

Helping Students to Settle In

▶ **The first few weeks of a student's time at university are the most important. Many students are very nervous when they arrive at university, even if they don't show it, and are worried that they will find it difficult to make friends and settle in.**



Freshers' weeks passing by in an overwhelming alcoholic haze could make things worse. Many engineering departments work hard to help students settle in, make friends and reassure them that they will be able to cope.

At Exeter we try to get students into the Department as soon as possible, inviting them in for an introduction and tour of the Department on the very first day of freshers' week (before they get too distracted). We then get them all back again before the end of the week, in groups, to meet their tutors. Sending groups off with a map to find all the teaching rooms they will be using the following week, and to find their personal tutor, was a very simple but effective exercise. It helped students to start talking to each other and made sure that the weeks following the first week of term wasn't the chaos of lost students that it can be. Not surprisingly the prize of a glass of wine when they found their tutor was much appreciated!

We place great emphasis on trying to help students to understand the learning process and on students working in teams. In the first week of term all students then had a 2 hour session, split into teams of 7 or 8, discussing the learning process and how they expected university to differ from their previous learning environments.

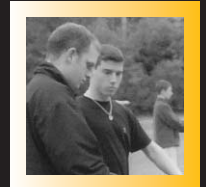
The session finishes with a practical team exercise. Every week all students meet with their personal tutor in groups, and also engage in a process of reviewing their learning with the support of a study skills counsellor.

In week 4 all the students went through a very intensive half day teamskills training session, in the same groups as before, and involving a number of outdoor practical exercises as part of a scheme run across all schools at Exeter. It was encouraging to see that the engineering students compared very favourably indeed with students from other schools in their ability to work together – a sign that our efforts to help them settle in might not have been in vain. We hope all of this work upfront will help to retain students and make their time at university more successful.

*Warren Houghton
School of Engineering and Computer Science
University of Exeter*

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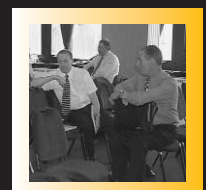
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LTSN Engineering Progress Report

June 2002 – October 2002

Resources

LTSN Engineering is pleased to announce the publication of four new resources:

- **Interpreting and Using the Engineering Benchmark Statement:** The four papers presented in this guide were commissioned by LTSN Engineering to illustrate how departments have worked with the engineering benchmark statement. The process of working with the benchmarks will evolve as departments engage with the new QAA methodology and we intend to gather what feedback we can and disseminate it across the wider community.
- **FE Scoping Study:** In January 2002, LTSN Engineering commissioned a six-month scoping study to investigate views from within the FE sector on learning and teaching issues and a report of the findings is now available. The response from the FE staff contacted was very positive and all indicated that they thought LTSN Engineering could provide beneficial support for FE staff in the delivery of HE programmes.
- **Assessment of Individuals in Teams:** The five case studies presented in this publication are the outcome of the LTSN Engineering Working Group 'Assessment of Individuals in Teams'. These engineering specific case studies are intended to supplement the LTSN Generic Centre's 'Assessment Series'.
- **A Guide to Finding Electronic Resources for Learning and Teaching in Engineering and A Guide to Helping your Students Find Online Information:** These guides aim to highlight some of the online information resources which exist to help engineering academics and students.

All these resources are available from our website at www.ltsneng.ac.uk/er/resources/ If you would prefer to receive a paper copy of any of these reports please contact us at enquiries@ltsneng.ac.uk

Events

- **The Assessment of Output Standards** workshop was a joint venture between ourselves and the Engineering Professors' Council. 16 engineering departments attended this intensive workshop to develop existing module descriptors and look at how the EPC's 'Ability to' statements could be applied across an entire programme. This workshop is to be repeated in 2003 and some places are still available (see back page for details).
- Our back-to-back seminars, **Learning and Teaching Support in Engineering** and **Learning and Teaching Resources in Engineering**, attracted 50 delegates. One delegate commented that the events provided "an 'experience' sharing forum. An effective network facilitator amongst academics from different institutions. An excellent forum for dissemination of practices and for feedback".

