

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.

Europe

Delays in launching new education and training programmes

New vocational training and university exchange programmes—**Leonardo** and **Socrates**—are being delayed. These programmes were to follow a series of previous programmes based on the Erasmus, and Comett concepts. The Germans have been disputing the Ecu860 million budget of Socrates, which is the follow-up to Erasmus, supporting major student movement and exchange actions across Europe. The argument is between the original Ecu760 millions proposed last June and the new sum. The differences of opinion are concerned about whether the higher sum represents a ceiling or is just a representative amount. The dispute will not affect the continuation of Erasmus, as the funding for the first two years of Socrates is guaranteed, applications having been submitted last October. The differences relate to the funding of the last three years of the five-year programme starting in 1995. Leonardo, on the other hand has had delays as the Commission has not produced the vade-mecum and the application package on time, due to detail discussions. The continuation of Comett type programmes will be delayed for up to six months. This is particularly hard for the University Enterprise Partnerships, which rely on funds from the Commission to keep their staff. Unless interim funding is put forward, some of

these operations are bound to collapse as their staff will be dismissed.

Autodesk products at student prices

Autodesk products—including Autosketch, Autocad LT and Autocad—are going cheaper for students. This is partly to offset the inroads made by other CAD products which are selling at very low prices to students. Autocad LT (Light) is now selling at about £100 to students. The software is available on CD-ROM, and students are asked to sign a declaration that they will not use the software commercially. In order to avoid misuse, students may not be offered the latest version. This is probably the only guarantee against misuse: update often and thoroughly. Similar offers are being made by Autodesk across Europe.

Poor research and development record

The woes of European research and development efforts were recently discussed at a two-day meeting in Stuttgart organized by the European Commission. Speakers included **Herbert Henzler**, chairman of McKinsey, **Eberhard von Koerber**, president of ABB, and **Edith Cresson**, the European Commissioner. European research and development is not coupled to market demands, and is not market driven. Basic research results are produced for the competition in Asia which carries out industrial applications. Research funding is not focused. Support is too evenly distributed. The

Commissioner has established new working groups to look into specific problems, such as the car of the future and multimedia for education. Areas in which Europe is particularly lagging behind are biotechnology, high-definition television and sensor technologies. There was general agreement that there is a lack of venture capital risk taking in Europe which hinders innovative applied developments of research results.

United Kingdom

Mathematics levels of students down

Complaints by lecturers on the level of mathematical knowledge among new students seem to have been expressed throughout the past decade. According to these statements, levels must be continuously decreasing. Another possibility is the reduction of abstracting powers because school mathematics has become more inclined to teach mathematics for practical applications. A survey published by the Engineering Council confirms that 83% of mathematics lecturers are very concerned about student weakness in algebra, trigonometry and calculus. Standards are down from a decade ago. Reasons may also involve the lower popularity of science and engineering in schools, and the general increase in the student population. These views have often been expressed by papers in the journal (see Schmeelk, volume 10:2 and Davies, volume 10:4).

The report, 'The Changing Mathematical Background of Undergraduate Engineers' is available from the **Engineering Council, 10 Maltravers St., London WC2 3ER, UK.**

Graduates from the new universities are doing well in the entrance job market

The new universities—converted from the old polytechnics—are showing that their graduates are doing better in entering the job markets. While 45.5% of these graduates have a job six months after graduation, only 41.3% of graduates from the old universities have a job by that time. The figures improved by 3.1% for the new universities and by 1.3% for the old universities in 1993. Overall, the unemployment rate for new university graduates is higher, at 14.6% compared to 9.6% for old university graduates. One factor here is that more graduates of the old universities are going for graduate studies or other further training. More of the new university graduates obtain shorter-term employment. The survey was released by the Higher Education Career Service.

Is Oxford also succumbing to the professorial glut syndrome?

Oxford University is voting on reform of its promotion system. Traditionally the number of professors and readers in Oxford and Cambridge was strictly limited. Up to a few years ago there was only one promotion a year to professorial rank, and about three to reader status. Under a new proposal

there will be many more professors and readers. The scheme gives the opportunity for candidates to propose themselves for the higher appointments. It is expected that over 200 new readers and 100 new professors will be created. If this happens, Oxford will approach the situation common in most other institutions of higher education where professorships are abundant. The boom in new titles will not be accompanied by salary increases or additional support staff—Oxford University is unable to afford this. But at least the 'honour' will be there.

Virtual laboratory on Internet

Students will be able to operate and program robots virtually in a new laboratory experiment being developed at the University of Reading. Robot images will be captured by video camera and transmitted to student workstations. Robot programmers in industry will subsequently be able to transmit a program via the World Wide Web network to the laboratory. It will then be tested in the laboratory, and a report sent back to the programmers on its performance. **Dr Gerard McKee**, who is in charge of the program, believes that the project will appeal to institutions which lack funding to set up a real robotics laboratory.

