

Engineering Graduates for Employment

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Summary

- **Employability and curriculum**
- **Other influential factors**
- **Discussion and a suggestion**
- **Conclusions**

“... the great body of students fail to gain, on the one hand, a satisfactory grounding in the fundamental sciences; and on the other hand do not fulfil the expectations of engineers and manufacturers in dealing with practical problems with which they are confronted on leaving the engineering schools.”

Source; Carnegie Foundation Report on Engineering Education, 1918.

Employability and Curriculum

- **Range of engineering disciplines**
- **Range of employments**
- **Technological developments**
- **Focus on engineering science**
- **Limited engineering technology**

Accreditation

- **Fundamental science and mathematics**
- **Problem solving knowledge and skills**
- **Engineering design**
- **Practical knowledge and skills**
- **Personal skills**

Other Curriculum Factors

- **Tradition and history of individual universities**
- **Career interests of teaching staff**
- **Public and Government interest**
- **Students' prior knowledge and feedback**

Wide range of programmes

- **At least one programme meets (or nearly so) needs of an individual employer**
- **At least one programme meets (or nearly so) the aspirations of an individual student**
- **Many opportunities for sharing good practice between programmes**
- **Difficult (impossible?) for employers and students to identify the most suitable programme.**

What an employer would like to see (1)

- **Understanding of fundamental principles**
- **Analytical thinking applied to problem solving**
- **Practical appreciation based on project work**
- **Awareness of the effect of real components and operating conditions**
- **Familiarity with principle of measurement and test procedures**

Source: UK Engineering Professors Council (EPC)

What an employer would like to see (2)

- **Ability to plan and organise own work**
- **Communication skills**
- **A capacity for learning**
- **A positive attitude**

Source: UK Engineering Professors Council (EPC)

What would support employability

- **Familiarity with design process**
- **Appreciation of statistical methods**
- **Awareness of commercial factors**
- **Other technical skills, eg computer programming**
- **Non-technical skills, eg languages**

Source: UK Engineering Professors Council (EPC)

Not expected in First Cycle Graduates

- **Fully formed experienced engineers**
- **Expert competence in specific skills**
- **All graduates academically strong**
- **Managerial expertise**
- **Understanding of volume manufacturing**

Source: UK Engineering Professors Council (EPC)

Conclusions

- **Employers communicate employability characteristics of engineering graduates to prospective students**
- **Students, employers and universities continue to discuss how to adapt employability to changing technology**

Thank you.
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