



AUSTRALASIAN ASSOCIATION FOR ENGINEERING EDUCATION

NEWSLETTER

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The University of Adelaide, South Australia, will host the 3rd AAEE Annual Convention and Conference, between 15 and 18 December, 1991. Preparations are well underway, with over 90 paper proposals submitted to the Organising Committee, which operates under the leadership of Professor John B. Agnew. The present situation, concerning the preparations for this important gathering, is presented overleaf. Picture above shows Adelaide University's main building.

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3RD ANNUAL CONVENTION AND CONFERENCE OF AAEE

under the theme:

Broadening Horizons of Engineering Education

Venue: The University of Adelaide, South Australia

Date: Sunday 15 - Wednesday 18, December 1991

Principal Sponsor: TELECOM AUSTRALIA

The conference theme addresses the need for changes to our traditional views of engineering education in order that we might respond more effectively to social, industrial and professional needs.

An excellent response was received to the Call for Papers, and letters have now been sent to selected authors requesting complete papers for publication in the Conference Proceedings. Final acceptance of papers will be made after the 11 October deadline for receipt of camera-ready manuscripts and a guarantee of attendance of at least one author for presentation.

Invited Keynote Speakers include:

- * Mr Martin Thomas, President of IEAust.
- * Mr Peter Laver, Chair of NBEET.
- * Dr Keith Williams, The Open University, UK.
- * Professor David Elms, President-elect, Association for Engineering Education in South East Asia and the Pacific.
- * Professor John Bowie, Convenor MFP - University Co-ordinating Group.

Several social events have been scheduled. Guest speaker at the Dinner at Hardy's Winery will be Mr William F. Scammell, CBE, Chancellor, The University of Adelaide (formerly Chairman of Fauldings Ltd). Mr Scammell is a most entertaining speaker with an excellent knowledge of South Australia and its wines.

Registration forms will be sent shortly to everyone on our mailing list.

Please register early for what will undoubtedly be the highlight of the academic year and a great opportunity to unwind before the Christmas break.

Further enquiries to:

Dr Caryl Cresswell
Secretary, Organising Committee (08 228 5442)

Professor John Agnew
Conference Chairman (08 228 5445)

FROM THE PRESIDENT

Engineering education has been surprisingly high on the national agenda over the last few months. As Australia realises that economic recovery can be based on value-adding through advanced skills - especially engineering skills - a major challenge emerges to address the magnitude, type and effectiveness of skills within Australia.

The May Prime Minister's Science Council Meeting focused on Engineering and the presented paper, *Engineering in Australia*, illustrates the role engineers can and should play in the recovery and advancement of Australia. Policy proposals, well known in AAEE, include increased managerial course content, and excellence in teaching.

Advanced Engineering Centres were proposed and these survived at least the early stages of Federal Budget negotiations. We wait to see if such centres will be funded to achieve a focus on engineering research and excellence as well as enhanced relevance and quality to the higher year undergraduate engineering courses.

Three-year training through a B.Tech degree received special attention as a means to address skill shortages in many areas not specifically requiring the full professional degree. AAEE would do well to address in detail the B.Tech concept.

All these issues were revisited in the Engineering Summit held by the IEAust. last month, leading to a draft National Technology Policy based upon its findings. Aimed at lifting international competitiveness and industry/educational linkages, we look forward to commenting on the draft.

The IEAust. taskforce under David Skillington reported and called for a boost in salaries and numbers of academics, increased industry/university interaction, an injection of funds to boost equipment standards in universities and a linkage of tenure to academic performance. Minister Baldwin was not enthusiastic, pointing out that much of the proposed change (which is already within the power of Vice-Chancellors to implement if they so choose!) is of a type to which industry itself, as primary beneficiaries from such focused professional education, must contribute.

But industry support is predicated on there being an industry and also an industry sector which itself sees that vision which universities increasingly espouse. My difficulty is putting faith in an industry sector which cannot even contribute to the undergraduate work experience requirements which they themselves seem to insist be a part of engineering training.

