

# A propos...

# Accreditation

Prof Kel Fidler CEng HonFIET FREng



Rt Hon Robert Halfon MP

# The new chair of the UK's House of Commons Education Committee

- ...wants to see 50 per cent of those going into higher education taking degree apprenticeships and has called for “a radical look at what university is for”, so funding incentivises the study of subjects that address the UK’s “skills deficits”.
- ...committee’s opening inquiry under his chairmanship is into “value for money in higher education”.
- “too many graduates are going to universities and not coming out with highly skilled and well-paid jobs”
- Universities are all about employability



Professor Louise Richardson

# She Said – He said

- “absolutely extraordinary” comments by Mr Halfon about employability being the purpose of higher education [and she] accused him of having “completely missed the point of going to university”. (Which she says is ‘to have an experience’)
- “There is a view out there, held by the University of Oxford vice-chancellor, that university is about experience,”
- To me, if someone wants an experience they can go to Alton Towers.”



# Vocation vs Experience?

- Unlikely that students would sign up to Degree Programmes in:
    - Medicine
    - Veterinary Science
    - Dentistry
    - Accountancy
    - Engineering
    - Etc
- ...just for the experience – good as that might be.





## THE ACCREDITATION OF HIGHER EDUCATION PROGRAMMES

UK Standard for Professional Engineering Competence

Third edition

[www.engc.org.uk](http://www.engc.org.uk)

 Engineering  
Council



# AHEP - THE ACCREDITATION OF HIGHER EDUCATION PROGRAMMES

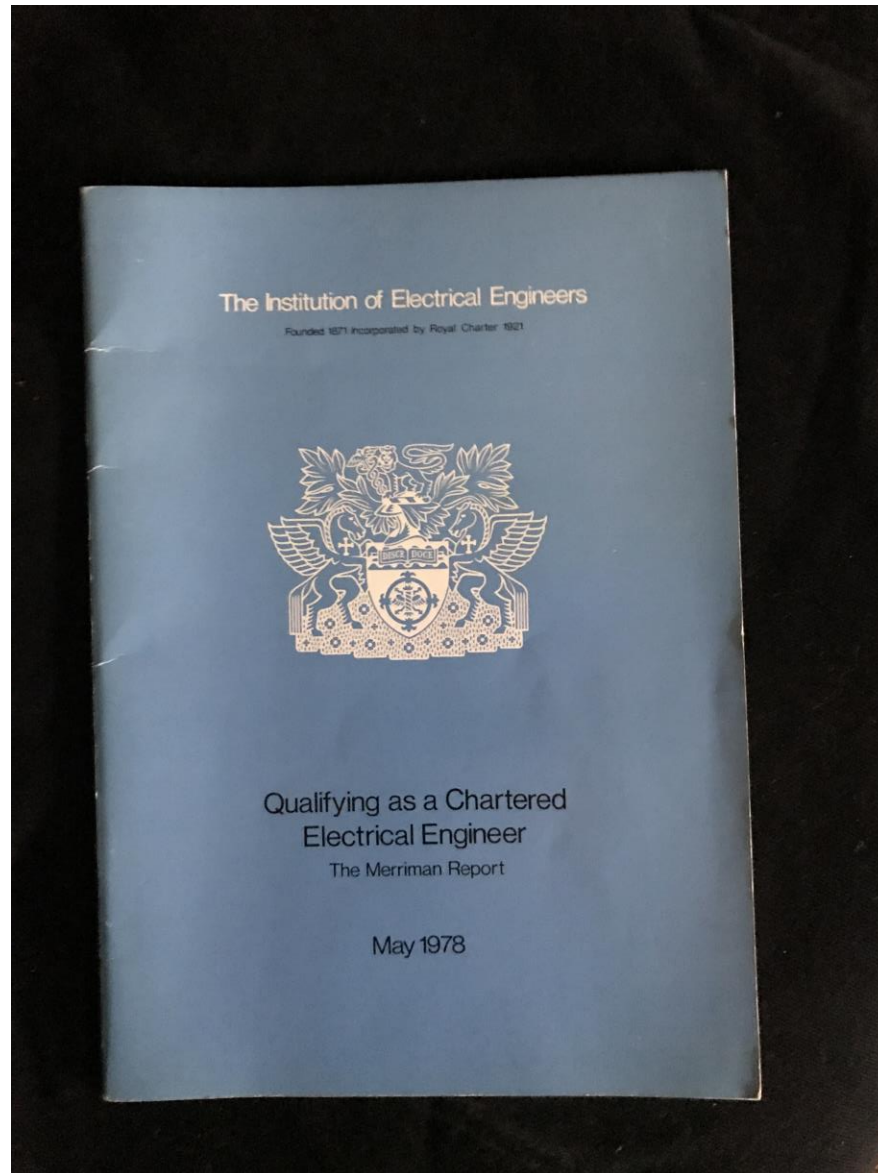
- ...all students deserve an engineering education that is world-class and that **develops industry-relevant skills**.
- Accreditation of degree programmes helps to ensure that **UK engineering education meets these needs** as well as drawing students towards a career in the engineering profession.

