

The Retrospect and Prospect of ICEE

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INTRODUCTION

The purpose of the International Conference on Engineering Education (ICEE) is the advancement of education through trans-national cooperation and cross-cultural networking. It is a conference series that highlight the worldwide progress and experiences in engineering education; it is also a platform for creating mutually beneficial collaborative efforts.

In addition to being an occasion for discussing the development of engineering education worldwide, ICEE represents an opportunity for fruitful encounters between various cultures. The outcome is evidently positive that participants have developed meaningful social contacts and personal enrichment among our multi-disciplinary colleagues. As background for this, the important features of each of our annual meetings are reviewed in today's presentation, starting from the conference inception in 1994.

FEATURES OF ICEE 1994 & 1995

Recognizing the importance of improving and accelerating progress in engineering education, the ICEE was initiated by educators in Taiwan in 1994 with a vision of doing so by means of sharing experiences. Organized as a forum to disseminate and exchange information, the ICEE emphasizes the propagation of information on state-of-the-art advances in education and research, especially new approaches that address the education needs of young engineers for the 21st century. Thanks to the long-term endeavor of participants from many countries, the trends of engineering education were already clear in these first two years, including curriculum innovations, the use of multimedia and computers for instruction, and the integration of theoretical and practical courses.

In addition to the significant conclusions of these early conferences, conversation and discussion also began between people concerned with issues of engineering education. Although the focus of these first two years was largely an issue in Taiwan, there was already international integration with researchers from other countries in Europe and Asia.

FEATURES OF ICEE 1997

1997 was a turning point for ICEE. Having the conferences outside Taiwan, in Chicago, it highlighted the worldwide experiments and experiences in engineering education. This conference also emphasized the positive effect of government activism in support of pedagogical renewal and reform. The theme of ICEE 97 was Progress through Partnerships. Indeed, it was an important forum on engineering education at the turn of the millennium and for engineering opportunities for international collaboration. The motivation for the conference was in the mission of educating engineers to be successful in a global workplace. Among the many issues of concern were the applications of information technology as a teaching aid, distance learning, and linkage with the information highway.

Unlike past engineering education reforms before 1997, activities involved an increasingly wide range of engineering education reforms with many of engineering schools around the world working in partnership with each other, with industry, government, and professional organizations.

FEATURES OF ICEE 1998

To extend on the previous research on engineering education, the workshops of ICEE 98, in Rio de Janeiro, highlighted a series of research projects concerning education-related issues, including assessment plans for engineering programs and entrepreneurship. With the advent of consumer-based economies, promoting outcome-based education and fostering technological entrepreneurship are increasingly important. This conference notes that the new engineers must recognize that they must educate themselves to remain competitive, and learn to profit in the marketplace. Moreover, the guidelines for evaluation of engineering programs can help new engineers to exam their own directions and their effects.

FEATURES OF ICEE 1999

ICEE 99, in Czechoslovakia, was impressive for its unusual opening ceremony, which coincided both with the 150th anniversary of the Technical University of Ostrava and with a solar eclipse. Generally speaking, the main concern of ICEE 99 was the continuous globalization for engineering education through national and industrial collaboration with

universities. ICEE 99 further strengthened educational alliances, bringing in new partners from Central and Eastern Europe and from the restructured Czech industry.

In the conference several successful European models were demonstrated; there were the European Union models for student exchanges, institutional consortia, research grants from agencies, and institutional funds. Regarding course design, it was recommended to develop bilateral programs of joint summer short courses and seminars, faculty/student exchanges, web-based courses for students from various countries, and so on.

FEATURES OF ICEE 2000

A major goal of ICEE 2000, which returned to Taiwan, was to further strengthen alliances via networking and globalization. ICEE 2000 continued previous research on international collaboration, curriculum reform, and application of new technologies as teaching aids. Moreover, the International Network for Engineering Education and Research (iNEER) has been founded in Taipei, Taiwan, as a result of a resolution by the International Steering Committee (ISC) of the ICEE in order to promote more rapid sharing of information and experiences.

FEATURES OF ICEE 2001

Standing at the brink of a new century, ICEE 2001 in Oslo re-examined the past and made great progress to extend international partnership, trilateral workshops, cooperative programs between iNEER and IJEE, and standards for engineering ethics. International partnerships in ICEE were extended since this was the first year African representatives were brought into ICEE. The two trilateral workshops on Future Cooperation in Education and Research this year were a USA-Czech Republic-Poland workshop and a Korea-Taiwan-USA workshop. Through these trilateral workshops, the participating countries had opportunities to exchange ideas in more depth, and to share more effectively teaching resources and engineering education improvements. Furthermore, since a greater scale of international partnership will be predictable flowing increasing globalization, engineering ethics was recognized as a new and significant topic.

VISIONS

International Conference on Engineering Education

Today's presentation is concluded by portraying current and future emphases in our field, thus paving solid road for further research and development. Three trends of engineering education can be summarized from previous meetings:

1. Continuous international collaboration to strengthen alliance for engineering education (such as demonstration of global engineering practices, discussion on higher education models, etc.)
2. Continuous curriculum reform to meet industrial need (such as the development of new curricula, reengineering of education systems, curriculum restructuring or reform, partnerships with industry, university-industry collaborations, disaster reduction education, creativity and innovation in education, etc.)
3. Teaching and learning with the aid of new technologies (such as distance learning, computer and communication-based instructions, distributed learning environment, quality assessment in teaching, multimedia teaching tools, etc.)

Three foreseeable visions of engineering education can be outlined from previous conference discussions:

1. The researchers and practitioners in this community will further recognize the essence of multidisciplinary field and realize that the complexity and sophistication of new developments can be facilitated only through collaboration among experts with different backgrounds.
2. The rapid growth of information technology will promote information sharing, management, and reduce waste of material and manpower.
3. The use of technology in the field of Engineering Education will bring lights to issues of ethics and literacy.

Finally, the steering committee would like to thank you for your willingness in participating our annual gathering this year, which promises to explore yet new directions. We

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are certain that this develops long-lasting relationships for international collaboration on engineering education. The committee would also like to acknowledge the efforts provided by each and every one of the hosts; their hospitality, resourcefulness, and friendship have made each year memorable. It reminds us that in helping one another along the journey, we find the strength and purpose for our own growth. Let us all hope that the light of international collaboration will shine over as many nations as possible.