

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

International credit transfer

An international network of major research universities is to draw up plans for its own credit-transfer scheme within the next six months. The Universitas 21 group decided at its second annual conference in Glasgow and Edinburgh universities to investigate how such a scheme would operate among universities in Australia, Canada, China, New Zealand, Singapore, the United States and the United Kingdom. Experts from Glasgow and Nottingham universities will lead the investigation, in recognition of the knowledge gained through Scotland's pioneering SCOTCAT credit accumulation and transfer scheme and European exchanges. **Sir Graeme Davies**, principal of Glasgow University, said: 'One scheme will be to look at the way in which we can generate a portability of qualifications, particularly professional qualifications which have a true international currency.' The group may also set up technology transfer units to help commercialize research from members in other countries.

Europe

A new ranking list

The German weekly *Der Spiegel* has been asking students and academics about their favourite

universities. A ranking list was set up on the basis of student judgements after professors nominated a selection of universities. Over 1000 professors and 7400 students from the European Union and Switzerland were called upon to select the best education institutions. The criteria points were library services, laboratories, competency and availability of teaching staff, with an emphasis on quality of teaching rather than research. Furthermore, research quality, practical orientation, learning environment, computer services, and space provision. The survey was made for universities offering degrees in law, business studies, engineering and languages. The choice of universities by professors was not compatible with the students ranking, which made up the final listing. In Germany the professors' ranking for engineering was in the following order of those selected: Aachen (by far the most highly favoured), Karlsruhe, Munich, Darmstadt, Stuttgart, Hanover and Ilmenau. The top 20 engineering universities selected by the students for Europe were:

1. Technical University Eindhoven—the Netherlands
2. University of Cambridge—United Kingdom
3. Imperial College London—United Kingdom
4. University of Oxford—United Kingdom
5. ETH Zurich—Switzerland
6. Technical University Ilmenau—Germany
7. University Lyon I—France

8. University of Karlsruhe—Germany
9. Technical University Copenhagen—Denmark
10. Catholic University, Leuven—Belgium
11. University of Durham—United Kingdom
12. University of Stuttgart—Germany
13. University College Dublin—Ireland
14. Technical University Helsinki—Finland
15. University of Southampton—United Kingdom
16. University of Hanover—Germany
17. Technical University Aachen—Germany
18. KTH Stockholm—Sweden
19. Technical University Delft—The Netherlands
20. University Grenoble I—France

Note that the best German University judged by faculty to be Aachen is preceded by Hanover, Stuttgart, Karlsruhe and Ilmenau. Ilmenau just barely made the list selected by the professors. In general the best university group was selected by the students as those in the United Kingdom, where a higher degree of faculty/student contact is a tradition.

The survey found that British students were held to receive far more study guidance than other European students: 46 per cent of them met their tutors more than once a month compared with 38 per cent in the Netherlands, 34 per cent in Sweden and, at the bottom of the scale, just 9 per cent in Greece and 11 per cent in Austria. Following the United Kingdom the most favoured universities are in The Netherlands, Germany, France, Spain and Italy in that order. Spain and Italy occupy rankings only in engineering. Although, it is now accepted that such ranking lists are to be viewed with scepticism some relevant truths remain. In particular, British and Dutch universities have already undergone a considerable amount of restructuring financially and administratively. German and French universities have yet to undergo meaningful restructuring. It is now an open secret that German higher education does not meet the goals expected of it. The universities blame this mainly on lack of financing, but intrinsically it is also known that the administrative structures and the lack of motivation due to a conformist society not willing to acknowledge excellence are deeper reasons for the decline in the quality of higher education.

United Kingdom/France

A step towards co-ordinated engineering studies

Compatibility between British and French engineering studies has always been a problem up to now. Britain's three-year degree programs have been looked down upon in France, and UK engineering graduates have never been renowned for their linguistic abilities. It has been far easier for French students to slip into the British University system than for UK students to meet the specific demands of the grandes ecoles. Nevertheless, the flow of French students—as well as other Europeans—to British universities has created a

serious imbalance. European efforts to alleviate this have prompted a number of student mobility schemes (Erasmus and Socrates) as well as an attempt to unify standards within the European Credit Exchange System (ECTS).

A scheme to correct the imbalance, in mechanical engineering, starts this year when 20 to 25 British engineering students will spend the first part of the year in France in Angers, southwest of Paris, adapting to French life and study. Angers is part of the Ecole Nationale Supérieure d'Arts et Metiers, France's largest higher education institution specializing in engineering.

