

# Attracting more women into the profession

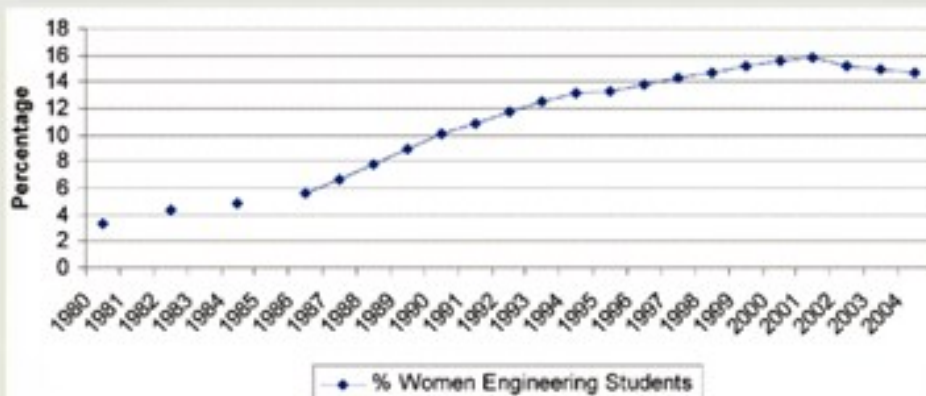
By Gunilla Burrowes

IN 1978 *ENGINEERS AUSTRALIA* MAGAZINE, in one of its cover stories, raised the question of why there were so few female engineers. Four years later, in 1982, the Australian Bureau of Labour Market Research produced a report on the engineering profession in Australia, which highlighted the very small number of women in the engineering profession as well as at university – only 3% of undergraduate engineering students. The report expressed great concern about the country's failure to educate enough engineers for its needs and its reliance on migration to fill the gap.

These publications, which drew wider public attention to the issue, led to the start of a more organised movement to get more women into engineering. Australia became a world leader in the research into issues facing women in engineering during the 1990s, with programs running in academic institutions around the country. As a result the number of women graduating in engineering grew significantly.

However, since peaking at 15.8% in 2001, they have declined again, even though only slightly (see figure). It is disheartening to see the hard earned gains in numbers going backwards.

With this decline in women enrolling in engineering studies and the current skills shortage the focus has moved back onto women in the profession and there is much we can learn from the past 20 years.



Women commencing engineering studies as a proportion of all first-year engineering enrolments 1980 – 2004.

*Women and engineering: A comparative overview of new initiatives* by the Bureau of Labour Market Research. This report stated that increasing the number of women in engineering needed a comprehensive and systematic approach.

This view was reiterated by the second report – *Review of the discipline of engineering* – published in 1988, which argued that the engineering profession needed engineering graduates with a greater awareness of economic, social, psychological and environmental issues. The implication was that if the profession was to carry more responsibility for the social influences of technological change it needed more of these broader skills. One way of acquiring them would be by attracting more women into the profession who would add a female perspective.

The third report followed a study, which began in 1993 when the federal minister for science and small business established the Women in Science, Engineering and Technology Advisory Group. The group advised on strategies to improve women's participation in science, engineering and technology careers and education.

A discussion paper was published in 1995, which presented 14 recommendations. Of these, two principles were adopted by the group – firstly the need for a paradigm shift, away from asking what is wrong with women to questioning

what it is about the environment of science, engineering and technology (and society's perception of it) that fails to attract and retain the interest of girls and women; and secondly the need to adopt a more holistic policy approach (as advocated by the 1985 report) to the various clusters of issues associated with girls' and women's participation in science, engineering and technology.

By the early 1990s, Engineers Australia began to play a vital role in the discourse and directed its focus towards female engineers in industry. A National Committee was formed as a Special Interest

Group to support groups that had already established themselves in some Divisions. The National Committee was structured around these Divisional representatives who were the conduits through whom the organisation was delivering a structured approach to the issue.

The focus for the National Committee was on policy, strategic initiatives and direction. This led to the production of several very important and useful reference documents including *Counting the losses: Careers review of engineering*

The 1980s were a time when women's rights were being debated in the political arena. The Federal Sex Discrimination Act 1984 and the Affirmative Action (Equal Employment Opportunity for Women) Act 1986 (now known as the Equal Opportunity for Women in the Workplace Act 1999) provided the first phase for major social change for women in Australia.

In 1985 the federal government commissioned the first of three major reports on women in engineering in Australia –



women (CREW) – an investigation of women's retention in the Australian engineering workforce, which was published in 2005.

The CREW report painted a grim picture for female engineers in the workforce. It showed that women in engineering, in comparison with professional women in other areas, were facing additional barriers in their workplaces that related to the culture of the engineering environment.

The major findings included that a significant number of female engineers over 30 were leaving the profession and that women in general reported lower levels of satisfaction with the workplace conditions than men. Many women also experienced discrimination and harassment in their workplaces, with 50% exposed to this unlawful and degrading behaviour.

The actual numbers of women in engineering in the workplace are difficult to determine accurately, but we can gain some insight from Engineers Australia's membership database summarised in the table. It can be seen that the numbers of women have risen in all membership grades except in the Graduate grade, where it has declined slightly from 1999 to 2005, after a rapid rise during the 1990s. This decline is a

Membership Grade	Total Number of Women				Percentage of Category			
	1980	1990	1999	2005	1980	1990	1999	2005
Fellow	0	4	23	49	0	0.14	0.5	1.0
Member	46	263	513	1059	0.3	0.9	1.8	3.6
Graduate	41	346	1611	1600	0.6	3.7	9.5	12.9
Total	87	613	2147	2708				
Total Percentage of Membership (excluding students)							4	5.6
Student	14	467	1148	3724	1.4	8.2	15	16.9

Total number of female members of Engineers Australia 1980 – 2005 and percentage of each category.

SOURCE: ENGINEERS AUSTRALIA MEMBERSHIP STATISTICS

reflection of the slower growth in overall engineering student numbers during the same period.

The National Committee of Women in Engineering has recently rejuvenated focusing on the whole profession with the aim of engaging all members in the debate. Is engineering really so unique that women could not play a more equal part in its future? Medicine and law used to be considered male dominated professions but each of these professions looks very different today.

By declaring 2007 as the Year of Women in Engineering the Council of Engineers Australia has invited all its members, not just the women within it, to face the challenge. ■

Gunilla Burrowes is a member of the National Committee of Women in Engineering and the immediate past president of Newcastle Division.

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