## David Falzani, President of the Sainsbury Management Fellowship:

“Business skills have never been so important to the UK. In tomorrow’s hypercompetitive global economy, only those with the economic agility to discover and deliver on potential sources of value, raise appropriate funding, and understand client decision making behaviour, will prosper”

“Considerable research shows that introducing business education to young engineers makes them better engineers, makes them more employable and effective in the workplace, and is better for the profession and for the UK economy.”

A little bit of history:





THE INSTITUTION  
OF ELECTRICAL  
ENGINEERS

*TKP*

Engineering Degrees  
and the  
Chartered Electrical Engineer

# Merriman 1978

- Raise the Educational level for Professional Engineering Registration from Pass Degree to Second Class Honours
- *“The Institution should set up an accreditation mechanism to identify degree courses which satisfy its revised **educational requirements** and to monitor the development of enhanced degree courses”.*



# Engineering Our Future

Report of the  
Committee of Inquiry  
into the Engineering Profession

*Chairman*  
Sir Montague Finniston, FRS

*Presented to Parliament by the Secretary of State for Industry  
by Command of Her Majesty  
January 1980*

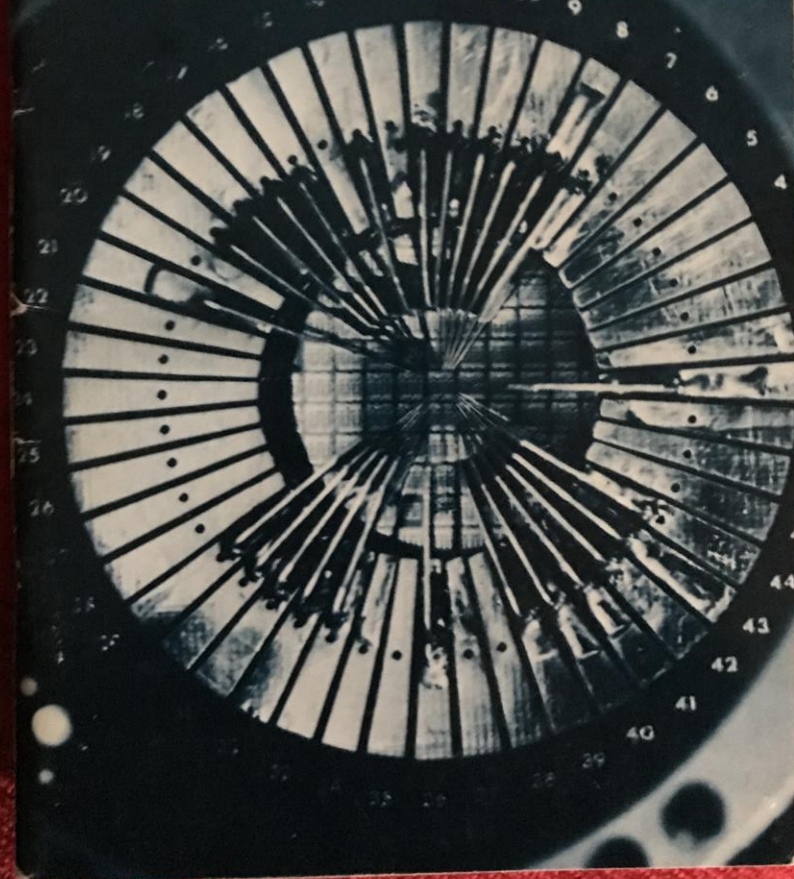
LONDON  
HER MAJESTY'S STATIONERY OFFICE

£5.00 net

Cmnd 7794



# ENGINEERING OUR FUTURE



# Finniston 1980

- Finniston called for accreditation to be carried out by a 'new statutory Engineering Authority'
- In fact became the Engineering Council
- Engineering Council licences PEs to accredit on its behalf
- EAB organises cross-disciplinary accreditation
- The ICE, the IStructE, the Chartered Institution of Highways and Transportation, and the Institute of Highway Engineers carry out their accreditation activities through the JMB – the Joint Board of Moderators

# Educational Requirements

- Professionalism - “an almost indefinable but readily recognisable set of personal attributes, which characterise an engineer’s ability to master the changing environment of (their) work” (i.e. Key skills)
- “Engineering attitudes relevant to the highly competitive world of industry and commerce.”
- wider first-degree curriculum, a greater emphasis on applied projects

# Merriman asked for

- design, industrial management and organisation, products and production, buying and contracting, finance, accounting and costing systems, project management, marketing and a modern foreign language
- “course elements that should enable the potential chartered engineer to fill roles in industry more effectively”, and so be “better suited....to meeting the needs of industry”.

