

Supporting engineering academics in Scotland

Engineering mini-projects at Scottish Higher Education Institutions

We are pleased to announce the funding of three, one year mini-projects at Scottish Higher Education Institutions that link with the *First Year* and *Research-Teaching Linkages Enhancement* Themes.

Norrie Edward at the Robert Gordon University will be looking at *Enhancing the first year experience and employability by aligning expectations with experience*. The Robert Gordon University is introducing an activity week for first year students, which includes a day spent at the premises of an industrial sponsor. This will form part of a holistic programme of professional development spanning the degree course. Workshops will allow students to explore their own, the university's and the employer's expectations of engineering graduates and will hopefully result in a closer alignment of expectations. The mini-project funding will be used to conduct a comprehensive evaluation of the effectiveness of this intervention.

The *Assessment of the need for enhanced subject insight in first year engineering* mini-project will be led by Stephen Warrington, Tom Bruce and Velda McCune at the University of Edinburgh. The project aims to establish the level of subject and career exploration among those entering a first year engineering class, to track how this is (or isn't) enhanced by the existing first year curricula, and to identify and explore themes which could well inform a subsequent "root and branch" reworking of first year engineering teaching and learning.

Barry Beggs, Glasgow Caledonian University, will be leading a project based on the research-teaching linkages theme. It focuses on the student learning experience including graduate attributes and engaging the research community in enhancing the quality of the student learning experience. The mini-project aims to develop an interactive, *virtual online journal* to allow students to submit technical papers and have them published. With partners Norrie Edward at the Robert Gordon University and Andrew McLaren at the University of Strathclyde, the virtual journal will be developed to accept submissions based on final year undergraduate and MSc projects in engineering.

More information about these projects and our funding opportunities is available from www.engsc.ac.uk/us/fundopps/miniprojscotland.asp



Andrew McLaren, Design workshop at Strathclyde University

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HE in FE update



EASIMAP project



London Engineering Project update



Student Award Winner announced



Out and About

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Design Teaching in Engineering: Exploring Differing Approaches

This successful workshop was held at the University of Strathclyde on 23 March 2007. A number of design teaching exemplars, each reflecting a different set of objectives, and utilising varied learning modes were showcased. Delegates discussed the aims and objectives of design teaching, such as what should be included and appropriate ways of facilitating student learning. One delegate commented that:

Every lecturer should occasionally take time out to consider the bigger picture and the day provided me with an ideal opportunity to do this in the context of 'Design'. Presentations by enthusiastic colleagues made me consider aspects of student motivation and assessment that I hadn't previously thought about.

Following on from the success of this workshop the Engineering Subject Centre is organising a workshop on *International Design and Enterprise Teams*, hosted by the Robert Gordon University, Aberdeen, on Thursday 28th June 2007. For more information about this and other subject centre workshops please see www.engsc.ac.uk/nef/events/

Forthcoming Higher Education Academy activities in Scotland

Higher Education and Sustainable Development in Scotland, Dundee, 13 June 2007

The Higher Education Academy, the Scottish Funding Council and the Environmental Association for Universities and Colleges are organising this event for those involved in Education for Sustainable Development. The event will enable an exchange of activities, plans,

ideas and case studies and will give participants the opportunity to showcase their work. To register your interest and / or your work, please go to:

www.economicsnetwork.ac.uk/projects/esd/scotland_f.htm

Introducing Pedagogic Research Methods, University of Strathclyde, 20 June 2007

This is the third in a series of pedagogic research methodology workshops led by the Higher Education Academy and is targeted at people who are new to pedagogic research and also at researchers with some experience. For more details or to register please visit: www.heacademy.ac.uk/events/List_5532.htm

TLAD 07, University of Glasgow, 2 July 2007

This workshop, organised by the Subject Centre for Information and Computer Sciences (ICS), will concentrate on novel teaching and assessment approaches for database and database-related modules. It is intended that the workshop will include plenty of time for discussion. For further details please see www.ics.heacademy.ac.uk/events/displayevent.php?id=141

Keeping up to date

The Higher Education Academy produces a regular newsletter for the Scottish sector with issue 6 available now from www.heacademy.ac.uk/scotland.htm. If you would like to find out more about the work of the Higher Education Academy in Scotland please contact Alastair Robertson – Senior Adviser, Scotland alastair.robertson@heacademy.ac.uk

New Mini-Projects and SIG funded

Developing and Sharing Resources for Control Engineering

This Special Interest Group (SIG), co-ordinated by Anthony Rossiter, University of Sheffield, aims to bring together academics across the UK who deliver control engineering degrees and are interested in producing and sharing resources, especially those tailored for web delivery and independent learning. In time, the group hopes to populate a repository of quality resources in control engineering.

