



AUSTRALASIAN ASSOCIATION
FOR ENGINEERING EDUCATION

NEWSLETTER

Vol.8, No.2

Melbourne, June 1996

8,27,0412



The 3rd East-West Congress on Engineering Education will be held at the Gdynia Maritime Academy, Gdynia, Poland, between 15 and 20 September 1996. The Congress is regarded as the showcase of Australian engineering education in Central and Eastern Europe. The picture above shows T. Kosciuszko Square, the most prestigious part of Gdynia. Aleja (avenue) Zjednoczenia begins at Kosciuszko Square, leading to the Gdynia Sea Terminal.

AUSTRALASIAN ASSOCIATION FOR ENGINEERING EDUCATION

8TH ANNUAL CONVENTION AND CONFERENCE

Keeping Pace with Social and Technical Change

AN INVITATION TO SUBMIT A PAPER AND TO ATTEND

Venue: The University of New South Wales (UNSW)

Dates: Sunday 15 to Wednesday 18 December 1996

Conference General Chairperson: Professor Mark S. Wainwright, Dean,
Faculty of Engineering, UNSW

Program Committee Chairperson: Professor Ian F. Morrison,
Associate Dean (Teaching and Learning), UNSW

Two different forces are having a significant effect on engineering education. The first is the expanded public expectation that engineering will produce works and projects that are socially beneficial, equitable, have accepted and understood risks and are sustainable in their environmental consequences. The second force is the rapid, continuing development of computing and communications which continues to provide the means for providing new, enhanced learning possibilities for students.

In light of this the Conference has taken as its overall theme:

Keeping Pace with Social and Technical Change.

The University of New South Wales, the host of the AAEE 8th Annual Convention and Conference, invites you to Sydney for the eighth in this series of vital engineering education conferences. The Association's eighth Annual Convention will be held in conjunction with the Conference on Sunday 15 December 1996.

Invited and submitted papers, together with open forum discussion, will be used to enhance the expertise of participants and to formulate the Association's policy on key issues. The *Call for Papers* brochures have been distributed to seek contributions from academia, industry and government.

You are urged to begin collecting your thoughts for 250-350 word abstracts on the conference theme or the wide range of topics important to engineering education.

All correspondence relating to the Conference should be addressed to the Conference Secretariat:

AAEE'96 Conference Secretariat

USICEE

Faculty of Engineering

Monash University

Clayton, Melbourne, VIC 3168, Australia

Telephone: + 61 3 990-54977, Fax: + 61 3 990-51547, E-mail: ZJP@eng.monash.edu.au

FROM THE PRESIDENT



Prof. M. Wainwright

The DEET-funded report on Engineering Education is in the final stages of preparation with the draft document to be discussed at a special meeting of the Australian Council of Engineering Deans (ACED) in Canberra on June 3. ACED met earlier in the year to provide input to the report. One aspect of the report that was generally agreed upon was that engineering education must become more broad than it currently is. There are some who would agree that if we enable broadening of the curricula we must increase the duration of the BE to 5 years. However, if we really believe in the concept of life-long learning and provide training during the undergraduate programs that encourages and equips our graduates for life-long learning the four year programs will be sufficient.

The experience at the University of Melbourne, where a very high percentage of the BE students opt for a BE/BA program, indicates the real need to provide the opportunity for undergraduate engineers to pursue their interests in languages, music and other non-technical subjects. Many students are prepared to take the extra year if those non-technical interests can be catered for.

At the meeting of ACED earlier this year a one-page article by Professor Alec Broers, Vice-Chancellor Elect and Head of the Department of Engineering at Cambridge University, was given to the participants. Professor Broers, an Australian-born engineer, believes like many of us that *an overloaded course leaves students with too little time for the extra-curricular activities that are essential for developing communications and leadership skills*. I recommend reading Dr Broers' paper *Students Need To Get a Life*, Professional Engineering, February 14, 1996, Page 23.

