



A Successful Launch for Edinburgh Space School



Rocket science and many space related Engineering subjects were the order of the day as over eighty 5th year pupils attended a summer Space School hosted by the School of Engineering and Electronics.

The space cadets had won their place after completing a self study course during the year organised by Careers Scotland. The five day summer school (from 17th to 22nd June) gave the students a real experience of life at a university and all came away with very positive experiences of Science and Engineering at Edinburgh. After arriving at Pollock Halls on Sunday

afternoon they were straight into their first activity: team building and problem solving games in the grounds of Pollock Halls.

For the next 4 mornings they would be treated to talks by real life NASA astronauts.

We had talks from Jeremy Hart, Mike Baker, Neal Pellis and Nick Patrick and it was amazing to see how captivated the children were by their space heroes.

Next they were into a Global Positioning System exercise around the KB campus and after lunch they were building robotic buggies which were used for scooping up rock samples. During the week they had workshops making rocket cars, generating their own electrical energy and also building a communication system.

Their evenings were filled with a variety of social activities including a visit to the Royal Observatory and a talk by Marek Kukula. On other evenings we had a talk by entrepreneur Catriona Campbell and the amazing Dr Bunhead kept us on the edge of our seats with explosions and daring experiments. A Gala Dinner and Celidh at Appleton Tower marked their last night in Edinburgh and was attended by more than 10 NASA astronauts.

And finally on Friday morning we headed, a little bleary eyed, to Peffermill to launch homemade rockets and the prize giving.

Edinburgh Research Partnership (ERP)

Launched in October 2005 as part of the Scottish Funding Council's "pooling initiatives", the ERP has been awarded £14.7 million to build strong links between researchers at Edinburgh, Heriot-Watt and latterly Napier University in Edinburgh. Through existing areas of excellence and the pooling of resources, the ERP aims to increase Scotland's international standing in engineering, which is essential in a climate of increased international competition. Through the ERP funding the School has already appointed 8 new academic staff and has funded 9 prize studentships which are jointly supervised across institutions. A high quality e-classroom/video-conferencing facility will

open in January 2008 allowing joint seminars, meetings and teaching across the partner campuses.

The success of the ERP is now being built on with the formation of complementary partnerships in the West (GRP) and the North (NRP) with other Scottish Universities. These 3 groups are coordinated under the pan-Scotland Scottish Research Partnership in Engineering (SRP). It aims to create a research base across Scotland, with each of the collaborative research groups or subject areas working to place Scotland at the forefront of international engineering research.

A lightweight electrical generator for renewable energy systems

A new topology of permanent magnet electrical generator is being developed within the Institute for Energy Systems for applications in direct drive systems for wind, wave and tidal energy converters. In direct drive, the generator is coupled directly to the prime mover.

There is no gearbox, as is commonly found in wind turbines. Compared to existing technology, the major benefit of the new generator is in terms of weight – initial designs show up to a 40% reduction in mass. This is achieved by eliminating large attractive electromagnetic forces present in existing generator topologies.

As a consequence there are also benefits in terms of component assembly and manufacture. The generator is built up from a number of modules making it robust and easy to maintain. A 20kW rotary prototype has been tested at Edinburgh and results meet the expected performance, with electrical efficiencies greater than 90% over a range of loads. Over the next 12 months a field trial will be conducted, and the generator designs will be scaled up to the MW size for large wind turbines within the next 2-3 years.



Student Meets Filmmakers over Bobsled Project

A University of Edinburgh engineering student and international skeleton bobsled racer is to meet filmmakers to discuss making a documentary of his work.

Iain Roberts, whose PhD studies are on the mechanics of skeleton bobsled and ice friction, is to take part in a speed dating-style event with 20 filmmakers at BritDoc 07, a film industry festival at Oxford University on 25-27 July.



Contact:

email - see@ed.ac.uk
tel - 0131 650 5567

www.see.ed.ac.uk



“Clickers” – a lecture-theatre response system.