Development of a Resource to Encourage and Support the Creation of E-tutorials

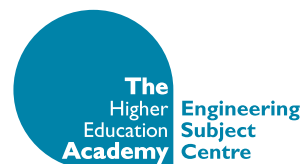
Web based tutorials can significantly enhance the student learning experience by providing formative assessment with immediate feedback. Largely quantitative subjects such as engineering are well suited to using e-tutorials which are automatically marked. Katy Voisey, School of Mechanical, Materials and Manufacturing

Engineering, University of Nottingham has received project funding to provide a resource to inspire and enable academics to get up and running with creating e-tutorials more quickly. The resource will provide comprehensive supporting material on writing, editing and adapting questions for WebCT as well as a selection of editable WebCT engineering questions.

The Online Student Individual Project Management System

OSIPMS enables academic staff to effectively manage student project activities and students will benefit as this tool enables them to submit weekly journals and to reflect on their current progress, whilst maintaining an up-to-date online project plan. Johann Siau, Electronic, Communication and Electrical Engineering, University of Hertfordshire will be developing a system to simplify the complexity of managing multiple projects.

Subject Centre News



Welcome to **Jon Crannage**, who has joined the team as Web Officer. In addition to managing and developing web content for the Centre, Jon will assist Rob Pearce in providing technical support. Jon's email is jon@engsc.ac.uk

Congratulations to **Kate Hargreaves**, Centre Administrator, and her partner Ian, on the birth of their daughter Fiona Rose. During Kate's maternity leave, Kate Everest is the first point of contact for the Centre: email katie@engsc.ac.uk telephone 01509 227170.

The deadline for submissions for the third issue of **Engineering Education: the Journal of the Higher Education Academy Subject Centre Volume 2 Issue 2** is August 2007. Potential authors wanting to contribute papers are encouraged to read the submission details at www.engsc.ac.uk/journal. Volume 2, Issue 1 of the journal will be available online and in print format by early July. You can look forward to an interesting selection of papers on a variety of topical themes, including group learning, use of historical perspective, and developing creativity.

Supporting HE in FE: How can e-Portfolios Help Me?

With the introduction of e-portfolios as assessment tools, practitioners need to consider how they can help their students to create e-portfolios that integrate formal, informal and self-directed learning in a meaningful way.

A recent one-day event, jointly coordinated with the JISC Regional Support Centres for East and West Midlands, showcasing how e-portfolios are being used in practice, was so successful (and so heavily subscribed!) that future events on the same subject are being planned for other venues around the country.

Please see www.engsc.ac.uk/nef/events/eportfolios23-05-07.asp for more information and resources from the day.

Assessment and Feedback: the Student View



The Higher Education Academy's Teaching and Learning Group has commissioned a 30 minute DVD of student interviews on their perception of assessment and feedback on a range of HE courses delivered in further education colleges.

Please contact Ian Lindsay, the Centre's Academic Advisor for HE in FE, ian@engsc.ac.uk if you would like to receive a copy. An abridged version of the film is available for download from the HE in FE section of our website. Please see www.engsc.ac.uk/heinfe/assessment.asp

New chemical product design teaching website

The need to guarantee and reinforce the competitiveness of the chemical industry by incorporating chemical product design topics into undergraduate curricula has been well recognised in recent years. However, finding examples to illustrate concepts remains a major difficulty faced by those involved in teaching this subject. Geoff Moggridge and Raquel Costa, Department of Chemical Engineering, University of Cambridge received Mini-Project funding to produce a web resource of case studies and sample problems that can be used as support for chemical product design courses taught in the UK and beyond.



All of the resources can be accessed from the Subject Centre website at www.engsc.ac.uk/an/mini_projects/cpd/index.html

WebPA: An Online Peer Assessment System for HE



The WebPA project is a 2 year JISC funded research and development project that will create an open source version of an online peer moderated marking system for the assessment of group work in higher education. The tool was originally developed for the Faculty of Engineering at Loughborough University and the JISC funding will enable this innovative application to be scaled up for institutional use in all subject disciplines across the UK.

The new version is being developed to enhance the existing WebPA tool and will add to best practice knowledge in the area of online peer assessment. The framework of adoption, including guides on implementation and embedding, for institutions will be developed by the project in the near future.