United Kingdom-Israel

Agreement on joint research

The importance of science and technology links between the two countries has recently been stressed on a visit of the British Prime Minister, John Major, to Israel. The two countries have agreed to increase support of joint research projects to a value of \$320,000 per year for each partner. Projects to be supported are those considered to be of national importance. A call for proposals yielded 164 applications for support. The main areas of the joint projects will be in biotechnology, molecular biology, high-performance materials and electro-optics. In addition to governmental support, private sources will top up the scheme to a total of around \$3 million per year.

Germany

Multimedia is growing up

The multimedia market was a focus of this year's CeBit fair in Hanover. The Europeans are slow in picking up innovative routes both in telecommunications and in single CD-ROM applications. Online services will be offered by the Bertelsmann Group. These services are planned to be the most comprehensive offered anywhere. Problems of costs appear to become less serious once high-speed transmission rates (2Mbits/s and upwards) become universal. Transmission rates of this or higher order are required for multimedia sound and graphics transfers. Industry will make use of these rates for applications using CAD data and software, e.g. in chip design. The mass market in multimedia will be a consumer market supported

by industry. Higher education will use online services for delivery of highly specialized interactive courses. Such systems are now beginning a research and test phase in applied telematics.

USA

Glut of part-time professors

The job situation for Ph.D. students has become difficult, the American Association for the Advancement of Science has been told at a recent conference by **George Brown** of the House of Representatives. Part-time faculty has become a major factor. The percentage of part timers has grown from 22% two decades ago to 40% at present. Consideration of whether doctorates are appropriate for the demands of the economy in the post-cold war era needs to be asked. Many of the tasks of high-technology developments could be performed by technically adept bachelor or master degree graduates. A further constraint is the relatively smaller yield of research grant applications due to restricted funding and the larger number of applications. This consideration also applies to European countries. With the spread of European Union funding programmes, the number of applications for each round is exploding. Application demands and conditions have been more restrictive and more professional, yet there are often thousands of applications which need to be assessed. Moreover mechanisms for applications which can be implemented electronically make the requirements for partner co-ordination in international applications easier to fulfil.

Israel

Technology campus raided

Israeli authorities have raided the science and technology campus of Al Quds University near Jerusalem. The reason was suspicion that students were involved in terrorist activities. The student union was broken into at night in late January after the director of student affairs could not produce keys to the premises. Posters, knives, axes, skull-caps and parts of Israeli army uniforms were discovered. The uniforms are of particular concern to the Israelis, as Hamas terrorist bombing attacks have been carried out by members of the group wearing army uniforms. The university has protested to the International Association of Universities and asked it to pressure the Israelis not to repeat such searches.

Russia

Ranking of universities controversial

As everywhere else, rankings of academic institutions in the Russian Federation have proven as controversial. Around 200 universities, representing 40% of the total, have been subjected to a ranking evaluation. Such an evaluation was carried out by the Committee for Higher Education in the past, but is now the job of public organizations,

which were given the task to increase the chances of objective assessment. One organization involved in the ranking assessments is the Russian Association of Engineering Education. **Alexander Kushel**, deputy director of the Association, claims that the methodology used is accepted by the authorities of the universities surveyed, and they should therefore accept the results. The methodology involves performance ratings, activities, numbers of professors and doctorate students, computing facilities, laboratory equipment, and the quality of graduates measured by their subsequent career paths. Universities are also differentiated on whether they are engineering or humanities oriented. Generally it is claimed that the rankings are not representative because of the instability of the system stemming from economic instability. However, in future when the situation stabilizes, the Russian methodology for evaluation may prove exemplary.

More engineering students

In past years Russia saw a decline in the number of university students. Enrolments, which were popular after the reform, were in business, law and economics. This year the number of applicants is over twice the number of university places. A big surge has been experienced by engineering where there is a particular demand for mechanical engineering for courses leading to employment in the machine tool industries. The trend may reverse the arguments for a reduction in higher education capacity. Students have become aware of the opportunities in engineering which give them a chance to complement their special studies with the acquisition of language, management and computer skills.

Hungary

Tuition fees for students

The Hungarian government is planning the introduction of tuition fees for higher education. The rate is set at \$17 per month as from September this year. The country's 140,000 students will be affected. Academics and students have launched mass protests. Hungarian government members are divided on the measures, and the Deputy Secretary of State responsible for education resigned when the measure was decided upon. The imposition of fees is probably inevitable in most countries currently providing free education. Student support is available in all Western countries, but on the European continent students who can afford it do not have to contribute to their education—with considerable financial strains on governments, the question of introducing fees for those who can afford it may be a matter of time.

