REPORT

ICEE-2005 and Side Trips to U. of Coimbra, Tech. U. of Lisbon, Instituto Superior Técnico, Instituto Superior de Engenharia de Lisboa

July 17 - July 29, 2005

by

Win Aung, Secretary-General, iNEER

(A) Visits in Portugal, July 18 – July 23, 2005

The visits in Portugal were side trips planned as an important adjunct to ICEE-2005 conference attendance in Poland. The purpose of my brief visits to selected institutions in Portugal was twofold: (a) to expand the global community in engineering education and research of which the U.S. community is a part; and (b) to share information on international developments in engineering education and research, so as to pave the way for increased future interaction between faculty and students in these institutions and the larger global community.

Dr. Vojislav Ilic, Senior Lecturer, University of Western Sydney, Sydney, Australia, joined me in the visits to Portuguese institutions, of which we visited four, three in Lisbon, located in the southern part of the country, and the fourth in Coimbra which is situated in central Portugal. Two of these are universities: Technical University of Lisbon **(**UTL) and the University of Coimbra. These are among the largest and most prestigious universities in Portugal. The U. of Coimbra is actually also one of the oldest universities in Europe, having been founded in 1290. In Lisbon, we also visited the Instituto Superior Técnico (IST), the autonomous school of engineering of UTL, and a polytechnic, the Instituto Superior de Engenharia de Lisboa (ISEL, Lisbon Institute of Engineering). ISEL is under the Lisbon Polytechnic Institute.

The university system in Portugal dates from the 13th century and comprises 13 public universities and several private universities, the University of Coimbra being the oldest and, from 1290 until 1559, the only university in Portugal. A university is led by a Rector. Its structure includes schools, institutes and colleges. Universities have the exclusive right to grant masters and doctoral degrees.

The polytechnic system evolved from industrial and vocational schools, and started offering higher education in the 1980s. A polytechnic is headed by a President and is

organized into schools and institutes. Like the universities, the polytechnics are regulated by the Ministry of Science and Technology and Higher Education.

Our visits took place during July 18 – July 23, 2005. The following sections provide the list of people we met and some basic information about each institution.

Technical University of Lisbon (UTL)
Lisbon, Portugal
José Dias Lopes da Silva, Rector

One of the largest of universities in Portugal, the Technical University of Lisbon (UTL) was established in 1930. It has 7 schools and 50 academic disciplines with almost 1,900 faculty members, 20,000 undergraduates, and 3,000 graduate students. As a means to achieving excellence in UTL's mission, it is structured such that each of the 7 schools has significant autonomy. These schools are: Faculty of Veterinary Medicine; School of Agronomy; School of Economics and Management; School of Engineering; School of Social and Political Sciences; Faculty of Human Kinetics; and, Faculty of Architecture. All Ph.D. programs are taught in English.

UTL schools are spread across the city of Lisbon, each with residence halls located nearby. During our visit, Rector da Silva emphasized that UTL schools are the oldest and biggest in their respective specialty, each with their own financial and management responsibility. Each school is structured to handle its own external relations and linkage with their own major stakeholders in Portugal. He also emphasized that UTL schools are charged with not only achieving and maintaining academic excellence, but also encouraging and supporting the social and cultural development of the students. Each school participates actively in the Socrates Program of the European Commission, and each has a Socrates institutional program coordinator.

Rector da Silva himself is a physical chemist, and is the President of the Council of Portuguese Rectors.



Instituto Superior Técnico (IST)
Lisbon, Portugal
Carlos Matos Ferreira, President and Full Professor
Afonso Manuel dos Santos Barbosa, Vice President and Professor Catedrático

Eduardo Baptista Ribeiro Pereira, Member of Executive Board and Associate Professor

IST has two campuses in Lisbon: The main campus in Alameda and the Taguspark campus. Though autonomous in much of its operation, IST is organizationally a part of UTL as its School of Engineering. It offers 21 undergraduate programs attended by 8,500 students. In 2002/2003, 1,000 students graduated from IST.