LTSN Engineering Team News

- The LTSN Engineering team would like to send our congratulations to Fiona Lamb (Centre Manager) who became a mum to Georgina Anne on the 28 June 2002.
- LTSN Engineering would like to congratulate Sarah Williamson, Academic Co-ordinator, on finally passing her PhD in Chemical Engineering in October 2002.

Regional Departmental Contact Networks

Introduction

LTSN Engineering currently has contacts in 73% of engineering departments and 86% of HE institutions that deliver engineering programmes. The LTSN Engineering Departmental Contacts are part of our national network of engineering academics with an interest in learning and teaching, providing a voice for their department and their subject – helping the Centre to formulate a national strategy for the support of engineering education.

The Centre seeks to enhance the role of its existing LTSN Engineering Departmental Contacts, encourage new contacts to join this network, increase the support it is able to give to all contacts and give a sense of ownership of LTSN Engineering.

For this reason LTSN Engineering is establishing new "Regional Departmental Contact Networks" which will create greater networking within eight regions of the UK (Scotland, Northern Ireland, Wales, Northwest, Northeast, Midlands, Southwest and Southeast).

Regional Co-ordinators

In order to establish the networks we are looking for 8 Regional Co-ordinators.

It will be the responsibility of each Regional Co-ordinator to communicate with the other contacts in their region and discover areas of common interest. There will be an incentive of £250 per annum for each Regional Co-ordinator. A further £500 for costs will be available for the Regional Networks to develop their areas of interest in a number of possible ways:

- Meetings of the Regional Networks
- Workshops with expert speakers
- Identifying examples of good practice and commissioning case studies
- Conducting small engineering education projects

We realise that many regional groupings already exist and we would be happy to build on these networks. It is anticipated that once formed the LTSN Engineering Regional Networks will be ideally placed to take part in a number of activities, such as collaborating on funding proposals for engineering education projects.

Would you like to be the Co-ordinator for your region?

LTSN Engineering Departmental Contacts are invited to provide a short description of why they would like to take on the role of Regional Co-ordinator and how they anticipate networking with other LTSN Engineering Departmental Contacts in their region. For further details please see:

www.ltsneng.ac.uk/ale/fundopps/regional_networks.asp

To be eligible to apply to become a Regional Co-ordinator you need to be registered as an LTSN Engineering Departmental Contact. If you would like to learn more about this role or discover if we already have a contact for your department please contact LTSN Engineering (e-mail: enquiries@ltsneng.ac.uk, tel: 01509 227170).

Teaching Quality Enhancement

We have recently revised the Teaching Quality Enhancement pages on our website. This section now includes useful information about teaching quality enhancement in general and specific information on the new QAA process, using subject benchmarking, programme specifications, Progress Files and Departmental Learning and Teaching Strategies.

LTSN Engineering would like the community to help in continuing to develop these pages. A number of programme specifications from institutions throughout the UK are already available for you to view online. It is hoped that by providing a pool of examples they may simulate ideas and improve practice.

If you are prepared to share your own programme specifications or Departmental Learning and Teaching Strategies (if you have these already) please e-mail our Project Officer, Liz Willis (liz@ltsneng.ac.uk)

www.ltsneng.ac.uk/er/tqe/

PBLE2003 – Engineering Education via Projects

The PBLE (Project-Based Learning in Engineering) project is pleased to announce an opportunity to participate in an exciting event next year. The PBLE Conference is a week-long program including training, discussions, papers and workshops to be held 1-5 September 2003 in Aalborg, Denmark. The conference will focus on enhancing the many ways in which engineering students learn "by doing". It has been shown that the retention of knowledge gained through experiencing a subject is 80% after one year, whilst the retention rate for knowledge gained in lectures is only 20%.

This conference is the culmination of three years work by the project team. The programme includes a chance to share your ideas on the best ways to run engineering projects, and to work with others towards enhancing aspects of your own project-based teaching. All attendees will receive a copy of the PBLE guide – a handbook for teaching engineering using project-based learning. We will also present work from the winners of the PBLE competition – a search for the best project methodologies in the UK HE engineering community.