# Finniston asked for

- no presumption that the academic stage of formation instills the theory leaving the practice to be 'picked up' in employment
- the introduction in (BEng and MEng) undergraduate engineering courses of 'Engineering Applications' EA1 (introduction to the fabrication and use of materials) and EA2 (application of engineering principles to the solution of practical problems based upon engineering systems and processes),
- 'Business techniques relevant to ... engineering solutions through case studies and worked projects', thus "instilling a high level of understanding in several engineering disciplines"

**IET**  
The Institution of  
Engineering and Technology

# Skills & Demand in Industry

2016 Survey



Engineering and Technology  
Skills and Demand in Industry  
Overview of issues and trends  
from 2016 survey

[www.theiet.org/skills](http://www.theiet.org/skills)

# Skills & Demand in Industry

## 2017 Survey



[www.iet.org.uk/sdi](http://www.iet.org.uk/sdi)

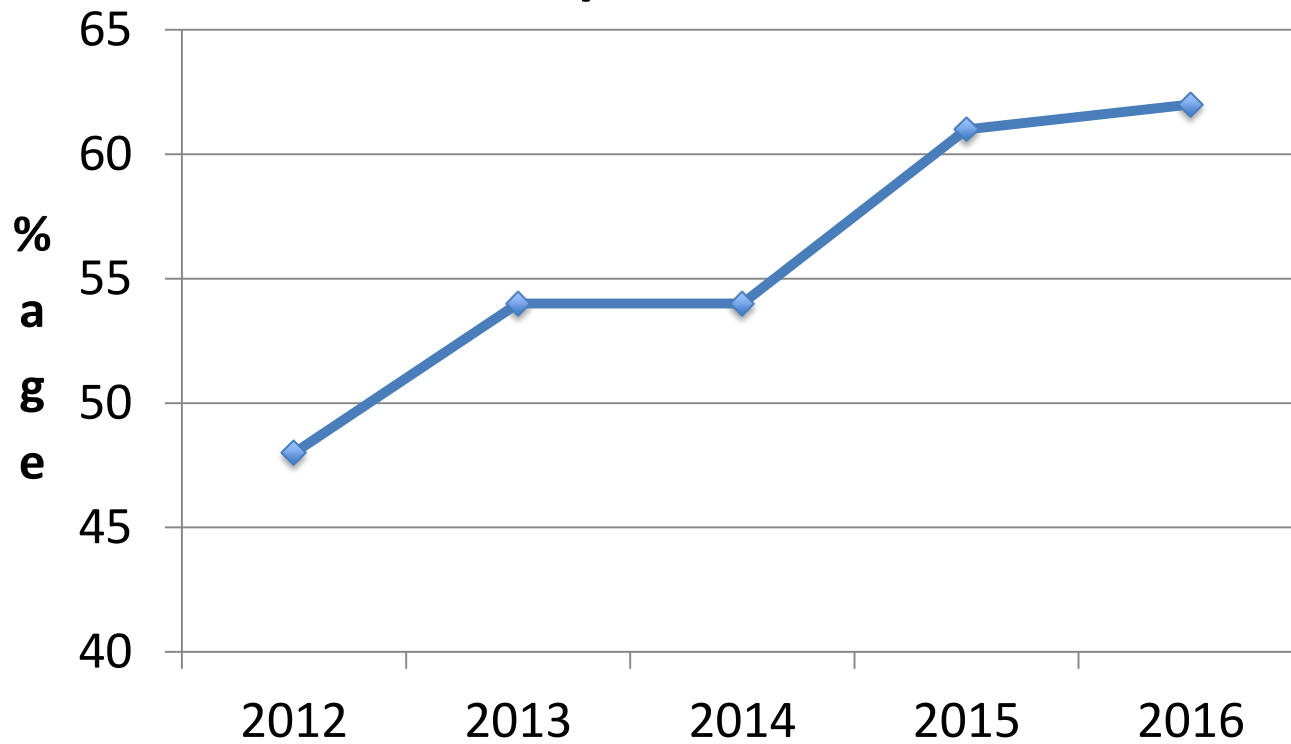


# WHAT EMPLOYERS ARE SAYING

(IET 'Skills & Demand in Industry 2016 Survey': 403 Employers interviewed)

- **50%:** Find that a typical new engineering and technology recruit does not meet their reasonable expectations
- **62%:** Are concerned about Graduate Skills in particular.
- **59%:** Of those that feel the content of engineering and technology degrees do not suit the needs of their organisation say it's because they don't develop practical skills
- **31%:** Of those that are, or have recently experienced problems recruiting engineering and technology graduates, feel that attracting candidates with sufficient work experience is a key problem in graduate recruitment

## **%age of companies that find that graduates do not meet their expectations**



# Skills shortages

- Practical Experience
- Leadership and Management
- Business acumen
- Technical expertise
- Communications skills
- Ability to work on own initiative
- Ability to work across interdisciplinary teams
- Literacy skills
- Teamwork
- Numeric skills

# The message is....

- After ~40 Years of Accreditation activity, **WE HAVE FAILED** to produce the graduates that employers seek...
- **WE ARE NOT DOING WHAT AHEP REQUIRES**
- ... **AND WE DON'T CARE!**

# ...and come to mention it:

- Engineering Academics seem more interested in research than in teaching
- Less than 4% of UK domiciled Engineering graduates stay on to do research. Yet most Engineering degree courses are taught as though all students are potential research students, and the courses are skewed towards this.
- Few Engineering academics in the UK have experience of working in Industry – who can blame them for presenting courses that have little relationship to engineering practice?
- Most engineering academics in UK Universities are ex-research students from both the UK and overseas with no experience of engineering practice - who teach what was taught to them.