In his paper Dr Broers recommends that engineering students be encouraged to spend significant periods of study at institutions abroad in order that they expand their experience. As Dean I am constantly being asked by overseas universities in North America, Europe and Asia to participate in undergraduate student exchange programs. In general Australia is far behind the rest of the world in encouraging our students to study for a semester abroad for credit. Too often overzealous academics here provide great restrictions on the subjects from overseas institutions that can be taken for credit. My experience has been that students who study abroad come back enthused and are prepared to do the required background work to excel in their studies even though they may not have taken the appropriate pre-requisite subjects overseas.

We need to look no further than the Course Experience Questionnaire (CEQ), which is part of the annual survey of graduates conducted by all Australian universities on behalf of the Graduate Careers Council of Australia (GCCA). If we examine the CEQ results over the past few years we find that Engineering does not differ greatly from the other disciplines in the areas of Good Teaching, Clear Goals and Standards, Appropriate Assessment and Genuine Skills. However, it gets the highest negative value (excessive workload) for Appropriate Workload. For example, in 1994 the value for engineering nationally was -22 but for all disciplines was +2. The perception of high workloads in engineering is transmitted back to schools and is no doubt adversely affecting recruitment of students into engineering degrees.

Some universities in the region are taking note of the high workloads in engineering degrees. Notable is the University of Auckland, which has restructured all its BE degrees as four-year programs with total contact time amounting to 18 hours per week in all years.

Some Australian universities have also reduced the number of contact hours to around 20 from the traditional 25 or 26 hours per week.

I close with another quote from the paper of Professor Broers: *...well designed courses at universities should soon overcome the barrier created by the perception that engineering courses are difficult and boring. The next task is to make sure that job prospects are exciting.* The last point is a separate issue to be discussed later.

Professor Mark Wainwright
Dean
Faculty of Engineering
The University of New South Wales
President of AAEE

ENGINEERING BUSINESS OR THE BUSINESS OF ENGINEERING

Three reports have been released in Australia during 1995 which must give some cause for reflection for those involved in the education of engineers. Although only incidentally linked by the time of their release, the ramifications of these reports will be inextricably intertwined for some time. The ultimate response to the reports by university educators may yet determine course curricula for the next decade to come. In April the report of management and leadership (Karpin Report) was released. Called *Enterprising Nation*, it outlined a new strategy for improved education for managers in Australia. Shortly after, the Industry Commission released its three volume draft report on the provision and management of research and development in Australia. The third report, issued by Senator Peter Cook, was the long-awaited issues paper called *Innovate Australia*. This paper was written after a series of workshops and seminars were held throughout Australia. These three papers will be briefly summarised and some implications for engineering education will be drawn.

The Karpin Report

Based on the result of 27 research studies conducted in Australia, Asia, Europe and America over the last 3 years, the Karpin Report called for a paradigm shift for managers and the teaching of managers. It identified that only 10% of Australian managers held a degree, whereas the percentage in Germany, Japan, France and USA was between 80-90 percent. While the implication may well have been that more managers need university degrees, it recommended a greater role for the TAFE system as an education provider. Indeed the report was strangely silent on the role of universities providing management education at the undergraduate level.

The report recommended a new approach to the proposed paradigm shift for the teaching of managers. The report argued that in order to realise a vision of improved living standards for all Australians better management skills were needed to coordinate and direct workplace reform which would produce internationally competitive enterprises. The five levers for change were:

1. developing a positive enterprise culture through education and training;
2. upgrading vocational education and training and business support;
3. capitalising on the talents of diversity;
4. achieving best practice management developments; and
5. reforming management education.

In particular it recommended a comprehensive strategy for management development including the definition of, and strategy for, implementing best practice in management development. The ideal of systematic and comprehensive management development programs was thought to be quite different from the reality of current programs in Australia.

The Task Force's vision for the future was that of the learning organisation whereby managers would continually update their skills. This would become the standard philosophy for many Australian enterprises. The learning organisation would be one that coped with change and turbulence in its environments. Quality would act as a guiding light within all organisations with a customer first commitment. While the report was bold in its vision, it recognised that this vision reflected ideals that, for the most part, were not being achieved by Australian organisations or Australian education providers.

