

Engineering education world

Contributions are invited for this feature. News items on policies that concern the engineering education world, new courses and curricula either of a unique nature or of international interest, new innovative laboratories and concepts, funding news for engineering research projects involving international participation, special international continuing education courses and news, industry-university interaction, engineering faculty news, and developments in engineering education of international interest. Please send news items and conference information to the Editor-in-Chief. Public relations offices of universities and human resources divisions in industry are requested to contact the Editor with news items concerning engineering education and training.

World

Higher education funding in focus

The World Bank has followed up the report *Higher Education: The Lessons of Experience* (see editorial, and Engineering Education World in Vol. 10, No. 3) with a new recommendation for higher education described in *Priorities and Strategies for Education*. A main thrust of higher education should be the establishment of more private support for public institutions, as well as the establishment of private institutions. These measures are required in order to increase competitiveness, innovation and responsiveness to manpower demands. Eastern and Central Europe is being addressed in particular; with the newly won freedoms in these regions, more autonomy in the use of public funding is recommended. State-inspired oversubscription to specialized vocational technical training, such as the emphasis of the old regimes on engineering education in Romania (see below), need to be restructured. While Romania has been making attempts at renewing its policies, Russia is still very much keeping its old structures of higher education with specialized courses and degrees.

Priorities and Strategies for Higher Education is available from: **World Bank, 1818 H Street, Washington, DC 20433, USA.**

USA

Republicans aim to cut research support

If the Republican Party's plans to reduce the budget deficit materialize they would curtail both social and R&D expenditures. The party is aiming at 'dismantling the technology basis of the country' according to the *New York Times*. The yearly expenditure for non-defence research is to be reduced from \$32 billion to \$24 billion by the year 2002. Defence expenditure is to remain at a \$40 billion per year level. Republican spokesmen would like to cut the unnecessary subventions which help the private sector. The National Science Foundation is to keep its mission of supporting fundamental research, but as the budgets are to remain static the chances of a loss of jobs in universities are high. Energy research is to be cut between 30 and 80%. The National Oceanic and Atmospheric Administration will experience an initial cut from \$2 billion to \$1.7 billion. Environmental engineering is to be effectively cut by 50%. The National Institute of Standards and Technology should be privatized according to the plans. NASA has announced the redundancy of 3560 out of 25,000 contract employees. The 185 employees of the Office of Technology Assessment are also in danger of losing their jobs. Turbulent times for US science and technology.

Carnegie investigating the research-teaching divide

The Carnegie Foundation for the Advancement of Teaching has a nine-member commission chaired by **Ernest L. Boyer** investigating the dichotomy between science and teaching experienced by most universities. As is well known from the literature (see Fairweather and Paulsen, *Teaching and Research in Engineering Education*, Vol. 8, No. 3), remuneration and promotion at mainstream universities are coupled to research performance and not to teaching. Students often see the merit situation in reverse. While 43.8% of undergraduate students in research universities are satisfied with the teaching, 73.4% of students in private four-year colleges are happy with teaching performance. This is largely due to the direct commitment of teachers to the major duty they have. The commission is planning to come up with proposals on how to enhance faculty-student interaction (see also the editorial in Vol. 11, No. 1).

United Kingdom*Mathematics education again*

In spite of reforms, the levels of mathematical skills of engineering students at university entrance level are unsatisfactory, according to a report published by the leading engineering professional bodies. Particular shortcomings are in algebraic manipulations and graphic skills. In a paper by Davies and Summers in Vol. 10, No. 4 recent changes in A-level mathematics instruction are described. In particular, the problem-solving skills of students should be improved under the new schemes. The authors point out that many of the new courses are destined to improve students' modelling skills rather than abstract algebraic manipulations. Are the traditional skills in conflict with the mathematical requirements for engineering students?

Expansion of new educational technologies at the Open University

The Open University is a pioneer in providing education via distance learning. Painstaking efforts have been made in past years to produce hard-copy teaching materials. With the advent of new multimedia educational technologies it is clear that major developments will come from this institution. A new scheme, to be known as Integrating New Systems and Technologies into Lifelong Learning—INSTILL, has been launched by the university. Under this programme a new Knowledge Media Institute is to be established. Plans are to develop satellite broadcasting, as well as course materials on CD-ROMs, and to make use of the Internet for course delivery and monitoring. A new laboratory is planned to develop and present the materials. The university also plans further expansion outside UK with its technological education products. To facilitate this expansion the university

is recruiting 33 new technology staff in its biggest recruitment drive in the past 25 years.

