SDM NEWS

System Design and Management

May 2010

Professor Toshiyuki Yasui reviewing students' presentations at the Introductory Camp get-together

Message from the Director and Dean

The Graduate School of System Design and Management (SDM) started the new academic year with 76 new students; 57 in the master's course and 19 in the doctoral course. The annual introductory camp held from April 23 to 25 was attended by almost all of the new students and faculty members. SDM's introductory camp, like the boot camps held in universities in the US and other countries, helps both new graduates and working students from various backgrounds find common ground and to gel quickly as a group.

A get-together for students, professors and SDM office staff was held on the first day. The second day began with a lecture including a discussion by Associate Professor Shirasaka on logical thinking. Then students split into groups and were assigned a system-related theme to work on for several hours before making a presentation to other groups. The students, enthusiastic about the exercise, presented some excellent concepts. Students and faculty got better acquainted at the party in the evening. At the end of the camp, Professor Naoko Nishizawa at the Fukuzawa Memorial Center for Modern Japanese Studies, Keio University, gave a lecture on Fukuzawa Study and explained the spirit of Fukuzawa and the history of Keio University. Many students felt the camp was quite productive and the time was well spent.

We are accepting more and more foreign students in SDM and are enhancing our cooperation with foreign universities. We offered the crash course "Supply Chain Management Game" by Professor Paul Schoensleben from the Swiss Federal Institute of Technology, Zurich at the beginning of April. Together with professors from MIT, Stanford University, and Delft University of Technology, we have started Active Learning Project Sequence (ALPS). Students have plenty of chances to use English, and we encourage them to actively find opportunities to improve their language skills in our English training courses and in their daily interactions with our foreign students.

Yoshiaki Ohkami
Director, SDM Research Institute
Dean, Graduate School of
System Design and Management

News

TOPIC 1 — CESUN Annual Meeting

The Council of Engineering Systems Universities (CESUN) Annual Meeting was held at the University of Illinois on April 21 and 22. Representatives from member universities in USA, Europe, Asia and Oceania attended the meeting to discuss systems engineering education. SDM Assistant Professor Nobuaki Minato, the only attendee from the Asian region, introduced SDM's international research and education activities. The most notable discussion at the meeting centered on whether diversity or uniformity has more value in Systems Engineering (SE) education. It is necessary to understand diversity to accurately grip complex and various elements, but at the same time unified approaches are indispensable to build these elements into an integrated system. SE education must have diversity to suit the variety of cultures in many countries and many companies, but SE education without uniformity can have a negative effect on a global basis. Member universities acknowledge that there is no perfect SE education, and have focused on enhancing their doctoral programs in recent years to improve the quality of SE theory education. Likewise, a top-class US university is promoting research on applying SE to healthcare to correspond with the Obama administration's healthcare reform. It is amazing that SE, which originally developed in the space and aviation fields, is being applied to healthcare.

Assistant Professor Minato
(fourth from right) and other CESUN attendees

Intensive course "Supply Chain Management"

Intensive course by Dr. Shoensleben

Dr. Paul Shoensleben

Professor Masaru Nakano

Students playing the games

SDM invited Professor Paul Schoensleben from the Swiss Federal Institute of Technology Zurich (ETH) for an intensive course "Supply Chain Management in a Nutshell" as a part of the "Supply Chain Management" course taught by Professor Nakano and Assistant Professor Minato. The intensive course consisted of three practical games ("Serious Games") with the aim of getting students to intuitively learn the importance of supply chain management from the basic concept through application techniques by participating in each game as players. First

was the Logistics Game, in which students must manufacture a mobile phone using Lego blocks. They are assigned to manage each process of manufacturing mobile phones; taking orders, assembly, quality control, and distribution, and learned how to design the overall system that optimizes quality, cost and distribution while adapting to the continuously changing customer requirements. Next was the Beer Distribution Game; students took on the roles of manufacturer, primary and secondary wholesaler, and retailer to see firsthand how inventory

control issues due to fluctuating demand increased when the number of intermediaries between the customer and the manufacturer increased. In the final game, the Constraints Game, students learned to find the bottleneck in a supply chain, and how improving the bottleneck or designing a whole system corresponding to the bottleneck can achieve the desired inventory control and cost reduction. SDM will further enhance our cooperation with ETH in research and education and actively promote various programs with them, such as student exchanges.

