

## inside

## Welcome



Welcome to the first edition of LTSN Engineering's newsletter, **translate**, circulated twice yearly to engineering academics in higher education institutions. **translate** contains short articles on current engineering educational topics and provides one mechanism for the community to keep up to date with activities in this field. In this edition you will find a summary of LTSN Engineering's remit, an invitation to join working groups and information on recently funded learning and teaching projects. The final article "Talking Point" raises some key issues, such as the forthcoming QAA subject reviews in engineering that will impact on us all. I look forward to reading your contributions in future issues.

John Dickens, Director of LTSN Engineering

## Review of LTSN Engineering's Inaugural Event



LTSN Engineering held its first major event 'Innovations in Engineering Education' on Monday 19 June 2000 in its new facilities at Loughborough University. Over 90 delegates attended from universities in the Midlands region. The event provided a showcase for engineering education and gave engineering academics an opportunity to share good practice and innovation with informed colleagues, form networks with those active in the area of engineering education and shape the development of LTSN Engineering.

Professor David Wallace, Vice-Chancellor of Loughborough University, gave the welcome address before John Dickens, Centre Director of LTSN Engineering, introduced both LTSN Engineering and the wider LTSN network. This was followed by three brief talks on the theme "Why do we need this new initiative?" by Professor Mike Kearney, Head of Electronic and Electrical Engineering at Loughborough, Dr Ban Seng Choo, Reader in Structural Engineering at the University of Nottingham and Richard Shearman, Deputy Director, Engineer's Regulation, at the Engineering Council.

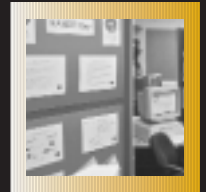
An informal buffet lunch gave delegates the chance to browse the 20 exhibitions of local engineering education activities and to meet each other. These exhibitions included demonstrations and examples of good practice in learning and teaching and covered the topics of project based learning, peer assessment, industrial placements, computer aided learning, distance learning, implications of SARTOR, continued professional development and

the introduction of a project designed to encourage women into engineering. Additionally there were stands from Viglen Ltd, the Institute of Learning and Teaching (ILT) and the British Engineering Education Society (BEES).

**Evor Hines, project manager of FDTL3 project 'Project Squared', exhibited at the launch:** 'The launch was attended by academics of all ages; those working with new techniques and technologies, others who were trying to find out what was happening in the area and where things were going. The event also attracted learning and teaching colleagues and a few people from the Engineering Institutions.

From listening to the opening talks and visiting the stands I found an abundance of useful information (some of which I am still following up!). The staff were extremely helpful and supportive. As the presenter of a poster I had all the assistance I needed, from my initial enquiry when I was encouraged to submit a poster (despite my initial reluctance), through to arrangements for stands and food. It provided me with the opportunity to publicise 'Project Squared', which had only started some one week or so earlier.

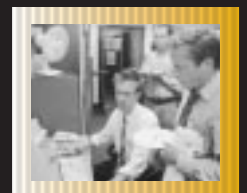
*I found the whole atmosphere very supportive with a wealth of information and like-minded colleagues with whom I could discuss ideas relating to learning and teaching in engineering. I would certainly recommend events like these to others, and I plan to attend subsequent events.'*

**01**


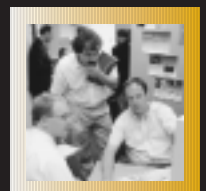
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## Providing a national, subject-based, focus for learning and teaching support

▶ It is recognised that for many in higher education, most networking and exchange of learning and teaching practice and innovation takes place within the subject discipline. In order to support this activity effectively the UK funding bodies have committed over £6M annually to establish a Learning and Teaching Support Network (LTSN) comprising 24 subject-based centres.

Each centre provides subject-based support to promote high quality learning and teaching within their discipline. They aim to become the main points of contact within subject communities for information and advice on good practices and innovations in learning and teaching, and will provide support for the many networks that already exist. The centres will have high visibility within their subjects and provide both a pro-active and a responsive service to the needs of their communities.

LTSN Engineering, one of the 24 subject centres, will seek to make a positive impact on current practice in learning and teaching through:

- Creating a national *focus* that is an accepted and essential point of contact for all involved in learning and teaching in higher education engineering.
- Collating and disseminating *good practice* and innovation in learning and teaching in higher education engineering.
- Providing co-ordination and *support* for the embedding of learning and teaching in higher education engineering.

