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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

Wide support for interactive multimedia

Research into multimedia is being supported with a grant of 162 million ECU ($200 million) from the European Union. This is part of a 630 million ECU advanced communication technologies support programme. Heavy funding is also destined for photonics, high-speed networks, mobility and personal communication networks, and intelligence in networks. These packages are part of the Fourth Framework programme scheduled to run from 1994 to 1998. Further supported programmes are in the areas of materials, non-nuclear and regenerative energies, and socio-economics.

Germany

Shift in job recruitment for engineers

The protracted recession in the job market for engineers is showing trend changes in the requirements by industry for engineers in the first three quarters of 1994, as an analysis by the German Federation of Engineers (VDI) shows (Fig. 1). Compared with 1993, a reduction of vacancies is indicated for the booming construction and service sectors. An increase in demand is shown by the recessionary electrical automobile and mechanical engineering branches. The total demand for construction engineers is still high in comparison with other branches as the number of applicants compared to the number of vacancies shows. Most engineers were sought for sales positions, followed by planning and development engineers. The difference between West and East Germany is also shown in Fig. 1. In particular the chemical industry, whch has suffered severe cuts in East Germany, has produced a large population of position seekers in chemical engineering.

Higher education pecking order

In Germany three types of institutions provide engineering education: the *technical universities*, the *Fachhochschulen* and the *Berufsakademien* (BA). All three types of institutions have had or are currently having soul-searching profile neurosis problems. The technical universities had a hard time until they were admitted to full university status at the beginning of this century. The Fachhocschulen have had official academic status since the 1970s, with an odd clause that the continuity between their degree and a university degree is not fully articulated to this day. The third body, Berufsakademien, are a construct of industry, as an integrated study–work engineering education programme. They were first established in Baden-Würtemberg by Mercedez-Benz and SEL in 1974—industry has not always been entirely happy with the increasing theoretization of the other institutions. The BA are now clamouring for full recognition as academic institutions. In Lower Saxony although the BAs are state approved, the final examinations need to be taken at Fachhochschulen.