## ...and come to mention it:

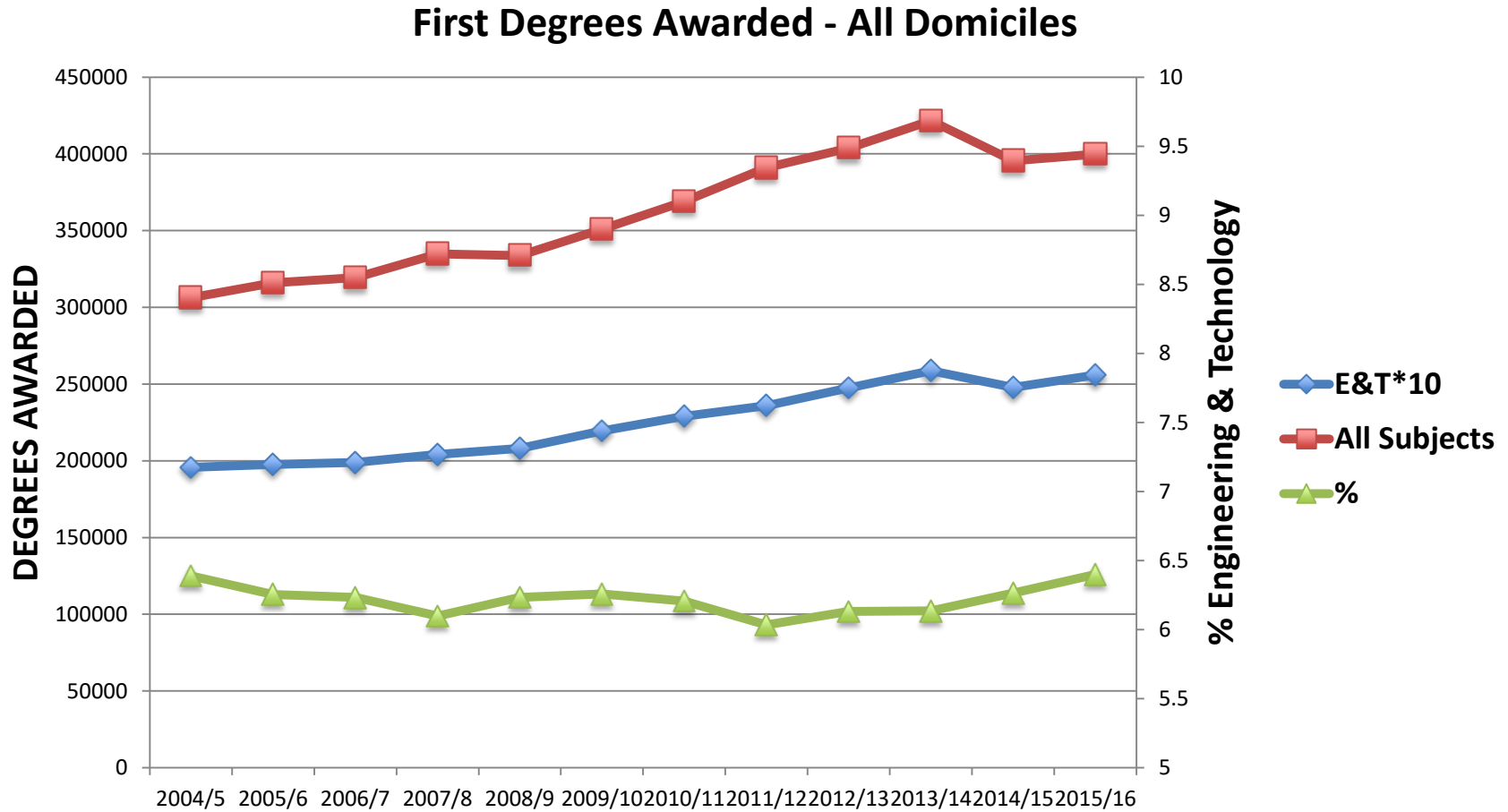
- “We recruit some of the best engineering graduates from UK Universities. But when we get them, we have to start again (teaching them about engineering)”
- “We prefer to recruit apprentices rather than graduates”
- Less than 50% of UK Engineering graduates go on to work in their industries – and in some cases (e.g. Electronics) less than 10%
- Industrial Advisory Committees often feature industrialists who are research chums of academics, and so do not give an unbiased view.

...and come to mention it:

“An outdated 20th-century curriculum, offered through a 19th-century delivery system, will neither attract creative, broad-minded students with a passion to change the world, nor will it equip them with the skills they need to effect that change. Fundamentally new approaches are required.”