Innovate Australia

The subtitle of this paper issued by Senator Cook is *Developing an Innovation Culture* and it highlights the premise of the participants who were involved in the national consultation program. The participants had what they believed was a common sense view of innovation, namely, that those persons involved within the organisation were those best placed to pursue innovative activities. Better communication between management and employees, they believed, was a simple device to generate more ideas for innovation. This view effectively debunked any attempt to provide a nationwide mechanistic approach to innovation by the Commonwealth Government. In part, the participants believed that the difficulty facing Australia was one of a risk-avoidance business culture at the organisational level plus inadequate leadership skills in organisations, a feature which was also recognised by Karpin.

Significantly, the paper identifies inadequate skills of existing corporate managers. Board members in Australia had a narrow base of skills and many general managers had a general lack of understanding of science and technology issues. In what seemed to be an echo of the Karpin Report, the industry participants acknowledged inadequate management-development programs at the firm level. There were many management courses available, they acknowledged, but few addressed the issue of developing ideas and innovation within organisations. The implications for the reader were clear. How could Australia develop an innovative culture if its business organisations themselves did not, or could not, develop their own managers, or if university courses were not relevant to the market place.

In addressing the issue of graduate training, the participants recognised that high ability students were more attracted to the high status professions of medicine and law rather than to the fields of science or technology. This situation was in contrast to Japan or Germany where the brightest students were attracted to engineering. The industry participants thought that the vast majority of engineering graduates were seen to be of limited use to employers unless they had undergone extensive retraining and work experience within the firm. Many felt the need for a medical type internship, without it seems acknowledging the difficulties already faced by the engineering faculties within universities in obtaining appropriate placements within industry.

The paper also highlighted that many science and engineering graduates had a generally poor understanding of business issues. Students lacked knowledge in planning, financial management, market realities and business imperatives. Likewise the participants thought business graduates, accountants and lawyers had a poor understanding of science, and science and technology issues. Few graduates had any understanding of what an innovative business culture was.

Industry Commission Report: Research and Development

The third report is the Industry Commission Report on Research and Development (1995) in four volumes, which covered the broad areas of research and development innovation in Australia, the role for governments, government research agencies (in particular the CSIRO), university and related research, innovation in business, rural research, and linkage mechanisms. The particular role of manager received attention in passing, as it described practices in the research and development field with personal networks, and inter-firm linkages, although there was little attention directed to the training of managers. The Commission focussed on innovating firms, which were viewed as creative, learning organisations, which learnt about the need to change from their own experience of production, the activities of rivals, and exposure to the environment. This view, however, seems at odds with the experience of firms surveyed by the Karpin Committee. This report then focussed upon management issues of R&D when, in Chapter X, it began to discuss the problem of commercialisation of R&D in Australia. The report did identify the lack of market focus in research and development and the lack of interaction with industry by researchers. There were also cultural differences between researchers in the public sector and those interested in commercialising research. The report only briefly mentioned the identification, selection and training of researchers. While the central role of universities is acknowledged, the Commission noted the disparity between fundamental and applied research. Strangely the Commission was silent on the role of the training of managers of research, rather than the training of researchers. The Commission seems to have accepted the arbitrary discipline-based distribution between researchers and managers, which, paradoxically, the *Innovate Australia* paper criticises.

Implications for Education Providers

There are a number of issues raised by the three reports, some of which are inter-related and some of which are not. Coming so soon on the heels of the Williams review of the discipline of engineering, universities may individually or collectively resist further attempts to change their programs one more time. This would be a foolish move. As described in the subsequent DEET report into the impact of the discipline review of engineering many universities did move to improve what they were doing. Responding to such recommendations can, in the case of curriculum design, take some time before results are achieved. One recommendation from the *Innovate Australia* paper appears to be an argument for a broadening of the knowledge base for graduating engineers to include the provision of management or business studies in the engineering curriculum. While there has been some move to introduce this, it will place more pressure on an already crowded curriculum. It also begs the question of having suitable trained and experienced personnel available to present the material to the engineering class. In addition, the private sector may need to overcome its reluctance to become involved in graduate training. It will need to provide spaces for engineers who would receive payment in their practicum. However, some universities are taking the lead in this area by offering MBA studies with a heavy emphasis on technology. This may only supply management training to those graduates from particular universities. This could be the way of the future for larger universities if they had sufficient engineering staff skilled in management practices.