Aalborg University is perhaps one of the finest examples of modern practical teaching of engineering. Established more than 35 years ago, it has a campus designed around the goal of teaching through practical experience of the subject. The conference programme will include a tour of the campus and talks from leading members of the faculty.

A call for papers and a form to register your initial interest in the conference is available at the project website, with additional material as it is released. The site also has details of the PBLE project objectives, resources the competition PBLE are running, which is open to all UK academics. The competition winners will be awarded grants to attend the conference – it's not too late to enter!

www.pble.ac.uk



The use of C&IT in small group teaching from the perspective of the ASTER Project

The ASTER Project is a recently completed TLTP Phase 3 project to provide information and resources on the use of Communication and Information Technologies (C&IT) to support small-group teaching in UK higher education. Small-group teaching is a widely used and effective method but it faces challenges from factors such as increasing student numbers and diversity of student populations. C&IT can support and enhance traditional small-group teaching methods including tutorials, seminars, lab classes, practicals and student group work.

ASTER's major legacy is a collection of case studies of teaching practices built by interviewing academics of different disciplines. Although the project was generic in nature transferability funding allowed them to tailor the resources to the needs of disciplines such as Engineering, Mathematics and Physics that were not included in the first phase of the project.

The individual case studies are available from the ASTER website:

www.cti-psy.york.ac.uk/aster/

which also includes other resources developed by the project. Some of these are introduced below.

■ Case Studies

Each case study contains information on the teaching context, the motivations for change, the C&IT introduced and the effects on the teaching and learning. A report (*'Investigating the use of electronic resources in small-group learning and teaching'*) analyses and compares the various uses of C&IT found and their repercussions. The report also includes the template used for the interviews to allow other academics to write their own case studies if desired.

■ Reflective Tools

Based on the interviews for the case studies, ASTER developed a set of reflective questions to help identify the motivations for teaching, pinpoint areas that one wishes to maintain or change, explore how changes could improve practice and identify barriers to change. Called Reflective Tools – as they are a guide to structured reflection – they do not propose to provide answers; instead they aim to help the users develop a clearer idea of what their priorities are for teaching and learning.

■ Educational Framework

To help academics rationalise the applications of learning technologies, ASTER has produced *'An Educational Framework for Reflecting on the use of Electronic Resources for Small-Group Teaching'*.

■ **Other Resources** on ASTER's website are a bibliography, FAQ's section, a list of publications and links to similar sites and projects including other C&IT related projects, software and resources for teaching in higher education.



Project Pa

FDTL4

The Fund for the Development of Learning Materials (FDTL4) was launched in December 1995 and is funded by the QAA to the allocation of funds to institutions that demonstrate high quality learning materials. The programme has now entered its fourth year.

- Stimulate developments in teaching and learning materials
- Secure the widest possible implementation of good teaching and learning materials

HELM Project launched to help engineers improve their mathematics

Loughborough University's newly established Mathematics Education Centre has started with a major success in winning a £200,000 FDTL4 grant from the HEFCE for a three-year project HELM – Helping Engineers Learn Mathematics – which is being led by Dr David Green and Dr Joe Ward. The project consists of other staff at Loughborough University and consortium partners in four other universities: Hull, Reading, Sunderland and UMIST. The main aim of the project is to enhance and improve the mathematics learning materials used by Loughborough's successful Mathematics Education Centre. After extensive trials in 2001 and 2002, the materials from fifteen universities will be made available to all universities.

The Engineering Council demands a high level of mathematical skill and knowledge from accredited engineers and this project will ensure that these requirements continue to be met. It is time when many undergraduates entering university to study engineering lack the mathematical skills and aptitude which could be relied upon in the past.