Minister Baldwin has questioned whether creation of more graduates would, in itself, lead to increased industry. The reverse has been manifestly true, with our pathetically low levels of use of engineers in design and production having led to an emaciated industrial sector. AAEE is at least one organisation which sees that quality graduates are the precursor to new insights and perceptions, new technologies and visions so critically needed. I believe AAEE recognises the types of engineer needed and the importance of the task. But if DEET and industry are not yet convinced, and if other sectors of government and society are not coming forward in support, then the level of debate must intensify.

A momentum might well have been created but it would be utterly foolish to assume that significant impact and change has hereby been achieved. Underlying attitudes and weaknesses are incredibly immovable and destructive. If anything, the heat must be turned up. We need to be blunt and perhaps even rude in attacking the structural impediments to industrial reform and development. As citizens of Australia, we owe it to ourselves and Australia to make the economic imperative the number one national agenda, to make our students understand the responsibilities placed on them to lead industry forward, and

understand that as engineering educators we need to focus on quality and excellence combined with the grit needed to achieve goals of national importance.

*Professor Trevor W. Cole
Department of Electrical Engineering
The University of Sydney
President of the AAEE*

THEORY VERSUS PRACTICE OR HOW TO SAVE MONEY BUT END UP COSTING A FORTUNE



Mr K.J. Davidson

Back in the 1970's, when I was personally completing a Communication and Electronics Diploma at RMIT, the philosophy of all tertiary institutions was based on practical applications. Laboratories were well equipped with all types of testing equipment, from the simple device to the complex machine. The laboratories were well kept, technicians were plentiful and there was good morale. Today that has all changed. No longer is there money for equipment, technicians are an endangered species and as for morale, it is difficult to find. All that change stemmed from cutbacks in funding, the consequences now coming home to roost.

Changes to finance caused a re-evaluation of where money should be spent. Micro computers were coming to the fore and specialist software came out of the woodwork. Some of those packages included Finite Element Analysis (FEA), simulation programs, teaching programs and more. All the packages became realisable on Micros both in technology and affordability. So where did the emphasis go?...to the purchase of computers and software. The more such equipment was purchased, the more the courses were structured around that technique of analysis, simulation and other engineering functions. As the students were spending less time in the laboratories on practical function, fewer were the number of technicians needed. The more the computers were used, departments believed they could reduce the practical content, eliminating experimentation. So the downward spiral started.

How do we know this? As a company, we are in contact with tertiary facilities around Australia on a very regular basis. Some of you will know of us; some of you will not. We work closely with the heart of engineering and applied science department personnel, including technicians, laboratory managers, lecturers and department heads.

We visit laboratories, we watch the change in facilities, hear the stories and feel the morale. We also watch very closely what is happening in industry as it is also a large user of the products we supply.

We are now seeing the effects of computer emphasis and practical sacrifice. We can provide many instances of the *blind reliance* on computer information but none is more graphic, to use a *computer* term, than the following example. A pump manufacturer was about to release a new plastic pump but decided to check the stress levels in the product. The experienced chief engineer was concerned with leaks and wanted to ensure the product was right. The manufacturer provided three organisations with detail to carry out FEA. Each company provided the results. ALL THREE WERE DIFFERENT in magnitude and expected location of maximum principal stress. Naturally the engineer was worried - which one should he believe, if any. So he decided to go for a practical solution. The technique was Photostress and it showed within seconds of the test starting where the major failure occurs, magnitude of the stress and what action to take to rectify it. It should be noted that the practical result was VERY different from the FEA values and position. As a result of the PRACTICAL test, they modified the device before it went into production. If it had not

been for the experience and foresight of the chief engineer, the company may have saved money with FEA, but would outlay a fortune by having to recall its product and fix the problem.

