

Research and Education at Shizuoka University, Japan: Searching for Sustainability of Cooperation

Noriko Matsuda,

International Center, Shizuoka University, Japan

ABSTRACT

“Internationalization” of the higher education, universities or other institutions, has been one of the important issues all over the world: In these circumstances, Shizuoka University, which marked its 63rd anniversary of the foundation in 2012, promote the several programs for internationalization in Shizuoka, which is famous as the “Prefecture of Mt. Fuji” blessed with a rich natural environment, as well as a “Manufacturing Prefecture” which has flourished as an important traffic terminal and been developing various industries. The active collaborations with partner universities as well as research institutions and industries have led Shizuoka University to creation of new education programs, such as “Double Degree Program” (DDP) which enables the student to receive education and research guidance by supervisors of Shizuoka University and home/host university to obtain two kinds of doctoral degrees conferred by both universities, as well as “National InterFacing Engineers Education Program(NIFEE)” for South East Asian students who wish to learn technology along with knowledge of Japanese language, culture, and the tradition. Today, these new programs with partner universities/countries form a basis for sustainability of cooperation and also serve as a source of the newest theoretical and applied developments for the academic progress and achievement.

Keywords: *internationalization, University, industries, double degree, Asia*

I. INTRODUCTION OF SHIZUOKA UNIVERSITY, JAPAN

“Internationalization” of the higher education, universities or other institutions, has been one of the important issues all over the world: in Japan, we can see “300,000 Foreign Students Plan”, project for promoting universities’ activity as well as exchange with Asia and the United States, etc.; in Europe, the reform of higher education toward the establishment of the “European Higher Education Area”, along which the program “Erasmus” to promote the mobility of students and academic staffs being broaden beyond Europe as “Erasmus Mundus”, etc.

In these circumstances, Shizuoka University, which marked its 63rd anniversary of the foundation in 2012, promote the several programs for internationalization through its six faculties (Humanities and Social Sciences, Education, Sciences, Agriculture, Engineering and Informatics), eight graduate schools, and two professional degree programs, so that the students from Asian countries studying at Shizuoka University are increasing.

Shizuoka Prefecture, where our campuses (Shizuoka and Hamamatsu) are situated, is famous as the “Prefecture of Mt Fuji” blessed with a rich natural environment, as well as a “Manufacturing Prefecture” which has flourished as an important traffic terminal and been developing various industries. Surrounded by these

Table 1 – International students studying at Shizuoka: high rank countries (as of May 1, 2011).

	Country	Number of students
1	China	176
2	Korea	37
3	Vietnam	28
4	Indonesia	22
5	Malaysia	18
6	Philippines	12
7	Thailand	10
8	Thailand	5

environments rich in nature and industries, our university has developed its high-quality education and creative researches: the “Creation of a Base of Nano-Vision Science” program, selected as “21st Century COE (Center of Excellence) Program” by MEXT, innovates “image engineering” by utilizing “photonic/electronic nano-domain control” and aims at the creation of a base for a new academic field of “nano-vision science”; the “Environmental Leadership Program”, selected as “International Environment Leaders Training Program” by Japan Science and Technology Agency, will foster environmental leaders who will protect the coastal and terrestrial ecosystem to build a sustainable coexisting society; the efforts of several Faculties (Informatics, Engineering, Agriculture) have also been financially supported by MEXT (“Support Program for Distinctive University

Education [Distinctive Good Practice]” and “Support Program for Contemporary Education Needs [Contemporary Good Practice]”), etc.

In this paper, we will present some recent new education programmes promoted at Shizuoka University, but before that, let us refer to some aspects on research activities at SU.

Today, SU has chosen 4 priority research fields as follows:

- Asian studies
- Ultimate image analysis
- Nanobio Science
- Green science and Technology.

Based on these priorities, the Headquarters for Promotion of “Interdisciplinary Domain Research” have been founded for crossing boundaries within science and technology: our goals are to “(1) educate and train talented researchers who will become global pioneers in new research areas, (2) share research grants efficiently, (3) raise funds from outside the university, (4) send out messages locally and internationally through websites and newsletters” (by General Manager, Professor Yoshihimi SUZUKI).

