

## Engineering

**Better planning at NSF?***Washington*

A RADICAL reorganization of the engineering directorate of the National Science Foundation (NSF) was blessed last week by the directorate's advisory council. The changes are being pushed by the foundation's new director for engineering, Nam P. Suh, and are aimed at providing "more coherent" planning of engineering science.

Suh argues that NSF should take more of the initiative in engineering research planning, identifying and building up areas where the basic science is not in place for technological development as well as building on existing strengths. To this end, Suh proposes to sweep away the existing divisions based on traditional subject categories (such as chemical, mechanical and civil engineering) and replace them with three basic engineering science divisions and divisions for "emerging engineering systems" (for example biotechnology process engineering), for "critical engineering systems" (projects in which public institutions may take a leading role, such as hazardous waste disposal and earthquake engineering) and for engineering where the science base is inadequate.

Suh denies that his aim is to seek funds for engineering research at the expense of fundamental science, and does not see a need for a major increase in federal funding for engineering research in general. The reorganization of the engineering directorate will not simply be a paper-pushing

exercise, he says, because the new teams will be "sending out the right signals to the research community". The aim is to create a "new culture" in which scientists are more free to step over traditional subject boundaries.

The other component of Suh's efforts to revitalize engineering is the proposed network of engineering research centres to be based at universities. The idea is that each centre should deal with a different end-use technology, such as computer-aided design or data and communications, providing links with industry and interdisciplinary research experience for students. The centres are intended to provide experience with industrial problems for up to 10 per cent of students of the host institutions (though some admit to doubts about whether that target will prove feasible).

NSF's budget for fiscal year 1985 includes a mere \$10 million for the engineering research centres, and with a proposed budget of \$2.5-\$5 million per year for each centre it is by no means clear how far NSF will get towards its target of 25 centres. The deadline for proposals was 1 October, by which time no fewer than 142 bids had been received from 107 different engineering schools. NSF is adopting a pragmatic approach, waiting to see what the President's budget proposal will contain in January before committing itself to a definite number. Site visits are now being planned.

**Tim Beardsley**

## University of Wales

**College merger engineered**

THE governing bodies of University College, Cardiff (UCC) and of the University of Wales Institute of Science and Technology (UWIST) announced last month that they have decided to combine to form a new college within the University of Wales. Similar proposals in 1981 came to nothing, but this latest resolution came about after the University Grants Committee (UGC) received separate applications from both institutions for funds to develop separate engineering faculties. UGC favoured the establishment of a single integrated faculty to provide a strong engineering base for South Wales and a joint working party of the two colleges is now preparing a feasibility study on its behalf. It is hoped that a £7 million development of a site at Newport Road will provide much-needed and purpose-built space, offering the new faculty improved facilities for teaching and research.

UGC has given its assurance that "the grant provided to the new merged institutions would not be below the total of what would otherwise be available to the two separate institutions". This assurance, however, refers only to the first year of its existence, at the end of which resources and numbers will go into the melting-pot. The working party is confident that no compulsory redundancies in the teaching or technical staff will result from amalgamation. About 1,200 students will be enrolled at the new college, slightly more than the present aggregate. Indeed, the belief that a certain size is a critical requirement of success is behind much of the present planning — the new college will be among the six largest of its kind in Britain.

Professor Denis Towill, a member of the working party, has been involved in discussions since a merger was first suggested. He anticipates considerable opportunities for running otherwise uneconomic courses. "The new faculty will allow us to build up the traditional skills of South Wales engineering, those relevant to the steel industry, civil engineering, mineral exploitation, metallurgy, energy studies and electrical power engineering." Increased space, and a broader catchment area extending to Swansea on one side and Cheltenham on the other, Professor Towill claims, will bolster work in new technology, in microelectronics, digital computers and robotics.

The working party is due to report on its consultations with the architects early this month. If the plans go ahead, construction will inevitably be delayed until 1987. It is hoped, however, that the integrated faculty of engineering will be able to move into its new premises by 1990. Centralization of the other departments will take place over the following five years.

**Hugh Barnes****New institute tackles information technology**

THE Turing Institute, a self-styled "centre of excellence in advanced information technology" in Glasgow, Scotland, was formally opened last month by Mr Geoffrey Pattie, UK Minister of State for Industry and Information Technology. With the help of start-up funds from the Scottish Development Agency, and with working capital provided by subscribing industrial companies, the institute promises elaborate services, including intensive training, discounted use of commercial and non-commercial software, library and information services, a "confidential" quarterly newsletter and consultancy.

Perhaps the most ambitious departure, however, is the Journeyman training scheme, simultaneously unveiled, which has been inaugurated by the Alvey Intelligent Knowledge Based Systems (IKBS) Directorate. From now on, it is hoped that the group of industrial affiliates that funds the institute by private subscription will send employees for six-month secondment programmes in logic programming, expert system building, applied expert systems and robotics.

Four centres were originally considered

for the scheme, including Malvern and Edinburgh. But only the department of computing at Imperial College London, will be joining Turing in the first phase of Journeyman next month. Two people are enrolled for the first course, although four will be the normal number once the project gets off the ground. If the scheme is successful, it may then be extended.

The Department of Trade and Industry (DTI) contributes the lion's share of Alvey's budget, about £250 million to industry's £100 million, and a government spokesman says that this is ample proof of DTI's "eagerness to encourage this kind of research". It is debatable, however, whether private institutions such as the Turing Institute and restricted retraining initiatives such as Journeyman are seriously analogous, as the department claims, to the substantial investment of artificial intelligence research and development in West Germany, Japan and the United States. But these provisions for accelerated "technology transfer" may mean that DTI is not content to rest on its laurels and the United Kingdom's traditional excellence in the field of machine intelligence.

**Hugh Barnes**