Too often in industry, we find young engineers today, unaware of the need for practical results. The syndrome of the *computer is right* is certainly more than just a statement. We need to alter the process; it starts at the education facility. It is essential to move back to practical work, even if it is to verify the computers' theoretical results. Young engineers are walking into industry without a decent grounding or knowledge of practical techniques.

There is a need and space for both the computer training and practical knowledge. If we do not start addressing such issues right now, we will turn from the Banana Republic of today to the country no one wants to buy from tomorrow. Our product quality must be improved, design verification enhanced, production techniques evaluated. Just look at Korea's dramatic improvement in all such aspects of manufacture. Part of that improvement resulted from the combined efforts of industry and education to raise the standard in practical experimentation.

We realize some facilities are better off than others through obtaining of grants, however, the general educational field needs to be reviewed and positioned to give Australia the strength to take hold of the 1990's and move forward in the years to come.

As a member of AAEE, I feel a sense of responsibility to help improve the link between education and industry. We see shortcomings in the training of engineers; if these shortcomings are overlooked, the author of this feature would be failing in his duties as a contributor to the AAEE. The Association's goals are to improve the education standard of all engineers and more closely relate it to the requirements of industry. Such goals can be achieved with feedback from industry. This article is written to draw attention to the changes over the last 18 years or so and highlight where we may be going wrong. Each student is an investment; let's analyse our portfolio.

*Mr Kevin J. Davidson
Managing Director
M.B. & K.J. Davidson Pty. Ltd.*

HOW TO USE DATABASE MANAGEMENT TO MORE EFFECTIVELY MEET CONTINUING ENGINEERING EDUCATION NEEDS



Prof. R.D. Elliott

To effectively use a database, a continuing engineering educator must first collect appropriate data on seminar/conference attendees. Basic data for the continuing engineering educator's database should include:

- (a) contact date/time,
- (b) contact person,
- (c) contact person's address (if different from attendee),
- (d) attendee prefix,
- (e) first name, middle initial, last name and suffix,
- (f) attendee title,
- (g) organization name,
- (h) mail stop/department,
- (i) city/state/zip,
- (j) telephone number and name tag name.

Additional data would include:

- (a) job function,
- (b) gender,
- (c) the names of respondents' immediate supervisors, or name and title of person authorizing attendance,
- (d) key code information to monitor effectiveness of individual mailings and mailing list,
- (e) standard industrial classification (SIC) number (if a business firm),
- (f) company size in terms of number of employees,
- (g) FAX,
- (h) source of the registration (brochure, catalog, space ad, personal letter, etc.).

A continuing engineering educator will use the database information in a number of different ways. First of all, confirmation forms and/or invoices will be sent to course registrants. Next, name tags, rosters, name tents, and certificates will be printed from the database. Third, an educator will use the database for future communications with the attendee.

After a course is over, an educator may send a thankyou letter to the participant or to his/her superior. Later on, an educator will use the database to do a needs assessment. Questionnaires will be sent to past attendees to find out other continuing education needs. Telephone surveys will be conducted to identify appropriate topics for programs. A participant's superior or boss will be questioned to find out the kinds of courses that should be developed and presented in the future.

Last, a continuing educator will use the database to promote future continuing engineering courses. Promotional literature may be sent to the past attendee or to his/her superior. Depending upon the targeted individual, appropriate appeals will be developed in promotional literature to encourage the recipient to participate in other upcoming continuing engineering education courses.

While building a database, a continuing educator must also make sure that the database is properly maintained. First, an educator must keep the database unduplicated, ie, an individual's name should appear only one time on the database. To ensure a clean list, an educator should only add the names of participants who are not already on the master file. If the individual has already taken a course in the past, his/her name will already be in the database. When this individual takes another course, his/her record should be updated with the appropriate course and other information.

Next, a continuing educator should take steps to remove the deadwood or obsolete names from the mailing list. During any one year, many individuals retire and are no longer candidates for continuing engineering education programs. At the same time, other individuals may have entered different careers and are no longer interested in receiving invitations to attend courses. Last, many individuals will no longer be working for the same organization, and as a result will have a new address.

