Introduction

Welcome to the fourth Spotlight newsletter of the School of Engineering and Design.

Now we are in 2007, we look back at 2006 and all staff and students can be rightly proud of the excellent and many achievements. The University celebrated its 40th birthday, hosted visits from the Queen and Duke of Edinburgh, and the School launched the Made In Brunel Show in June at the Business Design Centre in Islington. Made In Brunel was a huge success, see article inside, and will now become a regular calendar feature epitomising the immense spirit of invention and endeavour that can be seen pervading the whole School. In this current issue we continue the theme of providing articles from both staff and students and offer a warm welcome to the new members that have recently joined us.

Young Engineer for Britain joins Brunel University’s School of Engineering and Design

Tanya Budd from Berkshire is pictured receiving the coveted accolade of “Young Engineer for Britain” for development of her HypoHoist man overboard recovery system. Her invention, designed as part of her advanced level project at secondary school, recovers a casualty who is either conscious or unconscious from the water, whilst maintaining the casualty in a horizontal position. Tanya developed the HypoHoist idea as a result of taking part in a man overboard exercise where she quickly realised how difficult it was to recover someone from the water, and set about finding a solution to the problem. Tanya’s invention also received the “US Coast Guard Award for Maritime Safety” 2006. Tanya’s product is now in commercial production.

Kate Bellingham, former BBC Tomorrow’s World presenter and president of Young Engineers, said, “I am so proud of Tanya. Her HypoHoist satisfied a real need and provided a real solution to a real problem”.

Tanya took a gap year after her advanced levels to launch her HypoHoist in June 2006. She joined Brunel University last September and is currently studying Product Design Engineering. “I am extremely proud to have chosen engineering for a career, and to think that in the future I could be working on ground breaking and revolutionary engineering design projects is just amazing. Before the Young Engineer for Britain competition, I did not even know what engineering really was, and was even planning to study medicine”.

Handbag that glows in the dark

“I came to Brunel because of its good reputation for design and I liked the way the course was taught in its own well-established Department, not a combination of the art and engineering departments which was the case at some other Universities I looked at. The teaching was very good and the subjects covered gave you a solid background to the many different areas of design. The lecturers were all approachable and had industry experience. I did a year long industrial placement with Mars which was very useful to see the importance of design and where it fits in a large corporate environment. For my major project, I designed a solar powered handbag that lights up when opened. Since showing my project at the Brunel Design show, the handbag design has generated a number of company enquiries interested in marketing this product. I am presently considering this exciting business opportunity. I am currently studying for an MSc in International Fashion Marketing. I think having a Brunel Design degree gives you a good foundation to succeed in any chosen career as it requires you solve problems creatively, think differently to others and work well as part of a team.”

Rosanna Kilfedder is a recent graduate in Industrial Design
Multimedia Industrial Placement leads to a job offer

I was attracted to Brunel because of its great reputation for technology and engineering courses. Visiting Brunel I was impressed by its wide range of facilities and its location was ideal, with easy transport links to both London and home for the weekend. I really enjoyed my time at Brunel and studying was made easy with so many modern and invaluable facilities. My Department provided an impressive film and video lab, a new and well-equipped photo lab, a choice of PC and Mac suites with the latest programs, the high-tech BITLab centre and a range of modern equipment. The lecturers were passionate about their subjects and their enthusiastic teaching made learning enjoyable. They were always on hand to help further if necessary. Brunel provided a lot of hands-on teaching which was ideally suited to the Multimedia course.

I took my year in industry placement at Yell, working as a graphic designer. This year provided me with invaluable experience in time management, new skills and gave me real responsibility for the first time. For my final year project, I created an interactive application called ‘switch’ which allowed users to find clothes to match the ones they were already wearing. Creating ‘switch’ meant that I had to build upon my knowledge of Macromedia Director gained in a second year module. My project supervisor provided support whenever I needed it and always found time to discuss any problems that I might have. The highlight of my final year was Made In Brunel – an exhibition showcasing final year projects of Multimedia, Design and Engineering students. The show was a great success, attracting interest from high profile companies and managers from across the country. My project was picked for press publicity and featured in a national newspaper, which gave a great confidence boost in my abilities.

I was offered a job as a Web Designer & Developer in the New Media Department of Yell even before I had taken my final year exams. I believe that it was my wide range of skills and experiences that helped me to secure this job. I decided to take the Multimedia course with the ultimate ambition of working in the web industry. Brunel has helped me to realise this ambition and shaped me into a well rounded, skilled and experienced professional. The great reputation of Brunel University makes me a sort after Multimedia graduate.

