

# Report on ICEE-2002

by

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ICEE-2002, 18-22<sup>nd</sup> August, hosted by the University of Manchester Institute of Science and Technology, was the 8<sup>th</sup> annual international conference on engineering education sponsored by iNEER, the International Network for Engineering Education and Research. There were about 320 delegates, the largest national groups being about 90 from USA, 54 from UK, 33 from Taiwan, 19 from Czech Republic, and 11 from Brazil. Of the 5 Australians, ACED was represented by David Wood, Frank Bullen and myself.

The conference proper was preceded by a workshop on International Collaboration that was attended by about 50, including Vic Ilic (University of Western Sydney) and myself. The workshop discussed the development of the iNEER member data-base for locating expertise for the development of international collaborative projects; the Bologna Declaration, cooperative institutional agreements, international design education, with an emphasis on the NSF and industry-supported international consortia operating primarily between the USA and Europe. The workshop group sessions produced actions that could be promoted by the iNEER community that related to these areas, and also to international issues in distance learning and digital libraries, assessment and accreditation.

The ICEE-2002 conference itself was very much one for delegate participation, with only two plenary speakers, the first describing activities at the Open University, UK. The huge planned investment in OU course preparation contrasts with the way many engineering schools are now supporting students with a mixture of face-to-face and on-line support, but with what could be described as a "rapid prototyping" methodology. The second plenary described the introduction of the student-centred model of education at Monterrey Tech., Mexico, an interesting exercise in top-down management.

The conference program and abstract booklet contained nearly 400 papers presented in up to 8 parallel sessions. The CD-ROM contains either one-page extended abstracts or 6-page full papers. I would estimate a 10% no-show of presenters, but most of the oral presentations I attended were of good quality, stimulating reading of the full paper or subsequent discussion with the authors. The delegates included many non-engineers, IT specialists and pedagogical experts, as well as many deans and heads of schools and departments.

New techniques in engineering education was a strong theme, particularly the embedding of web-supported education, both for students directly and to support academic staff in general, and in specific disciplines. Many such exercises are clearly gaining NSF support in the US, and from government agencies in UK, providing they involve consortia of institutions.

A second theme, entitled "Unique Design Experiences" was dominated by papers from the NSF funded US design consortia. These consortia facilitate excellent environments for project work, and good learning

outcomes appear to be achieved. I found particularly interesting the papers dealing with product design work in mechanical engineering schools that involves stimulating creativity through collaboration with industrial arts or architecture students, and entrepreneurship through collaboration with business schools. The importance of introducing meaningful multi-disciplinarity into the curriculum was mentioned in many papers.

Assessment and quality assurance was dealt with in many papers; some addressed student and industry perceptions of engineering education. With declining enrolments and relatively low female participation in branches of engineering other than chemical engineering, many papers described excellent outreach programs into the K-12 education sector (mostly involving undergraduate student activities) and active support of minority students in their programs.

One of the most thought-provoking themes, represented by only a few papers, was engineering in developing countries. The discussion was heightened by the observation that there was only one "true" African delegate, from Zimbabwe. The other African-born delegates were employed in US or Europe. The gap between the rich and poor increases, infrastructure is needed to underpin economic growth, and the digital divide grows, so that the modern methods being used for efficiency in the industrial world are not available to many nations. How can iNEER and indeed the whole engineering community work to reduce these problems was the main issue discussed at the closing plenary.

Overall, I found the conference stimulating and efficiently run. The one off-campus event was a visit to the Manchester Museum of Science and Industry, reinforcing Manchester's pivotal role in the history of industry and engineering.

The next meeting is in Valencia, Spain 22-26<sup>th</sup> July 2003. (see: [www.upv.es/ICEE2003](http://www.upv.es/ICEE2003)). The themes are international partnership, innovation, industry, and interdisciplinarity. The submission date for abstracts is Jan 15<sup>th</sup>.

Australian delegates indicated their willingness to host ICEE-2007 in Australia, and would wish to do this in cooperation with AAEE and ACED.

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