
Recent activities and future plans

Learning and Teaching Projects

An update from our MECR project appears below. Our other development project is closely related to the FDTL4 project described in the article “The MathCentre of the World” on page 7 of this issue, and will set up the infrastructure for the MathCentre. Three other FDTL4 projects relevant to our disciplines started their activities late last year. Each has contributed a short piece to this newsletter explaining plans for the future and how people in the community might get involved. We are hosting a workshop for the projects on 26 February – this is a joint event with LTSN Physical Sciences – and more information will become available at that time.

We received seven applications for our latest round of miniprojects, and an announcement will be made in the next issue as to which have been successful. Existing miniprojects are contributing to an exciting programme of workshops over the next few months, as can be seen below, and the Day Break programme being designed by Vic Barnett will add further dates. The latest list can be found at <http://ltsn.mathstore.ac.uk/workshops>

Workshops

Sharing of Projects Practice: Tuesday 18 March, University of York. Much of teaching and learning in mathematics is provided using traditional lectures, and assessment is examination dominated, but substantial project activities have great potential in learning both mathematical skills and graduate skills. Such project activities are also highly rated by graduates and their employers. For staff familiar with project activities the investment in staff-time and required expertise is often considerable and the issues surrounding assessment has resulted in a generally patchy provision. However, sharing of best practice in effective management, support and assessment could provide a means to minimise the staff resources required and to maximise the student learning experience. This workshop is aimed at sharing practice for the implementation, support and assessment of final-year project-based activities. An outcome of the day will be to establish commended practice in key areas for wider dissemination.

MathsTEAM workshop: Wednesday 2 April, Loughborough University, immediately prior to the IMA conference on the Mathematical Education of Engineers. This event sees the launch of over 60 case studies gathered by the MathsTEAM project, and will be of interest to all those involved in supporting student learning of mathematics, whatever the discipline. Speakers will include Duncan Lawson, Tony Croft and Rob Beale, and the President of the IMA will present an award for the best case study.

Mathematics Education: 8 April, University of Southampton - a minisymposium within the British Applied Mathematics Colloquium, with invited speakers

Kjeld Laurson (Copenhagen), Martin Greenhow (Brunel), Mike Savage (Leeds) and Jane White (Bath).

Mathematics Education and University Mathematics: 9 April, University of Birmingham - a special session within the British Mathematical Colloquium with invited speakers Ron Aharoni (Haifa), Kjeld Laursen (Copenhagen) and Chris Robson (Leeds).

Using posters for assessment: 2 May, Leeds Metropolitan University; a joint event with LTSN Information and Computer Sciences. The diversity of the HE student population means that we must seek out new methods of assessment to address the range of learning styles. In some disciplines the increasing number of students means that the attractiveness of poster assessment (as opposed to individual vivas) for undergraduate and postgraduate projects has risen accordingly.

Mathletics - Online objective tests: 8 May, Brunel University. Mathletics is a set of web-based tests using the Perception authoring system. This hands-on workshop will inform users and potential users of what mathematics tests are already available and how they might be used as a stand-alone system or within other VLEs. Pedagogic and technical issues regarding setting of effective questions using the Brunel templates will be explored, in particular the use of random parameters within questions that use MathML to display mathematical expressions and Scalable Vector Graphics (SVG) to display diagrams. In this way, one can write questions styles where the actual numbers in questions, distracters, feedback, data tables and diagrams are realised at runtime, thereby generating many instances of questions testing the same skill. An outcome of the day will be to establish a consortium of users to exploit what is already available and/or contribute to future developments.

Assessment: 16 May, University of Edinburgh. Speakers include Antony Maciocia, Peter Holmes, Neil Challis, Ken Houston and David Stirling, who will present materials and case studies relating to good practice in assessment of mathematics, statistics and OR. The day will also include a debate which we hope will provide some provocative copy for the next newsletter.

Mathematics in VLEs: June, University of Newcastle-Upon-Tyne. Bill Foster will be reporting some of the findings of his project into the support available for mathematics in VLEs and how this can be improved.

Mathematicians as educational co-researchers

The MECR project seeks to engage practising mathematicians as educational co-researchers to develop educational theory and teaching practice alongside experienced colleagues from mathematics education. In the early weeks of October 2002 the project was set up with the core group of participants from the School of Mathematics at the University of East Anglia (UEA).

The methodology of data collection was established and agreed and the 'Data Sets' developed. A Data Set consists of a short literature review on a theme supplemented by a bibliography for further consultation by the group. The core is a sample of data such as students' written work and student interview transcripts on the theme. There are six themes, therefore six cycles of data collection. For example, two themes are (i) students' perceptions of proof and its necessity, and (ii) the concept of limit across mathematical contexts.

The group is asked to study the Data Set, and prepare a short account of their response based on their experiences and views. Where possible, this is supported with brief samples of data that they have collected themselves. Then a meeting takes place at which the Data Set is discussed in detail. Preliminary analysis of the reports, and transcripts of the meetings, are very encouraging. The methodology of engaging mathematicians and educationalists in a focused setting has been successful so far. At this stage, we fully expect the project to produce useful and interesting results.

The project will continue during the forthcoming academic year, both at UEA and with meetings at six other UK institutions, each considering one of the Data Sets. This will broaden the scope and benefit from the experiences of other mathematicians in different institutions. The results will be disseminated via research reports and at conferences from September 2003 onwards. If you are interested in further information please contact Dr Elena Nardi: e.nardi@uea.ac.uk, or Dr Chris Sangwin: c.j.sangwin@bham.ac.uk

Book for Review

We have been sent a copy of **Linear Algebra and its Applications**, David C Lay, Addison Wesley 2003. It has enhanced technology support on the web for both students and instructors. Let us know if you are interested in carrying out a review for the newsletter.

Publications

The following publications can be ordered at any time; there is no charge for the leaflets or for individual copies of the booklets. Full details at <http://ltsn.mathstore.ac.uk/publications>

Facts and Formulae leaflet: bulk copies available free of charge for distribution to students

Algebra Refresher, and Calculus Refresher: Bulk copies can be purchased for distribution to students. The current cost is £125 for 100 copies, payable in advance.

Learning and Teaching in Mathematics, Statistics and Operational Research

Occasional series ISSN 1476-1378. Individual copies available free of charge:

1/01 Post-sixteen mathematics within Curriculum 2000 (only a few copies left)

2/01 Guidelines for Introducing Groupwork in Undergraduate Mathematics

3/01 Good Practice in the Provision of Mathematics Support Centres

Question bank for engineers ready for evaluation

During January and February the Electrical and Electronic Engineering Assessment Network (e3an) has been showcasing its question database to the UK academic community. Almost 100 academic consultants across the country have contributed to the database. Topics covered: Circuit Theory; Computer Tools; Control; Datacomms; Digital Electronics and Microelectronics; Electromagnetism; Maths for Engineers; Physics of Semi-Conductors, Power Electronics; Telecomms; Signal Processing. Some questions are suitable for direct use in Computer Assisted Assessments; others are in more traditional formats such as short answer and example exam questions. Questions can be output in a range of computer and paper based formats.

With the recent release of its extended database, downloadable from the website, the e3an project wishes to promote widespread use of the testbank. They are keen to identify and disseminate existing good practice in assessment across the discipline and are particularly interested in meeting academics willing to become involved with the project to evaluate the use of the questions in their teaching. To register an interest in the project contact the project team co-ordinator Su White via info@e3an.ac.uk tel 023 8059 4471. For further details of the database and the network go to the project web site <http://www.e3an.ac.uk>