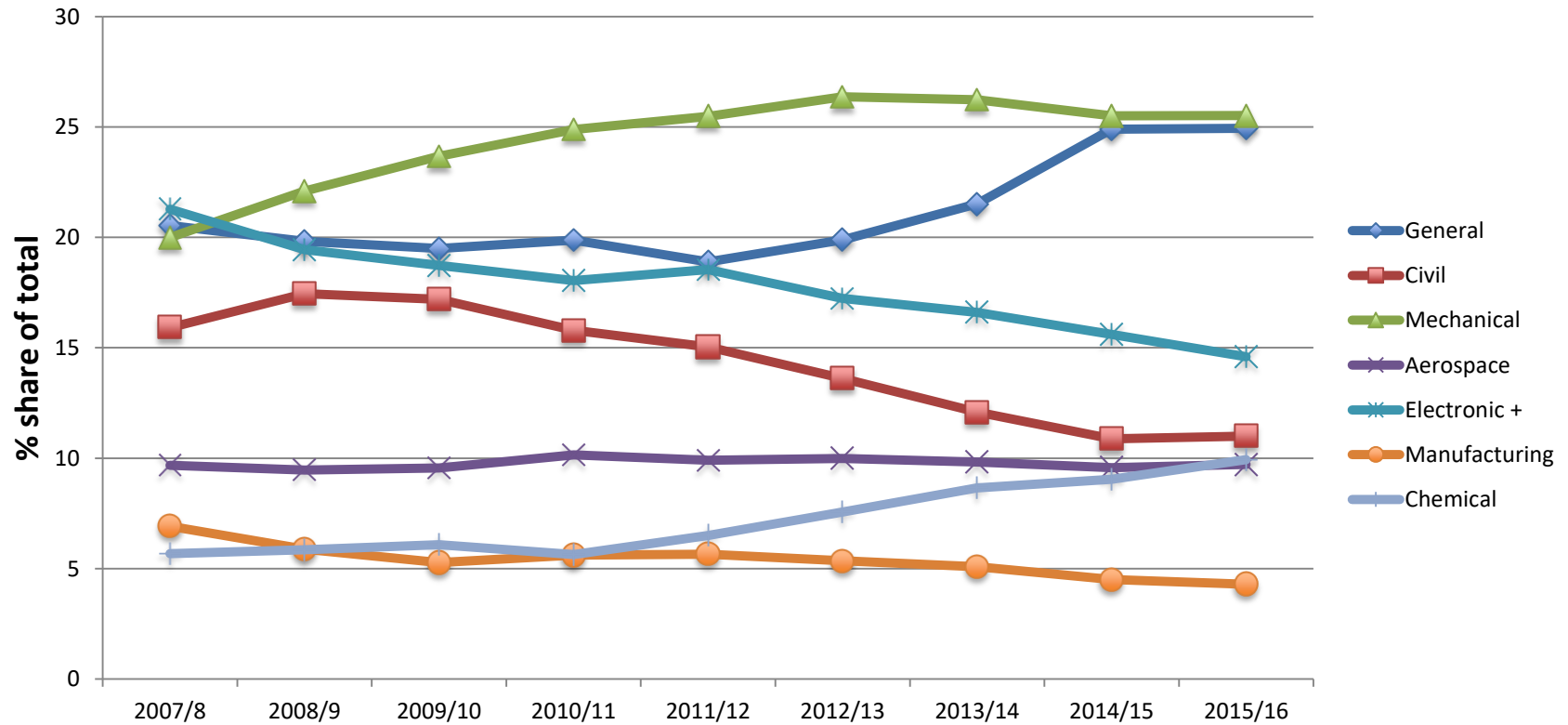


# ...and come to mention it:

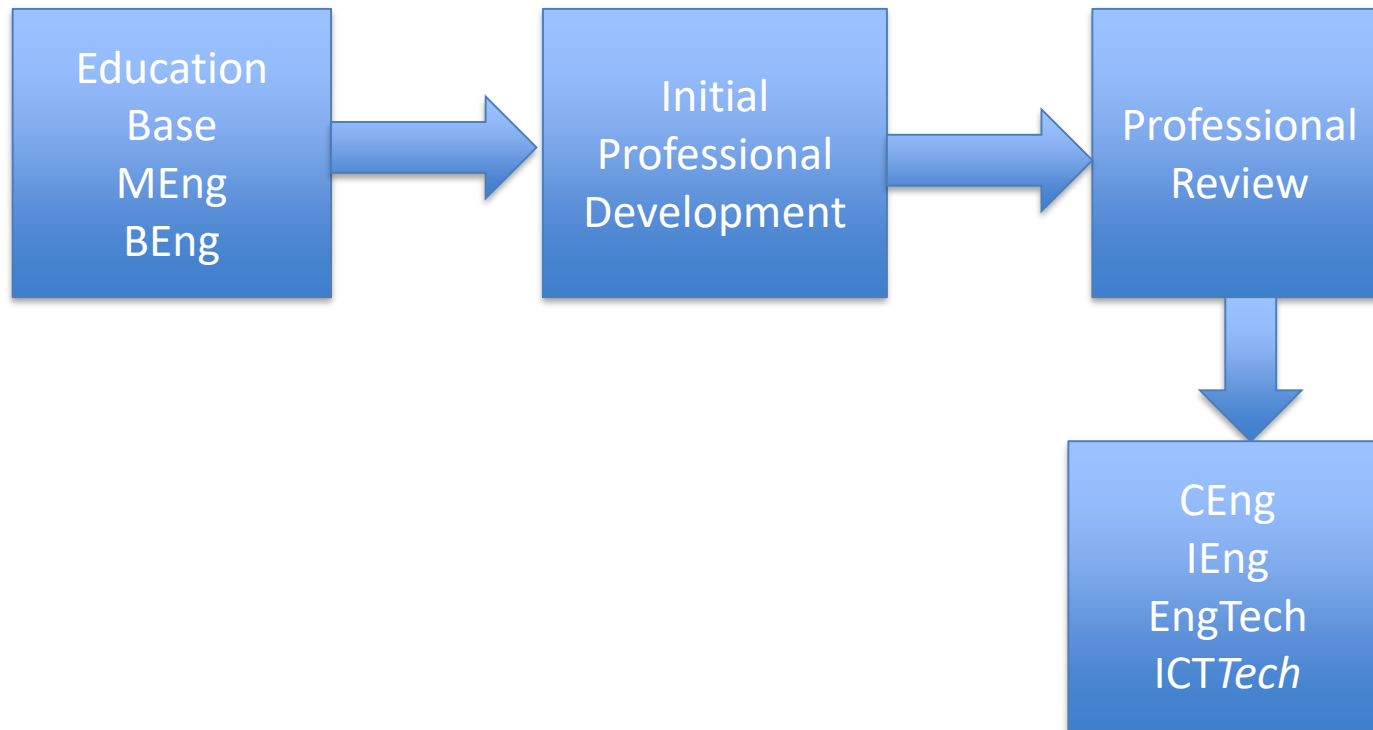