Germany*Educational system under attack*

German higher education has been criticized once more—this time by the Foreign Minister **Klaus Kinkel**. The country's share of foreign students, currently 6%, is declining due to unattractive study programmes and study conditions. The reasons named by the minister are well known—German language is a difficult skill, study times are too long and there is widespread overcrowding. Additional factors contributing to the low recruitment of foreigners for higher education are formal difficulties for aliens, and non-recognition of external study credits. Apart from official recognition tables of foreign institutions, sometimes based on haphazard evaluations, prospective students may apply to departmental examination committees for recognition of courses. This mechanism does not provide a consistent accreditation procedure. A further factor is that long study times make it difficult for returning students to obtain jobs in their home countries in competition with younger local graduates. The minister called for a closer link between the export industries, foreign trade and foreign cultural affairs.

Another attack

At the annual conference of rectors of universities and colleges in Braunschweig, **Hans-Uwe Erichson**, its president, called on the government to launch 'a joint initiative to secure the future, as a last opportunity to straighten out the financial priorities at state and federal level'. He told the meeting 'we have lost our leading position because other countries have improved. This is because the expansion of education systems that government and society have been pressing for in countries like Australia, Israel and Sweden has been accompanied by a proportional growth in funding for higher education'. Germany is the lowest spender on education amongst all OECD states, a mere 8% of public expenditure is in the education sector.

Study on lean production in industry

A study on the introduction of lean production methods by the TA Akademie in Stuttgart shows that with consistent applications of lean production a highly industrialized country can survive in the competitive race. Only a small fraction, around 1%, of manufacturing enterprises in Baden-Wurtemberg have completely restructured with lean production methods. More enterprises have only adopted modules of lean production, but have not yet restructured completely. One such module is the elimination of hierarchical work structures. Success has been apparent with the restructuring. **Stihl**, a producer of cutting tools, has been able to double productivity. The success is due to the

lowering of communication barriers in the workforce and to the reduction of absenteeism due to sickness when teamwork is applied. Major improvements are a result of teamwork; these, however, often require deep restructuring of an enterprise and a redefinition of work tasks. Transfer of administration staff to the production line is effective but produces problems with existing salary structure differences between blue-collar and white-collar workers.

Rector of prestigious technical university was member of the SS

The rector of the Technical University of Aachen in the years 1970–73 had been a member of an association named 'Annerbe', which was directly under the control of Heinrich Himmler, the SS leader in the Second World War. Hans Schwerte, as he was known during his times at Aachen, was really Hans Ernst Schneider. After the war he was declared dead by his wife, then assumed another name and remarried his wife. Schneider was responsible during the war for co-operation between German higher education and the Benelux countries. Students of the philosophy department investigated Schneider alias Schwerte and revealed his identity by researching the birth registration office of his birthplace in Hildesheim. Students were appalled at finding out details, which they claimed a university, famous for its research, was either reluctant or unable to find. With the 125th anniversary of the Technical University this year, the chronicles of the institution will need some revision.

Netherlands–Germany

MBA studies sponsored

The TSM Business School in Enschede offers exclusive MBA studies for engineers. Engineers are admitted to the executive MBA programme at the college. The programme comprises 2000 hours over three years, with over 60% of independent study time. Regular costs for the courses are over \$40,000. The German Federation of Engineers (VDI) is offering a scholarship for graduates who want to study for an MBA. Apart from graduate qualifications candidates require three years of engineering experience, and permanent employment. Successful candidates need to submit an essay on the profile of an engineer involved in management functions. Figures for graduate engineers opting for an MBA qualification are unknown, but with the increasing difficulties graduates have in securing jobs the numbers have risen significantly in recent years.

The school address is: **TSM Business School, Postbus 217, Enschede, The Netherlands.**

Romania

Too much engineering studies

The old structures inherited from the communist regime are still lingering on in Romania. Faculty age, research programmes concentrated in specialized institutes and unequal access from different social strata are inherited problems. Moreover, the old regime, which aimed at making Romania a technocracy, has created an overemphasis on science and engineering education. Science and the arts were poorly supported. The main targets for restructuring by the Romanian Higher Education Funding Council are the introduction of accreditation and assessment, reduction of degree course time from five to four years, and the introduction of tuition fees. A feature of the new system is decentralization. Whereas curricula and academic salaries are centrally managed, the new system will enable more independent professional management of higher education.