At the Master's (MSc) level, IST has 31 programs, some of which are offered jointly with other schools at UTL. In 2003, 140 MSc degrees were awarded by IST. IST offers the doctorate degree through UTL in 22 programs. In 2003, about 100 students obtained the degree.

Research is carried out within academic departments at IST. In 2002, an assessment by the Ministry of Science and Technology rated 78% of the institute's programs as Excellent or Very Good. Ninety percent (90%) of the researchers have the Ph.D. degree.

IST is active in the European Commission's SOCRATES/ERASMUS exchange program.

Instituto Superior de Engenharia de Lisboa (ISEL)
Lisbon, Portugal
Maria Ana Viana Baptista, President
Manuel José de Matos, Vice President and Professor

The Instituto Superior de Engenharia de Lisboa (ISEL), translated as Lisbon Institute of Engineering, is a part of Instituto Politécnico de Lisboa (Lisbon Polytechnic Institute) and is a polytechnic institution of engineering within the Portuguese higher education system. It originated with the establishment of the Industrial Institute of Lisbon *(Instituto Industrial de Lisboa)* in 1852. Until 1974, ISEL was a vocational school.

The Institute is led by a President (Maria Ana Viana Baptista), a Vice President for Research (Elmano da Fonseca Margato), and a Vice President for Academic Affairs (Hernâni Jorge Cardoso Mergulhão). The teaching staff comprises about 600 full time and part time faculty members including: 387 full professors of whom 72 have the Ph.D; and 164 assistant professors, most without the Ph.D. There are close to 7,000 students pursuing undergraduate degrees in five disciplines: civil engineering; electrotechnology and automation engineering; electronics, telecommunication, and computer engineering; mechanical engineering; and chemical engineering.

Led by a woman President, ISEL has a large female student population that makes chemical engineering its most popular discipline.



University of Coimbra
Coimbra, Portugal
Fernando Seabra Santos, Rector.
Lélio Quaresma Lobo, Dean, Faculty of Sciences and Technology.
Maria da Graça Bontempo Vaz Rasteiro, Associate Professor of Chemical Engineering.
Paulo Rupino da Cunha, Assistant Professor of Engineering Informatics.
Manuel Carlos Gameiro da Silva, Associate Professor of Mechanical Engineering.
Maria José Almeida, Department of Physica.
Luis Godinho, Dept. of Civil Engineering.
Rui Fugueiredo, Mechanical Engineering.
Fernando Figueiredo, Mechanical Engineering.
Nelson Rodrigues, Computer Science.
Antonio Dias de Figueiredo, Engineering Informatics.
Carlos Sá Furtado, Electrical Engineering, Dean Emeritus, Faculty of Sciences and Technology.

The **University of Coimbra** (**Universidade de Coimbra**) is one of the oldest universities in Europe and one of Portugal's most important higher education and research institutions. It led in the formation of a consortium of leading European research universities known as the Coimbra Group. It was founded in 1290 in Lisbon but later moved to Coimbra.

The University has eight faculties: Letters, Law, Medicine, Sciences & Technology, Pharmacy, Economics, Psychology & Education Sciences, and Sports Sciences & Physical Education), comprising about 23,000 students. The university houses a huge and well-known old central library, a large botanical garden, a stadium and sports complex, an astronomical observatory, and a private church.

The Faculty of Sciences and Technology offers a full range of degree programs in the following areas: Anthropology; Architecture; Biology; Biochemistry; Communications and Multimedia; Environmental Engineering; Biomedical Engineering; Civil Engineering; Electrotechnical and Computer Engineering; Physical Engineering; Geographical Engineering; Geological Engineering; Informatics Engineering; Materials

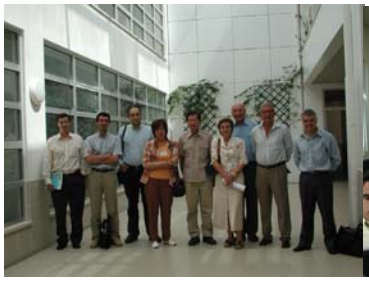
Engineering; Mechanical Engineering; Mining Engineering; Chemical Engineering; Physics; Geology; Mathematics; Chemistry; and Industrial Chemistry.