The materials produced will consist of student workbooks containing mathematical topics and related engineering examples, computer aided learning segments available over the web, together with an interactive computer aided assessment regime for testing and formal testing (also web delivered). To extend the existing basic mathematics materials, the consortium is producing workbooks covering Numerical Methods, Statistics, and higher level Mathematics. The University of Hull's Department of Engineering is coordinating the production of engineering examples for the whole project, as well as writing engineering materials and studies.

The project's emphasis is on flexibility. Work can be undertaken as private study, teacher-led; the department can select from among the 35 workbooks to produce a package which suits their students' needs and students can take "trial" CAA tests as often as they like in preparation for the formal assessments.

The support of the LTSN Maths, Statistics Network and LTSN Engineering was crucial to the success of the bid and will continue throughout the project.

HELM welcomes enquiries from departments interested in trialling materials – helm@lboro.ac.uk

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of Teaching and Learning (FDTL) was first... was the first initiative to link the results of... Bids for funds can only be made by... high quality in their educational provision. The... fourth phase which has aims to:
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 ...involvement of institutions in the take-up and...
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Creation of Statistical Resources from Real Datasets (STARS)

De Montfort, Coventry, Kingston, Nottingham Trent and Oxford Brookes Universities have joined together to create the STARS project which aims to make available real datasets, from accessible databases, in a form suitable for a learning and teaching resource in HE across a range of disciplines, construct learning materials to accompany these datasets, and develop materials so they can be used with various statistical packages for a range of student abilities, backgrounds and needs.

The materials will be accessible electronically for use by both staff and students. All materials will reflect real, in-context, scenarios so they will address a number of issues, including professional development for lecturers, and student motivation and retention.

The intended outcomes/deliverables include:

- an increased awareness of the value of statistics
- a catalogue of real datasets suitable for use across a range of subjects, categorised by discipline
- information about the accessibility of appropriate databases
- a series of workshop activities
- written articles and published papers
- discipline-specific and level-specific worksheets, making use of a range of software, and able to be modified by staff for local use
- individualised datasets, assignments and suggested "solutions", in an attempt to address the problem of copying/plagiarism

How can you benefit and help?

To ensure that we produce what you want we shall be asking for volunteers to pilot and/or evaluate the materials so we can modify them ready for a "final" release.

We are in the process of developing the website www.stars.ac.uk where we shall report on our progress and request feedback. Please visit this site in the near future, when there will be an opportunity to register your interest. In the meantime please e-mail the Project Director, Colin James, at cj@dmu.ac.uk (subject: FDTL) if you can suggest datasets or scenarios, or offer existing materials that you would like us to develop further.

FDTL4 funding attracted over 200 proposals and 37 projects were successful. Unfortunately no engineering disciplines were eligible to apply for this latest round but there were 3 projects funded in the area of mathematics and statistics. These have direct links to engineering and brief descriptions of each are given below.

A full listing of all engineering and related projects can be found at:

www.itsneng.ac.uk/er/fund_projects

UK Mathematics Learning Support Centre

Through a joint bid from LTSN Engineering and other LTSN centres, funding has been achieved to pump-prime the establishment of the UK Mathematics Learning Support Centre (UKMLSC). This Centre will help universities to address a key recommendation in the report Measuring the Mathematics Problem, namely that prompt and effective support should be available to all students arriving at university inadequately prepared for the mathematical demands of their chosen programme. The Centre will develop and make available samples of supporting materials of immediate use to university professionals and their students, using a mix of modern and traditional techniques.

FDTL4 funding has also been gained to develop this resource base into a substantial and coherent body of essential mathematics support materials. The LTSN subject centres will be working in a consortium with the Universities of Leeds, Loughborough and Coventry, together with distance and e-learning specialists EBS Trust and Media Inc. As resources are developed the community will have access to wide-ranging mathematics help leaflets, refresher booklets, on-line practice exercises, digital video tutorials linked to printable text and exercises. An extensive programme of dissemination is planned. In due course, resources will be available from a dedicated website, on paper and on CD/DVD.

The UK Mathematics Learning Support Centre will be a mechanism for delivering resources to alleviate the school/university interface problem in mathematics. They will provide a cost-effective means to enable any institution to develop or enhance local supporting mechanisms as well as providing support direct to students.