Introductory Camp

Lecture on logical thinking by Associate Professor Shirasaka

Students discuss their system design assignment

V-model

The annual introductory camp was held from April 23 to 25 at Seimeino Mori Resort in Honda, Chiba prefecture. This year, 61 students from the master's course, 16 from the doctoral course, and 20 faculty members attended the camp. Students were able to virtually experience what they will learn at SDM, from requirements analysis and system design to verification and validation in the lecture on logical thinking, group discussion on large-scale and complex systems, and Fukuzawa Study. The students enjoyed the party in the evening at which awards were given to the groups who gave excellent presentations earlier in the day. The winning proposals were quite unique; a theme park whose customers can learn about environmental problems and help to reduce the environmental load by stepping to generate power while they line up for attractions. Another interesting proposal was safe and secure commuting train systems.

Previous students rate the introductory camp as their most memorable event. This camp, our 3rd, was also a valuable experience for students and faculty members as a kick-off to their studies over the next few years.

TOPIC 4 — English Training Course

SDM started two English training courses in April 2010. One is to help beginners to acquire the English needed to participate in discussions in ALPS, and the other is for students who wish to study abroad. The courses are quite popular even though no credit is offered. The details of the each class are as follows:

Class for beginners (Preparation for ALPS)

ALPS is one of the most distinctive courses at SDM, and lectures, presentations, and discussions are conducted in English. Mainly for international students, the number of other courses offered in English has increased, and English is becoming the second common language at SDM. Some students, however, are not used to speaking English. Yuriko Iida, a second year student in the master's course, proposed English training courses to help students improve their listening and speaking skills. She is a qualified interpreter with experience in simultaneous interpretation education. Professor Taketoshi Hibiya mainly contributed to creating the course content. The beginners' class utilizes the SDM concept;

Professor Richard Greene giving a lecture

teachers and students both teach and learn in that students who have English teaching experience become instructors. Around 30 students learned various methods such as "shadowing" (repeating what you hear), "sight translation" (translating word by word from the beginning of a sentence), and "reproduction" (repeating after the sentence has finished). A method called "show and tell" was also introduced. It is easier to speak a foreign language when you can show the object you are talking about. One student explained how to enjoy a cup of coffee as he was actually making coffee. It is also helpful to choose a topic you are interested, so that you are more motivated to talk. In the last two classes, students created a mind map using the theme of this year's ALPS, "Safety and Security" as the keyword and learned technological, business, and political terms in English.

Instructor Yuriko Iida
(second year in master's course)

Class for students who wish to study abroad

Aiming to equip students with the level of English required for discussion with classmates in top-ranked graduate schools, Professor Richard Greene and Assistant Professor Nobuaki Minato offer a course to around 20 students focusing on 1) communicating logically and 2) increasing opportunities for English discussion.

TOPIC 5 — Courses taught in English

Aided by the government's financial support (Global 30), the courses in English listed below are offered in the 2010 academic year. SDM students can earn a degree taking only courses taught in English. We expect more excellent foreign students to join SDM to study along with Japanese students.

Courses taught in English

Core Subjects (Required Subjects)
Introduction to Systems Engineering
Project Management
System Architecture and Design
System Integration

Recommended Subjects (in Technology, in Social Skills)
Math for SDM
Japanese Business System Seminar
Introduction to Frontier Project Management
Entrepreneurship 1
Entrepreneurship 2

Social Science Research Design
Marketing Management
Introduction to Business System Management
Creativity Management 1
Creativity Management 2

Recommended Subjects in Technology
Human Factors
Foundation of Model-Driven Systems Development

Recommended Subjects in Social Skills
Communication

Elective Subjects in Social Skills
Methodology of Creative Decision Makings

Project Subjects (Required subjects)
Design Project（ALPS）

Special Research Subjects (Required subjects)
Research on System Design and Management

Please also refer to our website for more information: ▶ http://www.sdm.keio.ac.jp/en/education/english.html
▶ http://www.sdm.keio.ac.jp/student/pdf/class_schedule_2010.pdf

Lab profile

Business Engineering Laboratory (BE Lab)

Professor Masaru Nakano

The specialties of Professor Nakano, former principal researcher at Toyota Central R&D Laboratories, are sustainable manufacturing, environment-friendly supply chains, business process reengineering, and consumer behavior. He has broad experience in international joint research, mainly with western countries and is responsible for international relations at SDM.

