

For entrants in AY 2021

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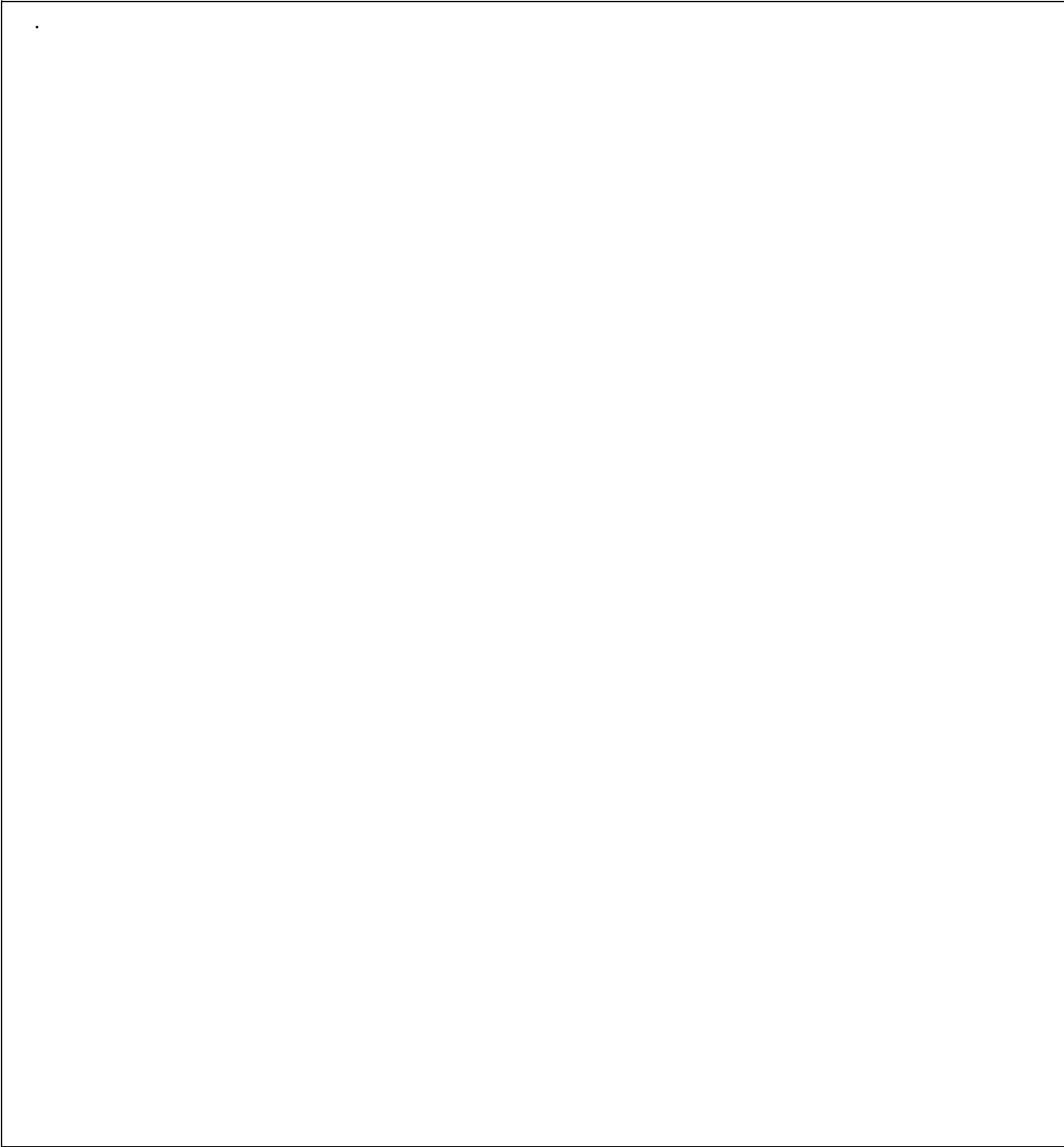
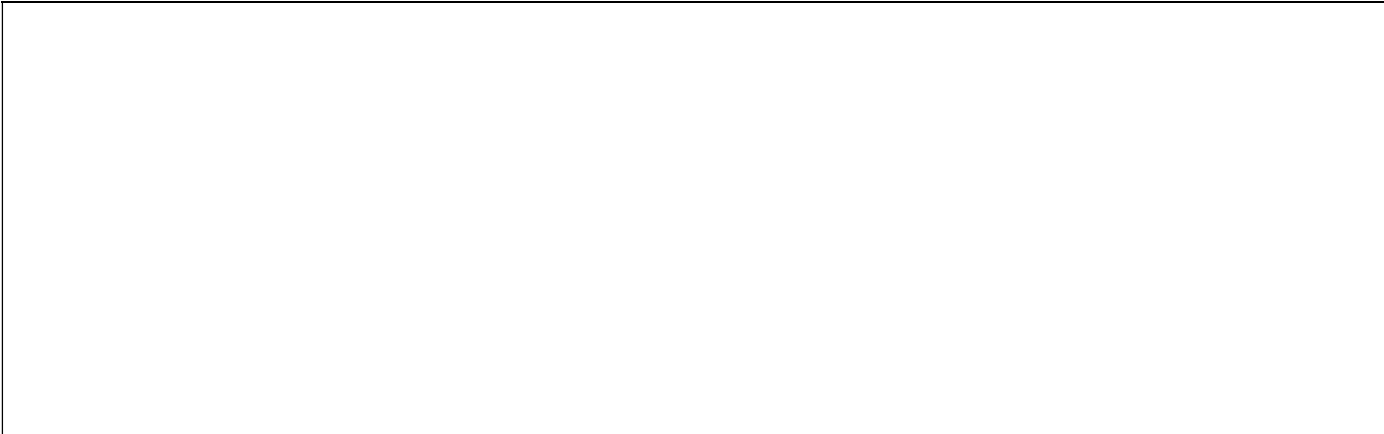
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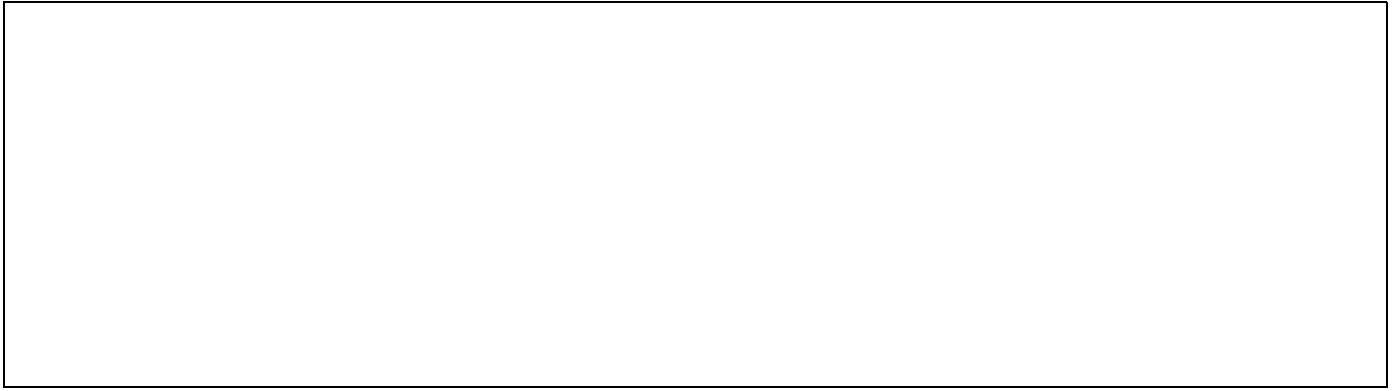
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	Science	2	
From	Sports Courses"	1 or 2	Elective/req
From	eration Courses"	1 or 2	Free elect
Calcu		2	
Calcu		2	
Linea		2	
Linea		2	
Exper	and Laboratory Work in Physics	1	
Exper	and Laboratory Work in Physics	1	
(O) From	Courses"	1 or 2	Free elect
Liberal Arts Education Subjects)	36		

