Innovation in the Engineering Curriculum - Workshop Summary

This is a summary of the workshop "Innovation in the Engineering Curriculum" which took place at:

- EPC Congress, 17th April 2013, University of Portsmouth
- HEA STEM Conference, 18th April 2013, University of Birmingham

Presentations from the workshop can be found on the Engineering Council website.

Introduction

The workshop began with **Dr John Mitchell**, Director, Integrated Engineering Programme, UCL Engineering, introducing the topic of innovative higher education provision. Dr Mitchell outlined some of the perceptions of academics regarding accreditation by Professional Engineering Institutions that had led to the development of these workshops.

Engineering Council Perspective

This was followed by a presentation by Dr Caroline Sudworth, Education and Skills Senior Executive, Engineering Council. Dr Sudworth defined the role of the Engineering Council and the standards in place for academic accreditation, and exemplars of accredited provision that had shown innovative features. These are also available on the Engineering Council website for the engineering community to support wider practise.

Professional Engineering Institutions (PEI) Perspective

The workshops included presentations from representatives of the Professional Engineering Institutions (PEI) providing their perspective from:

- Dr Neil Atkinson, Institution of Chemical Engineers (EPC Congress only)
- Dan Canty, Institution of Engineering Technology (HEA STEM only)

Both PEI presenters reflected on the process and value of accreditation, and how developing supportive relationships with academics was key to positive accreditation outcomes. The PEIs noted there was a range of support on offer to help the community to ease the perceptions that may well exist.

However, there was a real need to share practice, and the work that PEIs undertook at an international level. Systematically collecting and sharing examples demonstrating innovative practice was required, and the sharing of these with the community could be used to help develop accreditation (and raise the accreditation standard) in the future.

The PEI presenters also detailed that accreditation was a peer-review process, and the academic community was invited to come forward to take part in accreditation visits. This was also an opportunity to visit other HE providers and to reflect on their own institution practice.

Academic Perspective

The academic perspective was presented by:

- Professor Helen Atkinson, University of Leicester (EPC Congress only)
- Dr Kate Sugden, Aston University (HEA STEM only)

Professor Helen Atkinson and Dr Kate Sugden reflected on their experience of accreditation visits during their careers, and how they are moving forward with forthcoming visits.
Dr Kate Sugden stated her experience in putting forward unusual courses for accreditation, including an integrated 40 week placement on a 4-year MEng degree. Dr Sugden detailed that her success in accreditation of such programmes was through the development of a relationship with PEIs, and she had used this to discuss the development of the degree programmes before they were run.

Prof Atkinson stated that she was preparing for a forthcoming accreditation visit, and when discussing this with colleagues, she revealed a range of perceptions that existed in the academic community and through corporate memory. These include reasons "not to change" the degree provision, a lack of understanding of the accreditation standards, processes and their knock-on effects, and how some academics felt it was difficult to pin down certain aspects of the course to match UK-SPEC requirements. Issues relating to consistency of marking and moderation, explaining the difficulty of a project and how it details the challenge that students face, were also aired.

Despite these perceptions, Prof Atkinson was able to support colleagues and alter their perceptions. The ability to demonstrate that the accreditation review process was an opportunity to demonstrate the well-established processes for developing and delivering student and group projects was meeting UK-SPEC, and that "being on top of" the curriculum was required to defend and challenge accreditors, with the process being reflective, and developing new ways forward with the PEIs.

The presenters noted that the community was not good at sharing innovative accredited provision, or ensuring it was put forward for accreditation. However, working with PEIs and the wider academic community would help to get the message out.

Engaging the Community

Professor Matthew Harrison of the Royal Academy of Engineering also contributed to the panel presentations at the HEA STEM Conference. During his presentation, Prof Harrison reflected on the discussion points, stating that accreditation did not stifle innovation, but suggested that more could be done for it to drive forward innovation. Prof Harrison noted that accreditation could be used to ensure employers gain the graduates with the education and skills they require, and to facilitate reflective learning as examples at a time when employment and the KIS were at the forefront of student needs.

Prof Harrison also noted that engineering does not stand still, and accreditation review provides an opportunity to reflect on the content of degrees and how accreditation may be used to differentiate courses within the community. Prof Harrison stated there was a real need for the academic community to state how their programmes differed, and challenged HE providers to share their innovative approach to future students and to the engineering community.

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Workshop Discussion

Two questions were then posed to the workshop audience:

- Does accreditation stifle innovation?
- What can we do to promote innovation?

A summary of the audience discussion is provided below.

Issues relating to the multidisciplinary nature of some courses, and the delivery of these by different academic departments were raised by an audience member. The PEIs replied by stating that a number of multidisciplinary and multi-department/location programmes had been accredited despite this. PEIs encouraged the development of such programmes as UK-SPEC is a common framework to work to, and suggested the use of joint visits, through the Engineering Accreditation Board (EAB), where these issues could be addressed and agreed. The PEIs did stress that the correct PEIs should be approached in this case – 22 PEIs are licenced to accredit degrees and cover a wide range of discipline areas.

PEI staff also stated the need to engage them early when developing such programmes, as they could offer support, advice and guidance on the accreditation issues that may arise. The PEIs encouraged the use and participation on development and training opportunities that could enhance innovative provision, especially as many PEIs now visit overseas higher education providers and campuses.

The issue of overseas campuses was raised by the audience, and the advice provided was to discuss this with the PEIs before accreditation visits, as specific requirements to visit these campuses are required.

Some academics in the audience raised the timescales required for QAA notification of course content and validation processes in place, where time allocation and module specification are required well in advance. PEIs again encouraged the development of a relationship, and welcomed higher education providers to discuss degree content and structure at an early stage.

Workshop participants also noted it was increasingly important to accredit courses, and when developing and delivering new courses, a number of issues are evident when discussing the status of the course with potential students and employers.

Once again, the development relationship with PEIs was stressed. PEIs are permitted to accredit newer courses, but can do so for a shorter than normal accreditation period. Over a number of years, a monitoring process can be put into place. This enables the provider with an opportunity to gather evidence during the early years of new course delivery, and when appropriate, PEIs can review the course for full accreditation. However, the main thrust of the argument was to engage the PEIs early.

The issue of full compliance and the level of detail required to meet accreditation requirements was raised by a workshop delegate. The main concerns surrounded not fully meeting all criteria required for accreditation, but in some cases, excelling in certain aspects of delivery. This also impacted on the incremental development of a course versus a 5-year accreditation review. At the current time, the ability to partially accredit a degree is not available, and within the developmental relationship that higher education providers and PEIs, these issues should be discussed. Feedback from accreditation visit reports should also be used to develop courses where required, and of course, accreditation visits can always be organised once additional changes have been made.

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Actions from the Workshop

ACTIONS GOING FORWARD	OWNERSHIP
Provide clear steps to the accreditation process	Engineering Council and PEIs
Ensure you attend accreditation briefings and training offered by PEIs	HE Providers
Present case studies of innovative accredited provision more widely	All
Publish reports regarding innovative accredited provision	All
Continue to discuss the topic through forums such as those hosted by the EPC	All
Encourage greater involvement in the 5 yearly review of UK-SPEC (Note: this is being undertaken in 2013)	HE Providers
Champion the peer-review process by encouraging involvement in PEI education forums and by training to become an accreditor	HE Providers and PEI Members