Any change to current organisational practices produces challenges, not the least in universities which traditionally have been slow to react to changes in their environment. This is more so for disciplines such as engineering where the sunk costs are high, as are the opportunity costs of changing. Yet the universities themselves have acknowledged the resourcing costs of changing programs. New expensive equipment is needed which often has a short life cycle. The tenure system within universities also makes it difficult to change the staffing profile quickly, and co-operation with industry can be difficult.

As the recent report into the Conditions for Fostering Co-operative Education Between Higher Education and Industry shows, the difficulties faced in changing education are more human than technical. The changes necessary for an engineering paradigm of vocational education threatens systems, behaviours and accepted ways of thinking. Can Australian universities respond to this challenge? Collectively, they may not, but individually there is hope. Whatever the case, as a participant, it will be interesting to watch.

*Chris Martin BA DipED MBA
Lecturer in Management
University of South Australia*

THE 2ND MID-TERM AEESEAP INTERNATIONAL CONFERENCE ON ENGINEERING EDUCATION



A/Prof. T. Berreen

The mid-term International Conference on Engineering Education of the Association for Engineering Education in South East Asia and the Pacific (AEESEAP), was held at Makuhari, Chiba, Japan from the 23rd to the 26th April 1996. This year marked the Silver Jubilee Year for AEESEAP which has grown to having 16 country voting members and over 350 members worldwide. AEESEAP organises an International Conference every third year and now a mid-term conference in the interim.

This 2nd mid-term Conference was hosted by the Japanese Society for Engineering Education (JSEE) and the venue was the very impressive Nippon Convention Centre at Makuhari Messe on Tokyo Bay. The theme of the Conference was Past Accomplishment and Future Prospect and the purposes of the Conference were to promote co-operation between the participating countries, to exchange views on the future of engineering education and to work together for South East Asia and the Pacific, the region of great potential.

The Conference attracted over 100 papers with over 200 delegates from 23 countries including Japan, Australia, Bangladesh, Brunei, China, Egypt, Fiji, Finland, Great Britain, Hong Kong, India, Indonesia, Korea, Laos, Malaysia, New Zealand, Papua New Guinea, Philippines, Russia, Singapore, Taiwan, Thailand and USA. Of particular note in the paper presentations were significant contributions from Japanese engineering industry including three keynote papers on the role of continuing education in industry from Matsushita Electrical Industrial Company, NEC and Mitsubishi Heavy Industries. This strong interaction with industry was a feature of this Conference and such an interaction has often been missing from other engineering education conferences. Also associated with the Conference was an exhibition of multimedia educational hardware, software and other related materials and visits to nearby technology halls at Sharp, IBM and Canon. The JSEE is to be congratulated for the success of the Conference and on their organisation of these contacts with Japanese industry, the multimedia exhibition and the technology visits.

The next AEESEAP International Conference on Engineering Education is to be held in Manila, Philippines from 18-21 August 1997.

*Assoc. Prof. Terry Berreen
Department of Mechanical Engineering
Monash University
Secretary/Treasurer of AAEE*

A VIEW FROM GLASGOW



Prof. T.W. Cole

Last week was the peak of celebrations marking the Bicentenary of Strathclyde University here in Glasgow - entitled *200 Years of Useful Learning*. The celebrations were enjoined by University, City and alumni and mark the boldness of the vision of a rather interesting character, Professor John Anderson, who died in 1796 leaving his property *to the Public for the good of Mankind and the Improvement of Science, in an Institution to be denominated 'Anderson's University'*. He was a man ahead of his time in that he was passionate in life and death to broaden access to education for all sectors of society regardless of gender, religion or class.

Reading of his experiences and undertaking a history course on *Scotland in the Eighteenth Century* has only heightened a belief that contemporary Australia could benefit much from the sort of inventiveness, entrepreneurship, commercialisation, focus on engineering, and emphasis on learning that existed in Glasgow 200 years ago and which continues to evolve and grow. Glasgow, in its buildings and institutions, epitomises a society which has earned great wealth through adaptation and change to prevailing circumstances.