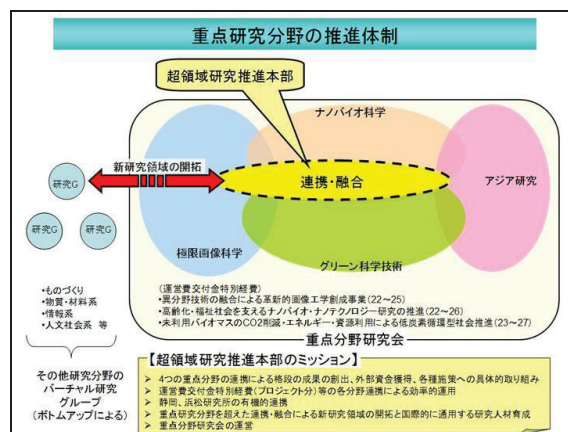


Figure 1. Promotion of Interdisciplinary Domain Research at Shizuoka University

Needless to say, these research activities forms the basis and incubator of our creative education: next, we will present two new education programs at Shizuoka University, which form a basis for sustainability of cooperation with partner universities/countries: “Double Degree program” and “NIFEE” (National InterFacing Engineers Education program).

II. DOUBLE DEGREE SPECIAL PROGRAM (DDP) AT SHIZUOKA UNIVERSITY

Double Degree Special Program (DDP) is the program which enables the student to obtain two kinds of doctoral degrees which are conferred by Shizuoka University and its partner university. DDP student enrolls in the both universities simultaneously and receive education and research guidance by supervisors in both universities. Supervisors discuss the educational and research plan closely and give academic advice to DDP student, who will stay at each university in turn according to the research and education plan.

The total enrollment period of doctoral degree course is about four years or longer depending on each circumstance.

Initially, this DDP was launched from the active research collaborations between Shizuoka University and collaborating Central-Eastern European universities, called “Inter-Academia (IA) Community”: the international conference called “Inter-Academia” is the key-stone of the IA program and this IA conference has taken place every year since 2002 till today. Though IA conferences are carried out mainly by the faculty of Shizuoka University and its partner universities, IA have welcome a wide range of participants from other research institutions and industries to promote the exchange of knowledge by providing a forum for exchanging novel research results and opinions.

This active communication led to the discussion on how to sustain the collaborative relationship through the education program and the first DDP program was launched in 2006 with Warsaw University of Technology. Our doctoral program was recognized as challenging by MEXT, which selected this as “Promotion program of the internationalization of Education at Japanese Universities (Support for strategic international cooperation, 2006-2008)”.

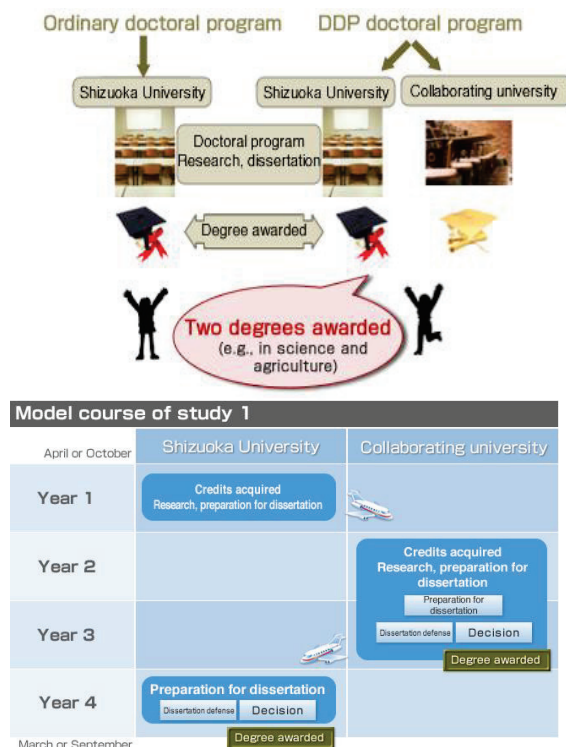


Figure 2. Double Degree Special Program

Since then, the discussions on DDP have been active inside, and beyond, the IA community: as Table 2 shows, recently Shizuoka University have signed the DDP memorandum with partner universities in Asia, and its number is increasing.