# ...and come to mention it:

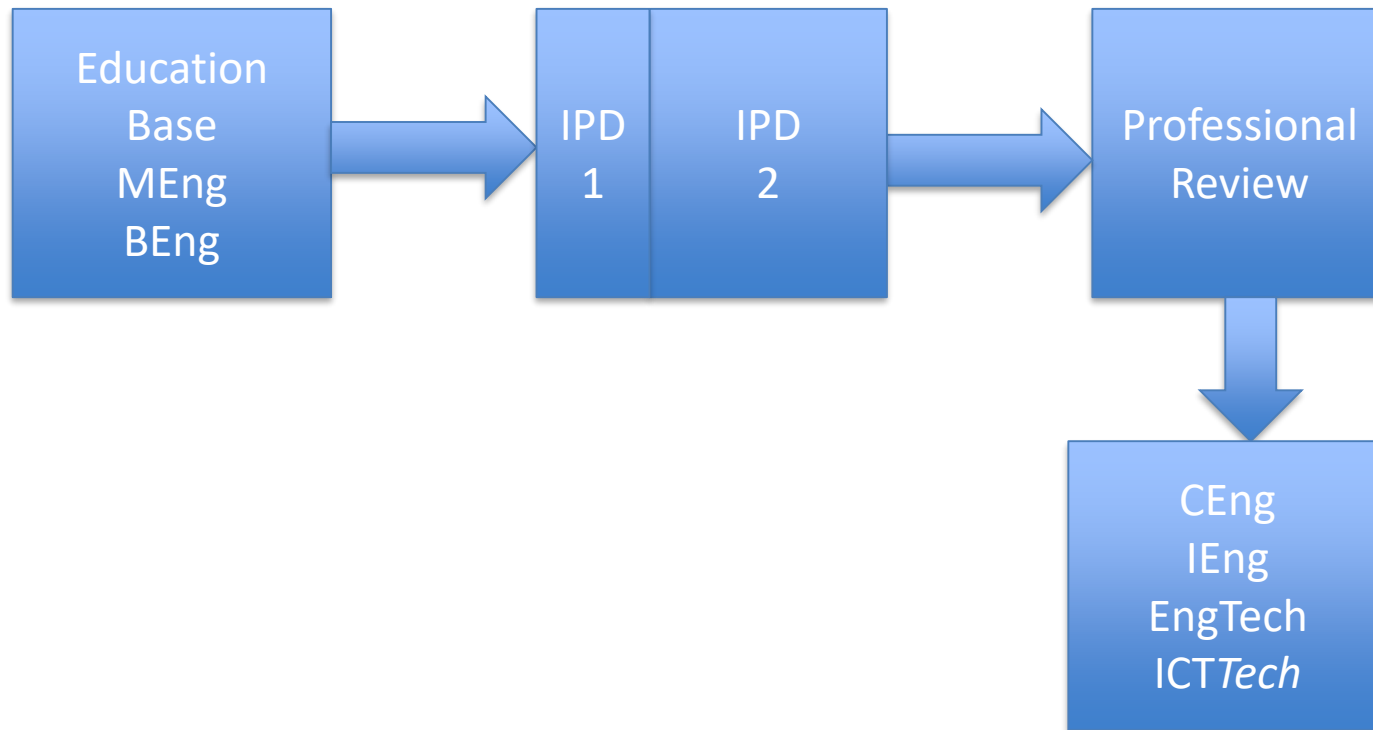
**Engineering Sub-Discipline UK Applicants  
% share of total**



