



The IEEE Speaks Out on Engineering Careers

A RECENT CORRESPONDENCE from the IEEE states that innovation is in danger because not enough students are pursuing engineering careers. The IEEE said that the trend is alarming and it's global. In Western Europe, Australia, Japan and even in India, the numbers of students attracted to engineering and computer science are declining.

Siding with the IEEE is a recent report by the National Science Board, charged with advising the president and Congress on national science policy, urges a nationwide consensus on a core of knowledge and competency in mathematics and science. The NSB believes it is both possible and imperative to develop national strategies that serve the national interest, while respecting local responsibility for K-12 teaching and learning.

The report notes that the future of the nation depends on a strong, competitive workforce and a citizenry equipped to function in a complex world. That interest encompasses what every student in a grade should know and be able to do in mathematics and science. The connection of K-12 content standards to college admissions criteria is vital for conveying a national expectation: educational excellence improves not just the health of science, but everyone's life chances through productive employment, active citizenship, and continuous learning.

One obvious question to pose to the IEEE is why are fewer students interested in pursuing an engineering career? Are pay scales too low? Is job satisfaction too low? What happens to an engineer after he or she reaches the age of 40? Do other careers offer better incentives, job satisfaction and job security?

Before the IEEE can convince students to enter engineering, it should find out why engineering doesn't sound like an attractive career. Once it finds out what the existing engineering career problems are, then it is in a better position to make a strong case for more engineering students. Plus, the IEEE has an ulterior motive — it needs engineers who will become IEEE members.

An additional area of concern for attracting future engineers is the U.S. public education system, which has difficulties teaching math and science. But, some of the other

developed countries seem to do a better job in educating younger students. Also, undergraduate schools in many other countries appear to be doing a better job than in the United States. However, the graduate schools in the United States must be doing a good job, because about half of the attendees at U.S. graduate schools are from other countries.

Even without an apparent knowledge of why students are not pursuing an engineering career, the IEEE is now a driving force behind changing the perception of math- and science-based careers. These low numbers raise concerns among leaders of industry and policy makers who believe that a large, well-educated engineering workforce is essential to public welfare and technological progress.

A major focus of IEEE's efforts is engaging young people on engineering topics and fields. "We have two goals," says Moshe Kam, a Drexel University engineering professor and the 2007 IEEE vice president for educational activities. "We would like to increase the propensity of young people to choose engineering as a career path, and we would like to increase the understanding that engineering provides young people with a viable and exciting future, among the parents, school counselors and teachers who provide young people with guidance about course selection and career choices."

I believe the IEEE has not done its homework. It also should interview U.S. engineers to determine what could and should be changed to entice potential engineers to join this career. I'm sure the word gets around to the siblings and relatives of existing engineers if there are weaknesses in these careers.

The IEEE correspondence goes on to say that the engineering industry is at a critical point, facing numerous challenges, such as an increasing world population and demands for higher living standards, creating a pressing need for engineers and technology professionals. In addition, there has been a drastic decrease in the number of college students enrolled in computer- and engineering-related studies, giving many companies a cause for concern. ☺

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