Table 2 – List of DDP partner universities

EUROPE	SINCE
Warsaw University of Technology (Poland)	2006. 1
A•I•Cuza University (Romania)	2007.10
Gomel University (Belarus)	2008. 6
Technische Universitat Braunschweig (Germany)	2010. 8
ASIA	SINCE
Kyungpook University (Korea)	2010. 3
University of Indonesia (Indonesia)	2010.10
Pusan National University (Korea)	2010.11
Institute of Plasma Physics, Chinese Academy of Sciences (China)	2010.11

Expected effects include improvement of Shizuoka University's research level for interdisciplinary areas centered on engineering and nano-biotechnology fields, transmission of research data to the rest of the world, more consistent international contacts, and improvement of the quality of research articles. The project is expected to turn out foreign doctorate holders with practical education and research experience in engineering and nano-biotechnology at Shizuoka University, which make important contributions to society and industry, and Japanese doctorate holders with overseas experience in advanced engineering and bioscience education and research, the ability to debate in English, and leadership based on a broad vision including cross-cultural experience. They will go forth to the world, the home countries of exchange students, local communities, and industry. Also, through the research and teaching at foreign universities, the internationalization of Shizuoka University's Japanese faculty members is expected to improve.

III. NIFEE” (NATIONAL INTERFACING ENGINEERS EDUCATION PROGRAM).

NIFEE (National InterFacing Engineers Education program) is a new education program which the Faculty of Engineering at Shizuoka University is promoting for foreign students from three Southeast Asian countries: Indonesia, Vietnam, and Thailand.

This program is for foreign students who wish to learn technology at Bachelor course, along with knowledge of Japanese language, culture, and the tradition. The faculty will also prepare classes in which students can learn Japanese manufacturing systems including quality control and production management, so that Students can acquire skills of Japanese engineering essentials and contribute the development of industries in their home countries.



Figure 3. NIFEE program: process for admission

Some features of the NIFEE program are as follows:

- Intensive lectures of Japanese in the 1st semester.
- Basic instruction in both Japanese and English Languages.
- Engineering instruction in Japanese Language.
- Carrier advising program in cooperation with Japanese manufactures
- Limited to students in Indonesia, Vietnam, and Thailand.
- NIFEE students are exempted from the entrance examination fee, the entrance fee, and the (full/half) tuition fee.

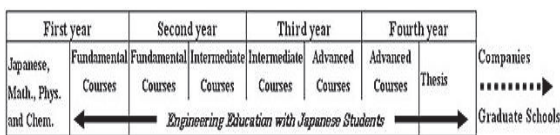


Figure 4. NIFEE program

NIFEE students will learn Japanese language by 10 lectures intensively in the first semester together with mathematics, physics and chemistry. At the end of the first semester, NIFEE students will decide their major field: we have four departments that accept NIFEE students (Mechanical Engineering, Electrical and Electronic Engineering, Material Science and Chemical Engineering, and Systems Engineering). After the first semester, NIFEE students will belong to one of them and join the

classes with Japanese students, as well as they follow lectures on Japanese cultures, Industry in Japanese society, Energy and environment and etc., which are specially prepared for this program. In the last semester, NIFEE students will engage in a project study for the Bachelor's degree.

IV. ROLE OF SHIZUOKA UNIVERSITY INTERNATIONAL CENTER: SEARCHING FOR SUSTAINABILITY OF COOPERATION

The two programs presented above have the common goal, i.e., not only to accept international students or send Japanese students, but also to sustain the cooperation with partner universities/countries through the intensive communication and develop together for international recognition. For example, sending a DDP student to some Partner university requires many discussions are required between both supervisors (at home and host universities) on Research subject and plan, before and during the program.

In order to support and promote these challenging programs, International Center was re-organized, based on its former "International Student Center", in April 2006. By providing support for implementing educational, academic and cultural exchanges of its students, faculty members and staff in a consistent manner, and by promoting international exchange programs comprehensively and effectively, the International Center aims at contributing to the internationalization of Shizuoka University in accordance with university vision.

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