

Invitation to a 2 days workshop on:

## **Design engineering – bringing back creative practice into engineering**

Organised by the Design and Innovation faculty  
Technical University of Denmark  
Lyngby (Copenhagen)

**19-20 October 2006**

The reform of programs in engineering education has drawn increased attention (and funding) over the past decade. Many such efforts at reform have been focused on the strengthening of the teaching of engineering design, a subject which had been marginalized and even dropped from the curriculum following the massive investment since WW II in the elaboration and extension of teaching of engineering science. While it goes without saying that significant and widespread advancement in technology has resulted from the investment in the development of engineering science, the development of engineering competence on the part of our students as a whole has suffered.

Attempts at reform, oriented toward design, have introduced new methods for learning and added new subjects to the curriculum. They have also, in varying degrees, addressed the core engineering curriculum in an attempt to change and reorient the teaching of the engineering sciences and specialized disciplinary courses to better prepare students for engineering practice. This new orientation of engineering breaks away from the standard conception of the engineering curriculum as driven by science alone to engage disciplinary and learning perspectives better tuned to inculcating the competencies all engineers must acquire to be truly professional.

The new learning approaches that seem to be common in most design engineering programs include design studios and project based learning, both often introduced at an earlier stage in the students program. But there are also other interesting approaches to reform in which other disciplines and methods, often taken from other professional spheres than engineering like STS, marketing and ethnography, have been introduced. Differences can also be identified in the extent to which these new approaches and new disciplines are allowed to affect the engineering core curriculum and its disciplinary traditions. The workshop will explore these differences and ask:

- What motivates the choice of infusion of other disciplinary perspectives into engineering?
- What contributions are these other disciplinary approaches and professional perspectives expected to deliver?
- How is general engineering practice affected?
- Is it necessary to significantly change the core engineering curriculum to reach the goals of giving engineering a new dimension?



The two day workshop will begin with a plenary session describing various attempts at reform, along with the lines described above, made at the institutions of the invitees. The different characteristic visions that have served as the basis for reform in each of three cases will be emphasized. The plenary session will be followed by parallel working groups, where core issues raised will be discussed. The second day will focus on future improvements and the role of design engineering in a societal context. It is the intention of the organisers to publish a summary with recommendations in a format like the National Academy of Engineering report 'The Engineer of 2020', which demonstrates the significance of these educational innovations in design engineering, showing that these reforms ought not to be seen as limited, local initiatives but that they constitute an important contribution to engineering educational reforms as a whole.

The organisers will cover the costs of accommodation during the workshop including 3 nights hotel stay and meals; travel costs are to be carried by the participants themselves. Participation in the workshop is by invitation only due to limited space and the format of the workshop, but invited persons should feel free to suggest others who might contribute to the workshop.

All invited participants are kindly asked to submit a brief (3-5 pages) description of the innovative program or courses in engineering design with which they have been affiliated. Participants from the same institution should coordinate their presentations to avoid duplicate work. Include in this, in addition to an outline of program structure, course and project content, a description of the basic ideas and motivations that provoked the renovation, and not least which aspects were added as the supplement to conventional engineering programs. Deadline for submission of this description is 30 June. We plan to distribute an edited edition of these reports by 1 September.

The workshop will start on Thursday 19 October and end on Friday evening with a closing dinner in Copenhagen.

On behalf of the Design and Innovation team,

*Louis Bucciarelli*

*Ulrik Jørgensen*