engCETL

Engineering Centre for Excellence in Teaching and Learning

Annual Stakeholders' Report 2008

Loughborough University

Welcome to the 2008 **engCETL** Stakeholder Report, reporting on our achievements in the third year of operations. This report gives us an opportunity to inform you of the exciting activities that we have completed between July 2007 and July 2008 and to outline some of our future plans.


Prof John Dickens, **engCETL** Director, Associate Dean Teaching (Engineering)

"The award of 'Centre for Excellence Status' within engineering has enabled Loughborough University to stay at the forefront of engineering education in the UK. The teaching space in the Keith Green Building has given the Centre a recognised focus which has raised the profile of the Centre and is highly valued by our students. Increasing engagement with pedagogic research has also raised our international profile and provided further evidence of the quality and diversity of engineering-related education at the university."

Our mission is to be recognised as the UK centre for excellence in the research, development and provision of engineering education - particularly through an active involvement with industry.

engCETL aims to build on the excellent engineering provision at Loughborough, and long-standing collaboration with industry, and to extend the processes through which industry makes an input into student learning, making them more sustainable and transferable by:

■ enhancing the student learning experience;

■ initiating a cultural change that supports a reflective and evidence-based approach to teaching;

■ facilitating the production of graduates who are employable, innovative, productive and enterprising;

■ being innovative, with a key focus on technology-enhanced teaching and learning;

■ supporting, recognising and rewarding those who work towards achieving **engCETL** aims;

■ demonstrating impact and sustainability of **engCETL** work.
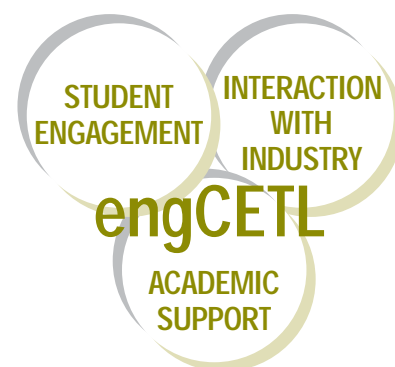
STUDENT ENGAGEMENT

INTERACTION WITH INDUSTRY

engCETL

ACADEMIC SUPPORT

WHO WE ARE

The engCETL staff work with engineering-related academics, students and staff. **engCETL** offers a wide range of skills, with a team of pedagogic researchers, industrial and academic co-ordinators, learning technologists, academics and students.

We are based on the upper floor of the Keith Green Building, which is located in the heart of the Faculty of Engineering.

engCETL works closely with seven engineering-related departments and utilises a seconded academic in each of these departments. These seconded academics operate as the interface between those who work in **engCETL** and their own department colleagues. They see themselves as "disseminators" of information and "champions" of ideas emanating from **engCETL** to department colleagues and they work to get the latter involved in its activities.

Dr Keith Gregory	Barry Haworth	Tony Hodgson	Prof Richard Holdich	Dr Jane Horner	Prof Graham Sander	Dr Peter Willmot
Electronic and Electrical Engineering	Department of Materials	Design and Technology	Chemical Engineering	Aeronautical and Automotive Engineering	Civil and Building Engineering	Wolfson School of Mechanical and Manufacturing Engineering

We are now actively disseminating our activities across the University and this report gives examples from our range of activities designed to enhance the student learning experience for graduates at Loughborough University.

ROLL-OUT OF LEARNING TECHNOLOGY

Development projects are a major component in the implementation of the strategic and operational plans of **engCETL**, and historically they were the key element in those of its forerunner the Engineering Education Centre (EEC).

Electronic Management of Coursework Submission

engCETL has developed an electronic system for handling coursework submissions to aid the process by which students hand in their coursework. The system will record details of student submissions and will generate an email receipt to each individual student and a list of submissions and non-submissions to module staff. The system was initially developed for Civil and Building Engineering as an **engCETL** project. There are now plans to roll-out the system to Chemical Engineering in October 2008 with the potential to roll-out to other departments in January 2009.

Labwork Assessment System

The Labwork Assessment System was developed by **engCETL** as a project for Electronic and Electrical Engineering. This electronic system will allow assessments to be made during the laboratory session, with instant written feedback to students via email. The project is being developed as a follow-on to the successful **engCETL** project Online Generic Form for Coursework and Labwork Submission. The project is nearing completion and has now been further developed to enable academics to submit student project assessment marks and comments. Once the project is complete, it

