

April, 2019

The Course-by-Course Education Program (hereafter called “the Program”) is provided jointly by the School of Physical Sciences and the School of High Energy Accelerator Science. It seeks to foster researchers in the field of physical sciences who are fully equipped with a high level of expertise as well as broad perspective and international competence, so as to meet the needs of society.

This program aims at strengthening the university’s curriculum in the physical sciences, and fostering researchers in physics with a broad perspective who possess general ability, expertise, and planning, development and global skills.

Students who wish it are placed according to their aptitude into one of the following four courses: Advanced Research Course, Project Research Course (available only in the School of Physical Sciences), Development Research Course (available only in the School of Physical Sciences), and Basic Course. The education provided reflects the respective goals of the course.

I Comprehensive graduate-level basic education in the 1st and 2nd years of the 5-year doctoral course

The 1st and 2nd years of the 5-year doctoral course has "Comprehensive Subjects" (e.g. Freshman Course) and "Common Specialized Basic Subjects" that offer lectures on basic physical sciences related to specialized fields specific to individual majors. "Special Study on Physical Sciences," which can be taken during the 1st and 2nd years of the 5-year doctoral course, have a laboratory rotation system that allows students to participate in actual research, for about one month in each lab. The broad perspective and strong expertise in physical sciences that students gain from this basic education prepares them for the course-specific education they choose for the 3rd through 5th years of their 5-year doctoral course.

II Course selection

From April of the 3rd year for students in the 5-year doctoral course, and from April in the 4th year for students in the 3-year doctoral course, interested students select and apply to their choice of one of the following four courses. At that time, students should also submit their Course Registration paper (Rishu-Todoke) for the subjects corresponding to their chosen course.

Once students have selected a course and been approved by the Program Committee, they will generally remain in that course from the 3rd year to course completion for those who enroll in the 5-year doctoral course from the 1st year, or from the 4th year to course completion for those transferring in their 3rd year.

Course selection remains in effect for students in the 5-year doctoral course even if enrolled beyond three years and for those transferring in their 3rd year even if enrolled beyond two years. However, the program committee will flexibly treat the changes of the course during the period of the studies.

[New Course Applications]

Students who wish to choose a course in AY2019 newly should submit "(Form 1) Application for Course Subject" to the Program Committee.

Also, "Subject Registration" for course completion should be submitted to the department office.

*For newly enrolled students in or after 2018, though basic course can not be selected / completed, course subject registration(credit acquisition)is available.

[Continuing Course Applications]

Students whose course selection was approved by AY 2017 must submit "(Form 10) Instruction Plan for the Research" to continue their course in AY2019.

Submission deadline : Tue., April 30, 2019

Place to submit : Academic Affairs Section, Academic and Students Affairs Division

*For students whose course selection was approved in AY 2018, the above forms are not needed to continue the course, as it will update automatically.

With the course application, the Course Registration paper (Rishu-Todoke) for the required subjects in the course should also be submitted to the department office.

I Advanced Research Course

In the Advanced Research Course, we aim at producing exceptional and world-class researchers in the field of respective doctoral studies.

[Course Enrollment Limit]

Several persons

[Required Subjects]

See appendix "Subject List and Curriculum"

[Course Completion Criteria]

In addition to the standard requirements for degree conferment in each department, students are required to submit one international academic research paper (paper under submission is acceptable) and make one presentation at an international conference. Students will also undertake an internship (3-to-12 months) in an overseas research lab directed by a leading researcher in the field and submit a written report of their activities and results.

With regard to program completion, the Program Committee will evaluate the results of the internship in view of the goals of the course.

In principle, the internship at an overseas research lab must be at least three months (90 days).

Internship(s) may include expenses from sources other than the Program.

In the event of unavoidable and unexpected circumstances, stays under three months (90 days) will be accommodated to the extent possible. In such a case, an explanation from the student's supervisor will be required, by submitting "(Form 4-3) Internship Certificate," to show that the results of the internship were sufficient.

Under no circumstances will approval be given for stays under 1.5 months (45 days).

[Special Notice]

The Program provides no grant.

Grants necessary for the internship should be obtained through the on-campus call for applications to the "SOKENDAI Student Dispatch Program (Category 2 Long-term Abroad)" grants, and / or affiliate departments with budget that have given their approval.

II Project Research Course (School of Physical Sciences only)

In the Project Research Course, the objective is to develop the students' competency to propose their own project and design the research plans, not just following a given research theme and schedule from their supervisors or research group leaders.

[Course Enrollment Limit]

Several persons

[Required Subjects]

See appendix "Subject List and Curriculum"

[Course Completion Criteria]

Students learn how to plan, develop and conduct projects as well as Japan's scientific and technological strategy, to develop their ability to design and accomplish research projects on their own. Students are required to submit at least one research proposal (regardless of scale) as a part of a big research project. Scale of the research should be within that the student can independently propose and design by himself/herself, and the theme should be selected from those his or her academic advisor promotes. If the research environment allows, students are encouraged to conduct the proposed research and give a presentation on the result obtained at an international conference. The requirements for international conferences and research publications will be based on the individual department's criteria for degree conferment.