and semester represents that in which student must take the subject "Japanese Constitution" and 4 credits in "Natural Science Subjects". Students who want to acquire an educational personnel certificate must take the subject "Advanced English" (English, Chinese, and Korean)" in "Foreign Language Seminar A", "Foreign Languages: Intensive Studies" and "Field Research in the English-speaking world" or "Field Research in the English-speaking world" as a short-term study abroad, and that for "Online English Seminar B", that is earned through self-study. A credit in a foreign language skill test might also be accepted as the credit for the subject "Communication Achievement in Foreign Language Skill".

of the subject "Social Cooperation Courses"

Liberal Arts Education Subjects" listed in the next semester. The 82 credits required for the "Specialized Basic Subjects" and free elect

N earned that exceeds 4 credits is accepted as

N recommended to take the subject as a required subject for Physics Program

N the subject "Special Lectures in Physics", refer to the Study Guidance for the Physics Program. Check the semester and term in which the subject is provided

N subjects might be provided in an intensive
N 8 credits are required for graduation, it is required to earn 10 or more credits, regardless of the categorization category (118 credits in total, that consist of 36 credits for Liberal Arts Education Subjects and 82 credits for Specialized Basic Subjects).

the credit for the subjects described below is accepted as the required credit for graduation: For the details of subjects related to educational personnel certification, refer to the list of required credits in "Acquisition of Educational Personnel Certification" in the Student Handbook.