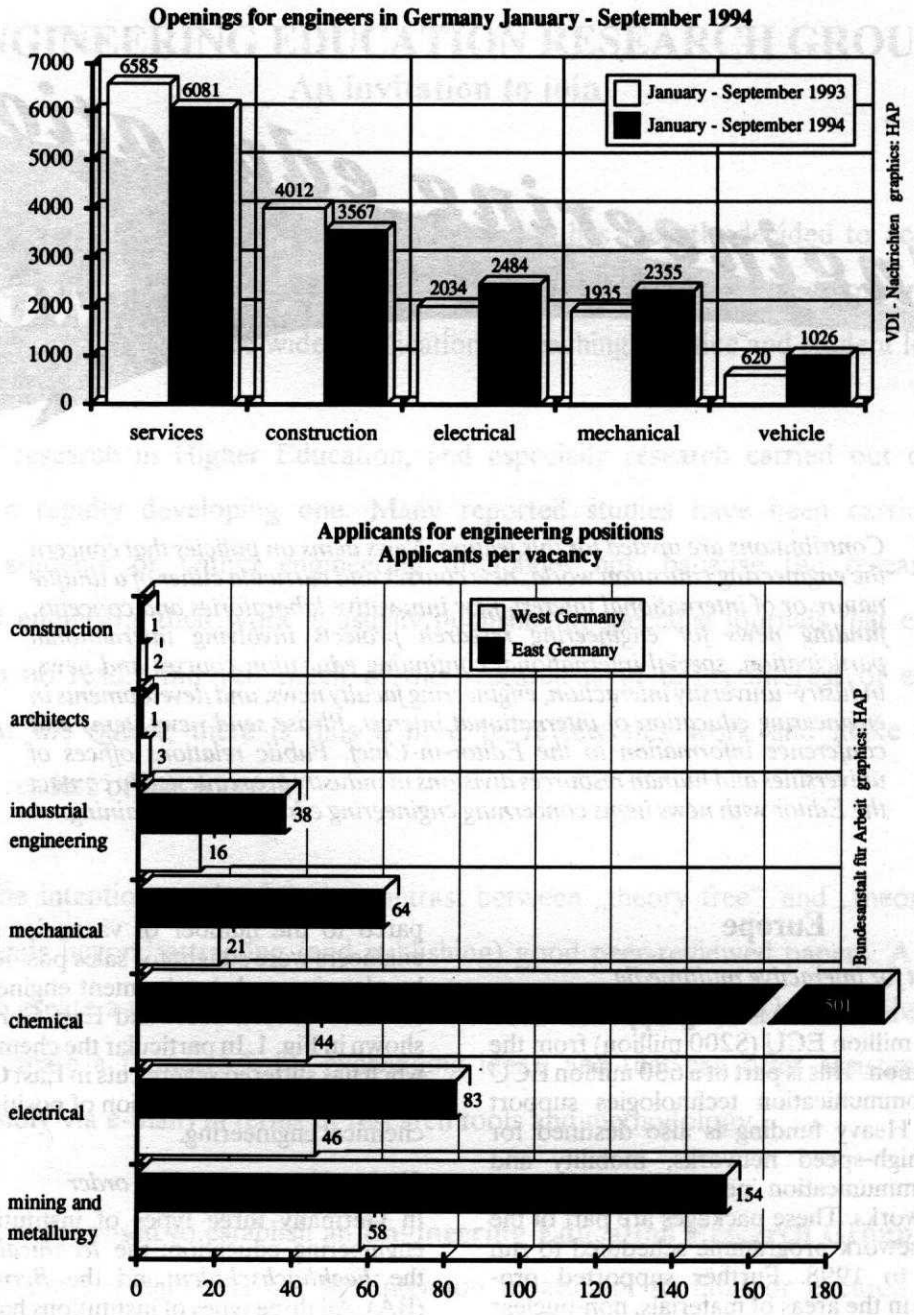

Fig. 1

The advisory board on higher education, Wissenschaftsrat, is now proposing to classify the BAs as equivalent to Fachhochschulen with a so-called dual component. This term stems from the duality of vocational education comprising studies and practice. This recommendation to elevate the status of the BAs has not made the Fachhochschulen happy, as they see a new competitor on the horizon. Similar feelings can be found in the technical universities, which see the Fachhochschulen as competitors—especially in the sharing of research funding. From past experience such competitive institutional upstarts have always been able eventually to arrive at the higher level which they have been aiming for.

Investment in the future of production technologies

German industry is duly concerned with securing its place in production and manufacturing in the 21st century. The Ministry of Science and Technology, which is now also responsible for education, is supporting an ambitious series of projects in this general area. Eleven pilot projects are highlighted with eventual support coming both from the European Union and the ministry. Germany's concern with environmental matters also provides

the impetus for developing initiatives in this area where the country feels it may have a leading role and future position. Consequently recycling technologies and waste management are high on the list. The saving of lubrication fluids prompts research into dry lubrication. Another area is the 'fractal factory' advocated by Professor **Hans Warncke**, president of the Fraunhofer Gesellschaft. This factory model will develop new dynamic organizational and production schemes. Further projects are in the areas of selection criteria for composite materials with respect to ecological demands; new foundry processes for rotating parts; manufacturing of passive optical components; and the development of universal modules for open control system architectures. The aims of the projects are not just long term but should be able to contribute to improved production technologies under current conditions.

UK–Germany

Rise in postgraduate degrees by Germans in the UK

British universities are becoming increasingly popular with German students who are pursuing higher degrees. The attraction is due to several factors: the improved command of the English language by German students in recent years, the reduction in study times, and the possibility of obtaining higher degrees by graduates of Fachhochschulen, barred from articulated transfer to graduate studies in Germany. A Ph.D. degree in the UK takes on average three years, whereas it takes four years in Germany. Graduates of Fachhochschulen can benefit from the *same* time track, saving them up to 3 years as compared to German times. British universities which traditionally have difficulties in recruiting research students, are pleased with the performance of German graduates. Birmingham University is currently organizing a drive to increase the number of their German graduate students. Birmingham currently has 46 German graduate students. Anglo-American Ph.D. degrees are becoming increasingly accepted by German employers who also value the experience of graduates having worked in a foreign environment.

Poland

Low salaries for academics induce multicommitments

Salaries of Polish academics (see survey of academic salaries in Eastern Europe in Engineering Education World, Vol. 10, no. 4) are only a fraction of those of their Western colleagues. With the liberalization of the economy and open contact with the West, many Polish academics supplement their salaries by taking up extra jobs in order to survive the price spiral. Engineering academics are often luckier than others, as they can supplement their incomes by working as consultants for Western companies or part time in the rapidly developing high-technology companies. Reports are also circulating of professors working as waiters or construction workers. Even the illegal job markets in Western Europe will attract high-level academics for menial jobs in agriculture or construction. A threat to academic levels in Poland is the internal brain-drain, where almost any job outside university is better paid. It is easy for new engineering graduates to make several times as much as their senior professor, who shortly before was their 'boss'. Promised salary increases of 8% this year will be outpaced by inflation, which is expected to run at over 17%. The parliamentary education committee proposes introducing tuition fees, which are already charged for part-time studies. This is going to cause public debate, but in other countries, including those in Western Europe, it may be an unavoidable consequence of funding declines for universal higher education.