Web :
▶ http://lab.sdm.keio.ac.jp/nakanolab/index.html (in Japanese)
▶ http://lab.sdm.keio.ac.jp/nakanolab/en/index.html (in English)
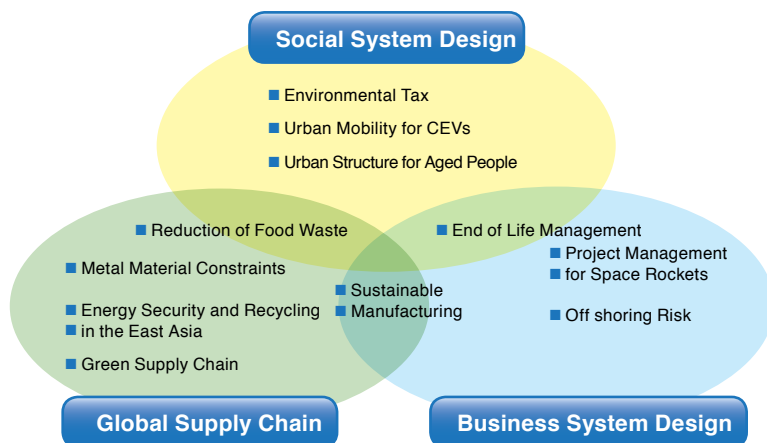
1 About the Business Engineering Laboratory

Professor Masaru Nakano's Business Engineering Laboratory (BE Lab), with Professor Richard Greene and Assistant Professor Nobuaki Minato, conducts research on various business problems using methods in which humanities and sciences are combined. Ms. Tomomi Nonaka, one of the six master's students in BE Lab to graduate in March 2010, won the Best SDM Performance award. BE Lab started in 2008 with a small number of students and has grown to six doctoral students and 23 master's students. Almost all of the young students without work experience major in science and technology, while many students with work experience major in social science.

Farewell party in March 2010

Social System Design
- Environmental Tax
- Urban Mobility for CEVs
- Urban Structure for Aged People

- Reduction of Food Waste
- Metal Material Constraints
- Energy Security and Recycling in the East Asia
- Green Supply Chain
- Sustainable Manufacturing
- End of Life Management
- Project Management for Space Rockets
- Off shoring Risk

Global Supply Chain

Business System Design

Research Topics in BE Lab.

2 Research in 2010

BE Lab research focuses on three areas; social structure design, supply chain, and business system design, as shown on the left. Using multi-agent simulation, a computational general equilibrium model, and mathematical optimization, we are conducting research on quantitatively visualizing problems in society and business and the effectiveness of the solutions.

3 Internationalization

Japan is proud to have the world's best elemental technologies in electronics, automobile, construction, machine tools and the environment, but we are starting to lose business competitions all over the world. It is not a stretch to say that a crisis is looming. One of the biggest reasons for Japan's crisis is because both the public and private sectors are reluctant to embrace internationalization. Therefore, the internationalization of university education is an urgent matter.

Professor Nakano has been involved in various international joint research projects for more than 15 years, and is currently involved in the IMS2020 Project (Sustainable Manufacturing) in the EU/IF7 Program, a joint research project with Italy, Germany, Switzerland and the US. The lab is becoming more international; during the last year, doctoral students at the Swiss Federal Institute of Technology and

Politechnico di Milan joined the lab for this project as well as students from the Netherlands, Morocco, Singapore, Indonesia, China and Peru. The lab has also benefited from the presence of Richard Greene, the American professor. We've sent Japanese students to the Netherlands and France to study as well.

In BE Lab.