Any credit that exceeds 2 credits for the subject "Basic Foreign Language I, II, and III" for "second foreign languages"

Any credit for subjects only related to educational personnel certification

Credits for "Experiments in General Physics A", "Experiments in Chemistry A", "Laboratory Work in Biology A" and "Experiments in General Geology A"

"Basic Specialized Subjects" and "Specialized Subjects" provided in other programs in other schools (except those admitted by the faculty committee of Physics Program)

make the subject. It is permitted to take the subject in the same (first or second) semester in the following academic year, because the subject might be provided in a different semester or term. Students who want to acquire an educational personnel certificate must take the subject "Japanese Constitution" and 4 credits in "Natural Science Subjects". Students who want to acquire an educational personnel certificate must take the subject "Advanced English" (English, Chinese, and Korean)" in "Foreign Language Seminar A", "Foreign Languages: Intensive Studies" and "Field Research in the English-speaking world" or "Field Research in the English-speaking world" as a short-term study abroad, and that for "Online English Seminar B", that is earned through self-study. A credit in a foreign language skill test might also be accepted as the credit for the subject "Communication Achievement in Foreign Language Skill".

as credit for the category of "Any subject".

er
subjects", it is required to earn 12 or more credits for required subjects, as well as 54 credits for required subjects and 10 credits for elective required subjects.

category of "Any subject".

ect for Physics Program

Study Guidance for the Physics Program. Check the semester and term in which the subject is provided

in 10 or more credits, regardless of the categorization category (118 credits in total, that consist of 36 credits for Liberal Arts Education Subjects and 82 credits for Specialized Basic Subjects).

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Any credit that exceeds 2 credits for the subject "Basic Foreign Language I, II, and III" for "second foreign languages"

Any credit for subjects only related to educational personnel certification

Credits for "Experiments in General Physics A", "Experiments in Chemistry A", "Laboratory Work in Biology A" and "Experiments in General Geology A"

"Basic Specialized Subjects" and "Specialized Subjects" provided in other programs in other schools (except those admitted by the faculty committee of Physics Program)

same (first or second) semester in the following academic year, because the subject might be provided in a different semester or term.

Students who want to acquire an educational personnel certificate must take the subject "Japanese Constitution" and 4 credits in "Natural Science Subjects".

Students who want to acquire an educational personnel certificate must take the subject "Advanced English" (English, Chinese, and Korean)" in "Foreign Language Seminar A", "Foreign Languages: Intensive Studies" and "Field Research in the English-speaking world" or "Field Research in the English-speaking world" as a short-term study abroad, and that for "Online English Seminar B", that is earned through self-study.

A credit in a foreign language skill test might also be accepted as the credit for the subject "Communication Achievement in Foreign Language Skill".

For the details, refer to the description of subjects in Liberal Arts Education and the Student Handbook.

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Any credit that exceeds 2 credits for the subject "Basic Foreign Language I, II, and III" for "second foreign languages"

Any credit for subjects only related to educational personnel certification

Credits for "Experiments in General Physics A", "Experiments in Chemistry A", "Laboratory Work in Biology A" and "Experiments in General Geology A"

"Basic Specialized Subjects" and "Specialized Subjects" provided in other programs in other schools (except those admitted by the faculty committee of Physics Program)

