

n e w s l e t t e r



Faculty of Engineering, Kyoto University

京都大学工学部国際交流ニューズレター

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JSPS-VCC/NUS Exchange Program on Integrated Engineering*



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The Japan Society for the Promotion of Science (JSPS) and Vice-Chancellors' Council (VCC) of Malaysia established a "Memorandum of Understanding for Scientific Cooperation between JSPS and VCC" on July 16, 1984. According to this agreement, a "Cooperative JSPS-VCC Scientific Exchange Program on Integrated Engineering" has been conducted under the "Core University System" since 1984. Furthermore, JSPS established a similar agreement with the National University of Singapore (NUS) in 1990.

The Faculty of Engineering of Kyoto University, University of Malaya (UM), and National University of Singapore (NUS) are responsible for the implementation of scientific exchange programs with cooperating universities and scientists. The cooperating universities are Osaka Univ., Kobe Univ., Kyoto Inst. of Tech., Tokyo Univ. of Agr. & Tech., Tsukuba Univ., Tokushima Univ., Nagaoka Univ. of Tech., Tottori Univ., and Kagoshima Univ., in Japan; Univ. Sains Malaysia (USM), Univ. Pertanian Malaysia (UPM), Univ. Kebangsaan Malaysia (UKM), and Univ. Teknologi Malaysia, and Nanyang Tech. Univ. in Singapore.

Each project consists of the following seven programs: (1) Cooperative research, (2) Scientist exchange, (3) Six month invitation, (4) Seminars, (5) Academic information services, (6) Monbusho scholarships for Ph. D. candidates, and (7) the Ronpaku support program. The fellowship awardees under these programs receive financial support from JSPS, which includes a round-trip air-ticket and maintenance allowance for their stay in the counterpart country. A JSPS-VCC Seminar on Integrated Engineering is held biennially to promote joint research programs and to publicize this program. This seminar provides a good opportunity for young scientists to report their results obtained in the program. The first seminar was held at USM in Penang, Malaysia, in 1986, the second in Kyoto, 1988, the third at UM Kuala Lumpur, and the fourth in Kyoto, again, in 1990. The fifth seminar will be held in Johr Bahru, Malaysia, in December of this year.

During the first decade of the JSPS-VCC cooperative

program (1984-1993), 216 scientists have been invited to Japan, and 204 scientists from Japan to Malaysia. Kyoto University contributed more than three-fourths of the Japanese participants. According to a tentative classification of research fields, interests of Malaysian scientists are Environmental Science, Chemistry, Chemical Engineering, Biotechnology, Mechanical Engineering, and Civil Engineering. This trend may reflect the Malaysian economic policy, philosophy of universities, and rapid growth of industries. Especially development of engineering and science relevant to natural resources have been required in the last decade. The weight of Environmental and Civil Engineering will be increased in the next decade to solve serious social problems such as air and chemical pollution, and treatment of wastewater. It is also expected that cooperative research on social engineering will be considered in the near future. During 1990-1993, in the JSPS-NUS program, 44 Singaporean scientists have been invited to Japan, and 51 Japanese scientists visited Singapore.

The program has been smoothly implemented, with the aid of JSPS and collaboration among the JSPS, VCC, NUS and scientists of core and cooperating universities. In total, more than five hundred people from three countries, including scientists and administrators, have established and improved friendship and made efforts to understand the cultures, religions, customs, societies and histories of the participating countries. Without this mutual understanding, the program would have never been performed smoothly. We have seen dramatic changes in world politics and economics.

We will be required to consider serious environmental problems for the health and coexistence of human beings. Consequently, this exchange program on Integrated Engineering has become even more important for Japan/Malaysia and Japan/Singapore.

* 日本学術振興会 東南アジア諸国学術交流事業拠点大学方式
総合工学学術交流事業



VCC-Kyoto University Meeting at University of Malaya

ノルウェー工科大学 — NTH —



富井 洋一

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NTH は、ノルウェー語の Norges Tekniske Høgskole の頭文字である。英語では The Norwegian Institute of Technology でノルウェー工科大学と記される。

1989年、NTH と工学部は2番目に協定が結ばれた。ちょうどその年に京都で開催された第40回国際電気化学会に来日された NTH の S. K. Ratkje 教授と長年の友人である本学部の伊藤靖彦教授が締結の労をとられた。

私は幸運なことに締結直後の1991年から1年余り Ratkje 教授の研究室に滞在する機会を得たので、適格かどうかは別として NTH の紹介をさせて頂くことにする。

