

B U R O H A P P O L D

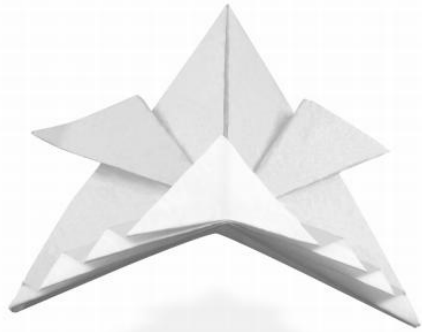
E N G I N E E R I N G

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**THE ACCREDITATION OF
HIGHER EDUCATION PROGRAMMES**

UK Standard for Professional Engineering Competence

Third edition

www.engc.org.uk



**THE CHARTERED INSTITUTION OF BUILDING SERVICES
ENGINEERS**

**GUIDANCE NOTES ON THE SUBMISSION OF
DOCUMENTATION FOR ACCREDITATION OF BEng, BSc,
BEng (Hons), BSc (Hons) and MEng PROGRAMMES**



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OUTPUT STANDARDS...?

Science and mathematics

Engineering is underpinned by science and mathematics, and other associated disciplines, as defined by the relevant professional engineering institution(s). Graduates will need the following knowledge, understanding and abilities:

- Knowledge and understanding of scientific principles and methodology necessary to underpin their education in their engineering discipline, to enable appreciation of its scientific and engineering context, and to support their understanding of relevant historical, current and future developments and technologies
- Knowledge and understanding of mathematical and statistical methods necessary to underpin their education in their engineering discipline and to enable them to use methods, tools and notations proficiently in the problems

Engineering analysis

Engineering analysis involves the application of engineering concepts and tools to the solution of engineering problems. Graduates will need:

- Understanding of engineering principles and the ability to apply them to analyse key engineering processes
- Ability to identify, classify and describe the performance of systems and components through the use of analytical methods and modelling techniques
- Ability to apply quantitative and computational methods in order to solve engineering problems and to implement appropriate action
- Understanding of, and the ability to apply, an integrated or systems approach to solving engineering problems.





WHAT IS REASONABLE TO EXPECT...?

'Building Services' courses...

- Foundation degrees
- BSc and BEng (and with Honours)
- MEng
- Further Learning (MSc ...etc)

Also...

- Related Undergraduate courses, eg Architecture and Engineering (some RIBA and EC Accredited)

And...

- Further Learning , eg MSc and now EngD in a range of related sectors and disciplines

WHAT IS REASONABLE TO EXPECT...?



Underpinned by an understanding of scientific and engineering principles and methodologies

Plus...?



HOW IS TEACHING DELIVERED...?

- A dedicated module based on a single model or task
- Embedded within one or more projects
- Self learning
- Workplace learning (placements or part-time, distance learning students)

But...

- Time is limited by the need to complete other modules and tasks
- In-house skills and experience may be limited (supplement with industry practitioners?)
- Availability of tools may be limited – cost, computational resource
- Have the fundamental principles been mastered first?

DO COURSES DELIVER THE LEARNING OUTCOMES...?

- Accredited courses do deliver the learning outcomes to an appropriate level
- Expectation and complexity is increasing as the technologies and concepts rapidly evolve
- Individual's levels of achievement can be highly variable

Course content has increased significantly over 10-15 years, reflecting changes in the industry

However, graduates will require continuing workplace support and learning to develop knowledge and skills to an appropriate level (not necessarily 'expert' level)

AN INDUSTRY VIEW...?

- Graduates do have experience of simulation tools and techniques – typically dynamic simulation and daylight simulation
- Time spent in ongoing skills development has been limited – a graduate's depth of knowledge is therefore limited
- Fundamental principles forgotten, but quickly re-learned
- Top performers are likely to have developed a higher level of skills, perhaps derived from a personal interest, specific demands of a project / dissertation or higher level learning

As an employer we recognise that ongoing workplace learning is required.

For high-level, specialist skills we will often recruit from outside of the construction industry – Mechanical Engineering, Physics, Aeronautical Engineeringetc

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