		Spring	Fall	Spring	Fall	Spring	Fall	Spring	Fall
		1	2	3	4	5	6	7	8
Introduction to Mathematics	2								
Introduction to Information Mathematics	2								
Introduction to Chemistry A	2								
Introduction to Chemistry B	2								
Introduction to Biological Sciences A	2								
Introduction to Biological Sciences B	2								
Introduction to Earth and Planetary Sciences A	2								
Introduction to Earth and Planetary Sciences B	2								
Mechanics A	2								
Mechanics B	2								
Exercises in Mechanics	2								
Mathematics for Physics	2								
Analytical Mechanics	2								
Thermodynamics Mechanics	2								
Electromagnetism	2								
Exercises in Electromagnetism	2								
Mathematics for Physics	2								
Electromagnetism	2								
Quantum Mechanics	3								
Mathematics for Physics	2								
Quantum Mechanics	2								
Exercises in Quantum Mechanics	2								
Statistical Mechanics	2								
Statistical Mechanics	2								
Exercises in Statistical Mechanics	2								
Exercises of Physics Note 8	2								
Mathematics for Physics Note 8	2								
Introduction of Physics Note 8	2								
Exercise in Electromagnetism and Quantum Mechanics Note 8	2								
Computational Physics Note 8	2								
English on Physics	2								
Physics Internship	1								
Experimental Methods in Physics	2								
Laboratory in Physics	3								
Laboratory in Physics	3								
Physics Seminar	3								
Special Study for Graduation	4								
Special Study for Graduation	4								
Advanced Mathematics	2								
Advanced Physics	2								
Advanced Chemistry	2								
Advanced Biology	2								
Advanced Earth and Planetary Science	2								
Structural and Physical Properties of Solid	2								
Theory of Relativity Note 8	2								
Applied Electromagnetic Mechanics	2								
Molecular Physics	2								
Quantum Mechanics Note 8	2								
Solid State Physics	2								
Nuclear and Particle Physics	2								
Astrophysics	2								
Mechanics of Continuous Media Note 8)	2								
Relativistic Quantum Mechanics	2								
Solid State Physics	2								
"Special Lectures in Physics" (Note 9									

Academic achievements of Physics Program

Relationships between the evaluation items and evaluation criteria

	Excellent	Very Good	Good
Knowledge and understanding of physical mathematics, mechanics, (1) electromagnetism, thermodynamics, statistical mechanics and quantum mechanics.	To be able to sufficiently understand and consider physical mathematics, mechanics, electromagnetism, thermodynamics, statistical mechanics and quantum mechanics. Also, to be able to further consider.	To be able to sufficiently understand and consider physical mathematics, mechanics, electromagnetism, thermodynamics, statistical mechanics and quantum mechanics.	To be able to understand the basics of physical mathematics, mechanics, electromagnetism, thermodynamics, statistical mechanics and quantum mechanics.
Knowledge and understanding of specialized field of elementary particle (2) physics, cosmophysics, astrophysics, solid- state physics, condensed matter physics and radiation physics.	To be able to precisely understand technical knowledge of elementary particle physics, cosmophysics, astrophysics, solid- state physics, condensed matter physics and radiation physics. Also, to be able to evolve opinions logically.	To be able to precisely understand and examine basic technical knowledge about elementary particle physics, cosmophysics, astrophysics, solid- state physics, condensed matter physics and radiation physics.	To be able to understand and examine basic technical knowledge about elementary particle physics, cosmophysics, astrophysics, solid- state physics, condensed matter physics and radiation physics.
Acquiring science english foreign language that you can practice reading (3) comprehension, journal publication, conference presentation.	1. Being able to correctly understand the contents of papers written in English or other languages. 2. Being able to appropriately write scientific contents in English or other languages. 3. Being able to make well -grounded discussion and effective presentations in English or other languages.	1. Being able to understand the contents of papers written in English or other languages. 2. Being able to write scientific contents in English or other languages. 3. Being able to make discussion and presentations in English or other languages.	1. Being able to understand the contents of papers written in English or other languages. 2. Being able to write scientific contents in English or other languages.
The knowledge and understanding on construction and development process and (4) relations with culture and society of each academic discipline.	Being able to understand, deeply consider and explain construction and development process and relations with culture and society of each academic discipline.	Being able to understand and explain construction and development process and relations with culture and society of each academic discipline.	Being able to understand construction and development process and relations with culture and society of each academic discipline.
(1) Ability to formulate and solve physical problems.	1. Being able to assume appropriate physical principles. 2. Being able to set up models and assume quantities to solve issues. 3. Being able to release results based on clear hypotheses and similarities.	1. Being able to assume appropriate physical principles. 2. Being able to set up models to solve issues. 3. Being able to release results based on hypotheses and similarities.	To be able to formulate and solve physical problems.
(2) Mathematical ability to describe so e to se	ab le T c e ue l		

Academic achievements	Evaluation criteria		
Evaluation items	Excellent	Very Good	Good

Acquisition of understanding of the (4) principles, research methods and skills of physics.	1. Being able to understand principles of physical experiments and detailed ways and procedures to get correct data. 2. Having acquired experimental technique to develop the experiments. 3. Being able to analyze experimental data appropriately, estimate errors correctly and deepen the consideration to the results accurately.	1. Being able to correctly understand principles of physical experiments and detailed ways and procedures. 2. Having acquired experimental technique to get accurate experimental results. 3. Being able to analyze experimental data, estimate errors and deepen the consideration to the results.	1. Being able to understand principles of physical experiments and to consider detail ways and procedures to get accurate experimental data. 2. Having acquired experimental technique to develop experiments. 3. Being able to analyze experimental data appropriately, estimate errors correctly and consider the results.
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(1) Problem-solving ability a n