Additional information can be obtained by contacting Dr Tony Croft at Loughborough University (e-mail: a.c.croft@lboro.ac.uk)

Search for the Best Maths Tutors on Screen

The Educational Broadcasting Services Trust, together with LTSN Engineering and LTSN Maths, Stats & OR Network, are looking for Britain's most engaging and confidence-building maths tutors to film for the UK Mathematics Learning Support Centre and a new DVD-Rom.

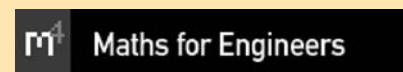


Support with maths is now a priority, particularly for students entering courses in engineering, the physical sciences and mathematical sciences. The new DVD-Rom and UKMLSC will include video action, diagnostics, interactive exercises and support text, but a central feature will be the video tutorial. Topic by topic, a tutor will lead the viewer, the student, through each step of the arithmetic, the algebra and the basic calculus that needs to be understood as a firm foundation for wider studies. This element in the producers' recently published M4E Maths for Engineers DVD-Rom proved to be very popular with students and now there is an opportunity for new tutors to join M4E tutor Tom Roper in putting across their enthusiasm for the subject and sharing their understanding.

Tom Roper is Deputy Head of the School of Education at the University of Leeds. His enjoyment of maths connects with the viewer, his explanations holding their interest and building their confidence on the way. Another tutor may have a very different style, perhaps an infectious enthusiasm, or a quiet reassurance.

EBS Trust would like to hear from anyone who would like to share their interest in maths with a wider audience, or who knows someone else who would, or should, or could. A conversation, a meeting with the production team and a screen test, could all lead to a rather different way of providing maths support, and some new insights into the processes of learning and teaching.

For further information please see: www.itsneng.ac.uk/nef/news/stories/maths_tutor.asp



Review of the Standards for Registration as a Professional Engineer

▶ The Board of Engineering Council (UK) has agreed that the time is right for a substantial review of the whole basis and standards for registration as a professional engineer or technician. The review is intended to produce a clear and concise set of requirements that reflect the needs of employers, and national and international developments in business, technology and education.



The aim is to publish a new specification for competence standards for registrants by the end of March 2003. Issues for consideration in the review include the nature of competence, the role of further and higher education in developing it, how academic outcomes can be stated, the validity of current registration categories, the international context, and the requirements of industry.

Have your say

The EC (UK) are consulting widely during the review. It has asked LTSN Engineering to canvass views from higher education and we would like you to outline up to three issues which you think it is particularly important that the review should consider. Please respond by Friday 9 December 2002 using our online form at:

www.ltsneng.ac.uk/hec/review.asp

LTSN Engineering will be analysing replies and passing your views onto the Engineering Council (UK) at the meeting it has convened on 16 December 2002.

Don't miss this opportunity to have your say and influence the future standards for registration.

Resources Available from MIT Open CourseWare Project

▶ The Massachusetts Institute of Technology (MIT) and the OpenCourseWare team have recently made available a first sampling of course materials. Educators from around the world are invited to draw upon the materials for their own curricula and MIT encourage all learners to use the materials for self-study. There are a range of materials available for engineering including specific materials for chemical, civil, electrical, systems, ocean and mechanical engineering.

To find out more about the project and view the resources available please visit the project website:

www.ocw.mit.edu

Improving provision for disabled students

▶ The HEFCE recently announced funding for 54 new projects to improve provision for disabled students (2003-05).

LTSN Engineering will be supporting projects whose outcomes will benefit the engineering community including: **Enhancing the Experience of Engineering Students with Disabilities** (Loughborough University); **Triple "A" project: Achieving Accessible Assessment** (Nottingham Trent University); and **Developing a BSL Glossary in Science and Engineering** (University of Wolverhampton).