NTH は以下に示す9学科から構成されるノルウェーでの理工学の中心大学(1910年創立)で、かつヨーロッパ最大の研究機構 SINTEF と連携している。幾つかの研究所及び博物館を持っている。(数字は1991年現在)

1. Architecture
385 students, 78 employees, 5 divisions
2. Applied Earth Science & Metallurgy
571 students, 109 employees, 3 divisions
3. Civil Engineering
1036 students, 178 employees, 10 divisions
4. Electrical Engineering & Computer Science
1922 students, 204 employees, 5 divisions
5. Chemistry & Chemical Engineering
750 students, 159 employees, 7 divisions
6. Mechanical Engineering
972 students, 153 employees, 9 divisions
7. Physics & Mathematics
456 students, 130 employees, 2 divisions
8. Marine Technology
416 students, 130 employees, 4 divisions
9. Economics & Industrial Management
225 students, 47 employees, 3 divisions

以上のそれぞれが修士と博士課程を持っている。博士には



ノルウェー工科大学本館

二種類、Dr. ingeniør と Dr. technicae がある。前者は Ph. D. に相当だが、後者は学問的業績を挙げた者に限られ、年間2~6名で取得はかなり難しい。女性の進出は目覚ましく、1/4が女子学生で教官、スタッフにおける比率は我が国より格段に高い。

大学院の授業は、基礎科目重点で相当に厳しく試験の結果は成績順に張り出される。成績良好の者や教え方が上手いと学生に認められた教官には奨学金や研究費が支給される。私の滞在していた時には、落ちた者や成績の悪かった者は後に研究室で実験の合間や昼食時に先輩や教官にシゴかれる美風?を目撃した。数の多い割りには日本ほど学生間競争が少なく、どちらかと言うとゆったり、大らかで実験系、理論系共始める迄には下準備にかなりの時間を掛ける。図書室や教育設備は充実しており、日本語の学会誌すらも見受けられた。

NTH のあるトロンハイム(Trondheim)市は北極圏にあと300km(北緯63.5度)のフィヨルドの奥に位置するが、暖流の影響で海は凍らず、北欧では比較的温暖な所である。人口14万余り(国内3番目)で、文科系の AVH と理科系の NTH (併せて学生数約13,000人、トロンハイム大学と呼ぶ)が町を見下ろす小高い丘に擁している。木造の古い王宮と北欧で屈指の石造のニーダラスの教会がシンボルのノルウェーの古都かつ学都で、この点は京都に似た奇麗で落ち着いた町である。

私の接したノルウェーの人々は、実に素朴でとても親切だった。大抵の若い人々は英語を解する。治安は非常に良く、自然が大切にされている。私には何よりも北洋の活魚が市場に並ぶところが親しみ深く有り難かった。百万遍界限の飲み屋さんで御目にかかる柳葉魚や甘海老、鮭、鯖や干鰯がノルウェーの産物であることは案外知られていない。

自然環境は厳しいものの日本と同じ位の国土に1/40の人口密度は体験する価値がある。海洋油田を持ち、豊富な水力発電を利用した Si や Al の電解工業が盛んである。バイキングの伝統かどうか、海運や漁業では14世紀の頃から世界的に、米国に最初に移り住んだのはノルウェー人に決まっていると必ず宣う。最近では木骨構造のスケートリンクでオリンピックを行ったり、中東の和解斡旋に成功したこと等が記憶に新しい。

学長の Karsten Jakobsen 教授の卒業式演説(1991.6)によると、NTH は今後日本との交流をさらに深める予定であると強調された。理由は第2次世界大戦後の我が国の驚異的な工業復興や現在のハイテク技術である。事実、その後毎年数人の学生が日本を訪れている。

本学においても国際交流は近年著しく活発になった。米国やヨーロッパの中心地が留学銀座と聞く昨今、少し距離を置いた NTH との交流を志す学生諸君や教官各位の参考になれば幸いである。

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A New Idea in Engineering Education



Junya MATSUKI

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A linguistic challenge in engineering education is now under way in the Faculty of Engineering, Kyoto University.

ty (Kyodai). The number of foreign students at Kyodai has greatly increased and so have the opportunities for Japanese students to communicate with foreigners. The following two contrasting language barriers have been brought to light: the Japanese language, for foreign students, and the English language, for Japanese students. The situation has been an opportunity to rethink present engineering education from a linguistic point of view, and has stimulated us to introduce several new courses given in English.

