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Shortages Persist for Some Engineering Fields in Industry

A fall 1985 survey by NSF of almost 300 private industry employers found that slightly more than one-fourth (28 percent) had personnel shortages in some science or engineering (S/E) fields during the 1984-85 recruiting period. Although this level is below the record 1981 high (60 percent of employers), it has persisted over the past several years. The shortages were primarily for engineers. More than 15 percent of the employers of electrical, electronics, and nuclear engineers and more than 10 percent of employers of aeronautical/astronautical and manufacturing engineers reported an inadequate supply of qualified applicants. Two-thirds of the shortages in nearly all of the S/E fields were for experienced personnel. By level of education, the largest proportion of shortages was for baccalaureates (40 percent), followed by doctorate and master's degree-holders (about 30 percent, each).

Several industries had higher than average proportions of firms reporting shortages of S/E personnel. In the fast-growing engineering and architectural services industry—where engineering employment increased by more than 30,000 or 25 percent between 1982 and 1985—one-half of the employers were unable to meet their recruiting goals. More than 40 percent of the respondents in the office equipment/computer industry experienced shortages. The electrical machinery/communications equipment firms, which are very sensitive to defense spending, also had a 40 percent incidence of shortages.

A higher proportion of firms engaged in defense-related activities experienced S/E personnel shortages than did firms with no defense contracts. In 1985, 50 percent of defense-related firms had shortages, compared to 24 percent of firms not doing defense work. The recruiting situation for defense firms appears to have improved somewhat since 1984, however, when about 65 percent reported shortages. Nondefense-related firms had a small decline in shortages, down from 27 percent in 1984.

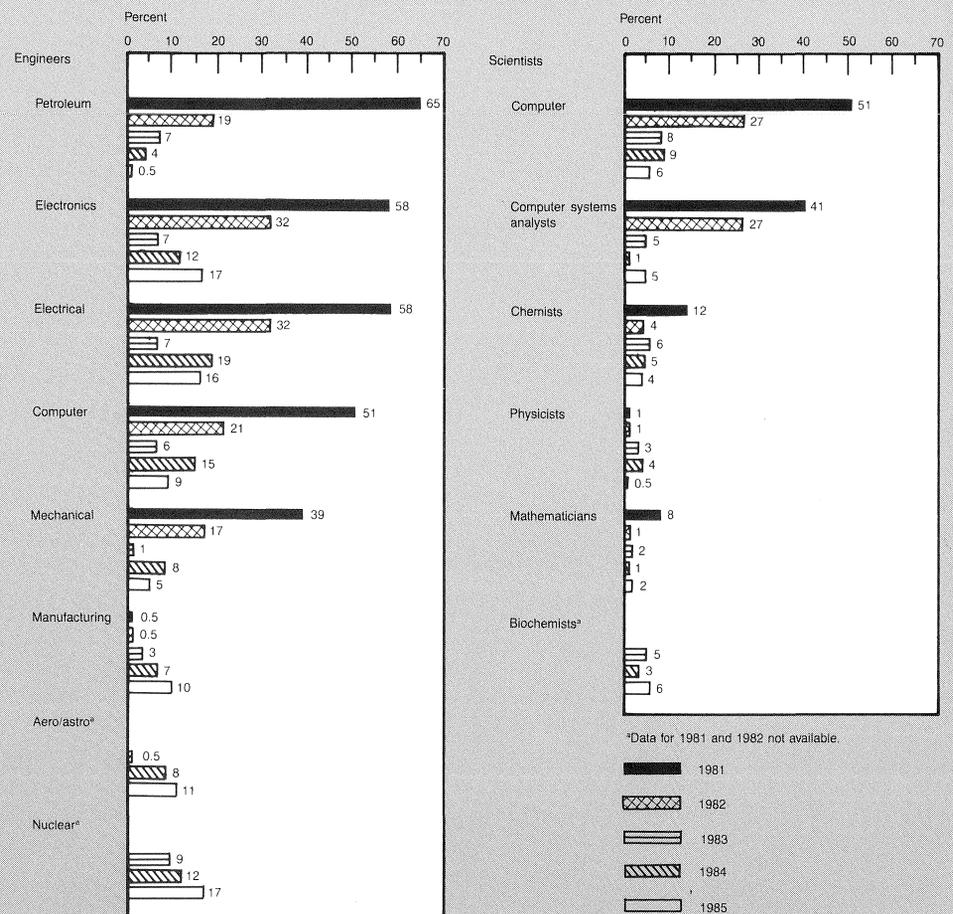
Employers were asked to report their hiring goals for the 1986 recruiting year. The average ratio of projected hires to current employment for S/E fields was 9 percent but was higher for some S/E fields, including electronics engineering (17 percent), medical scientists (16 percent), and biologists and manufacturing engineers (12 percent, each).

According to recruiting goals and trends in reported shortages over the 1983-85 period, nearly all of the shortage fields in 1985 will probably continue to be in short supply through 1986. Significant shortages may be expected to continue for electronics and manufacturing engineers. Additionally, shortage conditions may possibly continue for such fields as aeronautical/astronautical, electrical, and nuclear engineers.

Employers also gave their opinions about changes over the past five years in the quality

of job applicants with recently acquired degrees in S/E fields. The largest proportion of employers, 56 percent, felt that there had been no change in quality; 37 percent felt that there had been an improvement; and only 6 percent felt there had been a decline. The reasons most frequently cited by those observing improvement were: applicants now have more real-world knowledge/hands-on experience, cited by 34 percent; better training, cited by 24 percent; and more in-depth, job-specific education, cited by 23 percent.

Percent of firms reporting shortage in selected occupations: 1981-85



SOURCE: National Science Foundation.