The institution is pioneer of a scheme devised by a consortium of 128 grandes ecoles supported by the French ministry of education, research and technology in collaboration with a number of UK universities.

The idea is to remove the hurdles to co-ordinating the nationally distinct paths of study. As well as language, these include the variations in organization of the academic year, making exchanges lasting less than 12 months difficult to organize; the differing approaches to training; and, above all, the differing paths to chartered engineer status. In France, chartered engineer status is awarded by the grande ecole on successful completion of five years in higher education, while in Britain it is given to M.Eng. holders after several years' work in industry. The scheme is aimed at mechanical engineering students who will have completed their B.Sc. or B.Eng. and are aiming at M.Eng. with an international dimension. Fluency in French is not essential. September to December will be spent on a tailor-made program developed with British universities and institutions to ensure accreditation. It begins with two weeks' adaptation followed by a semester in which lectures are delivered in French. After Christmas the students are dispersed either as trainees on placements to French companies or to grandes ecoles where they will carry out a six to seven-week project supervised by a lecturer. After this, the British students will join a French engineering course at a grande ecole for the regular fourth semester, which leads to the award of a certificate. After completing their M.Eng. in the UK, students can, if their motivation is strong and scientific background good, return for a third year to receive a French degree. In the other direction there is less of a problem. French grand ecole students simply join a taught M.Eng. or similar course as an alternative to their third year in France and carry out project work with a British company before returning home for a semester with a European emphasis prior to gaining their French degree. A number of major industrial companies are lending support and 12 UK and Irish universities are participating in the scheme, including Bristol, Cranfield, Leeds, Warwick and University College Dublin. The support can be at two levels: 2000 euros a year allows a sponsor to support the project; 8000 euros a year involves donors as

partners able to support a student at the grande école or university of their choice.

Germany

The tuition fee circus

Once again attempts to resolve the dispute over the adoption of tuition fees in Germany's Higher Education Framework Act have failed. Both ruling coalition and opposition politicians now claim that a compromise is not in sight. Social Democrats and Bündnis-90/Green Party politicians are demanding that a nation-wide ban on tuition fees must be included in an amendment. They have rejected a proposal from federal education minister **Jürgen Rüttgers**, a Christian Democrat, to get an administrative agreement between the states, stopping any new regulation on fees up to 2003. The agreement, which could not be cancelled, could have counted on the support of Christian-Democrat and Christian Social Union-governed Länder. Some Social Democrats initially welcomed the move, but all opposition parties have now rejected it on the grounds that an administrative agreement would not be binding on state parliaments. For example, tuition fees that have just been introduced in Baden-Württemberg would not be removed. Here, fees are charged when a student exceeds the standard period of study (which varies according to the type of institution) by more than four semesters. They have to pay DM 1000 (approximately \$600) every six months.

The committee mediating between the federal parliament and the federal council is likely to recommend banning tuition fees. But this will certainly be turned down by the parliament. This scenario is part of the deadlocked German political situation. The opposition will not approve anything recommended by the government. The opposition has a majority in the Bundesrat, which is the states council, which is able to approve or reject all new legislation. If, as is currently expected, the opposition will gain control of parliament the situation may well change. Once in control, the opposition may allow fees to alleviate the financial crisis caused by a mostly indirect taxation system. It is highly likely that some fees will be introduced eventually.

Italy/Germany/United Kingdom

The degree status dilemma again

Italy is upsetting other European countries over its delay in offering jobs to engineers qualified in other EU countries. Two German engineers and one Italian engineer with a British academic title complained to the European Commission that Italian officials refused to authorize them to work in Italy or failed to give adequate reasons for the delay within the time limit of four months

allowed by the European Union. The commission has begun legal proceedings against Italy. The issue hinges on the proverbial slowness of Italian bureaucracy, but also on the intrinsic difficulty of applying common standards to radically different higher education systems. The two Germans were graduates of a three-year engineering course in a German Fachhochschule; while the Italian graduate had a three-year British engineering degree but did not belong to any recognized British professional body.

Teresa Cuomo, of the Italian university ministry, said: 'The problem is very complicated. In Italy a full engineering degree lasts five years and ends with a thesis, often an experimental thesis. We have recently instituted three-year university diplomas in engineering, in specific fields. But these are technical diplomas, which do not admit graduates to the official register of engineers. 'Obviously we cannot admit a Fachhochschule graduate to a register from which our own diploma engineers are barred. A specific register for three-year engineers is planned but does not yet exist.'