Labwork Assessment System

should be available to all staff and will incorporate a facility to create individual laboratory forms, thus allowing variations in laboratory assessment and feedback.
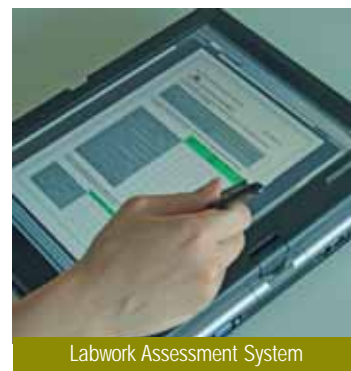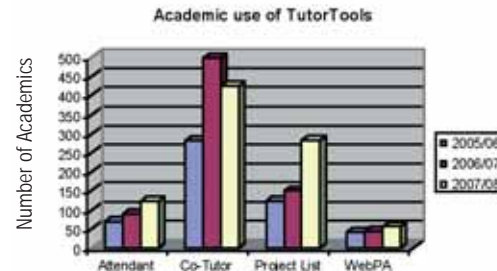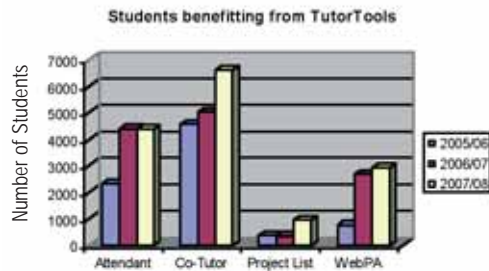
Further details of both of these projects and our other projects can be found on our website: **www.engcetl.ac.uk/activities/current**.

TutorTools

These projects, developed by **engCETL** staff, are available to everyone at Loughborough University. Together they form TutorTools, an online suite of education support. The charts below indicate the uptake of key TutorTools by students and academics at Loughborough University.

Students benefitting from TutorTools

(Chart: Number of Students, 0–7000, categories: Attendant, Co-Tutor, Project List, WebPA; years 2005/06, 2006/07, 2007/08)

Academic use of TutorTools

(Chart: Number of Academics, 0–500, categories: Attendant, Co-Tutor, Project List, WebPA; years 2005/06, 2006/07, 2007/08)

Co-Tutor	Attendant	ProjectList	Web-Groups	WebPA

Co-Tutor is an online database system that provides a straightforward way for tutors to record and view their students' tutorial progress. This system is predominantly for pastoral care monitoring but can also be used for undergraduate project and research student meetings. Tutors can record all the details of face-to-face meetings, and information can be added at any time with a relevant date stamp. This tutorial history is built up over the time that the students are studying at Loughborough, and kept indefinitely once they have left. It can also be used to record interactions with students on their industrial placement and links directly to the 'Attendant' online tool, giving a broader picture of a student's academic progress. CIS student information is automatically available within the system, reducing the input required to get started. To begin using Co-Tutor, visit **http://co-tutor.lboro.ac.uk** and login using your usual Learn username/password.

Co-Tutor	**Attendant**	ProjectList	Web-Groups	WebPA

Attendant is an easy way to create and take registers for the classes you teach. Attendance information is automatically available in a student's Co-Tutor record, so that a personal tutor can immediately flag up concerns about attendance with a student. To begin using Attendant, visit **http://attendant.lboro.ac.uk** and login using your usual Learn username/password. A quick start guide is available directly from the website or by contacting **engCETL** for a paper copy.

Co-Tutor	Attendant	**ProjectList**	Web-Groups	WebPA

Projectlist is an online project and dissertation allocation system for undergraduate and postgraduate students. It is designed to help manage the process of academics proposing final year or postgraduate projects, and the students viewing and selecting them. Academics use it to manage a list of projects, and their allocation to students can be problematic. Manual solutions frequently involve multiple documents and spreadsheets, flurries of emails, and lots of detail to track and monitor. The ProjectList system simplifies the process, bringing everything together in a single place, and as an online system it can be accessed by academics and students at any time or place. To begin using ProjectList your Loughborough University department needs to register so we can set up a customised area for you. Please contact Paul Newman in **engCETL** for more details, or take a look at the website **http://projectlist.lboro.ac.uk**.

Co-Tutor	Attendant	ProjectList	**Web-Groups**	WebPA

NEW **Webgroups** is an online collaborative environment designed to support group and teamwork activities. You can create group work areas with discussion board/forum functionality and split them between different groups. These groups can be comprised of any mix of students, staff and even external/industrial supervisors and mentors. To begin using Web-Groups, visit **http://webgroups.lboro.ac.uk** and login using your usual Learn username/password.