Last year, we introduced a voting system based on infra-red devices, rather like TV remote controls, that allow students to tell us, immediately, very visibly and anonymously, how well they understand material in a taught class. We are now able to adjust the pace and content of lectures to take account of the class's understanding. Initially, many of these students thought that this would simply be an interesting “gimmick” to keep students awake and lecturers on their toes. The effects are far more interesting and useful. For students, it makes lectures a two-way process, allows an immediate and unthreatening “self-test” of understanding and can reassure a worried student that “I'm not the only one that hasn't a clue”. For lecturers, it allows an immediate measure of students' understanding. No more are we left wondering whether a sheepish show of hands means that our teaching mission has been accomplished. We now know, very precisely, what the students have understood and we can adjust our teaching accordingly. While this can be unsettling at first, it is ultimately far more productive – and rather exciting.



Student Prizes

Our students have had a very successful year winning prizes in various categories including best papers and best students. Below are some of the awards they have won.

Undergraduate Wins Best Chemical Engineering Student

One of last year's Chemical Engineering graduates, Jennifer Wilson, has been named the Best Chemical Engineering Student of the Year at the 2007 Science, Engineering & Technology Student of the Year Awards, for a project which looked at computer assisted design of peptide vectors for targeted drug delivery.



PhD student wins the 2007 Bodycote Warrington Fire Research Prize for the Best Paper in Fire Safety Engineering

We are pleased to announce that the paper 'The Dalmarnock Fire Test' led by our student Cecilia Abecassis Empis has won the 2007 Bodycote Warrington Fire Research Prize for the Best Paper in Fire Safety Engineering.

Congratulations to G. Rein, C. Abecassis Empis, A. Amundarain, H. Biteau, A. Cowlard, A. Chan, W. Jahn, A. Jowsey, P. Reszka, T. Steinhaus and S. Welch, Fire and Structures Research Group in IIE who won First Prize in the FM Global Awards for their paper entitled “Round-Robin Study of Fire Modelling Blind Predictions Using the Dalmarnock Fire Experiments”. The Award was presented at the 5th International Symposium on Fire and Explosion Hazards, 23-27 April 2007.

Four They are Jolly Good Fellows!

Professor Alan Murray who was recently elected a Fellow of the Institute of Electrical and Electronics Engineers, the world's leading professional Association for the advancement of technology.

Professor Michael Rotter, elected a Fellow of the American Society of Civil Engineers. This is the most prestigious Professional Society in the world for civil engineers and makes him the only University of Edinburgh Fellow of the ASCE. Professor Rotter, was also elected, Fellow of the Institution of Structural Engineers. This is one of the two Professional Societies which accredit our degrees. This makes him the only University of Edinburgh Fellow of the IStructE.

Professor Bernie Mulgrew, elected Fellow of The Royal Academy of Engineering.

Record Breaking Year for Research Income

In 2006/7 the School was awarded £17.25M of new research grants and contracts which represented a 70% increase over our previous best year (2004/5). Major awards were received from Lloyds TSB for e-banking and EPSRC SUPERGEN for energy research.

Continued Success in Assessment of Teaching

Over the last two years all our undergraduate degree programmes in the Chemical, Civil and Electronics disciplines have been accredited by the appropriate professional Engineering Institution, confirming that these programmes provide the necessary educational basis for our graduates to become chartered engineers. Each accreditation panel made a two day visit to the School, meeting both students and staff, and all the panels were very complimentary regarding our teaching programmes. The Mechanical Engineering accreditation visit is due early in 2008, where we are hopeful of a similar outcome. These visits occur every 5 years.

In addition, all our courses and degree programmes have recently undergone the University's internal Teaching Programme Review (again this is carried out every 5 years), where all aspects of our teaching are examined by a panel comprising 2 external assessors and 3 assessors internal to the University (but not from engineering). Again, the findings of all the panels were extremely positive.

Alumni News

Robin McGill has been appointed as the IET's new CEO

The IET (Institution of Engineering and Technology) has recently announced the appointment of Robin McGill, managing director, BP Grangemouth, as its new Chief Executive and Secretary to be effective from January 2007.

Robin graduated from the University of Edinburgh with a BSc, 1st Class Honours, Engineering Science in 1977 and has had a successful international business career with BP and its joint ventures, which has seen him work in the UK and USA as well as exposing him to businesses and cultures across the globe.



Michael Ramsay, BSc Electronics 1972 (above) being presented with his Frank Whittle medal by Lord Browne of Madingley, President of the Royal Academy of Engineering, for his creation of the US digital video recorder company TiVo.