



# UNESCO International Centre for Engineering Education



## Newsletter

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### From the Director

Between 1991 and 1993, I was heavily involved in the organisation of the International Faculty of Engineering (IFE) at the Technical University of Lodz (TUL), Poland. At the time, it was the first initiative in the so-called post-socialist Poland to organise an academic unit, which would provide engineering education courses based on the Anglo-American system, with English as the main medium of instruction. Moreover, it was decided that a tuition fee of about \$US4,000 per year would be imposed on potential students. In discussions with my Polish colleagues involved in this venture, I also advocated for the IFE to be established as a semi-private institution with the TUL being the majority stakeholder, as there were no privately owned institutions in Poland in 1991. My ideas were viewed by most Polish academics as a total *heresy*. Unfortunately, this has also brought me some enemies in Polish academia.

I would like to share a piece of information regarding the Polish higher education scene with my distinguished colleagues, readers of the UICEE Newsletter. Heated debates can be heard in many countries about the need for their population to pay for the education of their youth. What is then the situation in a relatively poor country, still in the transition process from a centralised economy to a free market economy, and a country with about 40 million inhabitants? In Poland, education has always been regarded as the key component in the development of the nation, and the absolutely necessary ingredient for personal success.

The extremely popular daily newspaper, *Rzeczpospolita* (Republic), has, for several years, been running a very popular ranking of academic institutions in Poland. I will use this reliable source to provide readers with an answer to the above question. There are currently 127 state higher education institutions and 257 private institutions!!! While state-owned institutions are not allowed to charge fees for daily

students, they complement their appalling state funding by imposing tuition fees on evening and external students (otherwise, with about 0.5% of the current GDP given to public education, they would have collapsed long ago). Some of the private institutions charge relatively high tuition fees, when considering the average salary in Poland. Generally, private institutions have no problem when recruiting students, as the supply is still much lower than the demand. Also, the popular view is that private institutions react swiftly to market needs by establishing most required professional disciplines on academic offer.

I would encourage my respected colleagues, especially in those countries where governments are still fully subsidising the cost of education, to become familiar with this new phenomenon. Change is literally around the corner, as governments in developed countries may also learn about the Polish phenomenon. I can view this with modest comfort but my younger academic friends may be caught up by the change, if they do not adopt more entrepreneurial approaches to their academic philosophy.



The new Dean of Engineering at Monash University, Prof. Tamarapu Sridhar.

### New Dean of Engineering

We are delighted to inform UICEE members and readers of the Newsletter that Prof. Tamarapu Sridhar has been appointed as the new Dean of the Faculty of Engineering at Monash University, the host institution of the UICEE. He has replaced Prof.

Michael L. Brisk, a strong supporter of the UICEE, who retired from his position late last year.

Prof. Tamarapu Sridhar (pictured here), called by his Faculty colleagues as Tam, has held a long and distinguished career in chemical engineering. He is a graduate of Madras University and received his ME from the Indian Institute of Sciences, both in India. He arrived in Australia in 1974 and completed his PhD at Monash University in 1978.



He has established himself as a leading Australian scientist and engineer, and is a Fellow of the Australian Academy of Science and also a Fellow of the Australian Academy of Technological Sciences and Engineering, and as such, he is one of a few academics at Monash University with this exemplary record. Apart from his position at Monash University, he has held numerous visiting appointments in respected academic establishments worldwide. His research interests are in the fields of polymers and chemical reactors, and he has an outstanding record of research and publication.

The UICEE staff, students and associates wish Prof. Tam Sridhar all the success in his new position and look forward to his support and collaboration with members of the *UICEE Global Family of Engineering Educators*.

## Annual Conference in Mumbai

Preparations are already underway for the 7<sup>th</sup> UICEE Annual Conference on Engineering Education, which will be run under the theme of *Educating for the Global Community*. The Conference will be held in Mumbai, Maharashtra State, India, between 9 and 13 February 2004, and will be carried out in parallel with the 1<sup>st</sup> Annual Conference of the Monash Asia Institute (MAI), based at Monash University, Melbourne, Australia.

This particular theme has been chosen because the world has become a global community, which now provides more opportunities for collaboration and networking. The increased level of internationalisation of engineering education has provided academic institutions with new opportunities for further cooperation in the international arena by building new, and expanding existing, regional and global networks for engineering education. Furthermore, the prime objectives of the Conference are to bring together partners, members, associates, students and supporters of the UICEE from all over the world and to continue discussion on issues of importance to engineering education.

