

For entrants in AY 2023

Appended Form 1

Specifications for Major Program

Name of School (Program) [School of Science (Department of Physics)]

Program name (Japanese)	
(English)	Physics
1. Degree to be obtained: Bachelor of Science	
2. Overview	
<p>In the educational program provided by the Department of Physics, students study the specialized basic subjects and specialized subjects related to physics in the specialized education course of the major program. They are able to select specialized subjects in which they can study state of the art knowledge in areas such as space, elementary particles, materials science, and optics.</p> <p>The study of physics is a bottom-up process. In the Physics Program, subjects are arranged as a hierarchy as liberal arts education subjects, specialized basic subjects, and specialized subjects, in order to enable students to acquire knowledge, abilities, and skills related to physics. In the courses before students take specialized subjects, they are educated to acquire the basic academic skills required for science studies in general, not limited to fields of physics. In particular, for the fundamental subjects and specialized fundamental subjects, lectures are provided based on a model syllabus in which important items students are required to learn in this program are systematically organized into a step-by-step process. In the specialized courses, students are permitted to observe the research activities of faculty members, in order to gain an understanding of the details of state-of-the-art research in the area they have chosen, and to acquire knowledge, abilities, and skills related to physics. The study in specialized courses is designed to have a certain continuity with courses in the graduate school. The liberal arts subjects which are not directly related to the basics for physics are intended to achieve the aim of liberal arts education in Hiroshima University, namely to allow students to broaden their personality and vision, and to develop the ability to take various situations into consideration from broad perspective. As such, the time at which students have to take these subjects is not precisely stipulated.</p> <p>This program also provides sufficient education to meet the requirements for students who want to obtain the certification for science teacher at junior and senior high school.</p>	
3. Diploma policy (policy for awarding degrees and goal of the program)	
<p>This program aims to educate students to acquire the basic and specialized knowledge, abilities, and skills related to physics listed below, and then obtain the capabilities required for specialized education and research in the graduate school, so that they can become researchers at universities or public research institutes or engineers and experts working in companies. Based on the aim above, this program will award the degree of bachelor of science to the students who will have earned the required credits defined for the education course, in addition to the following:</p> <p>Basic knowledge, abilities, and skills related to physics;</p>	

The ability to think logically while fully applying knowledge, abilities, and skills related to physics to objective facts derived from experiments, observations, and the results of model calculations;

The qualities necessary for working in various areas such as scientific research, education, and business, with a broad perspective that is not limited to the fields of physics and ethics; and

An international consciousness, and the ability to report, discuss, and present scientific contents in English.

4. Curriculum policy (policy for organizing and implementing the curriculum)

To allow students to obtain the knowledge, abilities, and skills related to physics that represent the culmination of the learning process, this program is composed of subject groups that are organized hierarchically into those of liberal arts subjects, specialized basic subjects, and specialized subjects. Courses taken before students take specialized subjects are designed to educate students to acquire the basic academic skills required for scientific studies in general, not limited to the fields of physics. For specialized basic subjects, practical lessons are provided, corresponding to each lecture, to educate students to develop their understanding and ability in the application of physics. Their academic achievement is evaluated based on their grade scores for the subjects and their achievement level against the target set for this program. The educational courses are organized and implemented according to the following policies:

Students are able to acquire the basics of physics through the study of subjects such as mathematics in physics, mechanics, electromagnetism, quantum mechanics, and thermodynamics and statistical mechanics. Furthermore, students enhance their knowledge and understanding in their specialized area through specialized subjects provided for advanced expertise. In addition to this, students learn experiment techniques in the subject "experiments in general physics";

Students receive education in the subject "experiments in general physics" and their graduation research to obtain the ability to think logically while fully applying their knowledge, abilities, and skills related to physics to objective facts derived from experiments, observations, and the results of model calculations;

Students are able, through liberal arts subjects, seminars, and graduation research to acquire the necessary qualities for working in various areas such as scientific research, education, and business, with a broad perspective that is not limited to the fields of physics and ethics; and

Students are able, through the study of foreign languages, seminars, and graduation research to acquire an international consciousness and the ability to report, discuss, and present scientific contents in English.

