*Int. J. Engng Ed.* Vol. 9, No. 5, pp. 367–369, 1993
Printed in Great Britain.

0742-0269/91 $3.00+0.00


# Trends in Recruiting Mechanical Engineering Students

E. WIEBE
*Department of Mechanical Engineering, Fachhochschule Hamburg*
M. S. WALD
*Hamburg Educational Partnership*
*Berliner Tor* 21, 20099 *Hamburg* 1, *Germany*

*The development in recruiting students for mechanical engineering is analysed in relation to the demographic and economic trends. A reduction in current student intake numbers appears to be related to the prevailing job market. Such concurrent cyclical trends are considered unhealthy for industry.*

FOR over 20 years there has been a sellers' market for engineering education in Germany. While other countries, notably the United Kingdom, were looking for students to come to their institutions, the glut of engineering applicants in Germany has contributed to complacency in the development of student services and student information support. In Germany, reaction to economic factors are rapidly reflected in the number of student applications for the relevant disciplines. The peak in applications for mechanical engineering at the FH Hamburg was reached in the winter semester of 1990 as shown in Fig. 1. Intake of students to the departments occurs twice a year, i.e. in the winter and summer semesters, with the larger group entering in the winter due to compatibility with baccalaureate exam times in the summer. The graduation of engineering students is therefore also in twice-yearly cycles. The number of applicants in the winter semester of 1990 was 479 with an acceptance rate of 30%. As applications are often made by one prospective student to a number of institutions simultaneously, there is a redundancy element in this percentage. As the applications are handled individually by the institutions, there is no way of determining this redundancy. Since 1990

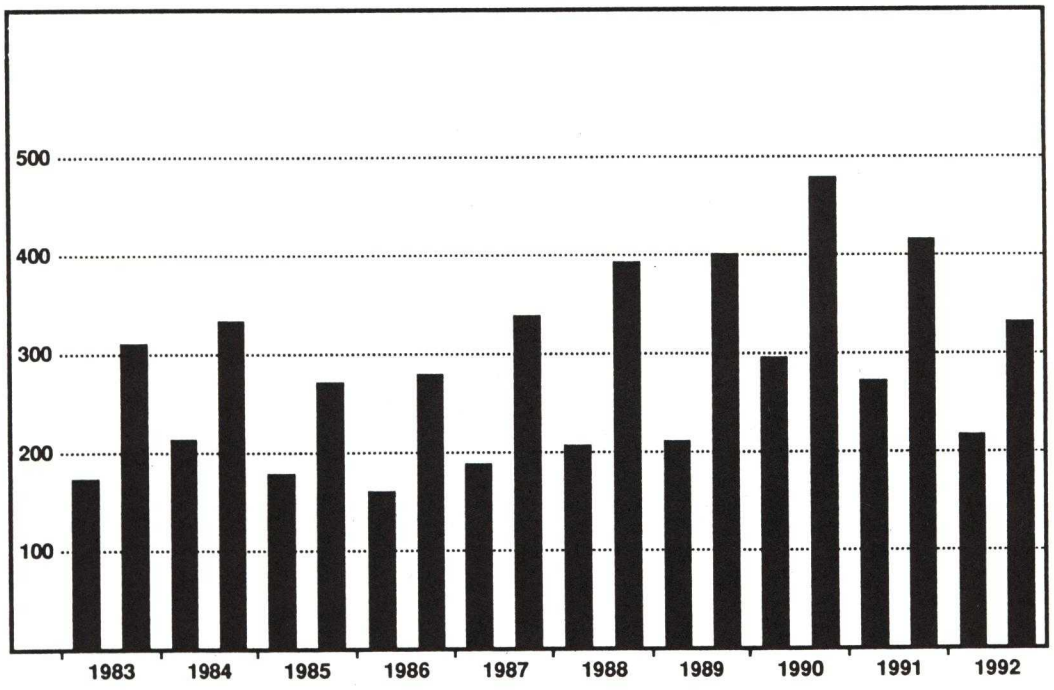


Fig. 1. Number of applicants for mechanical engineering at FH Hamburg, 1988–1993.