To help remedy this problem, an educator should mail an audit brochure to everyone in the database once per year. Recipients of the audit brochure should be asked to return a self-addressed postage-paid card indicating their desire to stay in the database. Individuals who do not return the audit card will be removed from the database.

Also, a continuing educator should print an *address correction* statement on the mailing panel of the brochure and provide space for recipients to supply address changes to the educator. Once these update changes are received, an educator can change the address so that interested prospects can continue to receive invitations.

While developing and maintaining an internal database, a continuing engineering educator should also use external databases to better serve the continuing engineering education needs

of the targeted population. For example, an educator should send a calendar listing of all of the upcoming courses to the members of an appropriate engineering association. Members of the association who would like more information on any one or all of the courses would be asked to return a postage-paid reply card and then have their name added to the database.

An educator should use the same approach with subscribers to certain publications. Like the association member, the magazine/journal reader would be asked to indicate his/her course preference(s) on a reply card which would be mailed to the continuing engineering education office. The interested prospect would be added to the internal database and would receive invitations on programs appropriate to his/her interest.

After having developed a comprehensive database, a continuing educator should make effective use of database information to better serve the continuing engineering education audience. An educator should take a number of steps to achieve this objective. First, an educator should send at least two invitations to appropriate individuals in the database. Many times, a recipient will lose, mislay, or forget about his/her invitation to attend a continuing education course. A second mailing is a reminder that encourages the individual to consider attending the course. As a rule, the response rate from a second mailing is approximately 50% of the response rate from the first mailing. Usually, the second mailing is sent to arrive two weeks after the first mailing arrived.

Next, an educator should give individuals on the database plenty of advance notice concerning the presentation of a continuing engineering education program. Typically, an educator will want to give at least two months' notice to prospective participants on programs lasting two or more days. Programs of shorter duration require less advance notification; however, most educators usually mail too late as opposed to too early. Travel distance, level of the program and the program location are some additional variables that an educator should consider when determining the notification date. Allowances should also be made for the length of time it takes the postal authorities to deliver the mail (typically two to four weeks for third class bulk mail in the US).

Third, an educator should make sure that an appropriate amount of time and money is spent on promoting continuing engineering education courses. Typically, an educator should expect to allocate around 20% of the total expected revenue to promotion. For example, if a course is expected to bring in 5,000 US dollars in revenue, an educator should plan on spending approximately \$1,000 on promoting the course. The \$1,000 would be spent on retrieving and preparing database information for a marketing campaign.

Fourth, when possible, a continuing engineering educator should send personalized invitations to appropriate individuals on the database. For example, a past attendee's boss should receive a special letter plus brochure invitation inviting him/her to send another participant to a repeat session of a previous course. As another alternative, an educator might write to all of the previous attendees in an annual conference and invite these past participants to attend this year's annual meeting. As in the previous case, this personalised attention will help convince prospective attendees and their immediate superiors to attend scheduled courses.

Fifth, an educator should use recency analysis to build meeting attendance. By completing a recency analysis, an educator can establish time classifications for past attendees based on when they last attended a program. By completing a recency profile on past attendees, an educator can make more accurate predictions about the likelihood of repeat attendance. For example, attendees who just recently attended a seminar that is part of an on-going series would be highly qualified prospects for attending additional courses.

Recency analysis could also be used to identify companies/organisations that support continuing engineering education and have sent participants to a seminar or conference

within the last six months or a year. Given their recent support, individuals at these organisations would be most likely to participate in other continuing engineering education offerings.

In all these cases, an educator is using recency analysis to *market with a memory*. In other words, research information from the database is used to capitalise on the relationship already established with the past attendee. This individualised marketing tends to build loyalty, as individuals realise that you are taking the time to recommend seminars/conferences suited to their needs.