Emma Kingsnorth graduated in 2006 in Multimedia Technology and Design
Issues for the 21st Century – Energy and Environment

The continuing and increasing importance of “energy and environment” in the 21st Century was highlighted by last year’s “Energy and Environment” industry-academic networking event hosted by the School, the third in a series of networking events organised by London Technology Network (LTN) business fellows of the School of Engineering and Design. Business Fellows are trained and supported by LTN to both promote the School’s industry-facing technologies and research activities and support interactions of academics with UK businesses.

The opening address was delivered by Dr Christopher Stewart of the DTI Technology Programme (Energy & Environment Group) who summarised the urgent challenges facing industry to achieve targets of improved energy efficiency and waste minimisation, a sustainable food chain and water supply, in response to the UK government’s sustainable production and consumption initiative. He explained that UK research institutions are among the world’s finest, generating valuable and innovative technologies to address a range of sustainable technologies and services for industry. He concluded with a summary of the DTI’s call for proposals to fund research projects in Energy Efficiency in Building and Manufacturing (£12M budget).

Participants had a unique opportunity to learn more about the School’s Energy and Environment research activities, through oral presentations and poster displays covering a range of technologies including biodegradable materials for packaging applications, combined heat and refrigeration power (CHRP) for food retail, fuel cells and ionic fluids for remediation of pollutants from industrial waste effluent. Industrialists had the opportunity to hear from fellow industrialists about the benefits of collaborating with Brunel on industrial projects, such as Engineering Doctorate (EngD) programme and Knowledge-Transfer Partnership (KTP) projects. The presentations were followed by a very successful networking session which generated new industry contacts for Brunel academics and facilitated discussions which generated new ideas for future industry-Brunel collaborations. The event was attended by the Energy Institute, CERES power, Delphi Diesel, Energy Solutions, Sustainable Energy Systems, Yorkshire Water, Envisa, Doug Marriott Associates, Eurocontrol, Hawker Pacific Aerospace and others.

Brunel Test Pilot wins prestigious Herman R. Salmon award

We offer congratulations to Dr Guy Gratton, a lecturer in Mechanical Engineering, who has recently won the Herman R. Salmon Technical Publications Award. His paper co-authored with Dr Simon Newman, entitled, “Towards the Tumble Resistant Microlight”, was selected as the best article published in COCKPIT magazine during the past year. The Herman R. Salmon Award was established in 1971 to recognise the most outstanding technical paper published in COCKPIT magazine, a quarterly journal of the Society of Experimental Test Pilots. The award consists of a plaque and cash honorarium to be presented at the annual Awards Banquet.

Dr Gratton, a lecturer in the Mechanical Engineering Subject Area, pictured with his award.

EngD Conference in Environmental Technology

The Brunel/Surrey Engineering Doctorate (EngD) in Environmental Technology which started in 1993, celebrated achievements with a Twelfth Anniversary Conference held at Brunel University on 6th September 2006.

The EngD conference is the showcase event that gives Research Engineers (REs) the opportunity to present and defend their work to a multidisciplinary audience. The conference was attended by over 60 participants, who included current REs, alumni, academic and industrial supervisors, and guests from outside the programme. Sponsor companies continue to be impressed by the quality and application of their students, maintaining strong support for the programme as it steadily evolves to stay at the leading edge in industry-focussed research.

The conference was opened by Prof Savvas Tassou, Head of School, and included key speakers, Dr Matthew Cross from University of Reading and Dr Zoe McMahon, Hewlett Packard, both alumni now in influential positions. Also present at the conference dinner were members of the EngD Management Committee of both Universities.
Smart “Daylit Desk” light harnesses natural light

I studied Product Design and it proved a varied course and I loved the way we got a taster for myriad aspects of design. I chose to study at Brunel through its reputation for design excellence. Brunel gave me a great start into design by preparing me for everything from graphics to product development and engineering. Using this technical training, I chose to create a major project based on my own experiences with light and study environments. The concept I produced was a desk lamp which detects the light levels on your desk and adjusts itself to regulate the overall light level you are working in. This product, the ‘Daylit Desk’ uses natural light focused from outdoors when available and is supplemented by a light source of a quality very close to that of sunlight so as to reduce noticeability on the switchover. This design also aids those users who suffer from seasonal depression as this type of ailment can be lessened by changing indoor lighting to a whiter, higher temperature coloured light. I did a year’s industrial placement with Yellow Pages, where I designed layout, colour schemes and pictorial content of advertisements found in the Yellow Pages books. This placement was good because of the incentive schemes, team building days and the opportunity to see how large corporations work, and to develop a clearer understanding of what direction I would like to take after graduation.