[Special Notice]

The Program provides no grant.

Grants necessary to plan, propose and complete the project should be obtained through grants and/or affiliate research departments with budget that have given their approval.

III Development Research Course (School of Physical Sciences only)

In the Development Research Course, the objective is to nurture researchers who are capable of exercising leadership in the development of highly practical technologies based on unique and cutting-edge R&D projects at parent institutes.

[Course Enrollment Limit]

Several persons

[Required Subjects]

See appendix "Subject List and Curriculum"

[Course Completion Criteria]

Through joint research that includes PhD researchers working at corporations, students complete their doctoral thesis based on research that has a practical perspective as well as an academic one. Additionally, students are obligated to make two patent proposals in the technical field of the student's research topic in the doctoral course. The requirements for international conferences and research publications will be based on the individual department's criteria for degree conferment.

[Special Notice]

The Program provides no grant.

Grants necessary for corporate internship travel and accommodations (equipment costs not included) should be obtained through the on-campus call for applications to the "SOKENDAI Student Dispatch Program (Category 3 Long-term Domestic (inside Japan))," grants, and/or affiliate departments with funding that have given their approval.

IV Basic Course

In the Basic Course, the Program aims to nurture researchers who are equipped with a high degree of research ability and broad perspective so that they may contribute to society. Its objective is to produce human resources with the comprehensive capability who can meet varied needs, whether in the private sector, or at public institutions, universities or research institutes, wherever our graduates may pursue their careers after completion of the Program.

[Course Enrollment Limit]

Several persons

[Required Subjects]

See "Subject List and Curriculum"

[Course Completion Criteria]

Requirements for research publications, etc. will be based on the individual department's standard criteria for degree conferment.

[Special Notice]

The Program provides no grant.

III Credit Approval

The Advanced Research Course, Project Research Course and Development Research Course require students to apply to have their credits approved for the subjects they take in fulfillment of their course. While applications for credit approval are accepted at any time, students must apply no later than the approval period for course completion (in July or January).

o Advanced Research Course

[Required Subjects]

"Seminar on Advanced Physical Science Research (4 credits)" and "Exercise on Advanced Physical Science Research (4 credits)"

[Forms to Submit]

"(Form 4-1) Travel Report" and, if the total number of internship days is less than 90, an "Internship Explanation" written by the student's supervisor

When requesting credit approval following an internship, students should select "1. I am applying for the credit accreditation as I have completed the internships." when submitting their Travel Report. If the designated number of days has been satisfied by the internship, the supervisor will submit a report and the department will approve the credits. If the designated number of days has not been satisfied by the internship, the Program Committee will verify that the internship produced sufficient enough results to confer credits based on the "Internship Explanation" received from the student's supervisor. The Program Committee will also verify all of the student's travel reports using "Form 4-1 Travel Report" and determine whether the requirements for credit approval have been satisfied. If so,

the Program Committee will then approve the credits.

○ **Project Research Course**

[Required Subjects]

"Special Program of Big Project Research (2 credits)" and "Exercise on Project Research (4 credits)"

[Forms to Submit]

"Project Plan" or "Report"

[Classroom-based Lecture Subjects]

Like ordinary subjects, the subject's main instructor will report grades and approve credits.

[Other than Classroom-based Lecture Subjects]

Once the "Project Plan" or "Report" has been verified by the student's supervisor and submitted, the Program Committee will verify it and approve the credits.

○ **Development Research Course**

[Required Subjects]

"Seminar on Research and Development (2 credits)" and "Exercise of Research and Development (4 credits)"

[Forms to Submit]

Copy of patent proposals, etc. and a patent statement confirming that the department has received the patent applications. Patent receipts received if patent applications were submitted, and documents related to the patent proposal, such as the Unexamined Patent Application Publication.

[Classroom-based Lecture Subjects]

Like ordinary subjects, the subject's main instructor will report grades and approve credits.

[Other than Classroom-based Lecture Subjects]

Once verified by the student's supervisor and submitted, copies of the patent proposal forms designated by the student's department are submitted to the Program Committee together with a patent statement confirming that the student's department has received any patent applications. The Program Committee approves the credits after verifying any patent receipts for the patent applications and other documents related to the patent proposal, such as the Unexamined Patent Application Publication.

V Approval of Course Completion

- 1) Students expecting to complete their course should submit a "(Form 8-1) Course Completion Report" to their department office by the designated deadline immediately prior to their dissertation review period (in March or September).
Students in the Advanced Research Course, Project Research Course or Development Research Course should also submit "(Form 8-2 / 8-3 / 8-4) Course Completion Report" and the designated supporting materials required for course completion.
- 2) Course completion approvals will be reviewed and decided at the Program Committee meetings in March and September.
- 3) Students for whom course completion has been approved receive their Certificate of Course Completion.

Contact Information

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