Undergraduate enrollment in the Faculty of Sciences and Technology rose steadily from 1,629 during the 1972/73 academic year to a high of 7,800 by 1997/98. Then, it started to drop steadily to 6,600 by 2003/04.

Almost 10% of its students are foreign students, the highest among Portuguese universities. There are 70 different nationalities among the student population. The tuition fee for all its undergraduate students is equivalent of US$2,000 per year for 2004/2005, the limit allowed under State Law.

There are no evening programs at the university, where overcrowding is the norm in classes offered in some of the disciplines in the Faculty of Sciences and Technology, to the extent that there is standing room only for some of the students, sometimes outside of the classroom. It has been observed that these classes have the highest attrition rates, and students completing their courses also take the longest time to graduate.

The University of Coimbra will be the host of ICEE-2007; see below.






(B) ICEE-2005, Gliwice, Poland, July 24 – 29, 2005

Geographically, the Upper Silesia region in southern Poland comprises only 3.9% of Poland, with 13% of its population. Yet, this part of Poland produces 20% of the Polish GDP. No wonder, since 91% of Polish coal comes from Upper Silesia, as well as 69% of the steel, 85% of the automobiles, 71% of the electronics goods and 20% of the computers. Located in the heart of Silesia is the city of Gliwice. First chartered in 1276

Gliwice, in Katowice Province, is a transportation hub as well as coal-mining center. Silesian University of Technology was established in Gliwice in 1945.

It was in this setting that close to 400 members of the iNEER network met for ICEE-2005 in July, 2005. Hosted by Silesian University of Technology (SUT) as a part of its 60th anniversary celebration, the conference was organized under the leadership of Rector Professor Dr. Wojciech Zielinski, with Prof. Jerzy Moscinski serving as chair of a 10-member Organizing Committee, and the able help from a team of 20 red-shirted student aides.

To be exact, there were 316 participants and 72 accompanying persons from 42 countries. A total of 320 papers were presented, along with 6 invited plenary lectures. Forty-four parallel sessions were organized, facilitated by 64 session co-chairpersons. The 5 countries with the largest number of participants were: Poland: 49; USA: 45; Taiwan: 34; Czech Republic: 21; and UK: 19. Women educators were particularly active at ICEE-2005 in all aspects of its activities, a trend that is expected to be maintained in conferences sponsored by the iNEER Network.

One of the highlights of the conference was the presentation of a letter of congratulations from Dr. Arden Bement, Director of the U.S. National Science Foundation, to Prof. Zielinski on the occasion of the 60th anniversary of the founding of SUT. The letter, signed by Dr. Bement, was framed and presented on Dr. Bement's behalf by me to Prof. W. Zielinski, Rector of SUT, during the opening ceremony on July 25. (See photo at the end of this report.) Another notable event was the presentation of the SUT Medal of Merit by Wojciech Zielinski to Win Aung, also during the opening ceremony on July 25.

Other highlights include:

(a) The presentation of plenary lectures by 6 invited speakers;
(b) The publication of a special edition of the iNEER Special Volume for 2005, a copy of which was distributed to every registered participant;
(c) The publication, and distribution to all participants, of the complete conference proceedings in both CD and book formats;
(d) The convening of the Joint iNEER Board/ISC meeting on July 24, an event co-chaired by Wojciech Zielinski and Tomas Cermak, Rector, VSB – Technical University of Ostrava, Ostrava, Czech Republic, who is also the chairman of the iNEER Board;
(e) The conference banquet and folk dance performance by students of SUT at the medieval castle in Toszek on July 25 when, just in time, the rain stopped and a rainbow appeared in the sky above the castle;
(f) The presentation of iNEER Awards to Wojciech Zielinski, Janos Barsony, and Jerzy Moscinski at the conference banquet in Toszek on July 25;
(g) The presentation of letters of felicitation on SUT's anniversary celebration by 9 representatives of foreign institutions, during the opening ceremony on July 25;
(h) The convening of the organizing meeting of the newly formed iNEER Leadership Council, chaired by Wojciech Zielinski, on Monday, July 25;