Product Design at Brunel is a great opportunity for anyone to get a rounded view of design. It allows you to step easily into any discipline from graphics to engineering and I would recommend it to anyone who is serious about becoming a practical designer.

Chloe Bower graduated in Product Design in 2006 and now works as a Graphic Designer in Chelsea.

New Book on “Design in Nature” co-authored by School staff

Title: Design and Information in Biology: From Molecules to Systems

Edited by: Dr Mark ATHERTON and Prof Michael COLLINS, Brunel University and J. A. BRYANT, Exeter University

This volume, the second of two providing the ‘holistic introduction’ to the ‘Design and Nature’ series, complements and extends the scope of Volume 1 Nature and Design, with the biological viewpoint being stressed. Following an introductory chapter on design as understood in biology, the various aspects of the biological information revolution are addressed. Areas discussed include molecular structure, the genome, development, and neural networks. Highlighted with individual contributions from eminent specialists, this multi-authored volume combines authority, inspiration and state-of-the-art knowledge. Both informative and inspiring, it is designed to appeal to scientists and interested people alike.
Mechanical Engineering student wins job after placement

One of the main reasons I was attracted to Brunel was its reputation for engineering. I was also impressed with the facilities during my visit on an open day. The course I initially chose to study was BEng Mechanical Engineering with Aeronautics, but I then decided after the second year that I wanted to continue and do the MEng but in Mechanical Engineering. This gave me the option of not doing a specialised degree, but still having the opportunity of doing the aeronautics modules during the third year, which is what I wanted to do.

My study experience at Brunel was excellent. I always felt that there was a good balance between examinations and coursework, and all the lecturers were always very helpful. The facilities at Brunel were also very good and the practical sessions in the laboratories were very enjoyable. The lectures were always well delivered with well-presented notes. All the lecturers were approachable and were always willing to go through anything you didn’t understand during the lectures.

I did my one year industrial placement with General Electric (GE) Energy. As I was on the MEng course, I had the flexibility of doing the one year placement after my third year rather than the second, which is what most of the students did. I chose to do this as I felt that it would be a good time to take a break from studying before returning to university to complete my final year. This placement was very good in terms of getting ‘real’ work experience and also helped financially. During this placement, I felt that the skills I had gained so far in university were very beneficial in that I was able to apply them to real projects and also benefit to the company I worked for. One of the projects I did during this placement was qualifying a new coating on gas turbine blades, which resulted in another revenue stream for the company. I also wanted to gain some international experience and was fortunate enough to spend the last month of my placement in Abu Dhabi, in the United Arab Emirates. I was given the responsibility of leading a project, which involved determining the likely costs of setting up a repair facility for gas turbine blades in one of the GE shops there. The year in industry was very good and it enabled me to apply the skills I gained during my final year at university.

On graduation I have been able to get a job on a two-year graduate training scheme with my placement company, GE. My placement helped me immensely to get this job and I am looking forward to spending a year of this scheme working abroad.

I would encourage all applicants to do a Mechanical Engineering degree at Brunel because a Brunel degree is well valued in industry. Furthermore, a degree at Brunel will equip you with the necessary skills to succeed in industry. Proof of this is that many of the students who graduated on my course have all got jobs with major international companies.

Abdul-Jalil Mahmood graduated in Mechanical Engineering in 2006

Brunel Researchers Pioneer a Novel Cardiac Assist Device

Heart Failure, which is the inability of the heart to pump enough blood around the body to feed all the other organs, is already at epidemic levels in the western world. Some patients do not respond to pharmacological treatments. Their quality of life deteriorates especially if it is a severe (end stage) heart failure. The choice for these patients is usually to wait for a heart transplant; receiving a functional heart from a donor. The number of donors is, however, on the decline. So, if the patient cannot wait for a donor the only option for them is to use a heart assist device.

