

Course Number	06021
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2006 「The International Priority Graduate Programs (PGP)」

～Advanced Graduate Courses for International Students～

【1. Profile of the University】

①University Department	Tokyo Institute of Technology Interdisciplinary Graduate School of Science and Engineering		
②President	AIZAWA, Masuo		
③Address (Headquarters)	2-12-1 O-okayama, Meguro-ku, Tokyo 152-8550, Japan		
④Contact	Division	Head, International Student Division	
	Contact Person's Name	OKAWA, Harumi	e-mail ryugakusei@jim.titech.ac.jp
	TEL/FAX Number	+81-3-5734-3027, 7667/+81-3-5734-3677	
⑤Web-Address	http://www.titech.ac.jp/		
⑥Enrollment (only Graduate School)	667 (include MEXT's Scholarship Students: 294)		

【2. Outline of the Course】

①Course	International Program for Interdisciplinary Science and Engineering
②Degree	D.Eng., D.Sci., Ph.D (Integrated Doctoral Education Program, Std. 4 years)
③Graduate Course, Department	Interdisciplinary Graduate School of Science and Engineering
	(Address)4259 Nagatsuta, Midori-ku, Yokohama 226-8502, Japan
④Collaboration (Universities, Graduate courses, Departments)	Department of Innovative and Engineered Materials, Department of Electronic Chemistry, Department of Materials Science and Engineering, Department of Environmental Science and Technology, Department of Built Environment, Department of Energy Sciences, Department of Environmental Chemistry and Engineering, Department of Electronics and Applied Physics, Department of Mechano-Micro Engineering, Department of Computational Intelligence and Systems Science, Department of Information Processing
⑤Quota	20 (include MEXT's Scholarship Students: 10) (include Japanese : a few)
⑥Faculties	206 (Full-time(only for this course): 206 Full-time(at the department offering this course): 0 Part-time: 0)
⑦Representative of the Course	Job Title: Dean, Interdisciplinary Graduate School of Science and Engineering
	Name: Prof. MISHIMA, Yoshinao

【3. Contents of the Course】

OUTLINE OF THE PROGRAM

This graduate program is designed to produce researchers and engineers capable of solving the highly technical and complex real-world problems relating to materials, the environment, and information, through science and engineering. The independent graduate school that offers this program emphasizes interdisciplinary and creative education and research. In pace with the progress of globalization, the program accepts students from all over the world — principally from developing countries — especially mature individuals with experience in solving problems overseas. The program offers these students a flexible and carefully designed course of education that can be finely customized according to their individual academic backgrounds and research interests, as well as the opportunity for exchange with Japanese students through tuition, and for internships with international research institutes and companies in Japan. The program is geared to producing innovative technologists equipped to tackle practical problems and to build multilateral international networks among them.

CONTENTS AND FEATURES

The program consists of three courses, centered on the curriculum compiled by the departments in the fields of Materials Science, Environment & Energy, and Information Systems, which make up the Interdisciplinary Graduate School of Science and Engineering. The degree program being involved herewith is Integrated Doctoral Education Program, which is the first doctoral program of its kind in Japan originated from our Institute. Doctorate is given in the standard duration of four years, but mature students can complete it in as little as three years.

All lectures and research guidance are provided in English. While the graduate school is already providing lecture courses in more than 80 specialized subjects, for this special program we devised a new, innovative, and revised curriculum comprising the three courses mentioned above. On top of this academic work, this program emphasizes international exchange and learning that fosters interpersonal connections, as well as an understanding of Japanese society. To achieve these aims, we provide compulsory subjects unique to this program. Although Japanese language study is not compulsory, we encourage students to join the Japanese language classes held at the school for overseas students to try to deepen their understanding of Japanese culture, because we hope that they will maintain links with Japan after completing their studies. In practice, the overseas students consult with their supervisors and tutors individually, then take and earn credits for these subjects based on their customized study plan, as part of their courses.

COURSE DESCRIPTIONS

[Advanced Course of Materials Science and Engineering]

The three departments in the Materials groups of the graduate school have been implementing two cross-disciplinary 21st Century Centers of Excellence Programs. These programs are at the forefront of research not only in Japan, but worldwide, in a wide range of fields, from basic research in the chemistry of organic, inorganic, metallic, and composite materials, to the development of high-performance materials. They aim to exploit the science and engineering of the near future, in particular future-oriented electronics, to contribute to the construction of a safe, secure, and sustainable society. It is necessary to pass the results of this materials research rapidly and efficiently to the international community. Also, due to the expected

standardization and mobility of global-scale universities and graduate schools in the near future, pioneering work is vital in this field.

[Advanced Course of Environmental and Energy Science and Engineering]

Science and technology is expected to make a contribution to the common global issues that must be addressed in order to construct a sustainable society — namely environmental problems, natural disaster threats, and energy problems. Because the nature of these problems, their conditions of occurrence, and the means for solving them vary from place to place, there is a vital need for innovative technologists who can conduct probing research into specific cases to seek solutions. Positioning these highly individual phenomena into the generalized knowledge system of science is both extremely labor-intensive and time consuming. For this reason, compared with other more highly abstract fields of science, often the results of research efforts cannot be always be successfully applied. In this course, the technologists placed in this position are taken up as a major subject of study.

[Advanced Course of Information Technology and Systems Science]

The Information and Systems group (four departments, including the Department of Computational Intelligence and Systems Science) is targeted at high achievers from leading universities in developing countries, or universities with which Tokyo Tech has cooperative agreements, and covers leading-edge, innovative, practical, and original fields of research in intelligent computing and data communications. The course aims to cultivate world-leading individuals who will promote exchange between Japan and international researchers and technologists when they return home after completing their studies.