Japan

Student numbers decline

The drop in the number of the university age population has led to a sharp decline in university

enrolments. The number of 18 year olds who may begin university education will drop from 1.93 million in 1992 to 1.6 million in 1998. A further factor is the recession, which has caused a decrease in the number of applications for general studies at Japan's top private universities. The cost of studies at a Japanese university amounts to over \$22,000 in the first year. The recession has created a shift of applications towards professional vocational subjects, especially in medicine. Major universities, such as the Waseda University in Tokyo, have experienced a drop of applications by 15,000 since the past academic year. Changes in Japanese higher education are predicted to create three types of universities: research oriented, vocational and continuing education. The University Council, which advises the government on higher education, proposes smaller classes, and the intake of older students. The declining birth rate does not augur well for the less popular universities, which may face a precarious existence in the future.

China

Replacement of old faculty

China has been facing a problem of replacing their ageing faculties. At Beijing University the average age of professors is 58. Two-thirds of all doctoral supervisors are over the age of 61. The reason for the large proportion of elderly professors is the 'dead time' created by the Cultural Revolution, during which academics were persecuted. The university has a 'middle aged academic elite programme' where 200 scholars of up to 50 years of age are being prepared to become doctoral thesis coaches. These selected academics will receive an extra monthly salary of 150 yuan, with help towards international activities and publications.

Conferences

Hypermedia Sheffield 95: Hypermedia in Engineering Education

3-5 July 1995
Sheffield, UK
Contact: Mrs N. Parkes
Department of Manufacturing and Process Engineering
University of Sheffield, Sheffield S1 3JD UK
Tel: +44 114 2825169 Fax: +44 114 275 3671
e-mail: N.Parkes@sheffield.ac.uk

International Congress of Engineering Deans and Industry Leaders

3-6 July 1995
Monash University
Melbourne, Australia
Contact: Professor Z. J. Pudlowski
Faculty of Engineering
Monash University, Clayton, Vic 3168
Australia
Tel: +61 3 905 4977 Fax: +61 3 905 6069
e-mail: zjp@eng.monash.edu.au

International Conference on Distance Education

9-13 July 1995
Moscow, Russia
The Presidential Academy for State Services
Contact: Association of American Colleges and Universities
1818 R Street NW
Washington, DC 20009, USA
Tel: +1 202 387 3760 Fax: +1 202 265 9532
e-mail: moscow@aacu.nw.dc.us

EPMESC V: International Conference on Education, Practice and Promotion of Computational Methods in Engineering Using Small Computers

1-4 August 1995
Macao
Contact: Professor Joao Bento
Fax: +351 1 8488481
e-mail: epmesec@civi12.ist.utl.pt

AI-ED 95: 7th World Conference on Artificial Intelligence in Education

16-19 August 1995
Washington DC, USA
Contact: AI-ED/AACE
PO Box 2966
Charlottesville, VA 22902, USA
Tel: +1 804 973 3987 Fax: +1 804 978 7449
e-mail: aace@virginia.edu

ICED Praha 1995: International Conference on Engineering Design

22-24 August 1995
Prague, Czech Republic
Contact: ETH—Swiss Federal Institute of Technology
ICED-UNO
CH 8028 Zürich, Switzerland
Tel: +41 1 632 2431 Fax: +41 1 262 0211

First Lebanese Association for the Advancement of Science Conference on Computer Simulation

1-4 September 1995
Beirut, Lebanon
Contact: Professor Ibrahim Hajj
Coordinated Science Laboratory
University of Illinois
1308 Main St., Urbana, IL 61801-2307, USA
Tel: +1 217 3333282 Fax: +1 217 244 1946
e-mail: i-hajj@uivlsih.csl.uiuc.edu

SEFI Annual Conference

6-8 September 1995
Compiègne, France
Contact: Corinne Prigent
UTC—Centre de Transfert, Rond Point Guy Denielou
60200 Compiègne, France
Tel: +33 44234510 Fax: +33 44234560
e-mail: sefi@mx.univ-compiegne.fr

**CAEE 95: 3rd International Conference on
Computer Aided Engineering Education**

6-8 September 1995

Bratislava, Slovakia

Contact: Conference Secretariat

Slovak Technical University, Microelectronics
Department

SK-81219 Bratislava, Slovakia

Tel: +42 7 723486 Fax: +42 7 723480

e-mail: caee95@elf.stuba.sk

**IGIP: 24th International Symposium on
Engineering Education**

19-22 September 1995

Wolfsburg, Germany

Contact: FH Braunschweig-Wolfenbüttel

FB Maschinenbau, Germany

Tel: +49 5331939200 Fax: +49 5331939118

**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