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Curriculum Map of Physics

	Academic achievements Evaluation items	1st grade		2nd grade		3rd grade		4th grade	
		Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester	Spring semester	Fall semester
Knowledge and Understanding	Knowledge and understanding of physical mathematics, mechanics, electromagnetism, thermodynamics, statistical mechanics and quantum mechanics.	Mechanics A	Mechanics B	Analytical Mechanics	Electromagnetism II	Quantum Mechanics II	Statistical Mechanics II		
			Introduction of Physics	Thermodynamics Mechanics	Quantum Mechanics I	Statistical Mechanics I			
				Electromagnetism I					
				English on Physics	Advanced Physics(O)	Structural and Physical Properties of Solid(O)	Molecular Physics(O)	Relativistic Quantum Mechanics()	
						Theory of Relativity(O)	Quantum Mechanics III (O)	Solid State Physics II(O)	
						Applied Electromagnetic Mechanics()	Solid State Physics I(O)		
							Nuclear and Particle Physics(O)		
							Astrophysics(O)		
	Knowledge and understanding of specialized field of elementary particle physics, cosmophysics, astrophysics, solid- state physics, condensed matter physics and radiation physics.						Mechanics of Continuous Media(O)		
		Communication IA	Communication IIA						
		Communication IB	Communication IIB						
		Basic English Usage I	Basic English Usage II						
		Foreign Languages: Basic Studies I	Foreign Languages: Basic Studies	English on Physics					
		Foreign Languages: Basic Studies	Foreign Languages: Basic Studies						
		Introductory Seminar for First- Year Students							
		Area Courses	Area Courses	Area Courses	Area Courses				
	Acquiring science english foreign language that you can practice reading comprehension, journal publication, conference presentation.	Introduction to Chemistry	Introduction to Chemistry B						
		Introduction to Biological Sciences A	Introduction to Biological SciencesB						
		Introduction to Earth and Planetary Sciences	Introduction to Earth and Planetary Sciences B						
		Introduction to Mathematics	Introduction to Information Mathematics						
Peace Science Courses									
Introduction to University Education									
Abilities and Skills	Ability to formulate and solve physical problems.	Exercises of Physics(Δ)	Exercises in Mechanics	Exercises in Electromagnetism(⊗)	Exercise in Electromagnetism and Quantum Mechanics(Δ)	Exercises in Quantum Mechanics(⊗)	Exercises in Statistical Mechanics(⊗)		
	Mathematical ability to describe physical items.	Mathematics for Physics A	Mathematics for Physics B	Mathematics for Physics C	Mathematics for Physics D				
		Calculus	Calculus						
	The ability skills to compile research and experiment results and solution to given issues into report.	Linear Algebra	Linear Algebra						
		Introductory Seminar for First- Year Students		Experimental Methods and Laboratory Work in Physics ()	Experimental Methods in Physics(⊗)	Laboratory in Physics I(⊗)	Laboratory in Physics II(⊗)	Special Study for Graduation A()	Special Study for Graduation B()
	Acquisition of understanding of the principles, research methods and skills of physics.			Experimental Methods and Laboratory Work in Physics ()	Experimental Methods in Physics(⊗)	Laboratory in Physics I(⊗)	Laboratory in Physics II(⊗)		
				Experimental Methods and Laboratory Work in Physics ()		Laboratory in Physics I(⊗)			
	Problem- solving ability ability of research	Social Cooperation Courses	Social Cooperation Courses			Laboratory in Physics I(⊗)	Laboratory in Physics II(⊗)	Special Study for Graduation ()	Special Study for Graduation B()
		Introductory Seminar for First- Year Students		Physics Internship				Special Study for Graduation ()	Special Study for Graduation B()
	Communication skills								
		Introduction to Information and Data Sciences	Intelligence and Computer		Computational Physics			Special Study for Graduation ()	Special Study for Graduation B()
	Comprehensive Abilities	The capacity of analysis and IT literacy	Computer Programming	Ground zero programming				Exercises of Physics (⊗)	
				Fundamental Date Science					
		Fitness and health promotion	Health and Sports Courses	Health and Sports Courses					
			Liberal Arts Education Subjects	Basic Specialized Subjects	Specialized Education Subjects	Graduation Thesis	Required	Elective/required	Free elective