(i) The organization of the Janos Barsony Workshop, comprised of a series of 4 technical sessions held on July 25 and 26, in honor of the 65th birthday of Prof. Janos Barsony, Dean Emeritus of the Mihaly Pollock Faculty of Engineering at the University of Pecs, Pecs, Hungary;
(j) The Rector's Reception and folk music performance by students of SUT on the lawn of the Faculty of Chemistry on July 26;
(k) The performance on July 27, 2005 featuring the timeless music of Bach, Dvorak, Paderewski and Mendelssohn in the old and monumental St. Peter and Paul's Cathedral;
(l) The all-day technical tour and cultural event held on July 28 to Kraków, with all its monumental buildings and places of attraction, including the Wieliczka salt mine, a World Heritage site; and
(m) The dinner and dance at Zalesie Grange.

The flawless organization of the conference; the high quality technical program; the well-attended technical sessions; the delicious food, the culture and the traditions; the new friends discovered; the beautiful land and the equally beautiful people, who are at once sincere, unassuming, generous and hospitable: iNEER conferences are memorable for many of the same qualities and yet each will also be remembered for its uniqueness. Like many of the iNEER conferences before it, ICEE-2005 is one that many participants told me they would not forget for a long time to come.

Photographic highlights and video clips for ICEE-2005 may be viewed at:

http://www.ineer.org/Photo/Welcome.htm

(A complete photo and video presentations are given in the first link: "Link to Silesian University of Technology ICEE-2005 Photo Gallery: http://icee2005.polsl.pl/Photos.php." Listed in the middle of the page are the photos contributed by a number of participants. Further down, you will see a list of video clips grouped under three topics. A visit to the group under "Zalesie" is highly recommended.)

Future conferences of the iNEER Network are currently scheduled as followed:

2006:
ICEE-2006 - San Juan (Puerto Rico): July 23-28

2007:
ICEE-2007 - Coimbra (Portugal): Sept. 3-8
iCEER-2007 - Melbourne (Australia): Dec. 3-7

2008:
ICEE-2008 - Pecs/Budapest (Hungary): Aug. 11-17
iCEER-2008 - Montreal (Canada): July 8-10

2009:

Joint ICEE/iCEER Conference, Seoul-Chonan (South Korea): August 9-14, 2009

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OFFICE OF THE DIRECTOR

July 7, 2005

Professor Wojciech Zieliński, Ph.D.
Rector, Silesian University of Technology
General Chair, ICEE-2005
Gliwice, Poland

Dear Professor Zielinski:

I congratulate you and your associates on the opening of ICEE-2005. I also congratulate you on the 60th anniversary of the founding of Silesian University of Technology, the host and home of the conference.

I appreciate the importance of the work that you and your colleagues in the iNEER Network are doing in building international partnerships. We all recognize that we are living and working in a new age of scientific and engineering discovery. The conduct of science has changed--thanks in part to new information and communications technologies. Work at the frontiers of discovery has accelerated. The time between discovery, development and commercialization is compressing. Science and engineering is also growing more complex, and the boundaries between disciplines are blurring. This naturally makes interdisciplinary and collaborative research the norm rather than the exception. International collaboration is yet another iteration of this process, greatly facilitated by our new communications and computer technologies.

In today's world, scientists and engineers must be able to operate in teams comprised of partners from different nations and cultural backgrounds. What you do at ICEE-2005 is very important. We believe that the concept of mutual progress through international partnership can and does work.

Once again, my heartiest congratulations.

Sincerely,

Arden L. Bement, Jr.
Director