Last, a frequency analysis can be completed on the database to build enrolments. To complete a frequency analysis, an educator should plot the distribution of customers by the number of courses taken. The same type of analysis should be used to plot the distribution of companies by the number of courses supported. By completing this analysis, an educator can identify participants and companies that have taken or supported one, two, three, four, or more courses. As a rule, high-frequency users/supporters are more likely to attend future courses than one-time users/supporters.

In addition to the analysis given above, a continuing engineering educator should use collected database information to answer several other questions. For example, an educator should analyse the geographical distribution of past attendees. Through a geographical analysis, an educator can target the most responsive geographical areas for sending invitations.

Educators should also use the database to analyse past attendees by size of organisation. During the analysis, an educator would typically find that only certain size organisations will support a particular program. Once organisational size and course attendance have been correlated, an educator can focus invitations on clusters that have the highest probability of responding to a particular seminar/conference invitation.

An educator should also use the database to complete a *cancellation and no-shows* analysis. With information collected from this research, an educator can identify those individuals/organisations that seem to consistently cancel their registrations or become *no-shows* by just failing to attend. Once identified, these individuals/organisations can be sent special reminder letters or be called on the phone to encourage participation and/or to confirm that they will attend.

A continuing educator should also establish a prospect or inquiry file in the database. Individuals who have inquired about a particular program or series of courses should receive a personalised letter plus invitation from the continuing engineering educator. Next, the educator may want to call the person who inquired to encourage him/her to attend a course. Many times, adult learners need this type of encouragement to participate in continuing education courses.

Last, a continuing educator should maintain a file of recommended names in the database; typically, an educator might ask attendees to recommend colleagues who might be interested in attending future courses. These recommended names would, in turn, receive, again, a special letter plus the brochure invitation from the continuing engineering educator. In the letter, the educator would mention the name of the person who recommended that the recipient receive an invitation to attend an upcoming program. This type of personalisation, again, will help encourage reluctant individuals to attend.

In conclusion, an educator will find that databases will become increasingly important to the success of the continuing engineering education program. Back in the 1960's, educators found that mass marketing worked, since attendees were usually content to accept seminars and conferences that met at least a few of their needs. Then the 1970's brought the computer revolution, and continuing educators began to segment markets so they could more

accurately match educational needs and seminar/conference programs. In the 1980's, the trend continued toward niche marketing, as educators grouped individuals having a commonality of interest into market niches and then developed customised programs around these shared needs. In the 1990's, continuing educators will have to continue these trends and place even more emphasis on *one-to-one marketing*, on building long-term relationships with the participant, and on developing customised seminars and conferences for the learner. Databases are the vehicle for helping the continuing engineering educator achieve this goal.

Professor Ralph D. Elliott, PhD
Director
Office of Professional Development
Clemson University, Clemson, USA

NEW ISSUE OF AUSTRALASIAN JOURNAL OF ENGINEERING EDUCATION IN CIRCULATION

A new issue of the *Australasian Journal of Engineering Education*, Vol.2, No.1 is now in circulation. This issue includes 10 papers by authors representing Australia, Canada, Hungary, Papua New Guinea, South Africa and the United Kingdom. It opens the second year of operation of the AJEE and has attracted an important and generous sponsor. On this occasion, it is the New South Wales Education and Training Foundation (ETF).

The main objective of the ETF is to create mechanisms for the business community and education/training providers to assess their needs and build the right workforce for the future. In fulfilling its aims, the ETF operates under the scheme that New South Wales (NSW) employers voluntarily divert 2 per cent of their existing payroll tax, thereby providing the ETF with the funds to support projects which contribute to the economic and social development of NSW.

The Journal has proved itself worthwhile, since it has already attracted close to 100 subscribers. The paramount objective of this Journal is to generate interest in engineering education and provide academics and industry leaders, within this region, an international forum for discussion and exchange of information. It is not intended that the Journal become a commercial enterprise, hence its operation is subsidised by the publisher and sponsored by other organisations. For a copy of the AJEE brochure, which includes an order form, write to the Editor.