The programme will be supported by the **National Disability Team** who have been reappointed by the HEFCE for the period 1 January 2003 to 31 December 2005. The team will not only provide support to disability projects, but also act as a first port of call for any HEI seeking advice or guidance with reference to supporting disabled students. This is particularly important in light of the recent introduction of the Special Educational Needs and Disability Act.

www.natdisteam.ac.uk

For more information about the steps that your department should take in order to be compliant with the Act, see the LTSN Engineering Guide: **Working with Students with Disabilities**.

The guide breaks down the terminology used within the Act and discusses how the legislation will effect your learning and teaching provision. It uses case study and scenario examples to demonstrate the practical implications of the Act on your current working practices as well as offering guidance on designing for accessible learning and developing suitable learning and teaching resources to the benefit of all students.

www.ltsneng.ac.uk/er/resources/

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issue six

November 2002

transferring learning & teaching throughout engineering

about

LTSN Engineering is one of the 24 subject centres of the Learning and Teaching Support Network. The Centre provides subject-based support to promote high quality learning and teaching in engineering education.

If you would like to express your own opinions on this edition of **translate**, then please write to us at:

enquiries@ltsneng.ac.uk

and we will publish a summary on our website and in future editions of **translate**.

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contacts

LTSN Engineering
Loughborough University
Leicestershire
LE11 3TU

Tel: 01509 227170

Fax: 01509 227172

E-mail: enquiries@ltsneng.ac.uk

Discussion: engineering@jiscmail.ac.uk

Web: www.ltsneng.ac.uk

Talking Point

▶ **Foundation degrees provide an opportunity for industry and universities to work together in order to fulfil sector skills' needs.**

An example in my own university is the Aircraft Engineering Foundation Degree. This leads to a JAR-66 aircraft engineer licence and allows licence holders to sign off aircraft for flight. This Kingston consortia programme is now delivered in Bristol, Norwich and Newcastle and will be delivered in Wales in 2004. LSC funding has been provided to establish the airport based dispersed sites. As a result of the foundation degree initiative the consortia has been able to address a national aircraft engineering skill gap.

The university is continuing to progress in this area and has written a foundation degree for the construction industry which meets the gold and platinum site manager and engineer competence card requirement. This programme has been launched and will similarly help to address the huge shortage of skilled engineers in the construction industry.

*Professor Andrew Self
Head of the School of Engineering, Kingston University*

▶ **The THES recently reported that Margaret Hodge had confirmed the scrapping of tuition fees for foundation degrees was on the government's access and expansion agenda.**

"The foundation degree is here to stay" she told a national conference at the University of East London. But will this be at the detriment of qualifications such as HND's or HNC's? Do you consider foundation degrees to be a poor replacement for an already successful HND programme or see them as an opportunity for higher education institutions to work more closely with employers and industry and meet widening participation targets.

Please join the debate by adding your comments to our 'talking point' webpage

www.ltsneng.ac.uk/hec/talking_point/

▶ **Would you like to receive multiple copies of this and future editions of **translate** for distribution within your department? If the answer is "Yes" please e-mail us at: **enquiries@ltsneng.ac.uk** stating how many copies you require and we will send them out to you.**

future events

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

www.ltsneng.ac.uk/nef/events/

25 November 2002

LTSN Engineering Welsh Regional Event - Maths Support for Engineering and Science
Swansea

26 November 2002

LTSN Engineering, LTSN MSOR and LTSN ICS - Librarians' Day
University of Birmingham

27 November 2002

LTSN Engineering Scottish Regional Event - Student Retention and Motivation
University of Strathclyde

6 December 2002

LTSN Engineering - Strategies for Quality Assurance and Enhancement
London

6-7 January 2003

Engineering Education 2003 Access, Retention and Standards
IEE, Southampton Institute Conference Centre

8 January and
30 March - 2 April

EPC Output Standards and Assessment Workshop
Loughborough University/Leicester University

19 February 2003

LTSN Engineering Midlands Regional Event - Hybrid Courses
Coventry University

16-19 March 2003

Engineering Education in the World of no Frontiers
ICECE, Sao Paulo, Brazil

1-3 April 2003

IMA Mathematical Education of Engineers Conference
Loughborough University