Co-Tutor	Attendant	ProjectList	Web-Groups	**WebPA**

PASS system	WebPA

Paper based system	Excel based system	**WebPA** made open to all at Loughborough University	Two LU Academic Practice Awards received for **WebPA** research

EEC and LU Computing Services software developments	EEC and engCETL software developments	JISC **WebPA** – open source version

1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008
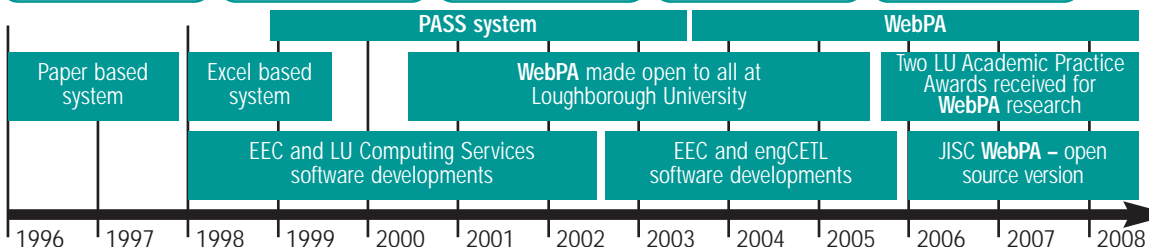
WebPA is an online peer assessment system that utilises a peer-moderated marking system. It is designed for teams of students undertaking group-work. Each student grades their own and each teammate's performance within the group. This grading is then used in conjunction with the overall tutor-allocated group mark to provide students with individual grades that reflect their contribution to the group activity. To begin using WebPA, visit **http://webpa.lboro.ac.uk** and login using your usual Learn username/password.

WebPA project award
In the summer of 2006, Web-PA made a successful bid under JISC's e-Learning Capital Programme for a two-year project with funding of £200,000 to make the software open source. On 14th May 2008 the WebPA project received a Bronze 'Learning Impact' Award at the IMS Annual Conference and Summit on Global Learning Industry Challenges in Austin, Texas. WebPA was the only UK project among the twenty-three shortlisted finalists. The award is in recognition of the use of technology to improve learning. Nicola Wilkinson and Peter Willmot from the WebPA team attended the Conference to present WebPA to the expert panel of judges and collect the resulting prestigious award.

engCETL ACTIVITIES INTEGRATED WITHIN LOUGHBOROUGH UNIVERSITY

engCETL is well placed to integrate with and/or influence University policy and strategy, both through institutional membership of the **engCETL** Advisory Board and through **engCETL** staff membership on key University committees.

Activities with Students

Enterprising Engineer Event 2008

Student Events Programme Our student events programme continues to expand, providing undergraduates from our seven departments with the opportunity to learn some of the key skills required by engineering-related graduates, particularly in relation to industrial experience. All **engCETL** student workshops are extra-curricula and free to attend for Loughborough University undergraduates but places are limited. Topics include Preparing for Placement, Practice Assessment Centre, Oral Presentation Skills, Technical Report Writing and the Enterprising Engineer (a 3-day event over the Easter break). For more information and to learn about future events visit our website: **www.engcetl.ac.uk/students/events**.

Student Engagement The **engCETL** student representatives group is made up of current students from our seven departments, who form a vital link between the Centre and the student body. Since their formal introduction, the representatives have assisted in a survey that looked at student perceptions of awarding degree course credits for time served on industrial placements, have contributed to focus groups on local and national Learning and Teaching issues, developed resources and case studies and represented their peers on the **engCETL** Advisory Board. In order to include a wide variety of views, new representatives are recruited each academic year

sigma CETL. engCETL continues to maintain its strong association with sigma, the Centre for Excellence in Mathematics and Statistics Support CETL that is co-located at both Loughborough and Coventry University. Both sigma and **engCETL** are founding members of the East Midlands CETL regional group (www.eastmidlandscetls.ac.uk) and continue to work together through this strategic grouping, including hosting joint events at Loughborough.

There is also a key ongoing link between engCETL and the Maths Education Centre (MEC), with the joint-funded post of Progression Project Officer, Dr Glynis Perkin. This is a post which helps engineering students develop their engineering and enterprise skills and to support engineering-related students with a non-traditional mathematics background during their time at Loughborough. Glynis works from both engCETL and the MEC.

Both sigma and **engCETL** are founding members of the East Midlands CETL regional group (**www.eastmidlandscetls.ac.uk**) and continue to work together through this strategic grouping, including hosting joint events at Loughborough.

Enhancing Teaching Facilities

engCETL rooms continue to be used for scheduled teaching, particularly for group design projects where the flexible space is appreciated by both students and staff. Students may also book rooms independently to practise presentations and for private study – a popular service for group project work and exam revision. Almost 30% of room bookings were made by individual students and we are keen to leave some free space to meet this demand. If rooms are unavailable, groups are welcome to hold informal discussions in the foyer area.

Staff and students may borrow equipment such as digital cameras, camcorders, external hard drives, web cams etc. We plan to launch a new online booking system in 2008-09 which enables people to view brief details of each item. Some equipment, such as laptops and display boards, may only be borrowed by staff but the majority may be borrowed by students on payment of a refundable deposit.