EAST-WEST CONGRESS ON ENGINEERING EDUCATION

By the time this issue of the Newsletter is in circulation, the first East-West Congress on Engineering Education, which is our Association's first international activity, will be well underway. The AAEE, who is the sponsor of this important gathering of academics and industry leaders, has received an overwhelming support from The Institution of Engineers, Australia. Needless to say, the continuous effort of the Director of Education within IEAust., Mr Ted Whitehead, supported strongly by three Australian Ambassadors (Mr A.C. Kevin in Warsaw, Mr T. Vincent in Prague and Mr D.A. Townsend in Budapest) has eventuated in a significant grant provided by the Australian International Development Assistance Bureau (AIDAB). This grant will support financially a number of nominated academics from Poland, Czecho-Slovakia and Hungary, who have submitted their papers and indicated their intention to present them at the Congress.

We wish to express our sincere gratitude to the three Ambassadors, but the Australian Ambassador to Poland, His Excellency A.C. Kevin, deserves particular thanks for his part in this affair. Not only has he strongly supported our application for this grant, but also has accepted our invitation to attend the Congress and to give a talk at the Congress Dinner.

As Mr Kevin pointed out, *the Congress will be a valuable opportunity for developing Australian contacts with Central and Eastern Europe in this field, and I am sure it will be of great assistance to your Polish counterparts as they face the challenge of reforming and restructuring their higher education system.* We all look forward to having Mr Kevin at the Congress.

On the Polish side, it is anticipated that two ministers (Education and Industry), two persons representing the Cabinet of the President of the Republic of Poland, Chairman of the National Chamber of Commerce and Chairman of the Confederation of Polish Employers, will attend the Congress' Opening Ceremony.

It is envisaged that more than 100 papers from a total of 30 countries will be presented at the Congress, and that around 200 persons from all corners of the world will attend it. A number of distinguished individuals, who represent university, professional organisations and governmental bodies, will present keynote addresses and lead useful discussions.

The Preliminary Congress Program, which was in circulation last May, demonstrates that the Congress is structured to ensure a maximum of interaction between participants. Morning and afternoon plenary sessions are planned to provide a forum for intensive discussion and exchange of ideas and opinion. In addition, the Congress will host the 4th Meeting of the International Liaison Group on Engineering Education, which will discuss a variety of issues in engineering education. Also, the Group will discuss the preparation for the 3rd World Conference on Engineering Education, which is scheduled for September 1992, and which will be held in Portsmouth Polytechnic in the United Kingdom.

Apart from the formal program, an intensive social program has been devised to provide participants with the opportunity of seeing Cracow and its surroundings, as well as establishing closer contacts and friendships. Needless to mention, the Accompanying Person Program, because of the variety of activities planned, has already attracted over 20 persons.

Congress Proceedings, which contain over 100 refereed papers, are available at \$US100 (\$A130), including postage. Cheques should be in favour of the *Australasian Association for Engineering Education*, crossed *not negotiable* and mailed to the Editor.

NEW MEMBERS OF AAEE

Association members are kindly reminded to renew membership. Membership fees for 1991 remain the same as they were in 1989 and 1990, due to continuous support from a number of industrial and professional organisations. Although fees are payable by June 30 each year, we have not, as yet, received payment from a number of members. A single-page reminder with a copy of the registration form is mailed together with this issue to those who have not yet paid their dues.

It appears that AAEE's individual membership has settled at around 150 members, the majority of whom represent the top range of academics and industry leaders, including over 60 professors. This year, overseas membership has grown at a much faster rate than that of Australia and New Zealand. The recent membership drive, sponsored by both The Institution of Engineers, Australia, and The Institution of Professional Engineers, New Zealand, which specifically targeted engineering academics in New Zealand, has not eventuated, in a large growth of the Association, as initially expected. Has the recent recession caused this misfortune?

In this issue, we feature **Ms Kerry van Zeeland** of the Department of Chemical Engineering at The University of Queensland and **Professor Warren K.W. Yates**, a distinguished academic from the University of Technology, Sydney.