The WebPA project is being led by the Engineering Centre for Excellence in Teaching and Learning (engCETL) at Loughborough University, in partnership with the eServices Integration Team at the University of Hull and the Subject Centres for Engineering and Physical Sciences.

At present the project is looking to pilot the WebPA tool in a small number of institutions. This will assist in the further enhancement of the tool and the development of the framework and case studies.

Further information about the project can be found at <http://webpaproject.lboro.ac.uk/>. If you would like to receive updates about the project and join the community using WebPA then you can join the mailing list at www.jiscmail.ac.uk/webpa/.

The Higher Education Academy News



The Higher Education Academy has developed a new Professional Recognition Scheme to support the implementation of the sector-owned UK Professional Standards Framework. The scheme hopes to raise the profile of exemplary work undertaken in teaching and learning in UK Higher Education Institutions and enhance the professional status of the staff involved. There are three categories of professional recognition – Associate (AHEA), Fellow (FHEA) and Senior Fellow (SFHEA). Further details about the scheme, including criteria and application forms, are available from the Academy website:

<http://www.heacademy.ac.uk/ProfessionalRecognition.htm>

The Academy is working with higher education institutions to help them make the most effective use of the results of the National Student Survey (NSS). This web page links to findings, evaluation, news articles and related information:

<http://www.heacademy.ac.uk/NSS.htm>

EE 2008 – First Announcement

International Conference on Innovation, Good Practice and Research in Engineering Education

14 -16 July 2008

Loughborough University, England

www.ee2008.info

This international conference is dedicated to enhancing the quality of higher education in all engineering disciplines. It will serve as a forum for the sharing of innovation and good practice and will provide delegates with the opportunity to critically and creatively engage with new ideas and research that might help them develop their own approach to learning, teaching and assessment.

Abstracts for full papers or interactive workshop sessions are invited on any theme in engineering education.

Abstract deadline: 02 November 2007.

To find out more, or make general enquiries, feel free to contact: Kate Everest, Conference Administrator, ee2008@engsc.ac.uk

The EASIMAP Project



The Engineering Subject Centre is currently managing a project (EASIMAP) that is developing an **electronic tool** to link the assessment of learning outcomes with students' personal development planning (PDP) records / e-portfolios.

The EASIMAP Tool – which will be piloted in the Academic Year 2007-2008 – will assist academics to:

- Map programme, module and assignment intended learning outcomes to Engineering Benchmark Statements based on the UK-SPEC
- Record student attainment of learning outcomes
- Transfer assessment data directly to each student's personal development planning (PDP) record or e-portfolio.

The EASIMAP Tool will bring a number of benefits to the project's key stakeholders.

For the higher education engineering **academic community** this tool will:

- Assist in the design of new degree programmes that align with UK-SPEC
- Map existing degree programmes, identifying in the process both gaps in the coverage of learning outcomes and over-assessment of learning outcomes
- Provide evidence – for accreditation, programme review, institutional quality assurance - of students' attainment of learning outcomes
- Help record and monitor assessment and feedback.

For engineering **students** this tool will:

- Transfer assessment and feedback data to their PDP records / e-portfolios
- Enable the evidencing of competence and learning attainment
- Help relate learning attainment to professional engineering standards
- Encourage engagement with personal development processes such as reflection and planning.

For engineering **professional institutions** this tool will:

- Provide evidence (for accreditation purposes) that higher education engineering degree programmes are providing students with the opportunity to demonstrate learning outcomes in line with UK-SPEC requirements
- Encourage future graduates, through evidencing competence, reflection and planning, to engage with personal/professional development processes.

The EASIMAP project is funded through the JISC / Higher Education Academy Distributed e-Learning Programme II.

For further information on the EASIMAP Project or to express an interest in being involved, please contact the Project Manager, Alan Maddocks (A.P.Maddocks@lboro.ac.uk) or visit www.engsc.ac.uk/er/pdp/easimap.asp

The Assessment of Learning Outcomes

The introduction of UK-SPEC and accreditation based on output standards has produced several issues, in particular how to identify evidence that learning outcomes are being met and at what level.

The Engineering Subject Centre has held discussions with both the Engineering Council UK and the Engineering Professors' Council on how the engineering community could be further supported in aligning the assessment of learning outcomes with the UK-SPEC.

The three organisations have formed an *Assessment of Learning Outcomes Working Group* which aims to provide support to the engineering community to enhance the process of assessing learning outcomes. The Working Group meets regularly and aims to facilitate the sharing of experiences between programme leaders and accreditation teams. It also aims to capture and disseminate examples of good assessment practice and how UK-SPEC is informing curriculum design.