Scientists at Brunel University are developing a mechanical heart pump that can be fitted without invasive surgery. Traditional cardiac assist device “heart pumps” have to be inserted with open-heart surgery which involves major surgery and can be risky in heart disease patients. But the new pump, being designed and tested by biomedical engineering researchers at Brunel University, is inserted through an artery in the groin to be placed near the heart without the need for major surgery. As well as the great benefit of being less invasiveness, the novel design of the new pump will assist the heart by increasing blood flow to the arteries that feed the heart muscle itself, and also reduces the load against which the heart has to work against, by pumping oxygenated blood to the other organs in the body.

It is anticipated that the pump will be mounted on a stent, which will be placed in the upper aorta, a large artery that carries blood from the heart. The stent will be fed on a deflated balloon through an incision in the groin until it reaches the appropriate position. The pump will be powered wirelessly via coils placed on the skin attached to an external battery pack. The pump is also being designed so that it can be removed, also without major surgery, should the heart recover and no longer need assistance. Dr Ashraf Khir, who teaches Biomedical Engineering in the School said, “Most of the existing heart assist devices require full open heart surgery to be taken out of the body if they malfunction. We are trying to sidestep this disadvantage, by designing the pump in such a way that it can be retrieved / removed when it is no longer needed”. This project is in clinical collaboration with Dr Michael Henein, consultant cardiologist, from West Middlesex Hospital.
THE BEGINNING: Ever since an early age, I have been utterly fascinated by aircraft. Whether it was such events as the Farnborough Air Show, or just a routine flight on holiday, on every occasion that I can remember, where I have come in close proximity to aircraft, I have always felt the same rush of excitement, the same sense of awe and wonder at how exactly aircraft large and small, fast and slow get into the air. With this interest in aircraft and flight, I decided that I wanted to fly aircraft for a living as an airline pilot.

THE INTEREST GROWS: My aviation career started when I joined the Air Training Corps in March 2001 at the age of 13. I remained within the Air Training Corps for the following 5 and a half years. As a cadet, I was given frequent opportunities to fly with powered aircraft such as the Grob Tutor at RAF Benson, and also the Viking glider at Kenley aerodrome. In 2004, I acquired my blue wings for my gliding scholarship held at RAF Syerston in Nottinghamshire. Outside of cadets, I also flew occasionally with a Cabair flying school based at Biggin Hill and with a relative who owns a Piper Arrow II at Rochester aerodrome. Whilst I was flying with the cadets and with my relative, I developed the basic handling skills required for flying a light aircraft. These flights were particularly helpful in teaching me the basic principles of flight such as climbing and descending, trimming, as well as taking off and landing.

DECISION TIME: At college I began the application process to Universities via UCAS. My experiences with the Air Cadets definitely influenced my decisions on what course to study at University. Considering the substantial financial costs of a career as an airline pilot, I wanted to attend a University close to London, to keep the travel costs and living costs down to a minimum.

ACCEPTANCE: I initially applied to Brunel University as a first choice, intending to study Aerospace Engineering at Master’s level, which I thought would be an ideal course for building on my experience in the world of aviation. I considered Brunel out of most of the other universities because of its reputable status as being one of the best general engineering universities in the country. And hence by January 2006 I had a response from the University, confirming their acceptance of my application and my success in acquiring a place at the University, along with an Excellence Scholarship which would cover all of my tuition fees for my degree course.

THE TURNING POINT: However whilst attending a UCAS open day, I realised that the Aerospace Engineering course was not as orientated towards a career as a commercial airline pilot as I had hoped. The aerospace engineering degree seemed to lean more towards the design niche of the aviation world. Fortunately for me, a member of staff giving tours of the University recommended me to see Dr Guy Gratton, a lecturer on the Pilot Studies course and pilot himself, who offered me the chance to change course to the Aviation Engineering with Pilot Studies degree at Master’s level.

BENEFITS OF THE COURSE: Whilst researching the content of the Aviation Engineering with Pilot Studies degree I saw that the course offered me the chance to study the conventional engineering subjects, such as the fundamentals of thermodynamics in the first year, avionics in the second year and advanced aircraft design in the 4th year. But what made this engineering course so different from others, such as aerospace engineering, was the pilot studies element. This enabled me to undertake the necessary ground theory and basic flight training which would qualify me for my National Private Pilot’s Licence at the end of the first year, and my Private Pilot’s Licence by the end of the second year.