there is a clear trend towards a smaller number of applications. This trend is not confined to mechanical engineering alone, as seen from Table 1. An exception to this trend in engineering is construction engineering and architecture, and there are also increases in non-technical subject areas. Confirmation that recession and boom may be partly responsible for these developments is the fact that since German reunification a revival of the construction and building sector, which was in recession before, has reversed the negative trend in the applications of students for these subjects. The dip in the number of applicants in 1985–6 was also concurrent with a period of recession. Taking into account the redundancy factor, Fig. 2 shows that whilst in 1990, 67% of all accepted applicants took up their studies, this was reduced to 58.5% in 1992, which entails an actual reduction of 36%. This reduction in acceptance rates is probably due to multiple application with the improved chance of an applicant being accepted by his/her preferred institution. In an attempt to analyse this trend we need to examine the possible influencing factors. These factors, as mentioned, could be the recession in engineering, but also a renewal of an anti-technology climate or demographic changes. Figure 3 shows the number of births from 1960 to 1979. The average entrance age to higher education is 22 years, therefore the 1990 entrants were born around 1968, and those of 1992 in 1970. The difference in the number of births between 1968 and 1970 is 159,000, which corresponds to a reduction of 16.4%. This is certainly insufficient to explain the reduction of 36%. An examination of other demographic factors, such as changes in the number of women and foreign nationals at the entrance age, has not produced any significant trend-changing factors. Looking at the total number of applicants to all 26 study courses at the FH Hamburg, we note a reduction of 6.8% in the number of applications, i.e. well below the reduction in mechanical engineering. This general reduction in applications is, however, less than the fall in birth rate between 1968 and 1970. The increase in

Table 1. Number of applications to the FH Hamburg

| Course | Highest/ lowest[a] number | Semester | Applicants winter 92/93 | Change (%) |
|---|---|---|---|---|
| Mechanical engineering | 479 | winter 90/91 | 331 | −30.9 |
| Chemical engineering | 128 | winter 89/90 | 90 | −29.7 |
| Electrical engineering | 570 | winter 90/91 | 428 | −24.9 |
| Vehicle engineering | 407 | winter 89/90 | 279 | −31.5 |
| Aeronautical engineering | 178 | winter 90/91 | 106 | −40.4 |
| Plant engineering | 122 | winter 89/90 | 85 | −30.3 |
| Production engineering | 103 | winter 91/92 | 86 | −16.5 |
| Process engineering | 110 | winter 90/91 | 71 | −35.5 |
| Architecture | 278[a] | winter 86/87 | 906 | +69.3 +(34)[b] |
| Construction engineering | 112[a] | winter 88/89 | 302 | +62.9 (+25)[b] |
| Social work | 431[a] | summer 86 | 933 | +53.8 (+25)[b] |
| Librarianship | 121 | summer 90 | 118 | −2.5 |
| Design | 1051 | summer 88 | 413 | +60.7 (+50)[b] |

[a] Please complete this
[b] In 1990.