The Engineering Centre has the one of the largest and most diverse subject areas to support and in order to succeed must engage academics from all the engineering disciplines. Such a strategy will allow the Centre to be a focus for discussion and debate, assist credibility and relevance and create a facility that has national ownership.



### Centre Staff

Director	John Dickens
Manager	Fiona Lamb
Administrator	Carol Whitehouse
Academic Co-ordinator	Sarah Williamson
Web Developer	Rob Pearce
Academic Consultant	Lesley Davis
Academic Consultant	Phil Barker

One of the key objectives for the first year of operation is to establish a contact in all the engineering departments within the UK. Over 60 contacts have already been identified and these will act as our initial contact point into a department and assist us in gathering information for a needs analysis of the community, helping us to provide the best possible service. A second priority is building on our current prototype web-site to create a fully interactive and searchable site, covering all aspects of learning and teaching, from breaking news to useful and wide-ranging archives. Other activities include supporting current projects and networks, running workshops, conducting regional roadshows and establishing working groups. Working groups enable the active involvement of academics in engineering education, facilitated and supported by LTSN Engineering.

## Introducing one of LTSN Engineering's Working Groups: 'Who is doing What, Where and How'

▶ In this working group we are inviting you to join us and bring with you your experience of enhancing the learning environment. The personal computer has revolutionised the availability of tools to support professional educators. Its real contribution to quality education has certainly come from its effective integration into traditional teaching methods. How have you enhanced traditional teaching methods? How are you using group activity within teaching and assessment? What software are you using to reinforce the teaching of your subject area and what have you developed to aid the process of learning and knowledge retention? How can you prove that the resulting quality of the learning experience to an engineering undergraduate has improved? These are only some of the questions that will be discussed in our exchange of ideas and examples of good practice. To join this group please contact Elaine Smith. E-mail: e.smith@gcal.ac.uk

## Working Groups



Elaine Smith of Glasgow Caledonian University describes the rationale behind the working group she leads: The benefits of working together in groups are well documented with the incentive that through belonging to a group, each person can participate in completing tasks which are well beyond their own individual potential. By joining the working groups hosted by LTSN Engineering, or suggesting one of your own, it is hoped that educational practitioners in the engineering community can work collaboratively, deepening their understanding of some of our most important shared issues. Together we can learn from the experiences, points of view and sometimes mistakes of others. I mention mistakes at this point to propose working groups that are 'safe' places to come and share your experiences in an environment of mutual support (both practical and moral). In my experience, those of us who try out new things, often labelled as novel teachers and learners, need to be reassured and to avoid becoming isolated on our less well trodden paths. We have much to offer each other.

Each of the working groups will be led by a group facilitator whose presence will accelerate the group process, taking the group quickly through its forming and storming stages towards the norming and performing part of the group lifecycle. It is hoped that bulletin boards will be established and a newsletter can be produced by each working group and sent out to those who join the mailing lists. The structure of the groups will be nebulous and individuals will be encouraged to move across the boundaries of the Belbin team roles, swapping between making contributions as planters and shapers. Silent group members, who observe in order to learn vicariously, will form an important part of the group; they are probably the users and contributors of the future. It is well known that groups that don't often meet face-to-face have some special challenges. Without the advantages of observing body language and sampling atmosphere we will all need to develop protocols in order to ensure that the creative resource of each individual is appreciated.

The outcome of the working groups will be an active network of people who are interested in sharing information and supporting others. Each working group will organise a one-day seminar resulting in publication of its findings. Outcomes will also be provided on the LTSN Engineering website.

This Projects Page will be a regular feature in **translate**, giving the learning and teaching projects funded under a variety of initiatives, an opportunity to update the community on their progress. In this issue we introduce the FDTL programme and the projects recently funded in its third phase.

## FDTL3

The Fund for the Development of Teaching and Learning (FDTL) was first launched in December 1995 and was the first initiative to link the results of the QAA to the allocation of funds. Bids for funds can only be made by institutions that demonstrate high quality in their educational provision. The programme has now entered its third phase which has aims to:

- Stimulate developments in teaching and learning.
- Secure the widest possible involvement of institutions in the take-up and implementation of good teaching and learning practice.