Anderson's Institution became the University of Strathclyde in 1964 after a range of amalgamations and changes of name but still the original spirit of useful learning prevails. As to other, more prescriptive elements of Anderson's will, one may well wonder: *The Professors in this University shall not be permitted, as in some other Colleges, to be Drones, or Triflers, Drunkards or negligent of their Duty in any manner of way; while at the same time, the Trustees shall give every encouragement to such as are laborious and active in doing their duty. But, these encouragements had to be made with care: And if additions shall be made to the salaries of any of the Professors it shall be done with prudence and in order to encourage merit; it being well known that where Professors have great independent Salaries and the Power of increasing their own Salaries, they, in general, become either perfectly idle, or Execute only part of their duty, or become so negligent of it as by their Conduct to lead the Students to be idle and dissipated.*

This is the time of year here when students have only a few more weeks to examinations but also when the final year students display the results of their projects in posters, presentations and reports. The maturity of these students makes one perhaps believe that Anderson's directive on student admissions was adopted: *... no men may be admitted who are disorderly, talkative, ill-bred or intoxicated; and no women that are giddy or incorrect in their manners.*

One outstanding feature of the student projects is the emphasis on advanced technologies and potential applications within industry and products and services. This linkage to the market place is also apparent in the research student projects and staff research - a real manifestation of a university-wide culture to be concerned with the usefulness and value of university-generated intellectual property.

But even more is expected of universities in Scotland. A major review conducted by the Royal Society of Edinburgh and Scottish Enterprise has concluded that there is insufficient commercialisation of university research, especially through the *spin-out* process of company formation. This is part of an overall Scottish emphasis to increase the rate of company formation, a policy direction supported by Scottish Enterprise through seminars, courses and funding. I have been able to work with developments of undergraduate courses in entrepreneurship, and a range of city, regional and Scottish national activities targeting

wealth creation, employment growth and improvements to the quality of life in Scotland.

Given that Scotland is of the same general population and structure as a State in Australia, one does have to wonder at the relative paucity of effective activity in Australia. Perhaps the real agents of change are not governments and industry but the universities themselves; perhaps Australian academics should be more concerned with the community and nation.

That university engineering departments can be agents of change was brought home most forcibly in another of the Bicentenary events - the *Henry Dyer Symposium on Industrial Globalisation* held in conjunction with the University of Tokyo. It marked the fact that over 120 years ago a small group of samurai Japanese, at the time of the Meiji Restoration, were smuggled out of Japan to learn the secrets of engineering in Glasgow. They invited Henry Dyer, a top-ranking student from Anderson's University, to lead a group of eight to Tokyo in 1873 to establish the Imperial College of Engineering, now the Faculty of Engineering at Tokyo University. The rest, as they say, is history. From this flowed the incredible industrialisation and development of Japan.

The President of Tokyo University, Professor Yoshikawa (an engineer and initiator of the Intelligent Manufacturing Systems program) projected the current need for that same sense of vision - to alleviate disparities in wealth by open and broad dissemination of knowledge. In particular, a new industrial revolution is required in which companies see value in a broader dissemination of *post-competitive* knowledge and in which universities work closer with industry to systematise and disseminate that industrial know-how which will enable other poorer communities and sectors in society to better share the wealth and quality of life in a sustainable future.

John Anderson and Henry Dyer, where are your descendants in Australia?

Professor Trevor W. Cole
24 April 1996

A CALL FOR RENEWAL OF MEMBERSHIP

At the 7th Annual General Meeting the Executive Committee approved the increase of membership fees. It was decided that membership fees for 1996 would be \$A40 for individual members and \$A20 per teaching staff member in the institutional category. Association members are kindly asked to renew their membership, and to encourage their colleagues who are not members of the AAEE to join our Association. Although fees are payable by 30 January each year, AAEE members who are corporate members of the IEAust and who wish to nominate the AAEE as society of their first choice, are encouraged to renew their AAEE 1996 membership through the IEAust, using the IEAust's 1996 Subscription Form. Subscriptions to the Australasian Journal of Engineering Education for 1996 have also been increased to \$A35 for individuals and \$A70 for institutions.

A call for renewal of membership is therefore made and a single-page reminder is included in this issue for those who are not members of the IEAust or who would prefer to renew their membership through the AAEE Secretariat.