Mumbai in Maharashtra State, India, is one of the prime business, education and financial centres, as well as tourist destinations in India, and is quite rightly called the *Gate of India*. It is one of the most beautiful cities in India, which provides visitors with a unique, spectacular and picturesque environment.

The Conference promises to be quite a momentous event and has already drawn considerable interest, as the UICEE

has three Partner institutions in India, which will provide considerable input into the Conference. Further information can be found at the UICEE Web site under *Conferences and Meetings*.

## Visit to Germany

Last June, the UICEE Director paid visits to member institutions of the UICEE in Germany and Poland in order to strengthen relationships and to review some joint activities in engineering education.

Two visits were made to Hochschule Wismar - University of Technology, Business and Design (HSW), Wismar, Germany, a Partner member of the UICEE. The first visit, early in the month, was related to bilateral activities, while the second visit, later in the month, had the objective to review and discuss the activities of the UICEE and the

*Gottlob Frege Centre for Engineering Science and Design (GFC)*, the UICEE satellite centre based at HSW, as well as a review of projects and programmes of both organisations and future plans.

The UICEE Director used these visits to reinforce the already strong working relationship with the Rector of HSW, Prof. Norbert Grünwald, and to ensure his continued advisory role in the operations of the UICEE.

## Polish Visit

While in Europe in June, the UICEE Director visited the Silesian University of Technology (SUT), a Partner member

of the UICEE, with the first day spent at its campus in Katowice. The Director was hosted by the SUT's Faculty of Materials Engineering and Metallurgy.

On this occasion, he presented two lectures: the first addressed general issues in engineering education, while the second covered the role and activities of the UICEE. Numerous discussions were held afterwards with University officials, based in Katowice, as well as several other academics. It is hoped that this visit will generate several new joint projects in the advancement of engineering education.

On the second day, the Director, invited by the Rector of the SUT, Prof. Wojciech Zieliński, met with senior University academics and presented a talk on the role, achievements and activities of the UICEE. In response to this presentation, Prof. Krzysztof Kluszczyński, Director of the *Centre for Education in Mechatronics (CEM)*, the



The photo shows, standing, Prof. W. Zieliński (l) receiving the Silver Badge of Honour from the UICEE Director, Prof. Z.J. Pudlowski (r), with Prof. B. Pochopień (l) and Prof. K. Kluszczyński (r) seated.

UICEE satellite centre based at the SUT, presented a very sophisticated talk on the philosophy and role of mechatronics, as well as the CEM's involvement in research and development in the area.

On this wonderful occasion, the UICEE Director had the pleasure to award the UICEE Silver Badge of Honour to Prof. Wojciech Zieliński, Rector of the SUT, in recognition of his ...*distinguished contributions to engineering education, outstanding achievements in the globalisation of engineering education through the activities of the Centre, and, in particular, for remarkable service to the UICEE.* The picture on the previous page shows Prof. Zieliński accepting the prestigious award from the UICEE Director, witnessed by Prof. Kluszczyński and Prof. Bolesław Pochopiń, former Rector of the SUT.

The next important visit of the UICEE Director was to the Gdynia Maritime University (GMU), Gdynia, Poland, a Partner member of the UICEE. Here, an official meeting of the *Centre for Maritime Engineering Education (CMEE)*, a satellite centre of the UICEE based at the GMU, was held on this occasion.

The discussion carried out under the leadership of Prof. Romuald Cwilewicz, Vice-Rector of the GMU and the Director of the CMEE, included a review of the activities undertaken so far, as well as new research and developmental ventures planned for the future.

The UICEE's Director's busy itinerary also included a visit to the Higher Professional State School, Tarnów, a UICEE Supporter member. He also called in to the University of Mining & Metallurgy, Department of Electrotechnics, Krakow, a UICEE Contributing Member, plus other academic institutions, potential future members of the UICEE.

## New Partners

The UICEE is delighted to announce that two new institutions have joined the UICEE Partner as members to reinforce the international nature of the UICEE.

### Altai, Russia

The Altai State Technical University, Barnaul, Russia, signed on to become a Partner member of the UICEE. It is envisaged that an *Altai Centre for Environmental Engineering Education (ACEEE)* will soon be established under the Memorandum of Agreement, which was signed on 4 February 2003.

The Centre's activities will involve research, development and the transfer of information on environmental engineering education. Special attention will be given to the development of effective strategies for environmental engineering education through the use of modern and advanced technologies, production processes and business ventures suitable for developing countries and countries in economic transition.

