Course Number	06018

2006「The International Priority Graduate Programs (PGP)」

～Advanced Graduate Courses for International Students～

【1. Profile of the University】

①University Department	Tokyo Institute of Technology			
②President	AIZAWA Masuo			
③Address (Headquarters)	2-12-1, O-okayama, Meguro-ku, Tokyo 152-8550 JAPAN			
④Contact	Division	Head, International Student Division		
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	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】

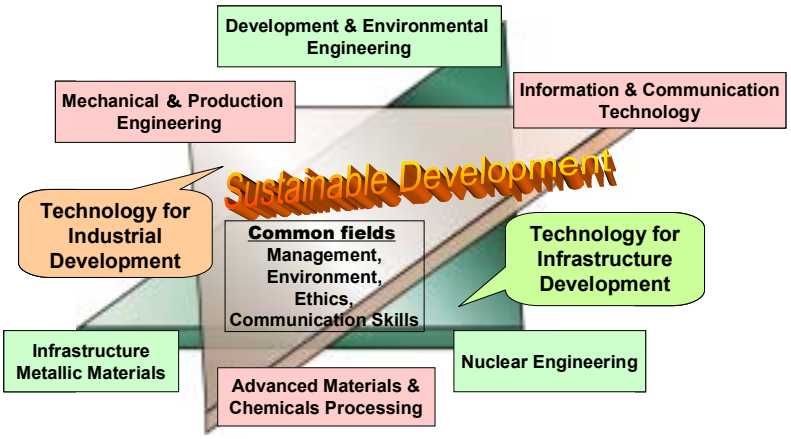
①Course	Sustainable Engineering Program
②Degree	Integrated Doctoral Education program (3 – 5 years)
③Graduate Course, Department	Graduate School of Science and Engineering, Dept. International Development
	(Address) 2-12-1, O-okayama, Meguro-ku, Tokyo 152-8552 JAPAN
④Collaboration (Universities, Graduate courses, Departments)	Graduate School of Science and Engineering, Dept. Metallurgy and Ceramics Science/ Dept. Chemistry and Materials Science/ Dept. Organic and Polymeric Materials/ Dept. Chemical Engineering/ Dept. Mechanical Sciences and Engineering/ Dept. Mechanical and Control Engineering/ Dept. Mechanical and Aerospace Engineering/ Dept. Electrical and Electronic Engineering/ Dept. Physical Electronics/ Dept. Communications and Integrated Systems/ Dept. Civil and Environmental Engineering/ Dept. Nuclear Engineering/
⑤Quota	60 (include MEXT's Scholarship Students: 21) (include Japanese : 21)
⑥Faculties	126 (Full-time(only for this course): 106 Full-time(at the department offering this course): 15 Part time: 5)
⑦Representative of the Course	Job Title: Dean of Engineering
	Name: FUJII Nobuo

【3. Contents of the Course】

①Aims and scopes

This program aims to train “highly educated, internationalized engineers” having a wide spectrum of technical knowledge from fundamentals to their applications. Degree recipients in this program are expected to participate as leaders in international projects, such as overseas deployments by Japanese companies and development projects by international organizations, with creative and innovative manners in the related fields. This program consists of six special courses as fundamental disciplines in Sustainable Engineering aiming the sustainable society and development as shown in the figure below. The student will be enrolled in a special course and educated in Integrated Doctoral Education Program, in which the students are expected to study from Master’s to Doctoral program continuously and obtain both of the Master’s degree and Doctoral degree.

Structure of Sustainable Engineering Program



②Scopes of special courses

・Special Courses of Technology for Infrastructure Development

・**Development and Environmental Engineering Course**:

Construction, maintenance and renewal of various infrastructures are of vital importance in every nation for developing all types of industry and creating secure and firm build environments. Infrastructure developments have been carried out as a national or an international project under various environments, such as natural, social, economical and human environments. Therefore the infrastructure development harmonized with the environments is crucial to sustainable development of society and industry. This course based on Civil and Environmental Engineering, and International Development Engineering aims its mission to train creative engineers and scientists. The graduates of this course are expected to play pivotal roles in various projects, e.g., infrastructure development, resource development and environment preservation projects, as a leading engineer or a project manager.

・**Nuclear Engineering Course**:

Growing attention has been again placed on nuclear energy as an ultimate measure for reduction of fossil fuel consumption and CO2 emission. Under the circumstances of global warming and the price hike of oil, gas and coal, a number of countries have been considering the implementation of nuclear power plants. Some countries have initiated reconsideration on their de-nuclear policy. The key factor of the nuclear energy development is the development of human resources. Our original course of international nuclear engineering has been established in1993. Since then, a number of students have joined us from many different countries and graduated from our course. They are actively contributing to the development of industries and technologies in their own countries. Our educational program provides with core curriculum for nuclear reactor engineering and fuel cycle technologies and also covers extended nuclear energy, such as beam, accelerator, plasma sciences, nuclear fusion, energy and environment, and social relations.

・**Infrastructure Metallic Materials Course**:

Steel making industries and other metalworking industries play important roles in advancing civilized society because they are producing all kinds of infrastructure metallic materials to be used for other industries such as construction, civil, mechanical, automobile and electronic industries. Therefore, metallurgical engineering is one of the important basic academic/engineering fields for industrialization of developing countries. This graduate course is, thus, designed for those who want to be a pillar of metalworking industries in developing countries. The course provides both fundamental and applied metallurgy and covers all subjects of metallurgy based on the following three categories: metal physics, metal chemistry, and materials metallurgy.

・Special Courses of Technology for Industrial Development

・**Mechanical and Production Engineering Course**:

Mechanical and Production Engineering is a foundation of an advanced industrial nation and a key technology for the industries such as automobile, electrical and electronic products, precision instruments and robotics. To learn and master the ability of planning, operation and management through a research project related on the art and craft. Students will play an important role in an international corporation and public organization.

・**Information and Communication Technology Course** :

Information and communication technology covers information network, wireless communication and transportation system. It is infrastructure that supports industry, economy and culture in a country. This course educates information and communication engineering and electromagnetic wave engineering as its academic core. It also covers electronic and integrated circuit engineering. As a result, the course cultivates researchers, engineers and leaders working for development projects constructing the infrastructure, and helps them to make human networks with Japanese researchers and engineers working in the same areas. In addition, the course cultivates leaders in the world who understand education, industry and society in Japan.

・**Advanced Materials and Chemicals Processing Course**:

The aim of this course is to cultivate scientists and engineers specializing in nanotechnology, advanced materials science and advanced chemical processing technology, disciplines which are at the core of sustainable development. The interactive and intensive curriculum, aimed at putting knowledge to work on an applicable level, is prepared by top-level departments, world-acclaimed in the field of ceramics science, organic and polymeric materials and chemical engineering. Through the course work, students are expected to become highly educated scientists and engineers possessing advanced specialized knowledge and state-of-the-art professional skills.

③ Curricula

All lectures offered in this program are given in English. The students can learn the following subjects: 1) specialized subjects in the enrolled course, 2) subjects in the other courses relevant to the specialty, 3) common courses in engineering, 4) Institute wide subjects, such as Japanese language and Japanese cultures. Beside the above subjects, the students are required to take part in Off-Campus Project, that is, internship program primarily in domestic companies.

④Application and WEB

Application guides, including eligibility, procedures, required documents, details of courses offered and information of departments in this program, and contract persons in the departments are available in <http://www.eng.titech.ac.jp/ingp> .