For more information visit our website - **www.engcetl.ac.uk/facilities**

Equipment and Room Bookings for Departments

In 2006 the Centre secured £245,000 additional capital funding from HEFCE which has allowed the distribution of £30,000 directly to each of the **engCETL** departments. This funding financed a range of equipment and facilities for each department. New plaques in each department recognise the source of the funding and the award of excellence in teaching and learning.

Professional Development

careers centre

Activities with Professional Development

engCETL has strong links with Loughborough University's teaching and learning strategy and centres, and is engaging in transfers of practice to and from Professional Development, for example providing engineering-specific resources. One key link is the appointment of the joint post of a Research Associate, Dr Sarah Bamforth (with maternity leave cover provided by Dr Debra Lilley). The work covers topics such as work-based learning and the implications of the Bologna agreement on degrees at Loughborough University. **engCETL** looks forward to continuing to work closely with Loughborough University's newly created Teaching Centre.

Advisor for the Associate Teaching Route Dr Caroline Lowery, **engCETL's** Assistant Manager, undertakes a role as an Associate Advisor for the Associate Teaching Route (Associate Pathway) operated by Professional Development. The role involves providing guidance, support, and ideas to staff engaged on the pathway whilst monitoring progress against the pathway programme. Further details about the pathway can be found on Loughborough University's Teaching Centre website (**www.lboro.ac.uk/service/teachingcentre**).

Staff Events Programme Staff events this year focused on raising the profile of the Centre whilst providing an opportunity for staff outside **engCETL** to learn more about our research activities.

In both November 2007 and February 2008 we worked with Professional Development to run "The role of the **engCETL** in working with engineering-related staff." Several **engCETL** staff presented overviews of their work and ways that they assist academics. Similar sessions will run in October 2008 and April 2009 and places can be booked now through the Staff Development website (**www.lboro.ac.uk/service/sd**).

Activities with the Careers Centre

Employability Award Dr Caroline Lowery is a member of the steering group for the new Loughborough University Employability Award. The award is to be piloted in October 2008 with approximately 40 students and will focus on student skills for employment, recognising non-academic and extracurricular experiences of undergraduate students that link with personal development planning.

Insight into Management Course Richard Newman, **engCETL's** Industrial Liaison Officer, was a full time tutor on the 2007 Insight into Management course run within the Careers Centre. The course involves second year students working in teams with the support of a Graduate Manager. The Graduate Manager usually has a management role in industry and shares both knowledge and skills with the students. Companies support the course by offering sponsorship and by providing both staff and prizes.

engCETL event run through Professional Development

Enhanced Learn

Jenny Logan, the Engineering Faculty's Online Learning Development Officer, is based in **engCETL** and is supporting the Faculty's transition to the new enhanced Learn, Loughborough University's virtual learning environment. Starting with Civil and Building Engineering as the Faculty pilot department in 2007-08, the change to enhanced Learn has involved attendance at departmental staff meetings, liaising with both academics and administrative staff, conducting training at departmental level in small groups and one-to-one. Prior to the pilot, 34% of the Department's modules had material on Learn and by the end of the pilot year this had increased to 61% of modules, including 86% of undergraduate modules.

Feedback from students, academics and admin staff on the usability of Learn has been incorporated during the pilot in preparation for the full rollout, using a variety of mechanisms, including online questionnaires and attendance at staff student committees and student rep meetings.

Jenny Logan and Melanie King (one of **engCETL's** Learning Technologists) are members of the Learn development team, and Dr Adam Crawford, **engCETL** Manager, is a member of the steering group committee. These staff link **engCETL** to one of the University's key

Supporting Learn

teaching and learning resources and enable us to keep up-to-date with the developing needs of academics. Indeed, some of the development projects we are currently working on are aimed at using the advanced features incorporated in the new Learn. An introduction for all departments has been held either in staff meetings or in special introductory sessions. Staff training and assistance have been provided to transfer and enhance materials for individual modules.

EVALUATING engCETL ACTIVITIES

engCETL activities are currently being evaluated as part of our reflective practices. These evaluations include activities relating to engCETL facilities and their usage, the process of undertaking engCETL projects and the usability and functionality of tools and systems created as part of engCETL projects. During this next academic year, newly undertaken projects and past projects will be evaluated in terms of the project process and the functionality and usability of the tools and systems produced.

Evaluating the engCETL Project Process

Since the beginning of the engCETL, project proposals from our seven departments have been a core part of our strategic and operational plans. To enhance our project process in terms of activities undertaken and services provided, we commissioned an evaluation by Professor Harry Tolley, the engCETL Evaluation Consultant.