The UICEE welcomes this new member, which will bolster the UICEE's presence across Russia, contributing further to the international character of the UICEE engineering education network.

### Kingston, Jamaica

The University of Technology, Jamaica, in Kingston, Jamaica, after some consideration and observation of UICEE activities, also joined as a Partner member

in February 2003. Under the Memorandum of Agreement, which was signed on 23 February 2003, it is anticipated that a *Centre for Engineering Education in Central America and the Caribbean (CEECAC)* will shortly be established.

It is envisaged that the activities of the Centre will involve the transfer of new teaching methodologies to other countries, and to developing countries in the region in particular. Particular effort of the satellite centre will be to develop human resources in engineering and technology

education suitable for developing countries on a worldwide basis.

The photo shows (l-r) Mr Richard Dehring, Director, Computing & Engineering Extension Centre, Dr Rae A. Davis, President (seated), and Mr Gossett Oliver, Dean of the Faculty of Engineering & Computing, at the signing of the Agreement.

The UICEE welcomes this new Partner member from the Caribbean, which will provide a valuable link to Central America and the advancement of engineering education regionally.

### Seminar in St Petersburg

Close to 60 paper submissions have been received for the forthcoming 7<sup>th</sup> *Baltic Region Seminar on Engineering Education*, to be held at St Petersburg, Russia, from 4 to 6 September 2003. This promises to be an important event in the UICEE calendar, especially as the



Pictured here is the signing of the Memorandum of Agreement at the University of Technology, Jamaica, showing (l-r), Mr R. Dehring, Dr R.A. Davis and Mr G. Oliver.

Seminar coincides with this beautiful city's 300<sup>th</sup> Anniversary of its foundation by Peter the Great.

## UICEE Co-Sponsored Conferences

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Several UICEE co-sponsored conferences and meetings are envisaged to be held at UICEE Partner institutions in the latter part of this year.

### **Sibiu, Romania**

Preparations are well underway for the 2<sup>nd</sup> *Balkan Region Conference on Engineering Education*, to be held from 16 to 19 September 2003, and hosted and organised by the *Lucian Blaga* University of Sibiu, Sibiu, Romania, a Partner institution of the UICEE. The objective of this Conference is to activate universities in the Balkan region in engineering education, in order to boost industrial and human resource development.

### **Algiers, Algeria**

The 1<sup>st</sup> *North African Region Seminar on Engineering & Technology Education* is scheduled to be held in Algiers, Algeria, between 23 and 25 September 2003. This will be hosted and organised by the University of Science & Technology *Houari Boumediene* in Algiers.

### **Changhua, Taiwan**

The 1<sup>st</sup> *North-East Asia International Conference on Engineering & Technology Education* will be held, hosted and organised by the National Changhua University of Education (NCUE), Changhua, Taiwan, between 10 and 13 November 2003. It should be noted that the NCUE is a Partner institution of the UICEE that has already hosted the 3<sup>rd</sup> *Asia-Pacific Forum on Engineering and Technology Education* in July 2001, with a proven record in warmth and hospitality.

## GJEE Update

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Vol.7, No.1, of the *Global Journal of Engineering Education* focused on expanded papers that highlighted the achievements of the very successful 3<sup>rd</sup> *Global Congress on Engineering Education*, held in Glasgow, Scotland, UK, in June-July 2002. The Guest Editor of this issue is Prof. Colin U. Chisholm, Director of the *Scottish Centre for Work-Based Learning* (SCWBL), the UICEE satellite centre at the Glasgow Caledonian University, Glasgow, Scotland, UK. Readers will be interested to note that the issue has already been placed on the UICEE's Web site.

Vol.7, No.2 of the *Global Journal* has just been printed and distributed. This is a regular issue that showcases

expanded versions of various award papers, as well as some key regular papers, from the highly successful 6<sup>th</sup> *UICEE Annual Conference on Engineering Education*, held in Cairns, Australia, in February this year.

## World Transactions Update

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The *World Transactions on Engineering and Technology Education* are proving to be an attractive alternative in the current climate where international travel, including to conferences, is grossly impeded. However, the advancement and spread of knowledge and concepts in engineering education should not – and indeed cannot – be likewise held back.

The *World Transactions*, Vol.2, No.2, has just been completed, with 37 successful article submissions that cover a range of current issues in engineering and technology education, which promises to make this a standout issue.

Meanwhile, various submissions have already been received in response to the Call for Papers for Vol.2, No.3 of the *World Transactions*, which has a deadline of 30 September 2003.

