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Forthcoming Events

Student Reps Weekend

15-17 November, Derbyshire

This is a re-run of last years successful away-day for student representatives on departmental learning and teaching committees.

Improving Laboratory Classes

25 November, Liverpool

This workshop is a part of the thematic group series. We will look at all aspects of lab classes, from designing the lab to fit your objectives through to how to assess practical classes.

Creativity Training Course

17-20 January, location tbc

The Creative University project is running a training course in methods used to enhance creative thinking and innovation, aimed at lecturers who are interested in introducing creative thinking approaches into their courses. The course will be free to successful applicants — for more information, please contact the Centre.

STOP PRESS:

The Centre has just published an Activities brochure which describes the Centre's work. The brochure will be available in hard copy and on-line — www.materials.ac.uk/about. If you would like a hard copy of the brochure, please contact the Centre

The advent of the Internet has provided a resource never before available to students, teachers and lecturers — its potential for use in teaching and learning is vast. However, it has become apparent that one particular difficulty encountered by students using the web for research, is that the explosion in the number of sites has made it increasingly difficult for people with limited experience to find relevant information quickly.

As a result of a Teaching Development Grant awarded by the Centre, a small dedicated database of websites has been created specifically for students to use when searching for materials-related information on the internet. The *materialsinteractive* database contains a restricted number of sites, selected primarily for their technical content. It enables students to search these selected sites to find the information that they seek and so limit the time wasted on fruitless searches.

Contact details

If you would like to be involved in any way with the UK Centre for Materials Education, please contact us at:

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Other Centre Projects:

FDTL Tutoring Materials Project
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Composites on Tour Project
Project Manager: Jane Pritchard
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The site has a simple keyword search facility which responds with a list of sites and some basic information on each site. Crucially this includes a short abstract which describes the content of the site with particular regard to the technical information to be found there. Many sites have technical information buried in background pages and the abstract attempts to direct the user to the most useful pages.

The site is being maintained on a regular basis and includes a facility to submit a site for consideration. The owner of the site would welcome comments and submissions of new sites, particularly if these are from your specialist area. Most researchers have their own favourites, please share them with us. Don't be shy to offer your own webpages — these are often the best!

The database and website are available at www.materialsinteractive.com

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Building the Impossible

CREATIVE UNIVERSITY PROJECT

The Creative University Project is a new project, being run jointly by the UK Centre for Materials Education, the Centre for the Built Environment and the LTSN Generic Centre.

The project aims to investigate the creative thinking approaches used in industry and to assess their relevance for discipline — specific use in HE. The project will:

- Review existing creative approaches used in industry and current HE practice
- Develop a training course in running and evaluating creativity workshops using these different approaches; and to run this course for 15 applicants
- Appoint 5 associates to undertake further training and to run and evaluate up to 4 workshops each within their relevant disciplines
- Publish guidelines from the feedback and evaluation of these workshops for institutions to use

Further information about the project is available on www.materials.ac.uk

The UK Centre for Materials Education has been working with the BBC on a production called *Building the Impossible*, in which a team of scientists and engineers recreate old technologies to see if it was in fact possible at the time. We are obviously trying to input as much materials science as possible so the viewers are aware of the importance of materials in design. So far we have sealed an Egyptian tomb using sand hydraulics, recreated a submarine from 1630 and begun building a medieval hot air balloon!

The Materials Science of Drebbel's 17th Century submarine

Drebbel was born in approx 1572 at Alkmaar in the north of Holland. He is known to have presented James I with his 'perpetuum mobile', a form of clockwork which was an attempt to demonstrate the principle of perpetual motion. It made him famous amongst his contemporaries. Drebbel was also appointed chief alchemist. One of the most intriguing of Drebbel's supposed inventions is the first ever submarine. But was it possible, could it have happened? A materials scientist and an engineer, working with the BBC decided this year to take on the challenge of finding out. With the developments known at the time, could the sub have worked and if so, could the team recreate this feat?

There are no documents written about the sub by Drebbel himself. The only information comes from second- or third-hand reports. However these were written by well-respected scientists of the day. Robert Boyle was told of the event by an eminent mathematician who had interviewed one of the rowers and Boyle himself spoke to Drebbel's son-in-law. Dutch scientist Isaack van Beekman was told of the event by his father who was in London when the event took place. Constantyn Huygens, Dutch poet and

ambassador in London apparently wrote of it in his autobiography, although we have not yet found this 1631 book in any British library. There are many other passing references and, by piecing all of them together, the general impression is that this was not a surface-air supplied sub. It was rowed with perhaps 12 oarsman and it went into the Thames, perhaps from Westminster to Greenwich.



The team at work on the submarine

There are two pieces of Drebbel's own writing which are interesting but both pre-date the submarine experiment. One is an impassioned letter essentially begging King James for employment in his court as scientist, entertainer and inventor extraordinaire. The other is a small reference to heating up saltpetre with an illustration which looks like a chemistry retort bottle which would have been used to heat saltpetre. The result of heating saltpetre is oxygen. This is a revelation because oxygen was not officially discovered for another 150 years and may explain how Drebbel dealt with air quality in the sub — at least to some extent.