UNIVERSITY LIFE, FEELING “RIGHT AT HOME”: Once I started the course, I knew immediately that I was on the right path to becoming an airline pilot. A dedicated and professional team of lecturers at the University helped me to gently settle into my course, providing very informative introductory lectures at the start of the year, which led onto the mainstream lectures for each module of the course. I was also very happy with the material provided to me to study for the engineering element of the course. In the near future I am looking forward to taking up an industrial placement for 12 months with a large company within the aviation industry. My favourite part of the course so far, apart from flying, has to be the technical drawing part of the communication, management, practical skills module, because it was a subject I’ve never studied before and the innovative designs for aircraft that arise from the drawing board always enthrall me.

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FLYING, THE EXCITING STUFF: With flying, I couldn’t wait to start my training. Naturally nerves kicked in on the first day of my flight training, but once I met my instructor, we instantly bonded and I can say now that I am very happy with the flying tuition I am receiving from Cabair, and I am getting the most out of every flying lesson. Having already acquired past flying experience, I seemed to be moving through the initial training at a very fast rate and by the 29th November 2006 I went for my first ever solo flight in a single-engined light aircraft. I can honestly say that it was probably one of the most memorable events in my life. Once the instructor got out of his seat, and left me alone in the aircraft, I didn’t panic one bit. My very own autopilot switched itself in my mind and I was flying the aircraft based on all my previous training. Somehow, I managed to land nicely back on the runway without ballooning, and get back to the flying school in one piece. Following my first solo flight, I am now hoping to successfully pass my Navigational and General Skills examinations. I am also looking forward very much towards my first solo cross-country, once I stop getting lost that is!

HOW THE COURSE WILL CHANGE MY LIFE: Although it is not compulsory for all airline pilots to have degrees, I believe it is necessary for a prospective airline pilot to get a degree in a field like aviation engineering because security is provided in terms of job opportunities for the airline pilot if they should be unfortunate enough to lose their ATPL licence due to such complications as illness. With someone dedicated enough to undertake such a course, if for whatever reason they are unable to make the grade to becoming an airline pilot, then the degree definitely offers the opportunity for them to consider another role within the industry.

Tony Maybank commenced the Aviation Engineering with Pilot Studies course in September 2006

The Art of Particle Physics

"MOVING FORWARD" was a new exhibition held last September at Brunel University’s Beldam Gallery, which featured a number of Brunel research projects alongside the work of Arts Centre staff. Amongst the exhibits were diamond-like carbon, laser creations and cell and chromosome biology and a couple of stunning images/displays from the UK particle physics research group.

Dr Ivan Reid’s display provided an image related to the CMS Tracker – a component of the CMS detector at CERN that a number of UK groups have collaborated on (see left hand image). When the Large Hadron Collider (LHC) commences operations at the end of 2007, CMS and other detectors also being constructed (ATLAS, ALICE, LHCb) will constitute the largest experiment ever built, and are expected to shed light on topics such as the earliest moments of the Universe, the origins of mass, and the existence of Dark Matter.

The picture shows the first time that major parts of CMS had been operated together, detecting cosmic-ray muons since the LHC is not yet producing particle beams. The cosmic muon has been detected by all four detectors participating in the run: the drift tubes, the HCAL, the tracker and the ECAL subdetectors. The event display shows the reconstructed 4D segments in the drift tubes (magenta), the reconstructed hits in HCAL (blue), the locally reconstructed track in the tracker (green), the uncalibrated rec hits in ECAL (light green). A muon track was reconstructed in the drift tubes and extrapolated back into the detector taking the magnetic field into account (green). The second image from Prof Peter Hobson and Dr Paul Kyberd is a picture of the Muon Ionisation Cooling Experiment (MICE) fibres fluorescing.

Dr Ivan Reid, Prof Peter Hobson and Dr Paul Kyberd are all members of the Sensors and Instrumentation research group at Brunel.
Each year Brunel Design students undertake a major project with an industrial partner. 2006 marked the 200th anniversary of Isambard Kingdom Brunel's birthday and the 40th anniversary of the award of Brunel University's Royal Charter. This double anniversary gave Brunel the chance to celebrate the values of innovation, entrepreneurship and practicality embodied in the name Brunel. It also seemed appropriate to set up a Design Project with one of the world's largest and most renowned companies, The Boeing Corporation.

