Appended Form 1

Specifications for Major Program

Name of School (Program) [School of Education,
Cluster 2(Science, Technology and Society Education) Program in Technology and Information Education]

Program name (Japanese) (English)	中等教育科学（技術・情報）プログラム
	Secondary School Technology and Information Education

1. Academic Degree to be Acquired: Bachelor's Degree (Education)

2. Overview

　　　The Secondary School Technology and Information Education Program aims to develop junior high school technology teachers and high school information and technical studies teachers (together referred to as 'secondary school technology and information teachers').

　　　This program aims to foster practical educational abilities. Students are encouraged to take technology and information-related special subjects, including manufacturing technologies (wood-processing, metal-processing, machinery, electricity, and cultivation) and information technologies (hardware, software, information networks, information systems), which are required for delivering technology and information education at secondary schools, and which also provide the basic and fundamental knowledge, abilities, skills, and attitudes in relation to such education. Eventually, graduates of this program will go on to deliver technology and information lessons, attract pupils' attention and interest, and organize a new developmental study based on the pupils' stages of development and learning. This program also pays careful attention to fostering basic and fundamental knowledge, abilities, and skills so that the students can progress to graduate school studies related to technology and information education, and to specialized courses required in order to work as academic researchers or professional personnel in business and public organizations.

3. Diploma Policy (Policy of Awarding Degrees & Goal of the Program)

　　　The Secondary School Technology and Information Education Program develops the following professionals, junior high school technology teachers, high school information and technology teachers, engineers in businesses and public organizations, education specialists in businesses, and researchers going on to the graduate school to study the areas of specialized science related to technology and information education. Therefore, this program awards a bachelor's degree (education) to students who, in addition to obtaining the standard number of credits set forth in the education curriculum, have acquired the following abilities:

1) The basic and practical knowledge and skills related to technology and information.
2) The basic and practical knowledge and skills related to technology and information education.
3) The ability to find and realize problems in technology, information, and related subjects from a global perspective, and to generalize from knowledge and skills in order to think, judge and express them for finding solutions.

　　　The abilities listed in (1) and (2) are evaluated based on the academic evaluation of every subject according the syllabus and the degree of attainment of the goal set by each education program. The abilities listed in (3) are evaluated based on the contents of the manufactured and produced items and the presentation of the graduation thesis, as well as on the student's attitude towards learning.

4. Curriculum Policy (Policy for Curriculum Organization and Implementation)

　　　The Secondary School Technology and Information Education Program systematically organizes and implements a curriculum based on the following policies in order to realize the goal set forth in the program.

　　　In the first year, students cultivate the general knowledge and skills which will form the foundation of their university education. They also study "Introduction to Information Literacy I and Ⅱ" as basic special subjects in order to learn the basics of technology and information education, and information content studies.

　　　In the second year, students study the basic special subjects that form the foundation of technology education (pedagogy, content studies), and information education (pedagogy, content studies), followed by other special subjects. They learn the general theory of each of the areas to foster knowledge and skills related to technology, information, and related subjects.

In the third year, students study special subjects to further develop what they have learned in the first two years. Through practical seminars and practice work, they develop the abilities and attitudes needed for manufacturing and production activities related to technology and information, as well as the practical knowledge and skills from related subjects.

In the fourth year, students focus on graduation studies (Graduation Thesis) while studying advanced and applied special subjects. They develop the comprehensive ability and creative attitude necessary to discover and realize problems with technology, information, and related subjects, from a global perspective, and to attempt to solve those problems through manufacturing, production, research, experiments, etc.

In the curriculum described above, teaching and learning will be implemented by utilizing active learning, experiential learning and online classes, depending on the delivery methods of each program, such as lectures, practical skill courses 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 this program are achieved.

5. Starting Timing and Conditions
Students who have selected this program starts in the 1st Year.

6. Obtainable Qualifications
Students can acquire the licenses of Class 1 Junior High School Teacher (Technology), Class 1 High School Teacher (Information) and Class 1 High School Teacher （Technical Studies) on the condition that the credits professional teaching subjects are acquired in accordance with the Education Personnel Certification Act. Furthermore, licenses such as those for curators, and school librarians can be obtained by their additionally taking the relevant program and acquiring the specified credits.

7. Subjects and Lesson Contents
  * For subjects, please refer to the subject list given in Attachment 1.
  * For lesson contents, please refer to the syllabus for each academic year.