All of this and much more will be revealed when the series is screened soon. Further details about the series will be available at www.bbc.co.uk

Thematic Group Leaders

Schools Liaison
Cheryl Anderson

Professional Development Skills
John Wilcox

Materials Chemistry
Stephen Skinner

Materials for Engineers
Mike Bramhall

Environmental Materials
Cris Arnold

Assessment
Lewis Elton

Case Studies
Claire Davis

Labs
Caroline Baillie

New Materials Education Research Project

A new research project, at the Centre, aims to identify significant factors influencing motivational attitudes amongst students and departmental teaching staff.

Two new researchers have joined the UK Centre for Materials Education. They are Elena Skryabina and Simon Parker.

Elena and Simon are carrying out a research project investigating students' and lecturers' attitudes towards the study of Materials Science in Higher Education. The study will focus on the expectations, experiences and conceptions of students and departmental academic staff in respect of their motivational attitudes and engagement in the learning and teaching of materials and related subjects.

The rationale behind the study is driven by the reduction in the student numbers enrolling for Materials degrees. The study aims to identify significant factors influencing motivational attitudes amongst students and departmental teaching staff. The scope of the study will encompass under-graduate students, post-graduate students, course lecturers and related academic staff across Material Science departments in UK Higher Education institutions.



Simon Parker

It will be a comparative study that will examine expectations, experiences, attitudes and conceptions of students and lecturers at the start of a course module, and then again at the end of the module. Identifying key factors that influence the attainment of positive attitudes and engagement with the course will enable departmental staff and lecturers to design their courses to better satisfy their own and their students' expectations of the course; and to foster engagement and positive attitudes within their student population.

The study will be run through the first semester of the 2002-03 academic year and results will be published in May 2003. We welcome expressions of interest from staff and departments who wish to participate in this study.

Further information will be found, as the study progresses, at www.materials.ac.uk/research, and Simon and Elena can be contacted on:

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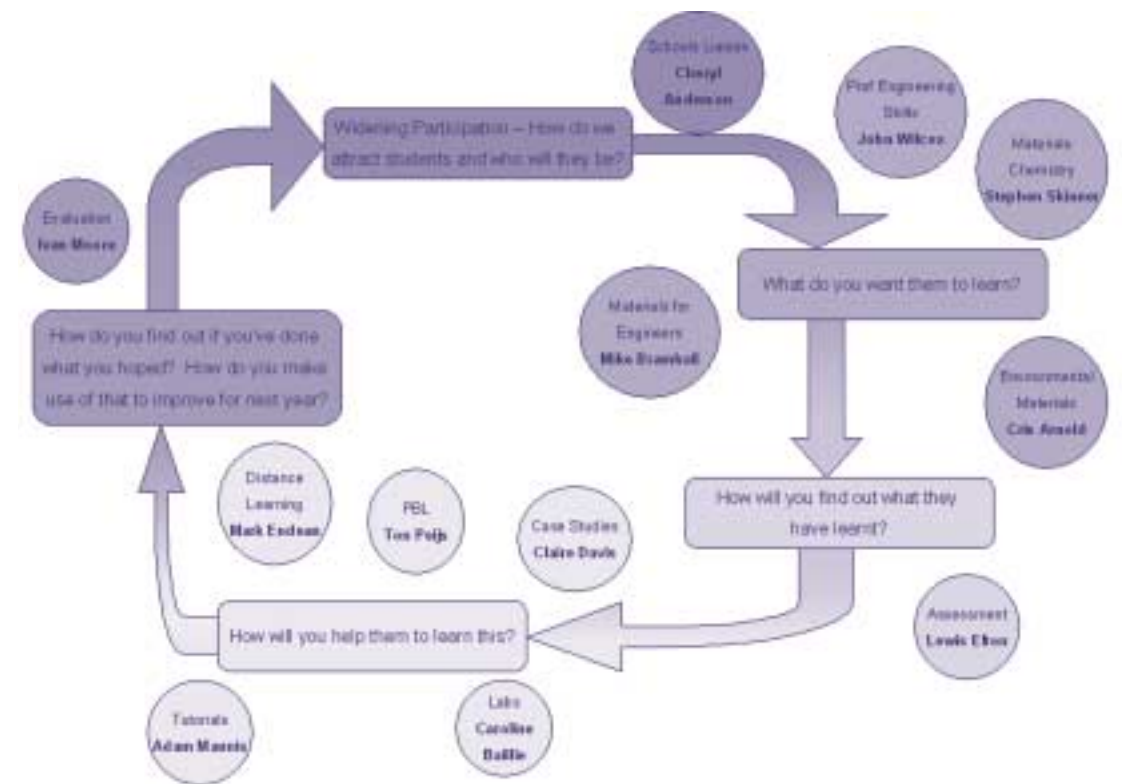
Elena Skryabina

The aim of the thematic groups is to establish a focal point, within our community, for the discussion and sharing of knowledge about specific aspects of materials education

UK Centre for Materials Education — Thematic Groups

In response to many requests for support on specific aspects of materials education, the Centre is establishing a set of 'Thematic Groups' each focussing on a particular educational theme, or concept, and each led by an expert in that field.

The aim of each group is to establish a focal point for discussion and the sharing of knowledge about that topic. The thematic groups have been established around a continual cycle of educational practice which shows how each theme fits into the process of course design, learning, assessment and evaluation:



A series of booklets are being authored by the Group Leaders and will be published in the Winter. A sequence of national workshops is underway to accompany the series, details of which will be found on the forthcoming events section of this newsletter as they become available.

Details of the group leaders are shown along the top of the newsletter. Further details can also be found at www.materials.ac.uk/groups.