AAEE ACTIVITIES IN 1996

Our readers will find it exciting to learn that our Journal, the *Australasian Journal of Engineering Education* (AJEE), is the world's first and only journal on engineering education

with its full text available through the Internet. The UNESCO Supported International Centre for Engineering Education (USICEE), the host of the AAEE, together with the Monash University Library and the Unit of Medical Informatics last year received a grant in 1995 from the Australian Vice-Chancellor's Committee (AVCC) to carry out a research project concerning the publication of an electronic journal.

Two issues of the Journal (Vol.6, No.1 & 2) were marked up in 1995 and are available on the Internet. The two issues may be accessed at the Monash University Library address: <http://elecpress.lib.monash.edu.au/ajee/> or at the comprehensive USICEE Home Page: <http://civil-www.eng.monash.edu.au/usicee/usicee.htm>. A record of all visitors to the Journal has been kept since the first issue was placed on the WWW in August 1995. It is marvellous to note that by mid-April 1996, 8,260 visits to the journal's Home Page on the Internet were logged. Apart from its WWW Home Page, the USICEE runs several electronic mailing lists for the benefit of the engineering educational community.

A new issue of the AJEE, volume 7 number 1 is currently in circulation. It includes an interesting selection of contributions to engineering education, mostly from Australian authors. It is envisaged that this issue will also be available through the Internet.

On a conference front, the *3rd East-West Congress on Engineering Education*, to be held at the Gdynia Maritime Academy between 15 and 20 September 1996, is being organised by the USICEE under the theme *Re-vitalising Academia/Industry Links*. The response from the international community of engineers and educators has been excellent with the submission of over 100 papers and close to 300 expressions of interest in attending the Congress received from a total of 35 countries worldwide.

Immediately after the 3rd East-West Congress in Gdynia, an *International Conference on Quality Assurance in Higher Education* will be held at the University of Mining and Metallurgy (UMM) in Cracow, Poland (22-24 September 1996), with the USICEE as a co-sponsor. This is an opportunity for international visitors to extend their stay in Poland and visit Cracow, the pearl of medieval Poland. For more details please contact Dr Janusz Szpytko at the UMM by e-mail: szpytko@uci.agh.edu.pl.

Also, the Centre, in conjunction with the AAEE, was successful in its bid to organise the *5th World Conference on Engineering Education* to be held in Cracow, Poland, between 16 and 20 September 1998. This Conference will be part of a *Global Congress on Engineering Education* organised and co-ordinated by Australians in Central Europe. The Global Congress will also incorporate the *4th East-West Congress on Engineering Education* and the *1998 International Congress of Engineering Deans and Industry Leaders*.

It should be mentioned that a number of regional conferences on engineering education will be held in 1997 as a forerunner to the Global Congress. The objective of this series is to raise the profile of engineering education in such regions as Africa, Central and South America, the Arab world, Asia-Pacific, and the countries of the former Soviet Union, and to prepare the stage for the Global Congress. It is hoped that AAEE members will take an active part in the Congress.

The 8th Annual Convention of the AAEE will be held at the University of New South Wales between 15 and 18 December 1996. *Keeping Pace with Social and Technical Change* was chosen as the Conference theme. A call for papers has been in circulation since March 1996. Potential participants wishing to register their interest should contact the Conference Secretariat at the USICEE.

FORTHCOMING CONFERENCES ON ENGINEERING EDUCATION

Ukraine, Donetsk, 11-13 June 1996 - International Scientific and Practical Conference *Region 96* - A Strategy of Surviving and Development of Donbass. Organised by: Progressive Reforms Support Fund, the Donetsk State Technical University. Contact person: Larisa V. Opanasuk, Tel: +7 0622 925598, Fax: +7 0622 921278, e-mail: info@dgtu.donetsk.ua

France, Paris, 2-5 July 1996 - World Congress of Engineering Educators and Industry Leaders. Organised by: UATI. Contact person: Dr V. Saminaden, Tel: +33 1 43062029, Fax: +33 1 43062927, e-mail: unispar@unesco.org