The key recommendations from the report were primarily formative, drawing upon the experiences of engCETL staff through the evaluation of a sample of development projects. The evaluation is to be used to inform future decision making with regard to the ways in which development projects are initiated, chosen, planned, implemented and disseminated. It is also anticipated that the outcomes of the evaluation will enable the Centre to be more explicit about what is meant by 'effective practice' in relation to the development project work it undertakes, and in so doing clarify and refine the rationale behind this chosen way of structuring, organising and undertaking its work.

Professor Harry Tolley has completed his interim report of findings, and the key recommendations from the report were taken forward into the planning for the most recent call for proposals in May 2008. A series of case studies of our past projects, based on staff interviews and questionnaires, to illustrate how engCETL has solved learning and teaching issues, is currently being produced.

Evaluating the engCETL Learning Spaces

External Consultant, Ivan Moore, evaluated the use of the engCETL learning space over the past year in order to identify the use and benefits of the space and the ways in which its full potential could be realised. The flexible, well-designed and equipped space is highly regarded by all users, including students who recognise it as "way better than the rest." Over the coming year, we will be working to:

- Further increase awareness of engCETL space and facilities.
- Provide increased training of available equipment.
- Trial extended opening hours for students during certain periods.
- Research how teaching practice has changed as a result of the new space.
- Use the lessons learned to help input into the design of future learning spaces.

engCETL has embedded evaluation and success criteria into all new projects undertaken by the Centre, ultimately providing feedback to the academic community on the innovative teaching support currently being undertaken at Loughborough.

Students using the engCETL rooms

"The engCETL has fantastic, well designed space for both staff and students. I have taken away several good ideas for optimising space to promote good interactions. On my first visit I had demonstrations of some of the equipment that had been installed. In particular the visualiser and the keypad voting system really impressed me. In GENIE we have now installed visualisers in all of our laboratories and these have helped staff enormously for demonstrating items during lab classes. We are extensively using a voting system throughout undergraduate modules and also as part of our outreach programme."

Professor Annette Cashmore, Sub Dean of Medicine and Biological Sciences at the University of Leicester, Director of GENIE CETL, and member of engCETL's Advisory Board.

RECENT engCETL AND ACADEMIC DEPARTMENT PROJECTS

Spring 2008 Project Proposals

In May 2008, **engCETL's** call for new projects from our seven departments yielded 18 project proposals with 12 of these taken forward as projects. These are undertaken free of charge, and successful proposals are usually assigned the time of one or more **engCETL** staff members. The twelve projects comprise collaborative activities in development, research and support. The new projects are aligned with the Centre's core aims and objectives, and the majority will be completed during the academic year 2008-2009.

Assessment and Feedback

■ Student feedback system: to create an electronic system that will enable students to receive more detailed individual feedback than the traditional paper-based system.

■ Automated coursework assessment using Learn: to develop a coursework assessment that uses interactive features in enhanced Learn, such as assignments/quizzes. The project will ideally consider online recorded submissions and the automated marking procedure.

■ MatLab coursework feedback: to provide faster, more timely feedback to students through developing assessment methods using MatLab to reduce the marking time for coursework.

■ Implementation of Engineering Mechanics Computer Assisted Assessment (CAA): using Question Mark Perception (QMP) for formative assessment of engineering mechanics.

Enhancing the Student Learning Experience

■ Plagiarism guidelines: to develop an interactive online tool and quiz on plagiarism, with subject-specific examples.

■ Online electromagnetism simulation tutorials: to develop a series of web-based electromagnetism tutorials/teaching resources utilising already created interactive animations. The animations will be embedded within tutorials held on Learn.

■ Redevelopment of Co-Tutor: additions and updates including links with Loughborough University Student Information system.

■ Database of maths examples for Materials Engineering: this will provide students with opportunities to practice contextualised maths questions.

Industrial Projects

■ Case studies of industrial practice in Project Management: to enhance industrial content through input to a Project Management module by providing case studies of practice from business leaders.

■ Best practice in managing sponsorship and placements: by providing evidence of the efficiency and effectiveness of placements and sponsorship in the Civil and Building Engineering Department.

Pedagogic Research

■ Developing web-based Materials Engineering teaching resources: using engineering students as researchers to develop online resources.

■ Evaluation of i-Meeting for distance learning: assessing the use of this web conferencing software in assisting distance learning students.

