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"Computer Organisation" Reorganisation Revisited

Purpose

To comment on some points in Richard's earlier paper.

On 310 :

I'm in favour of more practical experience. I'm in favour of anything which gives students the idea that there's real hardware at one end of the subject and real people at the other.

On 320 :

I take the point about problems with teaching the course, but surely this isn't the time to cut it back ? Computers **exist** to handle people's data in one form or another ! I'd suggest that it would be more appropriate to extend the course to include a wider range of topics in data storage and retrieval. As Richard says, I don't specialise in the area, but one hears of impending massive storage devices based on video discs, the need to store, index, and retrieve digitised speech and pictures, automatic abstracting and indexing,.........

On 340:

About the only point of agreement between Richard and I on 340 can be summed up in his infinitely diplomatic statement : "Agreement on what the reorganisation should be, however, may be difficult to achieve". But I think the idea of smaller, two-credit, papers is worth pursuing. It's hard to find a unifying theme that comes close to including even most of the bits and pieces which turn up in reasonably ambitious operating systems today, and I think it would be easier to produce two (or more ?) complementary little courses than artificially cramming everything into one big course. Organising smaller courses, though, might not be easy, as students – quite reasonably – don't like end-to-end courses.

On general principles:

Yes, of course we all know this sort of thing, but it's nice to find someone else to quote. From an address to the Graduate Employment Conference by Richard Mulgan of Otago (*University New*s, 15, #7, November 1985 : p4):

The escalating rate of social and technical change in modern western society may be a cliche of the Rotary and prizegiving circuit but it is still a fact and one of great importance for our present theme. The universities are at present training graduates who will be leading their professions well into the 21st century. They will need to be people who are flexible and critical in their training, able to discard outmoded practices and assumptions and quick to assess and, where appropriate, adopt new knowledge and procedures. They will need to be able to think for themselves and trust their own judgment. Beyond that who can say with any confidence what they will need to know ? What can we teach them now that will be of any use to them then ?

Unreflective competence in today's techniques and today's relevant details will obviously be an investment of little long-term value. Instead, the university must equip its graduates with the basic principles and methods of their respective disciplines. These are much less likely to change than the particular details of the day; moreover, practice in the search for general principles behind the mass of surface detail .finding the wood in the trees, is the essence of critical rational thinking. Properly conducted, such academic education should not produce graduates uncritically wedded to "theory" and unaware of the difficulties and dangers of applying abstract principles to the complex and contrary everyday world of human experience. Any worthwhile university education should give students experience of the open-endedness of academic theory; they should learn how particular theories or principles cannot account for all the evidence and how the fact or example which is ignored by one theory may be highly signifi- cant and the germ of a better one. In spite of the well-worn caricature, the true academic is not incorrigibly impractical, just incorrigibly critical.