8. Academic Results
At the end of each semester, the standard of evaluation will be explicitly given for each evaluation item in order to show the level of achievement.

The academic result evaluation for each item will be converted as follows: S=4, A=3, B=2, and C=1. These results are accumulated and classified as one of three levels: Excellent, Very Good, and Good, from the first semester of the first year to the present semester.

Result Evaluation	Conversion
S （90 points or more）	4
A （80 ~ 89 points）	3
B （70 ~ 79 points）	2
C （60 ~ 69 points）	1

Academic Results	Standard
Excellent	3.00 ~ 4.00
Very Good	2.00 ~ 2.99
Good	1.00 ~ 1.99

*Attachment 2: Relationship between evaluation item and evaluation standard.
*Attachment 3: Relationship between evaluation item and subject.
*Attachment 4: Curriculum Map

9. Study in Graduation Thesis (Purpose, Assignment, Timing, etc.)
○Purpose

Graduation Thesis represents the goal of fostering secondary school teachers (technology, information, and engineering) aimed at by this program, as well as research into technology and information, etc. Students are encouraged to take as a foundation the information, abilities, and skills required for the secondary school teachers (technology, information, and engineering) that they have already obtained, use them effectively for their practical education and research, and identify their own degree of attainment for further development.

○Overview

Students select one area of technology and information education from technology and information pedagogy or from the content studies. They study the theme they have selected further, under the guidance of their graduation thesis tutor, submitting their research topic by the designated day in October, and the graduation thesis at the end of January.

○Assignment Timing and Method

Students decide on the tutor for their graduation thesis in the first semester of the third year, while also selecting a major research area. Their wishes are taken into account in assignment, which is finalized by the group of teachers in charge of program.

System of Responsibility

(1) System of PDCA (Plan, Do, Check, Action)

This program is implemented mainly by the staff members belonging to the Technology and Information Education Program, School of Education. The program head (head of the Technology and Information Education Program) is responsible for its implementation. The group of teachers of this program will make a plan, implement that plan, evaluate it, and take action.

(2) Evaluation of the Program

*   Evaluation Perspectives for the Program

This program encompasses the evaluation perspectives of educational and social benefits. As for the educational benefits, the degree of attainment by the students will be identified after the implementation of the program, while as for the social benefits, the social effectiveness of taking the program will be evaluated.

* How to implement evaluation (Describing the relationship to class evaluation.)

In principle, the effect of this program itself will be evaluated in the academic year four years after entrance to the university, based on the perspectives above.

Firstly, the educational benefits will be evaluated based on the degree of achievement by the students who have studied in this program (the achievement of the graduation requirements and the acquisition of qualification as secondary school technology and information teachers) and the overall evaluation made by the group of teachers in charge of this program. Along with the degree of achievement of credits by students, the program checks if the degree of achievement is 75% or more by examining the level of achievement of each student, and of the students as a whole, based on the teachers' comprehensive evaluation.

Secondly, the social benefits will be evaluated through questionnaires completed by the schools and the businesses that employed the graduates.

* Position on feedback, and method of feedback to the students

Based on the evaluation results of this program, the group of teachers in charge review and improve the contents of the program and examine the effectiveness of the students' guidance and the various subjects, ensuring their findings are reflected in program management and implementation in the following years.

Table of Registration Standards for the Subjects of Liberal Education

Cluster 2: Program in Technology and Information Education

Type	Subject type				Required Credits	Class subjects, etc.	Credits	Type of course registration	1st year 1	2	2nd year 3	4	3rd year 5	6	4th year 7	8
Subjects of Liberal Education	Peace Science Courses				2		2	Elective/required	o							
	Basic Courses in University Education	Introduction to University Education			2	Introduction to University Education	2	Required	o							
		Introductory Seminar for First-Year Students			2	Introductory Seminar for First-Year Students	2	Required	o							
		Advanced Seminar			(0)		1	Free elective	o							
	Common Subjects	Area Courses	Courses in Arts and Humanities/Social Sciences		4	(Note4)	1or2	Elective/required	o	o	o	o				
			Courses in Natural Sciences		4		1or2	Elective/required	o	o	o	o				
		Foreign Languages (Note2)	English	Basic English Usage	(0)	Basic English Usage I	1	Free elective	o							
						Basic English Usage II	1			o						
				Communication I (Note3)		Communication I A	1	Elective / required	o							
						Communication I B	1		o							
				Communication II (Note3)	4	Communication I A	1				o					
						Communication II B	1				o					
				At least 2 subjects from the four subjects above												
				—	(0)	Advanced English for Communication	1	Free elective	o	o						
			Non-English Foreign Languages		(0)		1	Free elective	o	o						
		Information and Data Science Courses			4	Introduction to Information and Data Sciences	2	Required	o							
						Data science for education	2	Required		o						
		Health and Sports Courses			2		1or2	Elective/required	o	o						
		Social Cooperation Courses			(0)		1or2	Free elective	o	o						
	Foundation Courses				(0)		1~3	Free elective	o	o	o	o				
	Free elective subjects				14	(Note5)	1~3	Elective/required	o	o	o	o				
	Total				38											