Monthly updates on current projects can be found on our website **www.engcetl.ac.uk/activities/current**

Summary of Projects on the engCETL Website

EXTERNAL COLLABORATIONS AND INTERACTIONS

Industrial Interactions

engCETL formed a core element of the ENGAGE project, which facilitated dialogue between employers and engineering, physical sciences and materials academics in higher education. The project was funded by the Higher Education Academy and led by the Engineering Subject Centre. **engCETL** staff were members of three of the four working groups, and additionally developed the content management website. More information is available from **http://engage.lboro.ac.uk**. The project culminated in the conference "Higher Education and the Workplace – supporting employer engagement in engineering and physical science" held at Broadway House Conference Centre in Westminster, London, on 15 January 2008. A review of the Conference and the final report are available: **www.engsc.ac.uk/engageconf**

Richard Newman, **engCETL's** Industrial Liaison Officer was involved in editing the new Industrial Placements Guide for Employers which has recently been published by the Engineering Subject Centre. **www.engsc.ac.uk/downloads/employers-guide-on-placements.pdf**. The new Guide for Academics, also edited by Richard Newman, will also be available from the Engineering Subject Centre website soon.
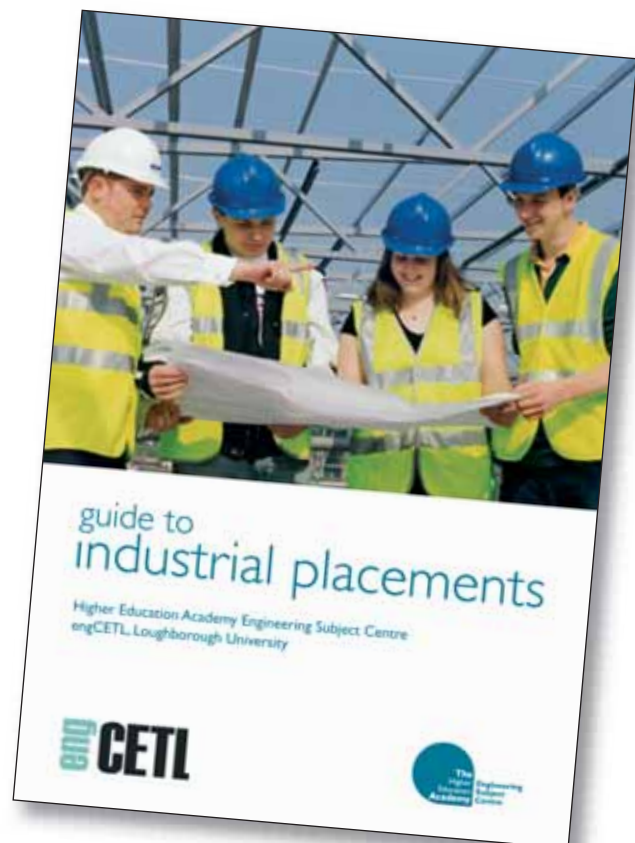
Engineering Subject Centre

As **engCETL** enters its fourth year of HEFCE funding, we are looking to disseminate our findings to a wider community of academics, and key to this is our close involvement with the Engineering Subject Centre. The Academic Coordinators from both centres meet regularly to discuss upcoming opportunities for collaboration, and a joint international conference is planned for June 2009 in Loughborough. **engCETL** staff referee guides and projects produced by the Engineering Subject Centre and were referees for conference papers at the recent Engineering Education 2008 conference held at Loughborough. Joint collaborations include Pedagogic Workshops (March and July 2007, June 2008), website links eg RSS feeds for events, linking Loughborough University staff to mini-project funding, reports eg Sandwich Placement Guides, April 2008 and the development of a Pedagogic Research Toolkit.

CETL Interactions

National CETL Conference

The Higher Education Academy and the East Midlands CETL regional network were pleased to host the Annual CETL Network Conference at the University of Leicester from 17-18 April 2008. **engCETL** were actively involved in both the Conference preparations and in activities across the two days. **engCETL's** Director, Professor John Dickens, chaired the Conference panel discussion which comprised CETL and Subject Centre Directors. The **engCETL** and Engineering Subject Centre Academic Coordinators (Kirsty Carter and Liz Willis) led a conference discussion group discussing the key relationship between the CETLs and the Subject Centre network, using **engCETL** and the Engineering Subject Centre as a best practice case study.

The Conference themes were Impact, Evaluation, Dissemination and Sustainability, all key themes for the CETLs as they enter their final two years of funding. **engCETL** proudly displayed two posters in the marketplace event that detailed their internal and external dissemination work **www.engcetl.ac.uk/downloads/events/ cetl2008/cetl_conference_posters.pdf**

National CETL Conference

Ingenious: Engaging Citizens; Engaging Engineers

engCETL's Manager, Dr Adam Crawford, is a member of the project steering committee for the Inter-Disciplinary Ethics Applied CETL (IDEA CETL) based in Leeds. Funded by the Royal Academy of Engineering, the IDEA CETL is running a project to develop and deliver a series of professional ethics training courses tailored to meet the needs of engineers. Targeted at engineers in the early to mid stages of their career, this training will equip them with the skills to respond effectively to ethical issues encountered in their professional lives. The **engCETL** is actively involved in promoting the work of the IDEA CETL amongst engineers.