5. Start time and acceptance conditions

The School of Science holds entrance examinations for each department and stipulates detailed requirements for admission to the departments in its application guidelines. This program is organized primarily for students of the Department of Physics. Students choose this program when they enter the university. Students who enter the Department of Physics are expected to have mastered the following subjects in high school:

Subject name: Mathematics, Physics

This program also accepts other students of the university. Requirements for when a student not from the Department of Physics chooses this program are stipulated separately, based on the provisions regarding transfer between schools or departments.

physics." The topic for graduation research in the laboratory made known during a focused guidance session.

3. Student allocation timing and method

1 Students are allocated to a laboratory at the beginning of the fourth academic year. To be allocated to a laboratory, students must satisfy the "Conditions for Starting Graduation Research."

2 For the "Conditions for Starting Graduation Research," refer to "Criteria for Attendance 2" in "Study Guidance for the Physics Program" in the "Students Handbook" (received when the student enters the university).

10 Responsibility

(1) Responsibility for PDCA (plan, do, check, and act) cycle

The faculty committee of the Physics Program (chief: chair of the Department of Physics) is engaged in the "plan" and "do" processes.

For the processes "check" and "act", the chair of the Department of Physics consults with the committee responsible (the education affairs committee) and carries out the required actions while taking the results of the consultation into consideration.

The faculty members who constitute the faculty committee for each major program are listed in Attachment 5.

(2) Evaluation of the program

1 Perspectives for evaluation of the program

The program is reviewed and evaluated in general for its contents and composition, based on the level of understanding and achievement of students, taking into account the standard levels of knowledge in physics.

2 Evaluation method (also describing the relationship to class evaluation)

The program is reviewed and evaluated by the faculty committee based on evaluation from the perspective both of the students and of the faculty members.

From the perspective of the students, the program is reviewed based on the results of the analysis of the "class questionnaire", as well as on the opinions and requests expressed during the "roundtable meeting with students". From the perspective of members of faculty, the program is reviewed based on the analysis of the "faculty members' evaluation of achievement in the subject" using such measures as score distribution and results of follow-up checks. The education affairs committee prepares a draft of the report on the review and evaluation, and the faculty committee discusses it.

3 Policy and method for feedback to students

Based on the evaluation of the level of understanding and achievement of students, feedback is provided regarding the methodology and contents of classes, the teachers in charge of the classes, and the composition of the program.

(1) Methodology and contents of class

Based on the results of the analysis of the "class questionnaire" and the analysis of the "faculty members' evaluation of achievement in the subject", advice is provided to the faculty members who are in charge of the classes for the purpose of reviewing or improving of the methodology and contents of the classes.

(2) Teachers in charge of the classes

Although an appropriate faculty member is assigned to each subject, consideration may be given to possibly changing the faculty member based on evaluation of the analysis of the "class questionnaire".
(3) Review of the composition of the program

Revision of the program that requires revision of the curriculum is conducted from both mid-

Table of Registration Standards for Physics Program Entrants of 2023

Refer to Study Guidance for the Physics Program for requirements for attending the course.

Students are allowed to take class subjects provided in other programs and schools, and in other universities, in addition to the class subjects listed in this table, and the

* Students who have earned the required number of credits (refer to the Student Handbook for the details) can acquire the type 1 license for junior high school teachers (science), the type 1 license for senior high school teachers (science), the certification for assistant registered surveyors, and the curator license.