The process is rendered complex and slow by the fact that the commission that deals with these requests belongs to the interior ministry, with consultant-members from the National Council of Engineers and the university ministry. All decisions come from the interior ministry. The amount of documentation required is substantial, and there is a suspicion that the engineering council prefers to limit the number of engineers with full professional and legal capacities who can compete for the work available. The Germans have not yet chosen between compensatory exams or an internship in an Italian firm. The Italian with British qualifications has re-applied, having in the meantime acquired the additional qualification of 'chartered engineer,' and now has to take a compensatory exam that the interior ministry has yet to set up. The problem is another manifestation of the dichotomy between teaching and research institutions, which is plaguing the progress in international recognition of engineering degrees. The evolving situation is that national qualification systems do not conform to European Union ideas of mobility of graduates within the European market to equalize job availability and job opportunities.

Poland

Polish accreditation plans

Thirteen research universities in Poland have decided to set up a mechanism to accredit individual departments and faculties, or schools. The move came as the country's education ministry was beginning work on legislation that would authorize the development of a state-sponsored accreditation system, but not for several years. **Mr. Chwirot** is the chairman of the new organization, the University Accreditation Commission, made

up of vice-rectors from the 13 research universities and two Roman Catholic institutions that are expected to be given university status soon. He said the accreditation program would promote high standards at participating institutions.

One basic requirement for accreditation will be the adoption of the European Credit Transfer System, a relatively new innovation under which courses are assigned credits and given standardized descriptions to facilitate student transfers, particularly between universities in different countries in the European Union. Polish universities already have begun introducing the credit-transfer system in order to join the student-exchange programs sponsored by the European Union. E.U. officials recently gave final approval for Polish participation this coming fall in the Socrates program, the largest student-exchange program in Western Europe. The new accreditation mechanism will require departments and faculties to have 'internal quality management and control' procedures, and to involve students in the evaluation of courses.

Japan

Privatization of universities opposed by government

Japan's higher education ministry—Monbusho—has resolved to put every possible obstacle in the path of plans to privatize the top national universities. Proposals for greater autonomy for Tokyo and Kyoto were put forward by a government commission set up to push administrative reforms but the universities oppose such measures, as faculty is not willing to give up its traditional independence. Monbusho, is pushing plans to make universities more open, especially to industry, and is making them set up Technology Liaison Organizations to sell their intellectual property. But the idea of privatizing universities such as Tokyo and Kyoto is unlikely to happen. **Masashi Kajiyama**, of Monbusho's science and international affairs bureau, said: 'There have been some remarks about this but the current view is that they are part of the state education system and will remain there.' There are 100 national universities and it would never be practical for more than a few to split from Monbusho. The Science and Technology Agency, until now a separate part of the government machine will be incorporated in the ministry. This will give it an even bigger say in university and government research, and involves complex negotiations because the organizations have rival research empires, including separate space programs.

India

Pay raise rejected

Indian university lecturers have rejected a salaries and promotions package—the first for 12 years—as 'deceptive' and an 'insult'. They say that the proposal ignores the rise in the cost of urban living

since their salaries were last revised in 1986. They also want extra perks such as subsidized housing and reimbursement of medical transport and telephone expenses. Under the offer, a lecturer would begin at a monthly salary of US\$240 a month, a senior lecturer at about US\$320, and professor US\$480. This means only a marginal increase over existing salaries. Poor salaries and limited promotion prospects mean that the teaching profession has lost its social status and is no longer attracting the best minds. Even those who do not endorse the lecturers' demand acknowledge that a university job is increasingly becoming almost the last option for the young and there has been a decline in quality this past decade. The multinationals with their huge salaries and generous perks are swallowing up the 'cream' of graduates.

Conferences

SEFI Annual Conference, European Society for Engineering Education

2–4 September 1998
Helsinki, Finland
Contact: SEFI Conference Secretariat,
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Global Congress on Engineering Education

6–11 September 1998
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EQAS '98

Second International Conference on the Quality Assurance Within Engineering Education
13–16 September 1998
Zakopane, Poland
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Engineering Education '98 International Symposium IGIP

14–18 September 1998
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Pedagogics in Design Education

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