German-Malaysian Institute visit to **engCETL**

International Collaborations

German-Malaysian Institute. In April 2008 **engCETL** welcomed eleven senior Malaysian government officials and engineering academics from the German-Malaysian Institute (**www.gmi.edu.my/hm**) as part of their tour of the UK, Netherlands and Denmark. Their trip involved visiting a number of leading institutions across Europe to discuss enquiry-based learning. The delegates were delighted to learn more about **engCETL's** work in linking education with industry and learning through projects. Pictured with the delegates are five of **engCETL's** research students, who were invited to present posters detailing their research work.

Massachusetts Institute of Technology (MIT). Dr Adam Crawford was an invited attendee at an International Symposium on Project-Centred Learning held at the Massachusetts Institute of Technology (MIT) in March this year. The Symposium addressed the key topics: pedagogy, learning spaces, assessment, social context, scalability and sustainability.

Engineering Education Futures Forum, Australia. Professor John Dickens, Director of **engCETL**, was the invited keynote speaker at the Engineering Education Futures Forum in Brisbane, Australia between 26-28 March 2008. His presentation included details of the work being achieved by both **engCETL** and the Higher Education Academy Engineering Subject Centre. John was also the invited keynote presenter at the CASEE (NAE) conference in Milwaukee, USA, on 9 October 2007, where he gave a presentation entitled "Engineering Education in the UK."

Professor Ian Cameron (University of Queensland, Australia). Head of Chemical Engineering and Senior Carrick Fellow, arranged a study visit to **engCETL** from 7-11 January 2008. The visit included a presentation and discussion on his Carrick Fellowship activities relating to the theory-practice interface in engineering education at the **engCETL** on the 8 January 2008.

University of Queensland Collaboration. Melanie King and Paul Newman from **engCETL** visited Australia in May 2008 funded by the Joint Information Systems Committee (JISC) OSS Watch, open source software advisory service, as part of the ongoing promotion of the WebPA open source software and took the opportunity to disseminate **engCETL** activities to the Special Interest Group in Engineering Education (SIGEE) at the University of Queensland.

PEDAGOGIC RESEARCH

Conferences, Journals and Presentations

Since **engCETL** funding began in 2005, staff associated with the Centre have been successful in publishing 22 journal papers and 54 conference papers (refereed), covering topics such as: "Working to Learn – Valuing Placements", "Developing Student Case Studies" and "The **engCETL** change journey." **engCETL** staff and seconded academics also have an increasing international profile, with many overseas conference and event contributions, as well as serving on editorial boards such as the Engineering Education journal and the iNEER (International Network for Engineering Education and Research) publications 'Innovations 2007' and 'Innovations 2008'.

engCETL July 2007 – July 2008	
Conference and journal papers	34
Conference poster presentations	4
Conference workshops	9
Loughborough University events for staff	12
Loughborough University events for students	11
National events	12

Postgraduate Research Mini-conference

The **engCETL** organised a poster competition event to bring together research students from both the **engCETL** and the sigma CETL which is based at Loughborough University and Coventry University. At a joint mini-conference held in **engCETL** in June 2008, the research students were invited to submit a poster, present their research and answer questions from the audience of research supervisors and CETL staff. The posters were judged on the clarity of information and style and were proudly displayed in the **engCETL** foyer for visitors.

Student Poster Display in **engCETL**

Research Studentships

engCETL continues to fully and part-fund six research studentships in engineering pedagogic research covering a variety of engineering related areas:

- **Yussuf Ahmed** (Year 3) "The Impact of Work Placements on Transferable Skills." An investigation into the acquisition of transferable skills before, during and after work placements, the effect of work placements on academic performance and whether or not the type and duration of work placement affects the acquisition of transferable skills.

- **Fakhte Soltani-Tafreshi** (Year 2) "The Impact of Industrial Sponsorship on Students, Academia and Industry." Aims to capture existing practice across sponsored programmes within the Faculty of Engineering at Loughborough University, evaluate the benefits to the three stakeholders, assess the barriers that limit further sponsorship, and propose strategies for future developments.

- **Mahmoud Abdulwahed** (Year 2) "Closing the Distance: Development of a Web-Based Telelaboratory for Process Control Education." Aims to enhance the teaching and learning of the process dynamics and control subject, by developing an interactive software environment in Labview that combines the concepts of virtual and remote real experiments.