Following a successful workshop in October looking at "Lessons Learnt" from early accreditation visits under UK-SPEC, the group is developing a programme of activities leading to a National Symposium to be held 13-14 September 2007.

The group is also looking to build on the resources offered in the Engineering Subject Centre Guide to the Assessment of Learning Outcomes, available at www.engsc.ac.uk/downloads/resources/learning_outcomes.pdf, and is currently commissioning case studies to capture good practice in the following areas:

- the assessment of team and group work
- the assessment of sustainable design and sustainability
- the assessment of creativity in design.

To find out more about the working group or to submit a case study abstract please visit:

www.engsc.ac.uk/assessment/aolowg.asp



Creating an appetite for engineering

The London Engineering Project (LEP) team has now been in schools for nearly three terms. Attitudes are changing and the appetite for engineering in Southwark is growing.

**LONDON
ENGINEERING
PROJECT**

Certainly the students involved in the engineering projects want more. Maybe it's the hands on approach to engineering that the LEP team takes or maybe it's just that actually many young people (certainly in Southwark) really want to learn more about engineering.

The LEP team has successfully set up 14 new Young Engineers Clubs in secondary schools and about the same number in primaries, which students are regularly attending after school.

Over 100 students from the ages of 13 to 16 have been on residential courses in different engineering disciplines; from vehicle safety, rescue and retrieve to designing luxury future homes.

At London South Bank University (LSBU), we have run day sessions in chemistry and food technology and are planning to run more days in civil, chemical and electrical engineering. Our engineering focussed mentoring is taking off too and proving a popular resource for the schools.

The work continues at further education level with the continued support of the Royal Academy of Engineering's Best Programme. A brand new scheme, TriSET, has been developed that enables students to take a paid work placement and experience what it is really like to be an engineer after GCSEs. At LSBU, engineering master classes have also targeted this age group.

In higher education we are working with UCL and Cambridge MIT in conjunction with the Higher Education Academy Subject Centres looking at the ability of engineering teaching initiatives to enhance the student experience, improve retention and encourage and support our students recruited through various widening participation schemes.

At the University of Sussex we are introducing the 'Engineering for Society' degree, which encompasses a general engineering training alongside studies into the environment and societal development.

LSBU is developing several foundation degrees in engineering. The first is a foundation degree in 'Power Distribution' and has been designed by LSBU in collaboration with electricity distribution network operator EDF Energy, the Energy and Utility Sector Skills council and the LEP.

The work at UCL and Cambridge MIT in conjunction with the Engineering Subject Centre is being carried out by the Royal



School pupil enjoying an activity run by the LEP team

Academy's Education Innovator Liz Read who will be with the Academy over the next 18 months – if you have any questions or items you would like to discuss with Liz, she can be contacted on Liz.Read@RAEng.org.uk.

The London Engineering Project (LEP) is the first phase of a National Engineering Programme (NEP) to be run in London and 6 other cities by the Royal Academy of Engineering. The NEP receives significant funding from the HEFCE through the strategic subjects fund. For further details about the other work described here, please email contactus@thelep.org.uk.

Engineering Subject Centre Student Award 2007 – winner announced

student 
award

Congratulations to the winner, John Heritage, from the Electronics Department of The University of York for his essay 'What advice would you give to students starting your course?' John will receive £250 and his essay will be pitted against winning essays from other subject centres to win a Toshiba laptop. The overall winner of the Higher Education Academy Award will be announced at the annual conference in July.

The Centre received an excellent selection of essays this year and would like to thank both the students who wrote an essay, and teaching staff and departments who publicised the Award. Two runners-up were chosen from the submissions – Vicki Cripps, University of Leicester and David Milne, Heriot-Watt University. All three essays are available to read in full at www.engsc.ac.uk/us/fundopps/student_awards.

What advice did the winner give to students starting their course?

If you're new to your degree, you need to start developing your own style of engineering. It's unlikely that every path in engineering will be of equal interest to you. Rather, there's probably something mixed in with the other routes which will be of particular interest. It's down to you to find out what that something is, and the earlier you can do that the more you can guide your learning towards the topic you finally want to specialise in.

You can help speed up this process in two ways. The first is by simply doing as much engineering as possible. Get involved in groups and clubs and give your hands practice making things to see what it is about the process that you enjoy the most. Then think about which specialisations will allow you to do the maximum amount of what you enjoy.