One reason for the initiative is the needs of foreign students. In the traditional engineering program, the emphasis has been solely on technical content and use of Japanese for classroom instruction has never been questioned. However, although most of the foreign students at Kyodai are good at Japanese, it has been pointed out that some of them find it difficult to follow lectures given in Japanese, especially in the first year of the master course. Furthermore, the number of foreigners coming or wishing to come to Kyoto without enough knowledge of the Japanese language is rapidly increasing; there is a growing need for use of English as a medium of instruction, so that they can study and conduct research more easily at Kyodai. Professors have recognized the relationship between English and attracting promising young scholars and students worldwide to Kyodai's engineering program.

Another reason for the new program is the expectations made of Japanese students. As is shown by the rapid increase of international conferences held in Japan and the frequent visits of foreign scholars giving seminars at Kyodai, there is a growing demand for Japanese scientists able to communicate in English with an international audience more effectively. Many would agree that, as prospective engineers and scientists, Japanese engineering students should be reasonably proficient in English as well as technically competent.

With this background, several new English-language engineering classes have been introduced in the Faculty of Engineering. The first of its kind was "Recent Advances in Electrical and Electronic Engineering," offered by the staff at the School of Electrical Engineering from November 1993 to January 1994. The class consisted of a series of 16 lectures covering recent specific topics in the fields of Electrical and Electronic Engineering. The primary purpose was linguistic: to help foreign students understand lectures and to motivate Japanese students toward better English-language proficiency. However, the lectures were not a translation of previous lectures given in Japanese, but were a totally new series of lectures made possible by the collaboration of 16 professors.

The response to the new class was very favorable. The average attendance throughout the 16 lectures was as large as 22, which accounted for about one quarter of the EEE-major, master-course, first-year students. Although some would doubt the effectiveness of Japanese teachers giving lectures in fair English to an audience of mainly Japanese, the unusually large attendance of Japanese students undoubtedly showed that there was certainly a latent need on their side for this kind of class and that the initiative hit the mark. The English-language instruction by Japanese teachers seemed quite interesting to the students. The report-writing assignments also seemed very challenging because it was a rare opportunity to write technical reports in English. To foreign students, as expected, the English-language class seemed very helpful to get a clear idea of the framework of the EEE fields more

easily than in the past. The class, however, also highlighted one of the problems of the traditional Japanese education system once again. While the foreign students were active in asking questions in class, the Japanese students, by contrast, just sat back and kept silent.

The initiative has just begun and three additional classes of this kind have started in the 1994 academic year. Although there is still much room for improvement, it can at least be said that the challenge has brought a new phase in engineering education at Kyodai. It is expected that it will continue to serve a double purpose: attracting foreign students and stimulating Japanese students.

P.S.: The English-language engineering classes presently available in the Faculty of Engineering are "Introduction to High Technology Material Science" offered in the first semester, "New Engineering Materials, Adv." in the second semester, "Computational Mechanics and Simulation Methods in Civil Engineering, Adv." in the second semester, and "Recent Advances in Electrical and Electronic Engineering" in the second semester. You are invited to attend these classes!

My experience attending the International Course for research students



Furong ZHU

International Course Student
Department of Electrical Engineering

On 10 Oct. last year, I came to join the International Course for Graduate Research Students in the field of Electrical and Electronic Engineering, organized by the Engineering Faculty at Kyoto University. This special course consists of a series of technical seminars and one related study tour. The first seminar I attended was "Recent Advances in Electrical and Electronic Engineering", mentioned above in Dr. Matsuki's article. It covers mainly the field of recent developments in electrical and electronic engineering in Japan. These interesting lectures are given by staff in English. The series of talks extended students' knowledge about recent advances in electrical and electronic engineering. Attending the course also improved our understanding of Japanese technology in related fields. To comment on this lecture, much credit should go to the faculty staff for their hard work and preparation of these talks in English. Most of the talks were very interesting. However, the way of checking on the students was not appreciated. At the beginning of the talks, lecturers always checked the attendance by calling and ticking names off a list. This is not very commonly seen in graduate or postgraduate education.

The study tour arranged by the Faculty of Engineering was led by members of academic staff who have first-hand experience at the destination. The tour is designed to illuminate both interesting facets of industrial development in Japan, and Japanese cultural history. These well-prepared academic talks and the study tour provide an opportunity for participants to broaden their involvement and interest in corresponding research work, and for knowledge building.

