

## **Reflections on the Need to Rethink the Education of the Engineer**

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Engineers are called upon to engage in an ever-broadening array of professional activities as national economies are more and more dependent upon technological development. The engineering professional is called upon to assume leadership roles in teams composed of engineering and other professionals. Business realities are shaped by the need for increased efficiency, effectiveness and innovation. Business creates de facto boundaries that transcend national boundaries. The computer and the Internet make information available to technological professionals at increasing rates of access. Thus there are strong forces of economics and communication which are shaping the work of the engineer and which should influence the way we teach engineers.

Not only is it important that we teach fundamentals of science, mathematics and computing. We should teach engineering in the context of the real world forces of product and process realization and of market economics. This can be accomplished by teaching in context through a variety of modalities, which are both direct and indirect. We need a process of mutual diffusion where the real world and the campus are more closely engaged. Faculty and student alike should learn in the context of the comprehensive, crosscutting, multi-dimensional, multi-solutional and time varying real world of industry.

This can happen if courses make ample use of industrial faculty, if university faculty are encouraged to experience industrial sabbaticals, if students and faculty form quasi-corporations on campus to tackle real problems involving “bottom line” considerations, and if industry representatives are given an increasing role in the teaching function. Thus there will be the influence of two agendas, one is the more or less familiar curriculum which adjusts to meet the needs of new disciplines as they arise, and the other agenda which is to teach in context the lessons or real industry economics. Such as the International Conference on Engineering Education.