Secondly, investigate what's going on in your department's research sections. In an engineering department, there will undoubtedly be strange things happening behind half closed doors, usually with clouds of white vapour drifting around the floor and weird looking stainless steel chambers. Some day soon, you'll have to decide which floor dwelling cloud you want to be responsible for, and finding out what the research students are doing now will help you see where technology will be going in the future when it's your turn to take over. The researcher students will be pleased to have someone interested in what they're working on, so be brave and ask...

... remember to enjoy yourself. Enjoyment is critical to sticking at something and feeling fulfilled. Don't wait for something enjoyable in your degree to run into you, go out and find it. Then learn everything you can about it and more. Sometimes it just takes a little input from your own imagination.

Advice from the winner, John Heritage

Runners-up advice...

Engineering is about learning concepts and how to apply them to practical situations and one of the most important things about going to university is learning how to learn. Many people just try to learn enough for the exams, usually by memorising formulae and how to answer a few questions that are likely to appear again. This is not such a good idea as, at some point, you will be caught out in an exam and you'll have forgotten everything a couple of weeks later. If you can find a style of learning that allows you to really understand 'why', you will find formulae and how to apply them correctly much easier to remember.

Advice from runner-up, Vicki Cripps

I have greatly enjoyed my time being an engineering student however, I would say not to expect the easiest course going! I am at a point when I can reflect back on my student years [5th year] and I would not change the experience for anything... looking at the job market I am now aware that engineers are much in demand and respected... In short my advice to potential students would be to expect a demanding yet very enjoyable time.

Advice from runner-up, David Milne

future events

A more comprehensive listing of events can be found on our website: www.engsc.ac.uk/nef/events/

4 – 6 June 2007

Active Learning in Engineering Education Workshop 2007

ALE, CDWG and TREE

Toulouse, France

13 June 2007

Engineering Ethics Conference

Royal Academy of Engineering, London

21 June 2007

Joint workshop offered by all the STEM Subject Centres

Recent Changes to the 16-19 Qualifications

University of Keele

28 June 2007

Engineering Subject Centre Workshop

Teams without Frontiers – International Design and Enterprise Teams

The Robert Gordon University, Aberdeen

3 – 5 July 2007

Higher Education Academy Annual Conference 2007

Harrogate

24 – 27 July 2007

American Society for Engineering Education

Annual Conference 2007

Honolulu

Out and About

In February 2007 the Centre ran a joint workshop with the Higher Education Academy Subject Centre for Information and Computer Sciences. **Teaching Information Skills** was held at The University of Northampton and attracted over 30 librarians from engineering, science and information science. Several of the sessions were run by National Teaching Fellows and the workshops provided an opportunity to evaluate current resources and teaching techniques. One delegate took away these tips for his teaching – “Be more innovative – make it more of a performance. Be more interactive.”

The **Engineering Subject Centre Workshop for New Lecturers** was held in January 2007 and hosted by Loughborough University. Delegates participated in sessions covering programme design, running labs and design project, the role of the personal tutor and assessment.

“I recently attended the above event and have been meaning to write since then. I wanted to thank you and the rest of the team at the Subject Centre for such a productive and interesting workshop.”

Due to the success of this event the Centre will be running another event for new lecturers in Scotland in September 2007, for more information contact the events team on events@engsc.ac.uk

In February 2007, the Engineering and Physical Sciences Subject Centres ran a professional development workshop for postgraduate

demonstrators at the University of Manchester Conference Centre. *“This workshop gave an overview of the skills expected of a demonstrator and highlighted common issues relating to supporting students in the laboratory.”* **Supporting Engineering and Physical Science Students** was oversubscribed. Delegates discussed cultural and religious diversity, assessment issues and were given the opportunity to offer a practical demonstration for critique.

The **Encouraging Active Learning through the use of Case Studies workshop**, provided an opportunity to explore different types of case studies, good practice for using case studies in teaching and how to approach writing a case study. As part of the workshop, delegates had the opportunity to experience a case study from the learner perspective and to take away copies of case studies already available to use with students.

The Engineering Professors’ Council and Engineering Subject Centre joint event **Recruiting International Students into Engineering** was very popular attracting over 50 delegates. The event covered international recruitment to undergraduate and postgraduate courses with the DfES, UKCOSA, the British Council and UUK represented and giving presentations.

Visit our past events page for more information on these events and to access resources and presentations from the day:

www.engsc.ac.uk/nef/events/past_events.asp

about

The Higher Education Academy **Engineering Subject Centre** provides support for all UK engineering academics to enhance quality learning and teaching in engineering.

If you would like to express your own opinions on this edition of translate, then please write to us at: enquiries@engsc.ac.uk

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