This closely guarded secret was unveiled at 9am on Monday 16th January 2006. The secrecy surrounding this project was almost too much to bear. The students had known that a 'big' project would be dropped on them at some stage between October 2005 and April 2006. Behind the scenes, Andy Patsalides, Marketing Director, Boeing Europe and Paul Turnock, Director, Industrial Design & Product Design, School of Engineering and Design, had meticulously planned the project, timeframe, objectives, incentive and launch briefing. The project was part of the Design Level 2 Design Process module and over 100 students were introduced to “Innovations In The Air”. For the project to work there needed to be access to operating aircraft at Heathrow – this brought British Airways into the project as the primary customer. The project would involve 'hands on' investigation of aircraft within Boeing's wide bodied fleet and British Airways generously offered to be part of the project to allow the students to 'play with' aircraft at Heathrow Airport.

Andy Patsalides, Mike Crump, Head of Design at British Airways and Neal Stone, Design Manager at British Airways were introduced to the students and briefed them on the Boeing Corporation’s core design philosophy, the aims and objectives of the project and the deadlines. The team were then able to talk to small groups of students through the day to bring them quickly into the world of aircraft environments and engineering complexity.

‘Innovations In The Air’ was focused on the quest for new ideas for the interior environments of future Boeing airliners. The future design of aircraft needs fresh innovative thinking – a completely new approach to maximising the inner space, optimising the in-flight experience and adding value to the flying experience.

The project was not about the redesign of present products, it was the proposition of concepts for future incorporation within Boeing aircraft. The brief was purposely very broad to allow the designers to explore new ideas and directions on a macro or micro level. The students were given 168 hours to find an idea, develop it and communicate it through a visual presentation. This rapid first stage concept generation was just as it
would be in the commercial world and it created a frenetic week of activity. One week later, Paul Turnock presented the 100 concepts to a team of Boeing and British Airways marketing, engineering and product development staff – six projects were selected to go into the second stage. These six projects exemplified the essence of new product innovation and these six students would now develop their projects for a further three months. One lucky winner would then go to Seattle to Boeing’s manufacturing plants at Renton and Everett, courtesy of British Airways.

The Six projects were:

- **David Jolly**  
  My Space (Personal Space within the aircraft).

- **Richard Mortier**  
  ErgoForm Body Support (ergonomically designed cushion).

- **Katy Jenkins**  
  Wing Walker Experience (a transparent bubble on the wings).

- **Carl Burden**  
  Flat Bed Light Emitting Canopy (waking to personal daylight).

- **Alan Ramsay**  
  World Traveller Seat (a thinner composite construction).

- **Robbie Wilson**  
  Vision Ceiling (digital sky and special effects in the aircraft).

The winners of the first stage of the project were announced in a two-hour debriefing lecture at Brunel University on Friday 27th January. The client team were impressed with the quality of ideas, the standard of innovative thinking and the professional quality of presentation. The final six students became ‘The Boeing Six’ and, with the support of engineering and design personnel at Heathrow, were able to work inside Boeing 747-400 and 777 aircraft whilst they were being serviced at Vanguard House. The final competitive test in April 2006 was for each of the students to prepare and deliver a professional presentation of their concept to Boeing and British Airways judges at Boeing’s UK headquarters overlooking Heathrow Airport.

The overall winner of the ‘Innovations In The Air’ Project was David Jolly, a current level 2 Industrial Design and Technology student (see picture below). David’s outstanding presentation and thorough development were commended and his concept, ‘Promenade’ was seen as the most innovative and exciting proposal for both client companies.

David says of his ‘Promenade’ design project: ‘My objective was to create a design solution for Boeing that set a precedent in an already customer-led market. The idea of the Promenade is to afford the passenger use of an area away from their seat. The airline can improve the efficiency of the use of space in the galley, making it dual purpose, by employing a rolling wall as used by professional library filing systems’.

David was flown, as a member of British Airways’ staff, with all the trimmings and perks, to Seattle for a whistle-stop visit to Boeing’s 737 assembly line at Renton and the colossal Everett factory where all the 747 and 777 aircraft are built. David and Paul Turnock were given a private flight across Seattle and the factories by Boeing’s Andy Patsalides and David presented ‘Promenade’ to the design and engineering staff of the Payloads Concept Center. His work was commended and the relationship is developing between Boeing, PCC and Brunel. The icing on the cake of this remarkable collaborative project was to meet Alan Mulally, then CEO, Boeing Commercial Airplanes. Mr Mulally spent time talking to David, presented personally signed books of Boeing and their business strategy and asked for a complete copy of David’s project and presentation.

