

Engineering Week: saluting professionals and planning for the future

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As professional engineers celebrate Engineering Week February 17-23 and reflect on their distinguished history, they are faced with whether enough students will graduate with engineering degrees to follow in their footsteps.

Since the end of World War I, engineering employment has grown more rapidly than has the labor force as a whole. Today, engineering is one of the largest professional occupations in the United States. There is a growing trend toward the administrative and technical occupations as the major components of employment. However, engineering's history appears to be cyclical, and in the last few years as the demand has grown, the supply has diminished.

In 1950, an unprecedented 50,000 bachelor's degrees in engineering were awarded by colleges and universities in the United States. By the mid-1970s, however, the demand for engineers had plummeted, leaving many industry leaders wondering how the engineering manpower picture could change so suddenly from one of a chronic shortage in the 1960s to one of an apparent surplus.

Surge fueled by demand

Consequently, enrollments in engineering colleges weakened during the mid-1970s. However, by the late 1970s the annual production of new bachelor's degrees in engineering surpassed the level reached in 1950. This surge in graduates with bachelor's degrees in engineering continued through the mid-1980s, fueled by strong demands for new graduates, increased participation in the profession by women, and solid starting salaries for engineers.

This increase peaked in 1982 when the profession's appeal reached unusually high levels. Since 1986, the number of students obtaining bachelor's degrees in engineering in the United States has declined. This decline is primarily due to demographic changes in the annual numbers of high school graduates and to reduced student interest in engineering careers. By 1989, there was a shortage of more than 2000 engineers; a shortage of 1000 or more may continue through 1991 (see Table I).

Today the pulp and paper industry is increasingly concerned about the small number of students earning engineering degrees. Pulp and paper schools have reported

I. Engineering and manpower needs, 1986-1991

Year	Engineers needed	Engineers available	Balance
1986	4500	4500	0
1987	4750	4500	-250
1988	6400	4750	-1650
1989	7800	5000	-2200
1990	6500	5000	-1500
1991	6000	5000	-1000

that the number of engineering graduates has been declining in recent years. For example, Western Michigan's paper school enrollment declined from 180 students in 1982 to 109 in 1986. The number of annual paper science and engineering degrees awarded at North Carolina State University has decreased from 26 in 1978 to 17 in 1989. These schools generally attribute declining enrollment to several factors; including changing demographics and, possibly more important, a growing image problem with the pulp and paper industry.

Image problem

The decreasing availability of paper school graduates does indicate a serious image problem in our industry. In reality, most people know little or nothing about the paper industry. The public as a whole associates the paper industry with small towns, bad odors, and lingering labor problems. Often plagued by exaggerated reports of environmental abuse, the pulp and paper industry has had increasing difficulty competing with other industries for engineers. It is certainly not seen as a trendy business that attracts today's image-conscious students.

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Recruiting bright, high-performance high school graduates for careers in papermaking is not an easy task today, considering the allure of other, more glamorous professions. One thing the paper industry does offer, at least for now, is fairly competitive salaries for engineers, along with job security. Some of the pulp and paper schools have intensified their efforts to attract students, including holding seminars at high schools and mill sites where paper companies bring in potential students. Also, paper schools are offering more financial incentives and scholarships to encourage enrollment.

New initiatives

Women and minority students are accounting for a steadily increasing share of engineering degrees. New initiatives are under way to encourage women and minorities to pursue engineering careers.

The concerns of the engineering profession dictate the need for industries to encourage students who are currently seeking an engineering degree and to actively recruit potential engineering students to the field. To help accomplish this, the pulp and paper industry should seek every opportunity to enhance its image by promoting the positive contributions it continues to make to society.□