Kerry van Zeeland is the Environmental Education Co-ordinator within the Department of Chemical Engineering at the University of Queensland. Her responsibilities include: co-ordination and administration of the 1) Bachelor of Engineering (Environmental), 2) Environmental Management Electives and 3) Master of Environmental Management. Also, she is responsible for marketing and the promotion of the University of Queensland's environmental education package to schools and the general public, improving environmental communications within the University, the recruitment of environmental engineering students and is the course advisor for environmental engineering.

Kerry joined the Department of Chemical Engineering in early 1990. She obtained her BSc(Environmental) from Griffith University. She is currently undertaking, on a part-time basis, a Masters programme in Engineering and Technology Management (METM) through the Technology Management Centre at the University of Queensland.



Professor Warren Yates is currently Head of the School of Electrical Engineering at University of Technology, Sydney. His research interests are modulation and coding schemes for efficient communications, particularly in the area of packet wireless networks. His is the author of a book on Digital Signal Processing.

Professor Yates has been at UTS since 1970. He has participated in the major course reviews of 1972, 1979, 1985 and is currently coordinating a further major restructuring of the undergraduate programmes in Electrical and Computer Systems Engineering. The new programmes emphasise the process of engineering and use problem-based learning techniques and strong linkages between industrial experience and the academic programme to foster the students' formation as professional engineers.

Professor Yates has held appointments with Philips Telecommunications in the Netherlands, British Rail, and University of Bristol, UK. He has been active on a number

of CCIR National Study Groups.

2ND INTERNATIONAL SYMPOSIUM FOR ENGINEERING DEANS AND INDUSTRY LEADERS

A Second International Symposium for Engineering Deans and Industry Leaders was held at UNESCO Headquarters in Paris, France, between July 16 and 20, 1991. This was a follow-up to the 1989 Symposium at Ohio State University and was sponsored by UNESCO, with appropriate engineering education groups invited to co-sponsor (eg ASEE, Engineering Dean's Council, SEFI, IGIP). The AAEE was also a co-sponsor of this Symposium.

The scientific program was developed by Donald Glower, Russel Jones, Curtis Tompkins and Dueb Lakhder, and the Symposium was chaired jointly by Professor Russel C. Jones, University Research Professor at the University of Delaware, USA, and Dr Boris Berkovski, Director of Engineering and Technology Division within the UNESCO Headquarters. The program covered action-oriented projects, such as:

- * Development of sister university programs, pairing appropriate engineering schools in developing and developed countries for interchange programs.
- * Development of mechanisms for industry-university interaction, particularly in developing countries.
- * Development and maintenance of a comprehensive and accurate database on engineering education internationally (eg, worldwide list of engineering schools, current leaders, enrolments).
- * Development and maintenance of information clearing house in teaching equipment, courseware, etc., used in engineering education.
- * Development of programs to promote completion of education (to doctorate) of faculty at engineering schools in developing countries.

- * Promotion of educational equivalency agreements, accreditation mechanisms, curricular standards, etc.
- * Development of an ongoing worldwide organisation of engineering deans.

Over 150 senior engineering academics and industry leaders worldwide attended the Symposium. The interesting and stimulating discussions and group work were summarised in comprehensive recommendations addressed to several bodies concerned about engineering education, including UNESCO.

It is a pity that although there are close to 100 tertiary engineering education institutions in Australia and New Zealand, and the meeting was well advertised through the AAEE's publications, no engineering dean attended this important international meeting.



Picture above shows Professor Russel C. Jones of the University of Delaware (left) and Dr Boris Berkovski of UNESCO (right) both presiding over the Concluding Forum at the Symposium in Paris.

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

Dr Zenon J. Pudlowski, Department of Electrical Engineering, The University of Sydney, SYDNEY, NSW 2006, Australia, Tel. (02) 692 2000, Fax: (02) 660 4706 or (02) 692 3847

Association members and tertiary 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.