Note 1: o marks the standard semester for the subjects the students will study. Students can study in the following semester if they cannot obtain the credits in this semester. The timetable for a subject may change year by year. Please check the timetable for Liberal Arts subjects issued every year.

Note 2: Field Research in an English-speaking country through the short-term overseas education, etc. or the study of Online English Seminar I / II ／ III through self-initiated learning can be included in the English credits required for graduation. In addition, there is a credit recognition system for foreign language proficiency tests and language training. Please refer to the sections on English and Liberal Arts Education in the Student Handbook and the "Handling of Credit Recognition for Foreign Language Proficiency Tests, etc."

Note 3: Due to the requirements of organizing the timetable, Communication I A and Communication I B are designated for the 1st semester, while Communication II A and Communication II B are designated for the 2nd semester.

Extra credits obtained by taking English-conducted classes in Area Courses and Social Cooperation Courses can be calculated on the column of "English".

Note 4: In order to acquire the license of education personnel, students need to take two credits in "Japanese Constitutional Law."

Note 5: This includes Advanced Seminar, Area courses, Foreign Languages, Information and Data Science Courses, Health and Sports Sciences, Social Cooperation Courses, and Foundation Courses.

Registration standards for Schools

Cluster 2: Science, Technology and Society Education
○ **Program in Technology and Information Education**

Subject type, etc.				No. of credits required for graduation	
Liberal Arts Education	Peace Science Courses			2	38
	Basic Courses in University Education	Introduction to University Education		2	
		Introductory Seminar for First-Year Students		2	
		Advanced Seminar		(0)	
	Common Subjects	Area Courses	Courses in Arts and Humanities/Social Sciences	4	
			Courses in Natural Sciences	4	
		Foreign Languages	English	4	
			Non-English Foreign Languages	(0)	
		Information and Data Science Courses		4	
		Health and Sports Courses		2	
		Social Cooperation Courses		(0)	
	Foundation Courses			(0)	
	Free Elective subjects			14	
Specialized Education	Basic Specialized subjects			38	90
	Specialized subjects			16	
	Specialized Elective subjects			30	
	Free Elective subjects				
	Graduation Research			6	
Total				128	

Registration standards for Specialized Education Subjects
  Cluster 2: Program in Technology and Information Education

Class Subject		No. of credits required for graduation		School(s)
Basic Specialized subjects	Introduction to Technology Education I	2	38	Program in Technology and Information Education
	Introduction Computer Education I	2		
	Introduction to Woodworking	2		
	Introduction to Practical Learn of Material	2		
	Introduction Machine Application	2		
	Introduction to Electrical and Electronic Applications I	2		
	Introduction to Information Applications I	2		
	Introduction to Information Applications II	2		
	Practicum in Mechatronics	2		
	Basic Specialized Elective subjects	20		
Specialized subjects		16		
Specialized Elective subjects		30		School of Education, etc.
Free Elective subjects				
Graduation Research		6		Program in Technology and Information Education

＜Matters to note when taking subjects＞
1. The number of credits in Free Elective Subjects acquired in minor courses and specific programs will be up to 30 credits.

2. In order to study the Practical Seminar for the Teaching Profession (Junior and High School) (8ᵗʰ Semester), in principle, students must obtain the credits in Practical Study at the Junior and High School I or II at the end of the 7ᵗʰ semester. If, however, they cannot obtain the credits in Practical Study by the semester in which they take the Practical Seminar for the Teaching Profession, their registration will be accepted on the condition of their obtaining them during the same semester.