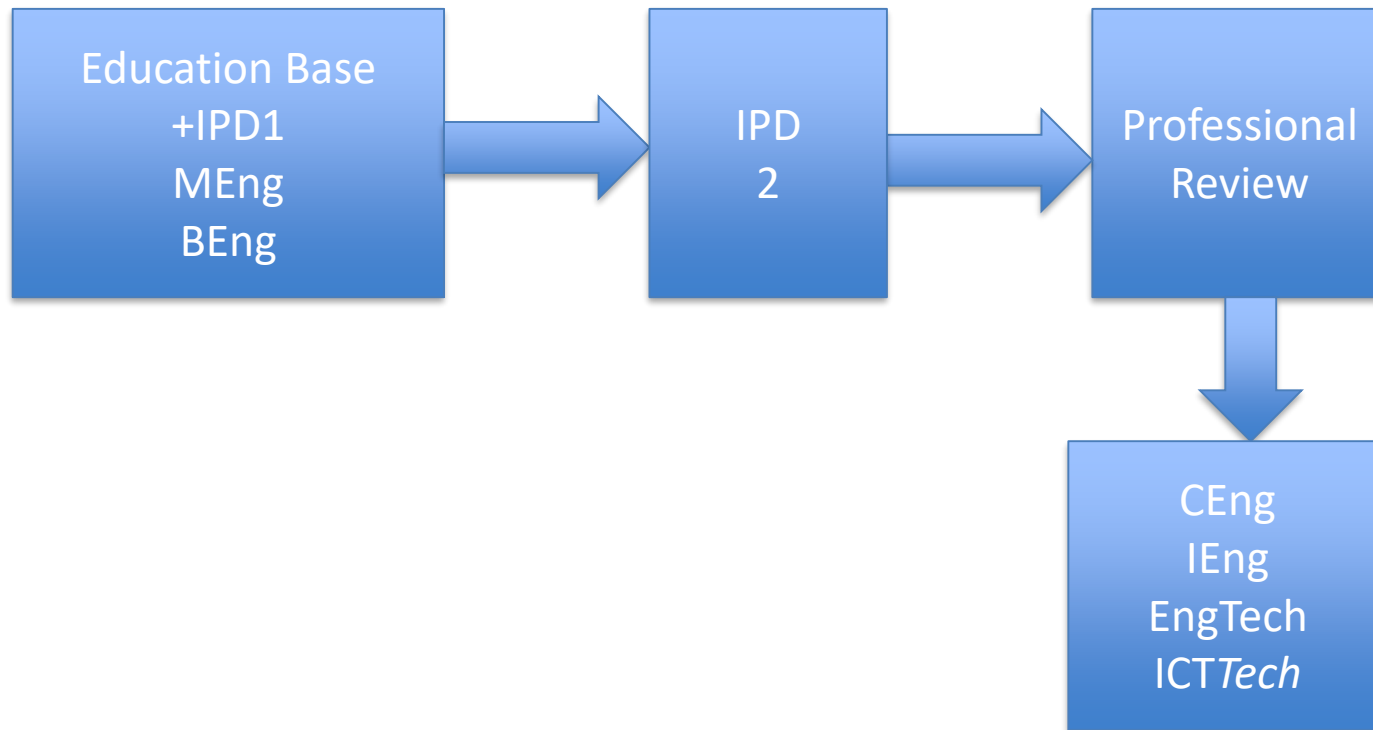
# ENGINEERING FORMATION



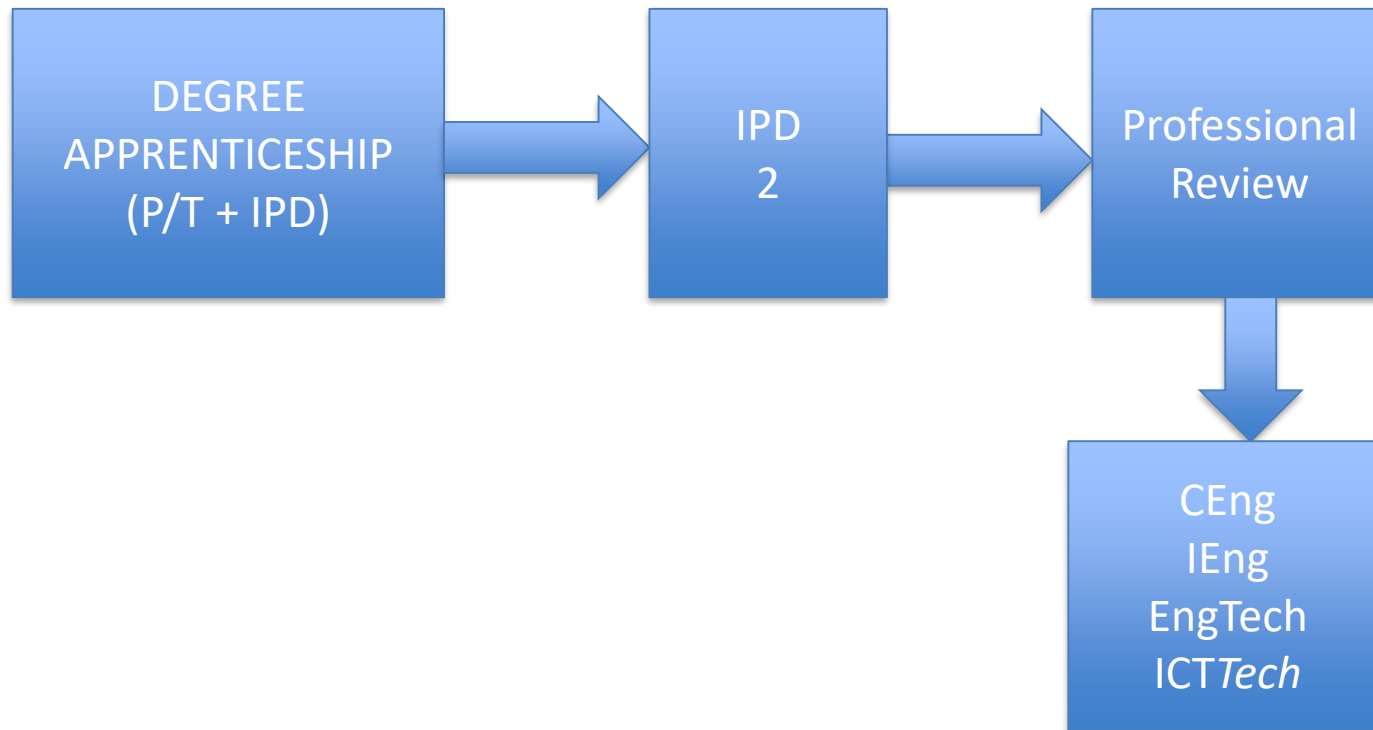
# ENGINEERING FORMATION