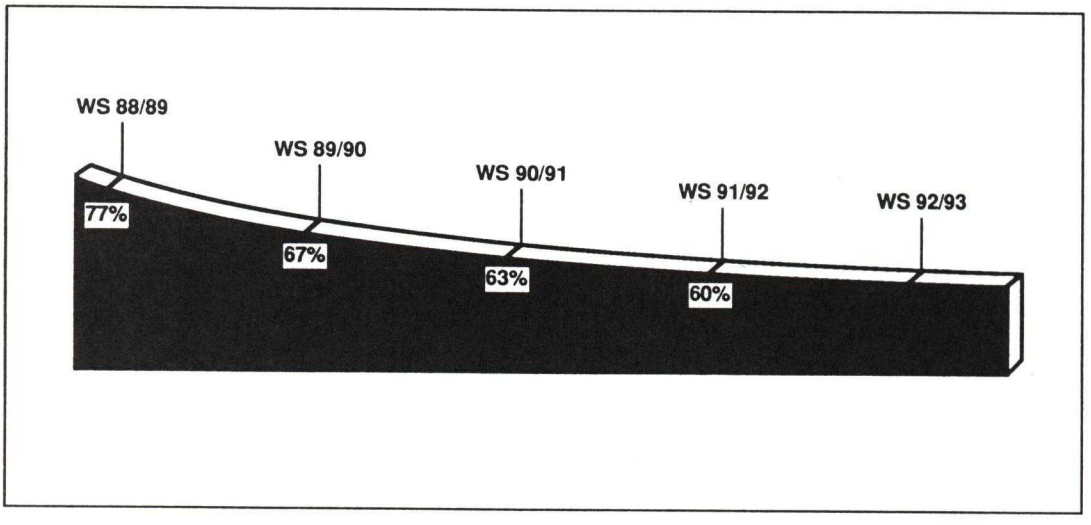


Fig. 2. Percentage of accepted students who are actually registering for studies, 1983–1992.

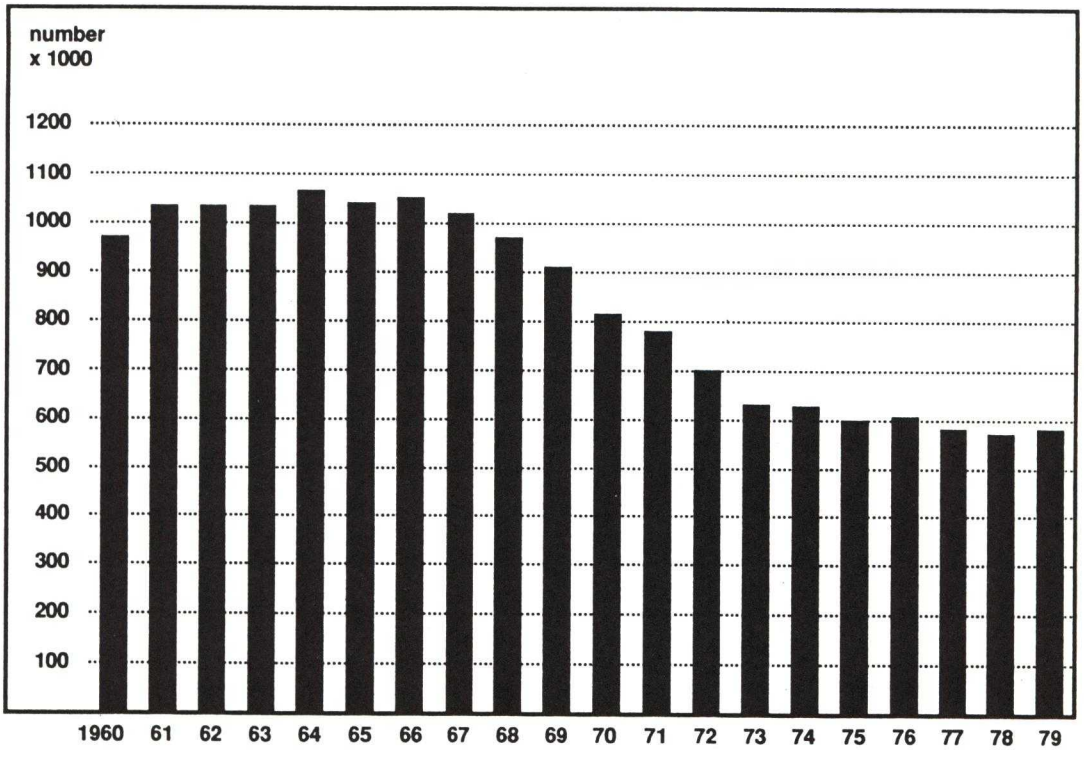


Fig. 3. Number of births, 1960–1979.

the building sector applications is clearly due to the opening of the East German market with a concomitant revival of the West German building sector. It is remarkable how the economic and engineering student trends are concurrent. Such a development is certainly undesirable from an industrial viewpoint because by the time this year's new students graduate, the economic cycle will most likely have reversed again, leaving a graduate-hungry industry with numerous unfilled vacancies.

**Erhard Wiebe** graduated from the Technical University of Berlin in mechanical engineering. He gained industrial experience with Philips in Hamburg. He has been Professor of Mechanical Engineering, specializing in manufacturing, at the Fachhochschule Hamburg since 1968. He has served as head of the department (called the 'speaker') of mechanical engineering and technical chemistry since 1974, being the senior head of department in the school.