Boeing have publicised the project and David’s award winning work. We are now working with the company to roll out further ‘Innovations In The Air’ projects with European airlines and Design students within their home universities.
I am in my final year studying Electronic and Microelectronic Engineering BEng, thick sandwich. The first two years gave me a good grounding on the fundamental Electronic Engineering techniques used in industry today, including Electronic laboratory exposure and basic programming skills in assembly language and C++. The lecturers are very approachable and I have developed a good relationship with many over the three years. In terms of standards of teaching, all my lecturers have been significant contributors in their respective fields, the majority in both industry and academia. Some of the best lecturers I have ever had work at Brunel and their influence on my learning has been profound. This can give you a view as to what to pursue after your degree, and details of relevant people to contact with respect for further opportunities.

The placement I took was at Intel Corporation in Swindon. This was extremely successful and has provided me with a significant advantage now I am applying for graduate jobs. At Intel I worked in the Application Design Centre on servers, where direct customers such as large system integrators and retailers obtain technical support. The placement enabled me to gain an insight into the workings of a large corporation and the importance of marketing, financial services and sales taskforces within an organisation the size of Intel. I was paid a competitive rate for the year’s placement, which helped me pay off some of my student loan.

I was nominated for the Williams Siemens Award for my placement and University achievements by the University.

My degree and placement has given me the perfect knowledge and experience base to pursue my preferred career in Electronics and/or Microelectronic Engineering R&D. I am now in an advantageous position to apply for a competitive graduate scheme at one of the world’s leading companies, with a wide range of skills in different electronics disciplines.

The choice at Brunel is wide. The lecturers are some of the best and the contacts you will acquire are invaluable. If this isn’t a reason to choose Brunel, I don’t know what is.

**Tom Nabarro is a final year student studying Electronic and Microelectronic Engineering**

**Prestigious Worshipful prize awarded to research students in the School**

We offer congratulations to two Brunel research students who recently won the Worshipful Company of Scientific Instrument Makers Award each worth £1000 and included an invitation to an award ceremony dinner in the City of London. The Worshipful Company and Scientific Instrument Makers prize is awarded for a research on the topic of advanced measurement instrumentation design and / or usage.

Ignacio Yaselli, a current research student in the Electronic and Computer Engineering Subject Area, entitled his award-winning project “Measurement and Simulation of the time response of a Vacuum Phototriode (VPT) and analysis of radiation effects on the VPT High Voltage filter components”. Yaselli said that, “understanding and modelling the factors affecting the performance of a VPT, could lead to future improvements of the photodetector. The harsh radiation environment in which the VPT operates puts severe constraints on the electrical components used in the high voltage filter in the CMS experiment at CERN. Extensive testing allows us to select appropriate commercial components for this critical circuit”.

Jiling Feng, a current research student in the Mechanical Engineering Subject Area, entitled her award-winning project “Wave dissipation in the flexible tube in the time domain. Measurements: Pressure (pressure transducer), Flow (Ultrasonic flow probe) and Diameter (Ultrasonic paired crystals)”. Her project has a potential application in the clinical diagnosis of cardiovascular diseases.

For more information on the Worshipful Company of Scientific Instrument Makers view www.wcsim.co.uk
Advances in Bridge Engineering Conference

The next Advances in Bridge Engineering Conference is scheduled for 2008 following on from the extremely successful June 2006 Conference. The 2006 conference’s theme was “Bridges – Past, Present and Future”. The opening keynote address was given by Stephen Brindle, from English Heritage, on the Brunel canal bridge at Paddington. Stephen was instrumental in preserving this recently discovered Brunel bridge, and his talk was an appropriate commemoration of the 200th birth anniversary of Isambard Kingdom Brunel. The event, which took place 26th – 28th June 2006, was sponsored by the Institution of Civil Engineers (ICE), the Institution of Mechanical Engineers (IMechE) and the Institution of Structural Engineers (IstructE). Gordon Masterton, former President, ICE, opened the conference while the after dinner address was given by Michael Dickson, President, IstructE. Around 100 delegates attended, many from abroad and mostly from industry, along with six exhibitors. The conference co-chairs were Luiz Wrobel and Chris Brown, both from the School, and Arvind Kumar, from Kumar Associates and Associate Prof within the School.

Taiwan Design competition winner joins Brunel

Brunel Design ran a Cultural Design Competition in Taiwan in Spring 2006, the winner receiving a full tuition fees paid place on the MA Design course. The aim was to develop a design concept which deeply reflected cultures, interpreted as national, regional, indigenous, and trends [such as fashion and music waves].

