PASS Case Study 10: Focussing on programme goals in Engineering and Science

Summary

Variety of PFA	Using a framework of employability modules to promote: the assessment of programme goals; student development throughout the programme; and autonomy in learning.
Course	Degrees in Science and Engineering (25 programmes)
Faculty and institution	School of Science and Engineering, Teesside University
Type/duration	Undergraduate, full-time and part-time. Including four-year MEng programmes
Timing	This approach was introduced in the 2010/11 academic year Pilot trials of some of the approaches were undertaken from 2009/10

Overview

The School undertook a major review of all of its programmes in preparation for a reapproval event in April 2010. Key goals were to address employability and skills more overtly and to re-evaluate and confirm what employers wanted from graduates in science and engineering. An extended process of consultation within the School and with employers led to the development of a 'person specification' for a graduate which then acted a reference point for the design of learning and assessment.

A set of employability/skills modules were developed, tailored to the needs of each programme but within a common framework which includes delivery in one-week blocks, known as intensive weeks, when staff and students have no other formal commitments. The intensive weeks focus on professional skills, projects and team working and are student-led rather than dominated by teacher delivery. Student performance in these integrative modules is tutor assessed but this is combined with the use of self and peer assessment. The performance criteria are based on the person specification and thus refer explicitly to the programme learning outcomes. The work submitted for assessment relates directly to the outcome of skills development or the products of projects.

The innovation was based on careful planning and preparation and staff development and engagement. In addition to extensive consultation, intensive weeks were piloted twice as optional summer blocks for existing students who were not going to experience them as part of their programme. These pilots were positively received by students and employers and enabled blocks to be fine-tuned.

Main objectives

- Ensure that all students develop over-arching skills and enhanced employability. In addition students develop their capabilities in identifying, articulating and continuing to develop these capabilities.
- Make explicit and enhance the profile and value of these skills amongst staff, students and employers.
- Offer students distinctive learning opportunities that enable them to 'stand out' when seeking employment.

Programme-focussed Assessment Format

- Specific integrative modules in each year of the undergraduate programmes focus on employability skills. These modules are assessed and contribute to the overall assessment of the level and ultimately the programme. In each year students have a 'skills' module, focussed on professional skills both subject and generic and a 'project' module which involves group work. In the final year the project is interdisciplinary requiring students to work with students in other subjects.
- All of the integrative modules are designed around a graduate 'person specification' and students are assessed using the person specification criteria. The person specification encompasses key programme learning outcomes relating to employability. This means that, in effect, integrative modules are assessed on the basis of programme learning outcomes. It has been observed that students draw on materials, concepts and skills from other modules across the programme, bringing them to bear on the skills development or project work.
- Integrative modules are delivered on a block mode basis with a full week which is free of other timetabled commitments for students and staff for each module. Normally, some preparatory material is delivered to students before the intensive week, keeping them engaged throughout the year. Students also have group planning meetings and sort out roles and responsibilities before the intensive week.
- Although the overall framework is common across the School, the learning activities and the detailed design of learning tasks and assessment are undertaken at subject level, thus varying according to degree programme. The balance of marks in the modules is 60% for subject related product outcomes and 40% for processes and skills.

Key assessment framework/regulations

- The integrative activities are 'packaged' in the form of modules which are assessed individually. There is therefore no difficulty in using the approach within the University's assessment framework.
- Review procedures tend to focus on individual modules. In the case of the integrative block modules it is essential to maintain an overview and ensure that modules continue

to be delivered according to the 'letter and spirit' of the framework, whilst still meeting specific subject needs.
- The use of block delivery (1 week blocks) is unusual in both full-time and part-time programmes. Flexibility and commitment from support staff e.g. organising timetabling has been essential in making the approach work.

Main impacts on staff

- The process of consultation and engagement of staff has been crucial to the success of this development. In the development process an agreed School goal termed the 'mission statement' was important alongside the person specification. The new modules required staff to develop new approaches to teaching, learning and assessment as the overall agreed ethos and aims had to be contextualised into each subject.
- Since there was already widespread practice in developing student employability staff had experience to draw upon. However a substantial staff development programme was initiated. This enabled staff to share and exchange current practice which was often not known outside their subject, and to collaborate on the development of new ideas and approaches.
- Now that the modules are being delivered, a key impact on staff is the positive student response. Staff have appreciated the level of student engagement and enthusiasm and been impressed by the quality and standard of work undertaken. Some staff have also received positive feedback from employers and professional bodies.
- Other support and professional staff have been engaged in development and delivery and have to take on some new activities e.g. technicians who may be needed to support project work, library and careers staff engaged in skills development activities.

Main Impacts on students

Staff noted the following responses from students:

- Students were positive about the intensive weeks regarding them as a valuable contribution to their futures as engineers and scientists in the short and longer term.
- Students took responsibility for their own learning during the modules and engaged well , acting more like professionals, aiming to do a good job, than as students who were just 'collecting marks'
- Students recognised the links between the modules at each level and were also aware of their own development and progress. They could see the framework over all three years and how it was integral to the degree programme as a whole. This indicates attention being paid to 'slowly learnt' skills and capabilities.
- Students felt that they were being well-prepared with professional/employability skills and were aware of ways in which they could use their experiences e.g. in job interviews
- Students made more use of learning support services e.g. library, study skills, careers because they became more aware of what was on offer through the skills modules.

The following benefits as identified by PASS apply

- Integrated learning and assessment at the meta-level, ensuring assessment of programme outcomes
- Increased self and peer assessment, developing assessment literacy

- Greater responsibility of the student for their learning and assessment, developing self-regulated learners
- Greater opportunity to allow for slow learning

Further details

Contacts	Garry Bishop 01642 342412 g.bishop@tees.ac.uk Tim James 01642 244663 tim.james@tees.ac.uk Joe McGinnis 01642 242463 j.mcginnis@tees.ac.uk School of Science and Engineering Teesside University Middlesbrough Tees Valley TS1 3BA
Further information	