

Course Number	06011
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2006 「The International Priority Graduate Programs (PGP)」

～Advanced Graduate Courses for International Students～

【1. Profile of the University】

①University Department	The University of Tokyo, Graduate School of Engineering		
②President	KOMIYAMA Hiroshi		
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④Contact	Division	Department of Quantum Engineering and Systems Science	
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⑤Web-Address	http://www.q.t.u-tokyo.ac.jp/English/inter/		
⑥Enrollment (only GraduateSchool)	1988 (include MEXT's Sholorship Students: 795)		

【2. Outline of the Course】

①Course	Special Graduate Program in Engineering for Systems Innovation
②Degree	Master (2 years) and Doctor (3 years)
③Graduate Course, Department	Graduate School of Engineering, Department of Quantum Engineering and Systems Science
	(Address) 7-3-1 Hongo, Bunkyo-ku, Tokyo
④Collaboration (Universities, Graduate courses, Departments)	Graduate School of Engineering Department of Precision Engineering, Department of Environmental and Ocean Engineering, Department of Geosystem Engineering, and Department of Nuclear Engineering and Management
⑤Quota	15 (Master: 3, Doctor: 12)(include MEXT's Schlorship Students: 10 (Master: 2, Doctor: 8))(include Japanese: 0)
⑥Faculties	119 (Full-time(only for this course):76 Full-time(at the department offering this course): 22 Parttime: 21)
⑦Representative of the Course	Job Title Dean, Graduate School of Engineering
	Name MATSUMOTO Youichirou

【3. Contents of the Course】

1. Goal and feature

This program is the successor of the Special Graduate Program in Engineering for Systems Innovation, which was born in 2004 by modifying the Special Graduate Nuclear Engineering Program started in 1989 due to high demands for skilled engineers in world nuclear industry.

In order to resolve various global problems that humans are now facing in the 21st century, talents who have an ability to comprehend problems in a holistic viewpoint, to integrate scientific knowledge of separate academic fields, and to assess targets from a panoramic view are highly required. It is desired particularly in the international society that such talents will lead technology development and policy making. This program is therefore aims at educating international talents who have an ability to create advanced systems by understanding the locus of problems as a system.

2. Education system and curriculum

Five departments that run this program, Department of Quantum Engineering and Systems Science, Department of Precision Engineering, Department of Environmental and Ocean Engineering, Department of Geosystem Engineering, and Department of Nuclear Engineering and Management, will educate students with comprehensive curriculum that aims at providing not only advanced knowledge in each academic field but also a basic idea of systems innovation for creating advanced systems from a holistic viewpoint. The following table shows the role assignment between the five departments.

Subject Department	System design	Environment and energy systems	Production systems	Biological systems	Social innovation
Quantum Eng. & Systems Sci.	◎	○	○	◎	○
Precision Engineering	○	○	◎	◎	○
Environmental & Ocean Eng.	○	◎	◎	○	◎
Geosystem Engineering	○	◎	○	○	◎
Nuclear Eng. & Management	○	◎	○	○	○

In addition to traditional lectures in a classroom, advanced methods of education are introduced. Core Discipline Development (CDD) is for establishing an academic basis of each student that can be the backbone for his/her technical carrier. System Design Project (SDP) is for acquiring technical skills for problem solving, research skills, and communication skills by practice. International as well as Japanese students are encouraged to study outside the campus by internship programs, which are useful to get practical experience of applying the knowledge studied inside the campus to real world problems.

Each student belongs to some research group and can receive careful guidance from his/her supervisor together with Japanese students for thesis studies to join top-level researches, get outcomes, and finish thesis.

3. Education provided in English

The language used in education is English. The previous special graduate program succeeded in attracting many good students by such curriculum that it is possible to graduate by taking just subjects provided in English, and this style is continued and improved in the new program.

It can be a good experience also for Japanese student to attend lectures in English and to discuss with international students. CDD and SDP are provided in English for international students, because the both of them are private lessons. Instructions for thesis study within a research group are given in English.

4. Call for application and admission

Call for application is sent to universities with exchange agreement, past exchange records, past applicants, and leading universities in Asia. In addition, the network of present students and graduates is used to cultivate applicants. The list of universities for sending call for application is continuously extended. Private connection of each faculty member is also useful to find out good applicants, and various occasions are used such as international conference, cooperative research with a foreign research group, or visit to a foreign university.

The graduate school of engineering has an agreement from 2004 with Tsinghua University and Seoul National University that the both universities recommend applicants, and this scheme is working well to get good students. It is a goal of the program to admit students ranked within the top 5% of each leading university worldwide, and to keep ten times of quota.

5. Establishment of international network

It is expected that this program can provide graduates to all of three sectors: private companies, governmental institutions, and educational or academic institutions.

Many graduates of the Special Graduate Nuclear Engineering Program are now working as leaders of nuclear development in their mother countries, and the collaboration network of graduates are working well. Though nuclear power is an important international issue, environment and energy are also important areas that affect policy of each country. To solve these problems, roles of not only governments or international agencies but also private companies and markets are important. Having modified the special graduate program into the present form, it is now possible to educate talents with a wide scope of knowledge and matching the international needs of the present society.

6. Administration

For administration of the program, the administration committee is established attended by representatives of the five responsible departments, and relevant problems are discussed and decided in the committee. A check and review system is implemented to detect problems and improve the program based on external review and feedback from students. A special staff is allocated at the Department office of Quantum Engineering and Systems Science who takes care of the program under close cooperation with faculty members.

7. External review

The graduate school of engineering has implemented the external advisory board to get advice from scholars outside the university, and the first external review of special programs was carried out in 2006. The result of the review is open on the web site. Web pages will be provided also for exchange of opinions from graduates, and the opinions obtained through the alumni association will be reflected for program administration.

8. Support of students

In order to support everyday life as well as academic life of international students, various supports are provided such as (1) lesson classes of Japanese language, (2) mediation of lodging, (3) tutors, (4) various supports to get scholarship, (5) vocational guidance, (6) cultural activities.

9. Liaison with the ordinary education course

The common educational environment and the common requirements for graduation are provided both to Japanese students and students of this program without distinction. Synergetic effects are expected by collaboration with Division of Systems Innovation, which was established in 2000, and Department of Nuclear Engineering and Management, which was established in 2005.