The competition attracted much interest and eleven finalists were selected from major Universities such as National Tapei University of Technology, Tatung University, Jin-Wen Institute, Shieh Chien University and Ming Chuan University. The winner was Eden Chiang from Ming Chuan University, which has one of the longest established and most respected Design Departments in Taiwan. Her entry was an educational toy for pre-school children which strongly reflected the current trend to enjoy and educate concurrently. Eden said “The aim of the design was to encourage children to learn about logical thinking, balancing ability as well as the world around them.

The product was made from wood in order to let children have a chance to touch natural materials. Parents can play with the toy with their children and assist them”. On winning the award Eden said, “It is the highest honour I ever received”.

Eden Chiang is a current student on the MA Design Strategy and Innovation programme

MADE IN BRUNEL – a multi-disciplinary showcase of innovation

MADE IN BRUNEL (MIB) 2007 is scheduled to take place in June 2007 following on from the tremendous success of MIB 2006. The 2006 show took place at the Business Design Centre, Islington. The event was a showcase of innovative thinking and creative problem solving by the graduating students of the School of Engineering and Design. The show was driven, managed and realised by a team of dedicated students. The students designed all aspects of the show from graphics to exhibition stands to lighting. Their passion, drive and enthusiasm characterise the spirit of Made In Brunel.

The 2006 four day event was a huge success for both students and visitors. The show provided a perfect opportunity for students to present new ideas to companies, inspire young students throughout the country and celebrate future product innovations from today’s most talented engineering and design students. We were delighted to have also hosted some excellent design students and their work from Tsinghua University, Beijing. MADE IN BRUNEL has secured a number of exciting partners including HSBC, Reliance Security and The Royal Academy of Engineering.

The 2007 show aims to be even more successful and takes place June 12th – 14th 2007 at the same location. For further information view : http://www.madeinbrunel.com/

Pictured, Paul Croft receiving the Reliance Securities award for Design Innovation for the most innovative final year project in the School. Paul Croft graduated in Multimedia Technology and Design in 2006
Award for Brunel Racing Team

We offer congratulations to the undergraduate Brunel Racing team who won an award for the best use of information technology to design a racing car, at the Formula AIA event, organised by the Italian Associazione Tecnica dell’Automobile near Turin, in September 2006. The students were presented with the prize for Best Virtual Development, which was sponsored by MSC Software. They were also the runner-up in their business presentation to the judges and finished in the top four for both the design and cost presentation. Team leader Sam Davies, 24, said: “I did a lot of engine simulation with a program called Ricardo WAVE. We pulled together very well as a team and it was an excellent learning experience for Brunel Racing’s future.” Team principal Murat Ali, who graduated with a first class Masters of Engineering (MEng) degree in Mechanical Engineering last summer, added that the car runs, rather unconventionally in motor sport, on bio-fuel E85. “The Italians love our team and car!” he said. “We were one of the most innovative vehicles there.” Team member Khushaal Sharma, 21, who was in charge of the car’s suspension, said the Formula Student project included the experience of marketing, as well as designing, analysing and manufacturing components.

Eggselemt time had by all in the School’s team building event for fresher students

It was easy to get whipped up into a frenzy by the Great Egg Race competition run across the School for the first time in October 2006. Groups of students from across the School of Engineering and Design came together in a spirit of friendly competition to undertake a project that tested lateral thinking, design and constructional skills through the fabrication of a device that would move an egg along a length of rope and deliver it on target without breaking. Needless to say there were egg-samples of interesting (but often messy) solutions to this problem.

The winning Multimedia Technology and Design team were happy to collect their prizes, closely followed by one of the Product Design groups in the runners up spot, as Wallace & Gromit would say – cracking good fun!

Calendar of School Events

2 May 2007
“Bridging the Gap” seminar on hybrid and inverse methods in experimental mechanics, in association with the Institute of Physics

12 – 14 June 2007
MADE IN BRUNEL graduate showcase (Business Design Centre, Islington)

9 – 11 July 2007
The 8th International Conference of Eco-Materials (ICEM8)

For more information on events in the School view: http://www.brunel.ac.uk/about/acad/sed

New Courses September 2007

- BEng / MEng Civil Engineering with Sustainability
- BEng / MEng Communication Networks Engineering
- MEng Design Engineering
- BEng / MEng Space Engineering
- MSc Distributed Computing Systems Engineering
- MSc Enterprise Engineering (Subject to Approval)
- MSc Human – Centred Design (Subject to Approval)

Further comments, suggestions and future submissions:
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