- **Ming Yi (Marian) Gao** (Year 2) "Appraising the Benefits of Project-Based Learning in Engineering Design." Aims to study the benefits of project-based teaching in learning and cognition, addressing the following research questions; What are the specific circumstances and subject areas for which project-based learning is more effective than traditional learning? How can these benefits be measured in order to help develop and assess future project-based teaching programmes?

- **Noor Al-Doy** (Year 1) "An Investigation into the Curriculum for the Study of Digital Industrial Design (DID)." The aim of the research is to develop, demonstrate and validate the content and capabilities of employing digital design tools during all stages of industrial design practice. The method should then be developed to a digital industrial design (DID) curriculum for undergraduate study.

- **David Kockelbergh** (Year 1) "The Use of Real-Time Data Capture and Display in the Teaching of Electrical Machine Theory." Linking three-dimensional space based quantities with related time based quantities is consistently difficult and existing teaching techniques do not enable easy visualisation of the relationships. By using real-time data acquisition and display techniques it is hoped that these relationships can be taught better and higher levels of student understanding achieved.

Disseminating Research at EE2008

Symposium in Engineering Education 2008

Pedagogic Research Workshops

The Engineering Subject Centre hosted their successful Introduction to Pedagogic Research workshops in **engCETL** in July 2007 and June 2008, attracting a national audience of delegates keen to learn from **engCETL's** Pedagogic Research Associate, Dr Sue Morón-García, **engCETL's** Pedagogic Research Consultant, Professor George Brown and the Engineering Subject Centre's Academic Coordinator, Liz Willis, together with input from other speakers.

Symposium in Engineering Education

The **engCETL** hosted an international symposium in Engineering Education on 11 January 2008 entitled "Student-centred learning in small groups" with themes including design as a learning pedagogy. 27 delegates from four institutions attended and a synopsis is available from our website: **www.engcetl.ac.uk/events/ivanmoore_jan08**

## EE2008 Conference at Loughborough University, July 2008

engCETL was well represented at the Engineering Education 2008 international conference held at Loughborough University between 14-16 July. As well as Dr Adam Crawford serving on the organising committee, five staff were peer review panel members. **engCETL** also equipped two conference stands, delivered six papers and ran three workshops, which were presented by staff and seconded academics (**www.ee2008.info**).

engCETL Research Student at EE2008

PLANNED engCETL ACTIVITIES

■ **engCETL Guide for Industry and Academics** Due in Spring 2009, this guide will encourage and support industrial involvement by developing mainly web-based support and guidance materials, case studies and other resources for anyone wishing to involve industrialists in any aspect of their teaching activity. These resources are primarily aimed at lecturers who wish to involve industrialists coming into the University.

■ **Enterprise Education Mapping** Dr Glynis Perkin, **engCETL's** Progression Project Officer, is currently undertaking a mapping exercise of enterprise education across the Loughborough curriculum.

■ **Further Increased Usage of engCETL Developed Technology Tools** We are keen to encourage departments to approach us to organise training events to increase usage of our TutorTools software. If you are keen to learn more about Co-Tutor, Attendant, ProjectList, Web-Groups or WebPA contact Kirsty Carter, **engCETL's** Academic Coordinator or visit the TutorTools website: **http://tutortools.lboro.ac.uk**

■ **engCETL Project Case Studies** Professor Harry Tolley is currently finalising six case studies, which will give an overview of the projects from the perspective of the problem that the work solved for engineering academics.

■ **Academic-Practice Awards and Mini-Project Seminar** Teaching Centre (previously within Professional Development) and **engCETL** are planning a workshop in November 2008 to provide Academic Practice Award and Mini Project Award recipients with the opportunity to disseminate their findings to other academics at Loughborough University.
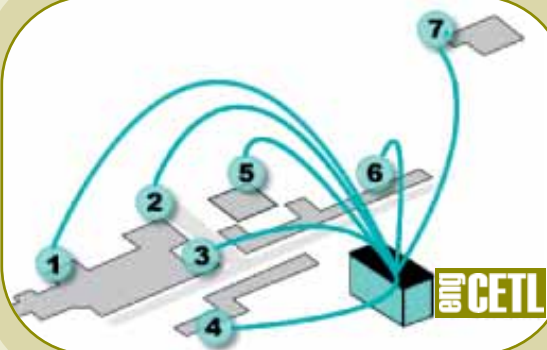
The seven departments we work with

1. Aeronautical and Automotive Engineering
2. Chemical Engineering
3. Department of Materials
   (Faculty of Science)
4. Electronic and Electrical Engineering
5. Civil and Building Engineering
6. Wolfson School of Mechanical and Manufacturing Engineering
7. Design and Technology
   (Faculty of Social Sciences and Humanities)

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