It should be noted that all submissions undergo a strict process of peer review from a team of international referees. More information can be found on the UICEE Web site.

## Trilateral Collaboration in Tomsk

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Between 9 and 13 April 2003, Dr Bryan Temple from Glasgow Caledonian University (GCU), Glasgow, Scotland, UK, and Dr Marion Wienecke from Hochschule Wismar (HSW), Wismar, Germany, visited Tomsk Polytechnic University (TPU), Tomsk, Russia, to further prepare the trilateral master program on material science between their institutions. They were met by Prof. Alexander Chuchalin, First Vice-Rector of the TPU. It should be noted that all three institutions are Partner members of the UICEE.

In the meeting, the three Partner members agreed that the diploma of the GCU and HSW would be supported by the TPU. Education lasts for one year; for Russian students, ½ year of additional study is required in order to obtain the Russian diploma. The accreditation procedure was also discussed. The TPU's Institute of Strength Physics and Materials Sciences was also inspected, as this houses the facilities for the future research projects for the third semester of the proposed master programme, and some recommendations made for corrective action.

Given the restricted portfolio of activities, it may be necessary to change the emphasis of the programme in order to achieve an optimum match between the course and the supporting research.

## Wismar Students Visit Poland

Hochschule Wismar (HSW), Wismar, Germany, a UICEE Partner member, received a very kind invitation from the Higher Professional State School (HPSS), Tarnów, Poland, a UICEE Supporter member, to continue the excellent cooperation of both Universities and to learn more from each other. The HPSS Rector, Prof. Adam Juskewicz, invited a group of HSW students for one week to Tarnów and to take part in the *2<sup>nd</sup> European Cultural Forum*, which was held in Tarnów-Wieliczka-Cracow from 28 to 30 May 2003.

The *Gottlob Frege Centre for Engineering Science and Design*, a satellite centre of the UICEE at HSW, awarded this journey to winners of the last mathematical competition. In the last week of May, a group of nine students, under the supervision of Dr Gabriele Sauerbier, who came from different departments at HSW visited the School, the city and the wonderful surrounds of Tarnów, the salt mine museum in Wieliczka, and the old European university city of Krakow. Thanks to the untiring care of the hosts, Dr Agnieszka Lisowska-Lis, the International Coordinator at HPSS Tarnów, Dr Krzysztof Oprzedkiewicz and a group of Tarnów students, the German group could see what study conditions and life were like in Poland. The German students were impressed with highly motivated and hard working Polish students.

In today's globalised world, such tours are very important in order to understand each other and work together for the future. The German group wishes to thank the Rectors of HPSS Tarnów and HSW, Prof. Adam Juskewicz and Prof. Norbert Grünwald, respectively, for this journey.

The picture shows Dr Agnieszka Lisowska-Lis with Tarnów and Wismar students during a trip around *Polichty*.



## ACETE Moves Forward

To further the aims and objectives of the UICEE, the African Centre for Engineering and Technology Education (ACETE), a UICEE satellite centre based at Kigali Institute of Science, Technology and Management (KIST), a Partner member of the UICEE, has developed nine key strategic objectives.

This includes the identification of potential stakeholders in the region and the convening of the first regional ACETE forum next year; the initiation and enhancement of University-

industry cooperation especially in the area of R&D and student industrial attachments; the development and implementation of Inter-University programmes in engineering and technology education; the promotion of exchange between individuals and key institutions of expertise and research; the development of a regional database on activities and academics involved in engineering and technology education and research; the promotion of pedagogy in engineering and technology domains in regional higher education institutions; ensuring equivalency of standards and fostering professional ethics; the promotion of female participation in engineering and technology education in the region; and the promotion and establishment of ICT education institutes in rural areas of the region.

In order to ensure the fulfilment of these objectives, an interim Academic Advisory Committee (AAC), under the chairmanship of Prof. Silas Lwakabamba, Rector of the KIST, has been established. This shall be broadened to include membership from partners and stakeholders at the first inaugural regional seminar of the ACETE.

The Centre has already forged collaborative linkages with other centres elsewhere. Staff exchanges are already in the advanced stages with Hochschule Wismar (HSW), Wismar, Germany, another UICEE Partner member. Under this programme, six academic staff shall this year be attached to HSW to undertake their engineering and technology education initiatives.

The KIST is also collaborating with the Centre at Glasgow Caledonian University,

also a Partner member of the UICEE. Under this initiative, the KIST will train its staff to achieve professional degrees at the PhD and MSc levels on a *home-based* arrangement.