FDTL phase 3 funded projects relate to one or more of the 16 units of assessment covered between Oct 1996 and Sept 1998. This included Mechanical, Aeronautical and Manufacturing Engineering, Civil Engineering, Electrical and Electronic Engineering and General Engineering. In total 33 projects were funded in this phase, many of them in engineering or subjects of interest to engineers [information on all these projects can be found on our website, [www.ltsneng.ac.uk](http://www.ltsneng.ac.uk)]. Brief descriptions of the engineering projects are given below:

### Project Squared

**Aim:** To identify and disseminate best practice in the development and delivery of project work as a core learning and teaching method in Electrical and Electronic Engineering.  
*Electronic & Electrical Engineering, University of Bradford*  
Dr Oliver Downing, Tel: 01274 234025  
E-mail: o.j.downing@bradford.ac.uk

### Improving Student Progression and Achievement in Electrical and Electronic Engineering – Progress

**Aim:** To improve student progression and achievement across the range of HE courses in electronic engineering, from HNC/HND to accredited MEng degrees.  
*Engineering, University of Hull*  
Dr Sue Pulko, Tel: 01482 466664  
E-mail: s.h.pulko@eng.hull.ac.uk

### BALANCE - An Inclusive Approach to Address the Balance of Women in Manufacturing Engineering

**Aim:** To gather, disseminate, and embed existing good practice in developing methodologies to generate an engineering community to which more balanced numbers of men and women are attracted, recruited and retained.  
*Manufacturing Engineering, Loughborough University*  
Lesley Davis, Tel: 01509 222924  
E-mail: l.davis@lboro.ac.uk

### RAPID 2000 - Promoting Skill Development on Undergraduate Programmes in Civil and Building Engineering: a Strategic Approach based on Professional Development needs

**Aim:** To enhance the skill development of students on construction degree programmes in line with professional development needs.  
*Civil & Building Engineering, Loughborough University*  
Willy Sher, Tel: 01509 222894  
E-mail: w.d.sher@lboro.ac.uk

### EMSIE: Embedding "Matching Sections" in Engineering

**Aim:** To develop a definitive Guidance Handbook as a benchmark standard for all organisations both in HEI and industry providing Matching Section further learning, and to disseminate this widely.  
*Civil and Structural Engineering, Nottingham Trent University*  
Prof Roger Hawkins, Tel: 0115 848 6007  
E-mail: roger.hawkins@ntu.ac.uk

### Student Centred Flexible Learning in Building and Civil Engineering

**Aim:** To enhance the quality of student learning by embedding good practice in Student Centred Flexible learning (SCFL) within Civil and Building Engineering.  
*Civil and Structural Engineering, University of Plymouth*  
Dr Clive Williams, Tel: 01752 233665  
E-mail: cwilliams@plymouth.ac.uk

### E3AN: Electrical and Electronic Engineering Assessment Network

**Aim:** To develop student learning through the integration of effective assessment practices into the electrical and electronic engineering (EEE) curriculum with a special focus on the use of automated methods for both formative and summative assessment.  
*Faculty of Engineering & Applied Science, University of Southampton*  
Su White, Tel: 023 8059 2865  
E-mail: saw@ecs.soton.ac.uk

### Specialist graduate support programme: W3-SGSP

**Aim:** To investigate innovative approaches to delivering graduate science and engineering programmes via the web.  
*Instrumental & Analytical Science, UMIST*  
Dr Paul Thomas, Tel: 0161 200 4910  
E-mail: paul.thomas@umist.ac.uk

### Project Based Learning in Engineering

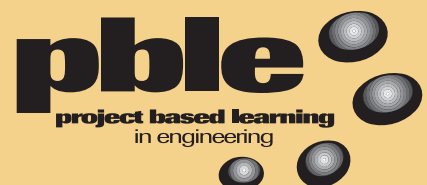
**Aim:** To enhance engineering education by promoting and facilitating Project Based Learning to improve student's key transferable skills and grasp of subject content and to produce employable graduates for professional careers.  
*Nottingham University*  
Dr Ban Seng Choo, Tel: 0115 951 3893  
E-mail: bs.choo@nottingham.ac.uk

## What will an FDTL3 project actually do?

As an example, Dr John Phelps writes a mini case study on the PBLE project:

The Project Based Learning in Engineering (PBLE) project consortium consists of academics based in four Midlands universities: University of Nottingham (lead site), De Montfort University, Loughborough University and Nottingham Trent University. The project, led by Dr Ban Seng Choo, aims to enhance engineering education by promoting and facilitating the use of Project Based Learning, thereby improving students' key transferable skills and their grasp of the subject content. The key skills developed through PBLE will produce more employable graduates, ready and confident to begin their professional careers. The project will employ

evaluation as means of achieving its aims and objectives. Project activities include a survey of current good practice, the development and use of appropriate frameworks for implementing project based learning in engineering, appropriate staff development events and a dissemination strategy to ensure that project work is effectively embedded into the curricula of civil, electrical and mechanical engineering courses. Project outcomes and deliverables will be disseminated via a web based Forum Gateway and workshops conducted through the LTSN Engineering and Built Environment subject centres.



# Slate translate translate

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transferring learning & teaching throughout engineering

## contacts

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You can also join our e-mail  
discussion list by sending an  
e-mail message to:  
[mailbase@mailbase.ac.uk](mailto:mailbase@mailbase.ac.uk)  
with the text:

Join engineering <first name> <surname>  
stop

LTSN Engineering would like to thank  
Viglen Ltd for the discount on our PC's  
and John Wiley & Sons Ltd for  
sponsoring our Southwest Roadshow

## Talking Point

The topic under discussion for this edition is 'What do you think are the major issues in engineering education?' one of the key questions being asked in our needs analysis exercise.



Dr Warren Houghton, lecturer in Electronic Engineering, Deputy Director of Teaching and Chair of the "Learning and Teaching Development Group", School of Engineering and Computer Science, University of Exeter.

'Nobody in higher education needs to be told that we are undergoing great change and pressure. Change has been, and continues to be, necessary. The basic motivations behind many of the recent national learning and teaching initiatives (taken individually) are sound, but the principles have often become badly distorted in the application. The lack of co-ordination has led to conflict between pressures.

QAA subject review, coming in the next two years, will be against the benchmark statements that are a first attempt at a very difficult task. The Dearing report and SARTOR were clearly incompatible and the National Qualifications Framework is still not settled. SARTOR itself is forcing departments to develop new non-accredited engineering related programmes. Decreasing resources and staff-student ratios have led to demands to teach more "efficiently", yet widening access and increasing student choice results in students needing more individual support. The RAE meanwhile discourages staff from investment in teaching. An apparent political belief that new learning technologies will solve all problems is not matched by the experience of those who really use computers in their teaching, who know that its advantages are not financial.

Retaining a sense of direction is now the greatest challenge facing all engineering departments in higher education. The pace of introduction of new and conflicting pressures is such that we are pushed into purely reactive mode, trying to survive as we follow a zigzag course through the minefield of new initiatives. The departments that will succeed in the long term are those that retain a sense of direction by setting their own agendas and, through understanding of and participation in national initiatives, can achieve the compromises necessary to maintain steady progress towards their own goals.'

## Getting Involved

If you would like to express your own opinions on this topic or issue of **translate** in general, then please write to us ([enquiries@ltsneng.ac.uk](mailto:enquiries@ltsneng.ac.uk)) and we will publish a summary on our website and in future editions of **translate**. You are also welcome to suggest topics for further discussions.

The input of engineering academics is vital to the successful development of the centre and there are other ways and levels at which you can get involved:

- Subscribe to information resources.
- Write articles/papers.
- Attend events.
- Host/present at events.
- Become a local contact.
- Join a working group.

## future events

A more comprehensive listing of events can be found on our website:

[www.ltsneng.ac.uk](http://www.ltsneng.ac.uk)

### 27 September 2000

South-West Regional Roadshow:  
'Introducing LTSN Engineering: get involved from the start!'  
*University of Bristol*

### 1 November 2000

Seminar 'Embedding Learning Technology into Learning and Teaching'  
*LTSN Engineering, Loughborough University*

### 29 November 2000

Scottish Regional Roadshow  
'Innovations in Engineering Education'  
*University of Strathclyde*

### 4-5 January 2001

Conference 'Innovations in Teaching, Learning and Assessment International Symposium'  
*IEE, Savoy Place, London*

### 18 January 2001

Workshop 'Good Practices in managing industrial placements in engineering'  
*LTSN Engineering, Loughborough University*

### February 2001

Northern Irish Regional Roadshow  
*University of Ulster*

### 12-16 May 2001

Conference '8th World Conference on Continuing Engineering Education'  
*Sheraton Centre, Toronto, Canada*