To be frank about this course, in my opinion, the course organizer or professors should encourage visitors to

be involved much more in research activities rather than only emphasize how well they can pick up Japanese language during the limited time of the course. Mutual understanding should have first priority in the exchange program. The present course may also be designed to in-

vite some talks given by overseas visitors or participants, so they can add to each other's appreciation of the experience to this "international course". The contribution of their knowledge to the course itself, or the seminars, is an important part of "international exchange".

第1回新入留学生研修旅行同行記

前田 忠直

工学部建築系教室講師

今年、本学工学部へ入学した留学生34名を対象にした研修旅行が、新緑の5月に、14ヶ国27名の参加を得て行なわれた。工学部としては新しい企画だったが、留学生相互の交流、また留学生と教職員との交流がなされ、末尾の留学生の言葉にあるように、おおむね好評だった。

参加留学生27名の内訳は、学部生1名、特別コース生3名、大学院生・研究生23名で、国別では、中国(9名)、韓国(2名)、パキスタン(2名)、インドネシア(2名)、ベトナム(1名)、ドイツ(2名)、フランス(1名)、イギリス(1名)、スウェーデン(1名)、チェコ(2名)、ポーランド(1名)、カナダ(1名)、ペルー(1名)、タンザニア(1名)だった。同伴者として、国際交流委員長代理、鈴木健二郎教授の他、留学生専門教育教官3名、教務課専門職員2名が参加し、オリエンテーション、自由討議が日本語、英語、中国語によって活発に行われた。

バスツアーのおおよその行程は以下のとおり。

5月21日午前9時、京都大学正門前出発。関西電力大飯原子力発電所見学。同日夕方、京都府ゼミナールハウス(京都府京北町)着。夕食後、オリエンテーション1(ビデオによる修学案内)。自己紹介。同ゼミナールハウス宿泊。

22日午前中、先輩留学生(3名)の体験談。オリエンテーション2(奨学金案内、ビザ手続き等)。野外スポーツ。午後3時、京都大学正門前にて解散。

帰路のバスでのアンケートによれば、留学生たちのお国

柄が垣間見られた self-introduction と先輩留学生の体験談が好評だった。美しい杉の森林と石楠花の群生に囲まれた開放的な施設での交流は、来日間もない留学生たちに得難い思い出を残したようだ。

アンケートの、general impression? に、留学生たちはこう記している。

All of the works you had done are excellent./

Great! I could talk a lot and learn some important information for living and studying in Kyoto University./

Thank you very much for organizing this trip./

In all, I had a very good time and do believe the trip was worth attending and hope this will continue in the future./

I am very happy because we know each other from the other country, and how they feel in Japan.



留学生たちとシャクナゲの群生

国際交流日誌 (平成6年2月1日～平成6年7月31日)

平成6年

- 2月22日(火) アメリカ合衆国 マサチューセッツ工科大学ジャパン・プログラム マネージング・ディレクター Patricia Gercik 氏来訪
- 25日(金) 韓国 昌原大学校総長 朴楠珪他4名来訪
- 3月7日(月) インドネシア科学院科学技術協力部国際協力課二国間交流係員 Ms. Atka Savitri 来訪
- 24日(木) カナダ国 ケベック大学モントリオール校 Prof. Gaston Chevalier 訪問
- 29日(火) アメリカ合衆国 ペンシルバニア州立大学副学長 Dr. John A. Brighton 来訪
- 4月1日(金) 全スイス大学長一行(Dr. Karl Pestalozzi バーゼル大学副学長他13名)来訪
- 11日(月) フランス国 エコール ポリテクニク Prof. Jean-Louis Basdevant 他1名来訪

- 18日(月) ドイツ学術交流会(DAAD)アジア地域担当部長 U. Grothus 氏来訪
- 27日(水) 国際交流委員会
- 5月2日(月) メキシコ国防防災センター研究部研究員 Mr. Carlos Enrique Montoya 来訪
- 21日(土) } 新入留学生研修旅行
- 22日(日) }
- 25日(水) 国際交流委員会
- 31日(火) 日本学術振興会 東南アジア諸国学術交流事業拠点大学方式 総合工学学術交流事業連絡協議会
- 6月22日(水) 国際交流委員会
- 7月26日(火) チリ・コンセプション大学国際局長・工学部教授 Dr. Pedro Vera Castillo 来訪

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