The ACETE is also in close contact with the satellite centre of another UICEE Partner member, namely the *North African Centre on Engineering and Technology Education* at the University of Science and Technology, *Houari Boumediene* in Algiers, Algeria, and will actively participate in the *1<sup>st</sup> North African Regional Seminar on Engineering and Technology Education*, to be held in September in Algiers.

## New Zealand and German Linkage

Following the *2<sup>nd</sup> UICEE Annual Conference on Engineering Education*, held in February 1999 in Auckland, New Zealand, a *Memorandum of Understanding* between the engineering faculties at Auckland University

of Technology (AUT), Auckland, a UICEE Supporter Member, and Hochschule Wismar – University of Technology, Business and Design (HSW), Wismar, Germany, a UICEE Partner Member, was signed. This Memorandum, initially planned to facilitate student exchange, soon expanded, with professors from both Universities visiting and giving lectures to partner institutions.

This year is the third year that engineering students from Germany, New Zealand and Australia have taken part in an international benchmarking programme. The course, entitled *Engineering Ethics*, looks at the special role that engineers can be expected to take in society. It is run in all three countries as a short, intense seminar held over one week, during which students are challenged to solve engineering problems from an ethical perspective. Importantly, students from each country study the same questions. Questions debated include problems from Australian, New Zealand and German perspectives and contexts.

To date, 12 HSW students have studied in Auckland, although it was not until 2001 that the first Auckland student ventured to Wismar. The initial reluctance of New Zealanders to study where English is not a first language appears to have been overcome due to the hospitality and support of their German hosts. There is now a steady flow of students and staff in both directions. In 2003, AUT's Prof. Roy Geddes, Dean of Science and Technology, and Mr Hans Oberst, a senior lecturer in the School of Engineering, both visited HSW. During his stay, Mr Oberst gave a series of seminars on computing and software engineering. In July, HSW's Prof. Mathias Wilichowski visited Auckland and undertook fieldwork in the southern part of the North Island. Even the depths of winter provides no barrier to this successful partnership!

## International Accreditation in Altai

**A**ltai State Technical University (ASTU), Barnaul, Russia, a new Partner institution of the UICEE, has conducted an international accreditation of its engineering education programme.

In order to provide a high quality professional training of specialists with higher professional education in the field of engineering and technology and to seek structural consistency in the world educational environment, the ASTU recently conducted a large scale accreditation of

the engineering bachelor programme titled *Technology, Equipment and Automation of Machinery*. The accreditation criteria chosen met the criteria used by signatories of the 1989 Washington Accord. Many ASTU staff and students were involved in the professional accreditation process.

Pictured are members of the ASTU professional education program accreditation.

After the ASTU undertook an internal audit, the Accreditation Centre of the Russian Association of Engineering Education (RAEE) decided on the audit procedures, which were conducted by an expert body that included: Prof. Nazim Sultan-Zade (Moscow State Engineering University *STANKIN*, Moscow), Dean Vladimir Kuznetsov (Tomsk Polytechnic University, Tomsk), Deputy Dean Vladimir Zamjatin (Tomsk Polytechnic University, Tomsk), and a representative of the Altai Union of Manufacturers, Vjacheslav Miloserdov (Barnaul). Audit procedures were supervised on the international level by Najel Coni from the Engineering Council (SAR). Prof. Oleg Khomutov, First Vice-Rector of the STU and director designate of UICEE

satellite centre, were responsible for representing the ASTU in the accreditation process.

On the basis of the self-study materials and the audit results, the expert body came to a mutual conclusion that the Bachelors' of Engineering and Technologies training programme meets all RAEE criteria and can be accredited for a five-year period.

This systematic and goal-oriented approach to improving education

quality and international recognition in the field of engineering education will make it possible for the ASTU to find its place in the world educational community.

## Cancellation of the Forum in Thailand

**T**he recent SARS outbreak, coupled with the military intervention in Iraq, adversely affected attendance for the 4<sup>th</sup> *Asia-Pacific Forum on Engineering and Technology Education*, which was to be held in mid-July, with many potential participants being forced to cancel due to travel restrictions. As a result, and with great regret, the UICEE had to cancel the Forum.

However, as a show of the tremendous support that UICEE participants have for the advancement and exchange of information in engineering and technology education, most of the papers were either submitted to another conference or to the *World Transactions* journal of the UICEE.



The picture shows members of the ASTU team involved in the accreditation of the professional education programme.