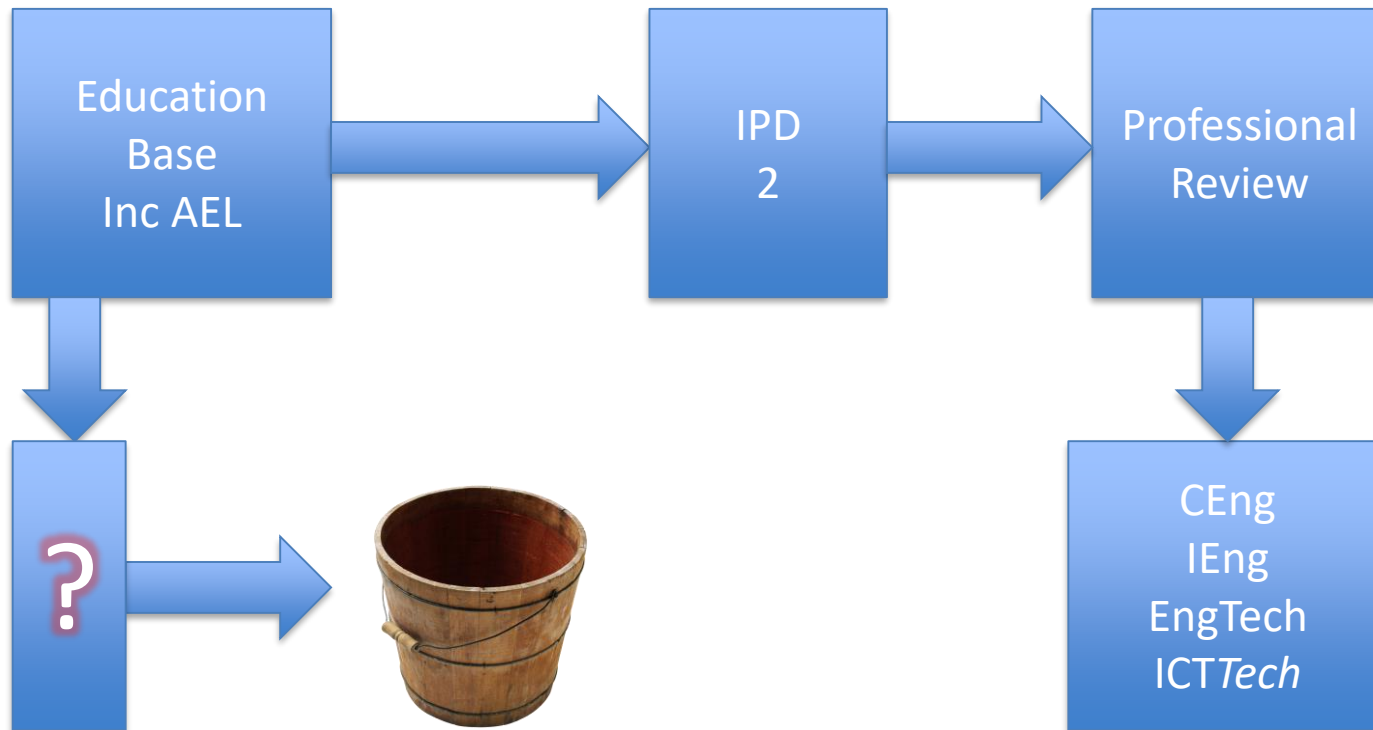
# ENGINEERING FORMATION



# ENGINEERING FORMATION



# ENGINEERING FORMATION





# ENGINEERING FORMATION

