



A means of managing engineering outcomes, sharing good practice and facilitating mobility

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Barry Clarke

Professor of Civil Engineering, University of Leeds, UK
President of the Institution of Civil Engineers
Chair of the UK Engineering Accreditation Board
Past President Engineering Professors Council



Hypothesis

- Accreditation maintains standards of engineering education, allows good practice to be shared and facilitates mobility of engineers.
- Therefore, accreditation is a universal means of publically demonstrating the academic attributes of engineering graduates.



Engineering Bodies

ICE (UK)	1818		
		EI (Ireland)	1835
IMechE (UK)	1847		
ASCE (USA)	1852		
IET (UK)	1871		
ASME (USA)	1880		
AIEE (USA)	1884		
		EIC (Canada)	1887
		IPENZ (New Zealand)	1912
		EA (Australia)	1919
		IEA (India)	1920



Professional Engineering Bodies

- Some engineering bodies are single discipline
- Some represent all engineering

- Some are learned societies
- Some are qualifying bodies
- Some are learned societies and qualifying bodies

- Some register alone
- Some accredit alone
- Some accredit and register
- Some do neither



Development of UK accreditation

1866	ICE (UK) Engineering attributes
1898	ICE (UK) Membership exams
1964	Engineering Council to oversee engineering profession
1970	SARTOR - teacher centred specification (entry standards, curriculum design)
1989	Washington Accord
1995	ECTS; 1 st and 2 nd cycle degrees (Bologna Process)
2001	Sydney Accord
2002	Dublin Accord
2003	UK SPEC - standards for professional engineering competence including student centred specification (curriculum design, learning outcomes)
2004	Dublin descriptors – learning outcomes for HE in Europe
2006	EURACE label framework for engineering degrees



The UK engineering landscape

- UK engineering education is based on student centred learning (curriculum design and learning outcomes)
- UK professional institutions accredit programmes and register professional engineers
- Accreditation is an in country assessment of the quality of engineering programmes.
- Engineering accreditation encourages innovation
- The UK is a signatory to the Engineering Accords



The Bologna Process implementation

- HE programmes fit within the Bologna Process (1st and 2nd cycle degrees) focusing on learning outcomes
- Engineering programmes comply with the EURACE label
- The Bologna process of 1st and 2nd cycle descriptors applies across 47 participating countries
- European countries have adopted either a self-regulation approach to professional qualifications or licensing systems. This does not restrict the mobility of engineers but it can restrict the ability of engineers to ‘sign off drawings’.



The Washington Accord implementation

- Washington Accord signatories have recognised substantial equivalence in the accreditation of qualifications in professional engineering.
- Washington Accord refers to four-year Bachelors programmes, in the main deemed equivalent to 1st cycle European programmes but a desire to raise level to 2nd cycle
- Some countries have not fully implemented the Washington Accord either because the signatory is not the registration authority or because their academic programmes are not at the right level



Testing the hypothesis

- Accreditation
 - Maintains standards of engineering education within country;
 - Encourages innovation and allows good practice to be shared within country
 - Has yet to be developed for transnational degrees based on credit transfer



Testing the hypothesis

- Accreditation
 - Facilitates mobility of engineers only if the engineering programmes are at the same level and the registering bodies recognise or are signatories to the Washington Accord.
 - As a universal means of publically demonstrating the academic attributes of engineering graduates is not yet a universally accepted process.



Testing the hypothesis

- Accreditation maintains standards of engineering education, allows good practice to be shared and facilitates mobility of engineers **in country**.
- Accreditation as a means of publically demonstrating the academic attributes of engineering graduates **is not universally accepted**.
- Thank you