Cluster 2: Program in Technology and Information Education

Subjects with a circle in the "No. of credits to obtain" column are required subjects.
The semester marked with ○ is the standard semester for taking the related subject

Type	Class Subject	Credits	1	2	3	4	5	6	7	8	Remarks
Basic Specialized subjects	Introduction to Technology Education I	②			○						
	Introduction to Computer Education I	②			○						
	Introduction to Woodworking	②		○							
	Introduction to Practical Learn of Material	②		○							
	Introduction to Machine Application	②			○						
	Introduction to Electrical and Electronic Applications I	②			○						
	Introduction to Information Applications I	②	○								
	Introduction to Information Applications II	②	○								
	Practicum in Mechatronics	②					○				
	Basic Practicum in Mechatronics	2				○					
	Introduction to Hardware	2				○					
	Practice in Teaching Materials for Woodworking I	1			○						
	Material Working I	1			○						
	Seminar on Teaching Materials for Mechatronic Applications	1	○								
	Introduction to Electrical and Electronic Applications II	2					○				
	Seminar on Teaching Materials for Hardware	1		○							
	Introduction to Technology Education II	2				○					
	Introduction to Computer Education II	2					○				
	Introduction to Information Systems	2			○						
	Introduction to Network Systems	2				○					
	Multimedia Applications	2						○			

Category	Subject	Credits	C1	C2	C3	C4	C5	C6	C7	C8	Notes
	Introduction to Programming	2				○					
	Data Utilization and Data Science for Solving Problems in Educational Scenes	2				○					
	Introduction to Information Applications III	2		○							
	Planning in Technology Education	2					○				
	Methodology and Evaluation in Technology Education	2				○					
Specialized subjects	Methodology of Technology Education I	2				○					
	Methodology of Technology Education II	2					○				
	Planning for Information Technology Education	2						○			
	Vocational Instruction	2							○		
	Introduction to Wood Machining	2					○				
	Practice in Teaching Materials for Woodworking II	1				○					
	Practice in Teaching Materials for Woodworking III	1						○			
	Basic Technical Drawing	1			○						
	Introduction to Metal Machining	2						○			
	Practice in Teaching Materials of Metal Utilization II	1					○				
	Technical Drawing in Mechatronics	1				○					
	Energy Applications	2				○					
	Mathematics Mechanics for Industrial Education	2		○							
	Introduction to Cultivation	2					○				
	Practice in Cultivation	1						○			
	Information Morals and Securities	2			○						
	Introduction to Algorithm Theory	2			○						
	Control Systems Engineering I	2			○						School of Engineering
	Control Systems Engineering II	2				○					School of Engineering
	Digital Control	2					○				
	Modeling and Simulation	2						○			
	Database	2				○					School of Informatics and Data Science
	Information and Occupation	2					○				
	Research Methods in Hardware	2							○		
	Research Methods in Networking	2							○		
	Research Methods in Multimedia	2							○		
	Research Methods in Technology Education	2						○			

Type	Class Subject	Credits	1	2	3	4	5	6	7	8	Remarks
Specialized Elective subjects	Guidance on the Teaching Profession	2			○						
	Principles of Education	2			○						
	Developmental Psychology of Children and Adolescents	2					○				
	Education and Society and Systems	2				○					
	General Curriculum Theory	2					○				
	Methodology on Moral Education	2					○				
	Teaching Special Activities	2				○					
	Educational Methods/ Teaching Skills and Information Literacy Education	2				○					
	Psychology of Educational and Vocational Guidance	2				○					
	Educational Counseling	2						○			
	Methodology on Period for Integrated Studies	1						○			
	Special Needs Education	1					○				
	Introduction of Teaching Practice for Lower and Upper Secondary Schools	2	○								
	Teaching Practice Focusing on Classroom Observation at Lower and Upper Secondary Schools	1					○				
	Practice in Teaching B	1					○				
	Teaching Practice at Junior and Senior High School I	4						○			
	Teaching Practice at Junior and Senior High School II	2							○		
	Practical Seminar for the Teaching Profession	2								○	
	Introduction to Care Practice	1			○						
Free Elective subjects	Includes special subjects of this course and other courses, and special education subjects held in other schools (including minor and special programs).										
Graduation Research	Graduation Thesis	⑥									