Israel

Turbulent telecommunications meeting

The sixth Joint European Networking Conference was held in Tel Aviv, Israel. There were turbulent protests from Palestinian university representatives who said that the facilities provided for them under the Israeli government were insufficient for free communications with their European partners. Israel itself has been rapidly developing its telecommunications links with the outside world. The Inter University Computation Centre, composed of the higher education institutes, Tel Aviv University, Technion, Bar Ilan University, Weizman Institute of Science, Ben Gurion University, Haifa University and the Hebrew University, is well equipped for research in IT. It operates the ILAN academic network which is an outgrowth of Bitnet established in 1988. Around 340 participants were supported by IBM, Digital Equipment, Novell, Swiss Telecom and the Israeli telephone operator Bezeq. Israel is currently connected by a 128 kbps fibre link to Geneva, and this speed will be doubled. A satellite link with 256 kbps is already operating. Nevertheless the information highway is already congested. In order to transmit true multimedia, nets of 34 Mbits/second are being developed.

Turkey

Islamic extremists target chemist

The head of the chemistry department at the University of Ankara escaped death when a bomb exploded as he inserted the ignition key into his car. Professor **Yorom**, who also heads the Jewish community in Ankara, was blown clear of his car but escaped serious injury. It is believed that Islamic fundamentalists are targeting academics in

Middle Eastern countries as they are easy to hurt, and provide relatively high publicity. Violence against academics is becoming a feature of Islamic fundamentalism.

Conferences

Fourth World Conference on Engineering Education

15-20 October 1995
Minneapolis-St Paul, MN, USA
Contact: Dr E. R. Krueger
William C. Norris Institute
1 Apple Tree Square
Suite 1548, Bloomington, MN 55425, USA
Tel: +1 612 853 0225 Fax: +1 612 853 0287
e-mail: wcnrex@epx.cis.umn.edu

Active and Productive Learning in Higher Engineering Education

1-4 November 1995
University of Twente, The Netherlands
Contact: Huib J. van Oort
Department of Mechanical Engineering
University of Twente
7500 AE Enschede, The Netherlands
Tel: +31 53 892474 Fax: +31 53 356490

Artificial Intelligence and Expert Systems Applications

9-10 November 1995
Holiday Inn, Fisherman's Wharf
San Francisco, CA, USA
Contact: Dr Jacob Jen-Gwo Chen
University of Houston
Houston, TX 77204, USA
Tel: +1 713743 4198 Fax: +1 713 7434190
e-mail: jgchen@uh.edu

ICCE 95: International Conference on Computers in Education

5-8 December 1995
Raffles City Convention Centre
Singapore
Contact: Professor D. H. Jonassen
Instructional Systems Program
Pennsylvania State University
University Park, PA 16802-3206, USA
Tel: +1 814 865 0624
e-mail: dhj2@psu.edu

Preparation of World Class Manufacturing Professionals

13-15 March 1996
San Diego, California
Contact: Mark Stratton
One SME Drive, Dearborn, MI 48121, USA
Tel: +1 313 2711500 Fax: +1 313 240 8255

Environmental Engineering Education and Training

17-19 April 1996
Southampton, UK
Contact: Sue Owen
Wessex Institute of Technology
Ashurst, Southampton, UK
Tel: +44 1703 293223 Fax: +44 1703 292853
E-mail: CMI@ib.rl.ac.uk

World Congress of Engineering Educators and Industry Leaders

2-5 July 1996
Paris
Contact: UATI
UNESCO
1 rue Miollis, 75732 Paris, France
Tel: +33 1 43 062029 Fax: +33 143 062927
E-mail: unispar@unesco.org

Third East-West Congress on Engineering Education

16-20 September 1996
Gdynia, Poland
Contact: Zenon Pudlowski
USICEE Faculty of Engineering
Monash University
Clayton, Melbourne, Victoria 3168, Australia
Tel: +61 3 99054977 Fax: +61 3 9905 1547
E-mail: ZJP@eng.monash.edu.au