Liberal Arts Education

		Advanced Seminar Note 2																	
				8		From "Area Courses" Note 3													
English (Note 4) (Note 5)	Communication	6		Communication I															
				Communication I															
	Communication	6		Communication II															
				Communication II															
Non-English Foreign Languages German, French, Spanish, Russian, Chinese, Korean and Arabic Note 5 Note 6		6		Foreign Languages: Basic Studies															
Foreign Languages: Basic Studies																			
Foreign Languages: Basic Studies																			
Foreign Languages: Basic Studies																			
		4																	
						Health and Sports Courses Note 7													
						Social Cooperation Courses Note 8													
						Linear Algebra													
						Linear Algebra													
						Experimental Methods and Laboratory Work in Physics													
						Experimental Methods and Laboratory Work in Physics													
				34															

Note 1 The indicated semester represents that in which students typically take the subject. It is permitted to take the subject in the same (first or second) semester in the following year, however, it is required to confirm the details in syllabus for that academic year, because the subject might be provided in a different semester or term

Note 2

Note 3 It is required to earn 4 credits in "Human & Social Science Subjects" and 4 credits in "Natural Science Subjects". Students who want to acquire an educational personnel certification must take the subject "Japanese Constitution" in the "Human & Social Science Subjects".
Credits earned through the subject "Advanced English for Communication", "Foreign Languages: Intensive Studies" and "Overseas Language Seminar (German, French, Spanish, Russian, Chinese, and Korean)" in "Foreign Languages" are accepted as the credits required for "Human & Social Science Subjects".

Note 4 You can transfer the credits acquired by completing courses of "Field Research in the English-speaking World" of short-term overseas language programs and self-learning "Online English Seminar I, II, III" are accepted as the credit for the subject "Communication I and II". Excessive number of credits earned in the "Area Courses" and "Social Cooperation Courses" in which the language of instruction is in English is accepted as credits for the graduation requirement for English language courses.

Note 5 Credit Approval for Foreign Language Proficiency Tests, etc.: For details, please refer to the sections relating to the English of Liberal Arts Education and "Handling of Credit Approval for Foreign Language Proficiency Tests, etc." in the Student Handbook.

Note 6 The credit for "Foreign Languages: Basic Studies", "Foreign Languages: Intensive Studies", and "Overseas Language Seminar" is accepted as credits for the category of "Any subject".
Arabic course is limited to I and II.

Note 7 Students are recommended to take the "Health and Sports Courses". The credit for "Health and Sports Courses" is accepted as credit for the category of "Any Subject".

Note 8 The credit for "Social Cooperation Courses" is accepted as credit for the category of "Any subject".

* Note for the "Specialized Education Subjects" listed in the next page and after

Note 9 To achieve the 82 credits required for the "Specialized Education Subjects", it is required to earn 12 or more credits for elective required subjects(except the elective required subjects in the "Specialized Basic Subjects") and free elective subjects, as well as 54 credits for required subjects and 16 credits for elective required subjects.

Note 10 Any credit earned that exceeds 4 credits is accepted as credit for the category of "Any subject".

Note 11 It is strongly recommended to take the subject as a requested subject for Physics Program

Note 12 For taking 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.

Note 13 Because 128 credits are required for graduation, it is required to earn 10 or more credits, regardless of the categorization, in Liberal Arts Education Subjects and Specialized Education Subjects in addition to the required credits for each subject category (118 credits in total, that consist of 36 credits for Liberal Arts Education Subjects and 82 credits for Specialized Education Subjects).

However, the credit for the subjects described below is not 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", "Foreign Languages: Intensive Studies", and "Overseas Language Seminar" 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)

		Acquiring science english foreign language			
		The ability skills to compile research and			

	Problem solving ability ability of				

The basic subjects are provided for developing the fundamentals of knowledge and understanding (understanding of the role of physics), skills and techniques (mathematical ability), and the foundation of skills and techniques (experiment planning ability). The subjects of Peace Science Courses and Basic Courses in University Education are provided for developing skills and techniques (ability in formulating and problem solving) from a diverse outlook regarding human beings and society, and for establishing a foundation of general abilities (communication ability). The common subjects (such as foreign language subjects) are provided for developing knowledge and understanding (ability in English) and establishing a foundation of general intelligence (analytical ability and skills related to information technology).

					(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	

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Laboratory in Physics

Laboratory in Physics