Austria, Vienna, 11-13 September 1996 - Educating the Engineer for Life-long Learning: SEFI Annual Conference'96. Organised by: University Extension Centre, Vienna University of Technology. Contact person: Mr Franz Reichl, Tel: +43 1 58801/4029, Fax: +43 1 5054961, e-mail: reichl@ecx.tuwien.ac.at

Poland, Gdynia, 15-20 September 1996 - 3rd East-West Congress on Engineering Education. Organised by: USICEE/AAEE, Monash University, Clayton, Melbourne, Australia. Contact person: A/Prof. Zenon J. Pudlowski, Tel: +61 3 990-54977, Fax: +61 3 990-51547, e-mail: ZJP@eng.monash.edu.au

Poland, Cracow, 22-24 September 1996 - International Conference on Quality Assurance in Higher Education. Organised by: University of Mining and Metallurgy, Cracow, Poland. Contact person: Dr Janusz Szpytko, e-mail: szpytko@uci.agh.edu.pl

Poland, Lodz, 22-24 October 1996 - World Congress of Industry Leaders and Educators, Fair of Engineering Innovations and UNESCO-UNISPAR Seminar. Organised by: Technical University of Lodz and the Chamber for International Economic & Scientific Cooperation. Contact person: J. Golygowski, Tel/Fax: +48 42 819666 or 848722

USA, California, Irvine, 5-6 December 1996 - 1st International Symposium on Energy and Environmental Management and Technology. Organised by: International Consortium for Research on Energy and Environmental Management and Technology (ICREEMT). Contact person: Prof. M.M. Mansouri, Tel: +1 714-509-1124, e-mail: mmansouri@ccmail.gsm.uci.edu

Australia, Sydney, 15-18 December 1996 - 8th Annual Convention and Conference of the Australasian Association for Engineering Education. Organised by: USICEE/AAEE and the Faculty of Engineering at the University of New South Wales. Contact person: A/Prof. Zenon J. Pudlowski, Tel: +61 3 990-54977, Fax: +61 3 990-51547, e-mail: ZJP@eng.monash.edu.au

Stockholm, Sweden, 14-17 June 1997 - Teaching Science for Technology at Tertiary Level. Organised by: Centre for Educational Research and Development, Royal Institute of Technology, Stockholm, Sweden. Contact person: Dr Soren Tornkvist, Tel: +46 8 790-8429, Fax: +46 8 790-6030, e-mail: tornkv@admin.kth.se

Australia, Melbourne, 6-9 July 1997 - First Asia-Pacific Forum on Engineering and Technology Education. Organised by: USICEE, Monash University, Clayton, Melbourne, Australia. Contact person: A/Prof. Zenon J. Pudlowski, Tel: +61 3 990-54977, Fax: +61 3 990-51547, e-mail: ZJP@eng.monash.edu.au

Poland, Cracow, 16-20 September 1998 - Global Congress on Engineering Education, incorporating the *5th World Conference on Engineering Education*, the *4th East-West Congress on Engineering Education* and the *1998 International Congress of Engineering Deans and Industry Leaders*. Organised by: USICEE, Monash University, Clayton, Melbourne, Australia. Contact person: A/Prof. Zenon J. Pudlowski, Tel: +61 3 990-54977, Fax: +61 3 990-51547, e-mail: ZJP@eng.monash.edu.au



The picture above shows the Gdynia Sea Terminal. Anchored at the terminal is the famous Polish tallship "Dar Pomorza", presently a maritime museum. The Banquet of the 3rd East-West Congress of Engineering Education will be held on board "Dar Młodziej", the flagship of the Gdynia Maritime Academy (GMA), which is the host of the Congress. She is normally anchored next to the Dar Pomorza, but at the time when this photograph was taken she was on exercise with students in the Baltic Sea.

For details of the Association and membership applications write to the Editor:

Associate Professor Zenon J. Pudlowski, Faculty of Engineering, Monash University, Wellington Road, Clayton, Melbourne, VIC 3168, Australia, Telephone: +61 3 990-54977, Fax: +61 3 990-51547, E-mail: ZJP@eng.monash.edu.au

Association members and academic institutions are invited to contribute to the Newsletter on matters relating to membership and engineering education.

Send contributions to the Editor at the address above.