Engineering and Technology

Skills demand 2013
Issues and Actions
The Institution of Engineering and Technology

The Institution of Engineering and Technology (IET) is a global organisation, with over 150,000 members representing a vast range of engineering and technology fields. Our primary aims are to provide a global knowledge network promoting the exchange of ideas and enhance the positive role of science, engineering and technology between business, academia, governments and professional bodies; and to address challenges that face society in the future.

As engineering and technology become increasingly interdisciplinary, global and inclusive, the Institution of Engineering and Technology reflects that progression and welcomes involvement from, and communication between, all sectors of science, engineering and technology.

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IET Skills Surveys

Since 2006 the IET has carried out annual surveys of businesses to gauge the state of skills in the engineering and technology sector.

- IET Skills Surveys 2006-2013
  http://www.theiet.org/skills
Employers and the professional engineering institutions work together to incentivise engineers who have left the profession to rejoin and support those who wish to convert to it through training.

Employers provide initiatives to offer scope for people to retrain into engineering disciplines experiencing skills shortages, which will benefit both industry and the individuals involved. This should be strongly supported and promoted by the institutions and government.

2. The percentage of women engineers and IT staff employed has not increased, yet over a third of companies are taking no action to improve the diversity of their workforce.

Clearly, the UK has a specific problem of encouraging women into the engineering and IT professions. Only 7% of the engineering workforce is female yet over a third of employers are not taking any action to attract half of the UK’s available workforce. We recommend that:

Employers take significantly more action to encourage women to join and stay in the profession, e.g. by providing structured career paths with structured breaks and have a positive attitude to flexible and part-time working.

Industry, academia, government and the institutions do more to encourage girls into the engineering profession through better careers information and guidance, emphasising in particular the importance of maths and physics as key gateway subjects to engineering.

3. More companies are becoming dissatisfied with the skills of new staff and with the content of engineering degrees.

Reported skills gaps are at their highest level (42%) for eight years. It is clear that agreement is needed on striking a balance between education provided by schools, academia and training demanded by industry.

Partnerships (such as the Power Academy and the E3 academy supported by the IET) have already successfully addressed specific skills gaps in the electricity sector and provide a good model for other areas to adopt.

However, government, industry and academia still have an important role to play in increasing the skills of school leavers, graduates and new staff. In particular, there is an urgent need for better provision of work experience, industrial placements and apprenticeships. We recommend that:

Employers must engage much more with the education system to provide opportunities for work experience and industrial placements.

The quality of degree courses is maintained through rigorous accreditation, with input from industry.

Stronger incentives put in place for employers (especially SMEs) to provide the provision of training for Level 2 to Level 3 qualifications, with strong support from government and the profession.

Ensuring the quality of apprenticeship programmes though rigorous accreditation. Accreditation will remove the issue of variability of quality within apprenticeships and meet both the needs of employers as well as professional standards.

4. With the reported skills gap at its highest ever level, access to practical and technical skills at schools and colleges must be encouraged as far as possible.

The Professional Engineering Institutions, employers and industry should, with the support of government, strive to increase the numbers of students with the appropriate educational background to pursue engineering careers (maths & physics especially). This includes changing the perception of engineering to make it much more positive and relevant to the 21st century; challenging outdated negative views of the profession amongst parents, teachers and pupils. We recommend that:

There is an urgent need for better careers information, advice and guidance to promote the engineering profession, emphasising the benefits that a career in engineering can bring and the requirements to study engineering.

Ensure the quality and standing of vocational routes, especially apprenticeships as a desirable alternative to a university degree.

5. Apprenticeships

Encouraging and supporting the provision of more Higher Level apprenticeships and ensuring that quality is maintained. There must be support for students taking Level 2 (Intermediate) apprenticeships to progress through Level 3 (Advanced) to technician status, thus supporting the pipeline of skilled technicians that the UK urgently needs. We recommend that:

More needs to be done by the profession to increase the take up of Higher Apprenticeships.

Stronger incentives put in place for employers (especially SMEs) to provide the provision of training for Level 2 to Level 3 qualifications, with strong support from government and the profession.

Ensuring the quality of apprenticeship programmes though rigorous accreditation. Accreditation will remove the issue of variability of quality within apprenticeships and meet both the needs of employers as well as professional standards.

6. Overall recommendation:

We emphasise the need for concerted action from all key stakeholders across the profession; industry, academia, government and the institutions if the UK is to be effective in tackling the rising skills gaps and shortages that face engineering in the long term.