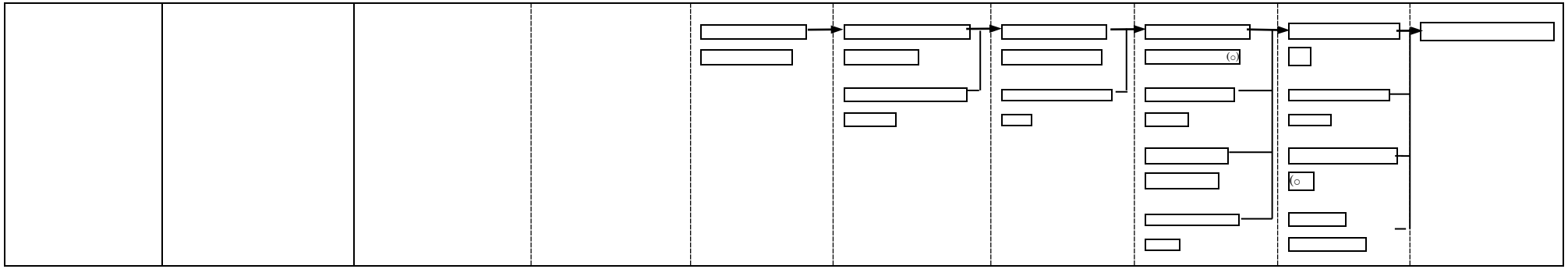
Liberal arts education in this program takes on the role of building an academic foundation on which the specialized education i n architecture will be built. It cultivates scientific thinking abilities based on respect for a voluntary and self -reliant attitude, data gathering ability, analytical ability, and critical thinking ability, and establishes an outlook that can provide insight into the essence and background of things from a broad perspective, as well as strengthening the language skills and interest in peace appropriate for those who live as an internationally minded people, and incorporating a broad range of knowledge into a body of knowledge genuinely useful for solving problems.



Sheet 4 Curriculum Map







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