USA

Howard in trouble

The major black university in the USA is in financial trouble. It has made 400 staff members redundant, as part of a restructuring programme, saving $6.6 million out of a $25 million deficit in 1994. Part of the problems at Howard stem from declining enrolments which were 10,611 compared with 11,768 in 1988. One reason for the decline is the opening of all universities to black students, which has diminished the appeal of an all-black university. A part of the university's problems may stem from large sums paid to outgoing university administrators who recieved sums of up to $600,000 as severance golden handshakes. Howard receives large sums from Congress, $192 million in 1994, the largest federal support for any private university. President of Howard **Joyce Ladner** is now concerned that with a Republican Congress, the continuation of this level of support could be jeopardized.

Australia

Are Asian students taking the sysem for a ride?

Students from Malaysia and Hong Kong may claim benefits from a programme called Austudy without fulfilling their obligations, according to a report from Monash University. The scheme—Higher Education Contribution—requires payments of A$2500 per year, which apparently are not being paid by incoming students who apply for benefits and receive them without submitting their required contribution. Over A$13 million a year is going to an estimated 4000 foreign students who receive Austudy grants. Many students return home without ever paying their contributions. This is in

spite of the considerable number of students coming from high income level families.

Malaysia–Australia

Offshore college established by RMIT

The Australian offensive to earn external income and spread Australian know-how overseas is continuing. The Royal Melbourne Institute of Technology has just signed a A$50 million contract to build a campus in Penang, Malaysia. The RMIT International College will be opened in 1996 and will offer technology courses for students from Malaysia, Singapore and Indonesia. The development in Penang complements a University of Sydney college which is already functioning there. Up to 2000 students will be taught in the college with plans to increase to 5000 next century. The college hopes to be raised to university status. At present the Malaysian government does not yet permit foreign universities in the country, but it is hoped that the laws will soon be changed. We have reported previously on the initiatives of Australian institutions of higher education to establish overseas bases. At present these Australian efforts are unique in scale and concept.

India

Brain-drain is unaffected by economic factors

One might suppose that improvement in Indian economic conditions and economic liberalization would induce Indian engineers and scientists to return to their native country. According to **Natarajan** in Vol. 10, no. 1, p. 115, Indian expatriate scientists either accept Western conditions or are forever unhappy about discrimination and lack of recognition. According to **Ram Reddy**, chairman of the Universities Grants Commission, there have been no applications in the past three years by an Indian scientist wanting to return to an Indian university. What are the reasons? A single major reason is low salaries, which are in the range of $300 per month. Other reasons are rigid hierarchical conditions, inflexible curricula and poor career prospects. According to sociologist **S. C. Dubey**, mediocrity is prevalent in India with no rewards given for excellence. This is another one of those frank statements from Indian academics. (For a lot of refreshing frankness see Vol. 10, no. 1—a special issue on Indian engineering education.)

Conferences

CAL 95: Computer Aided Learning in Education
10–13 April 1995
Queens' College, Cambridge, UK
Contact: CAL 95 Secretariat
University of Cambridge Computing Service
Pembroke Street, Cambridge CB2 3QG, UK
Tel: +44 223 334600 Fax: +44 223 334679
e-mail: CAL95@ucs.cam.ac.uk

Sixth World Conference on Continuing Engineering Education
8–12 May 1995
São Paulo/Rio de Janeiro, Brazil
Contact: Professor Edith Ranzini
Escola Politecnica-EPUSP
Caixa Postal 8174
01065–970 São Paulo-SP, Brazil
Fax: +55 118137415 e-mail: wcce95@lsd.usp.br

EAEEIE: The Technology Transfer in Electrical and Information Engineering
31 May–2 June 1995
Bologna, Italy
Contact: Professor V. A. Monaco
Facolta de Ingeneria, University of Bologna
Viale Risogimento 2, 40136 Bologna, Italy
Fax: +39 51 6443073
e-mail: vamonaco@deis.unibo.it.

5th International Forum on Technology and Management
5–8 June 1995
Espoo, Finland
Contact: Anne Heaton, Director ETMI,
93 Hampton Hill, Middlesex TW1 2HQ, UK
Tel: +44819779033 Fax: +44819433763

American Society for Engineering Education Annual Conference
25–28 June 1995
Anaheim, CA
Contact: ASEE
1818 N. St. NW, Washington DC 20036, USA
Tel: +1 202 331 3500 Fax: +1 202 265 8504

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,
Calayon, Victoria 3168, Australia
Tel: +61 3 905 4977 Fax: +61 3 905 6069
e-mail: zjp@eng.monash.edu.au

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

International Conference on Engineering Design: ICED Praha 1995
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

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

Fourth World Conference on Engineering Education
15–20 October 1995
Minneapolis–Saint Paul, Minnesota, USA
Contact: Dr E.R. Krueger
William C. Norris Institute, 245 East Sixth St.
St Paul, MN 55101, USA
Tel: +1 612–225 1433 Fax: +1 612 225 1241
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

ICCE 95: International Conference on Computers in Education
5–8 December 1995
Raffes 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
Contact: Mark Stratton
One SME Drive, Dearborn, MI 48121, USA
Tel: +1 313 2711500 Fax: +1 313 240 8255