

Editorial

Europe is coming together economically in the near future. Engineers will be able to move between the countries of Europe in search for a job much more easily than ever before. At the same time student numbers are increasing by leaps and bounds but the finances are more or less static. These trends present new challenges for educational systems. Whereas twenty years ago less than 10 per cent of university age population was eligible for student status, current percentage approaches 30 in many European countries, thus reaching US levels. At the same time the number of teaching staff at higher education institutions has remained relatively stable in recent years, while the number of students has doubled. Moreover, a large proportion of present staff is within 10 years of pension age and will be replaced in the near future. With university pay lagging behind industry pay, it will be particularly difficult to obtain qualified staff for engineering education. These two developments, the internationalisation and the overcrowding of engineering schools, bring to light new aspects influencing the education of engineers. The internationalisation begs the question of what an engineering degree is worth on the international market. Here engineering schools will be exposed to some kind of accreditation or be subject to a form of classification. Accreditation in the American or validation in the British sense are unknown in continental countries, and also in the countries of Central and Eastern Europe which are now eager to join the international educational scene.

Another new aspect in the international educational market is the transnationality of degree offerings spearheaded and promoted by the European community. A major debate is developing regarding the culture and language factor. With a proliferation of transnational degrees, a penetration of the job markets in different countries involves a knowledge of the language of the country. There is an increasing tendency to offer courses in languages other than the native ones, particularly in English. This is a tendency noted in smaller countries, such as The Netherlands and Sweden, where some engineering courses are made available in English. If this tendency spreads, and it seems that English may be the second adopted language, we may see degrees offered by a number of universities on at least a dual-language basis. In many cases it is already possible to submit thesis and project work in languages different from one's Alma Mater. But will the national authorities responsible for education submit to degree work in a non-native language in institutions financed by their taxpayers? In The Netherlands legislature to keep Dutch as the primary teaching language is deemed necessary.

A much more serious and current problem is the overcrowding of our learning institutions. Massive education has brought about questions on the quality of education and the quality of graduates. While there are probably more bright and capable students than ever before (see also the paper by Paschke in this journal, Vol. 7(6)), there are also more less intelligent and less capable students than ever before. Mass teaching, large classes and poorer supervision are the results of this increase in the numbers of students and a depletion of staff. The problem may be tackled from different angles. Teach larger classes, teach less, or change your teaching methods. There may be no right way of going about it. Overteaching and overcrowded classes are related, but they are also connected to institutional traditions. If student admissions are nationally regulated, overcrowding will be evenly distributed amongst institutions. However, where an elite institution exists this may not be an issue. One tendency which we cannot yet assess is the coming of new educational technologies, which at the same time can reduce the financial burden on teaching institutions, and on the other hand enhance the Personal System of Instruction method.

A further aspect is the demand of engineering staff for ever more teaching because of the rapidly increasing amount of information an engineer has to absorb. Here again, a rationalisation may be called for. Quite possibly, there will be 'narrower' engineers and more systems-oriented engineers, according to the abilities and tendencies of individuals. This is some form of binary system which may survive. The way out of this binary divide could be accomplished by establishing equal status for the two types of engineers, i.e. not discriminating between higher and lower levels but offering initially equal pay and opportunities for all types of engineering graduates.

This issue is marked by a change of name to the **International Journal of Engineering Education**, dropping the word 'Applied'. The character of the journal remains unchanged, except that we will gradually develop the new feature of Engineering Education World, and promote open debate on engineering education policy matters. There are several changes in the Editorial Board, and there is an additional tier of Editorial Board Members; I welcome the new members to the Board. Professor Chengi Kuo of the University of Strathclyde is the newly-appointed Associate Editor. He will be responsible for reader interaction and debate issues, and the involvement of industry in engineering education. We also invite readers to submit news items of interest to the engineering education community for publication in forthcoming issues. We welcome all your suggestions for improving the Journal.

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