MADE IN BRUNEL is the School of Engineering and Design's annual graduate showcase, presenting the best final year student work from the School. This student-organised and student-led project had its first outing in 2006, to coincide with the 200th anniversary of Isambard Kingdom Brunel and, fittingly that year, it celebrated Isambard’s renowned engineering vision: a vision and spirit of innovation and sound engineering thinking.

The team behind MADE IN BRUNEL 2008 say the next show promises to extend beyond this initial vision. The principal reason for this is that in the two previous years, and amongst the projects being developed by this year’s students, we are increasingly seeing the influence and knowledge of research that extends beyond the School of Engineering and Design to the wider University. Current student projects are identifying new, broader themes in, for instance, occupational health, sports science and materials engineering. It is this integration of disciplines and emphasis on teamwork and communication that exemplifies the current heart of MADE IN BRUNEL and, as such, provides the ideal platform for students to communicate their innovative and creative thinking, and tell their “story” to potential employers in the centre of London. MADE IN BRUNEL 2008 will once again take place at the Business Design Centre in Islington, from 10-12 June 2008. More details of the 2008 show can be found at www.madeinbrunel.com
DIGITAL MEDIA AND DESIGN COURSES RATED TOP IN THE STUDENT SATISFACTION SURVEY

The School is very proud that in the most recent National Student Survey the most satisfied Design Studies students in the UK are those that studied at Brunel. The results were published in The Times Higher Education supplement in September 2007. This encompasses both Design and Digital Media courses within the School (BSc Multimedia Technology and Design and BA Industrial Design and Technology).

2007 Multimedia graduates establish their own successful web development company

Gurmit joined the BSc Multimedia Technology and Design course at Brunel in 2003 following his brother, Amardeep, who had enrolled the previous year. Both brothers commented that the Multimedia Technology and Design BSc was amazing. Amardeep said: “It teaches so many multimedia disciplines under one degree title. Staff are passionate and they inspire you and, through that inspiration, make you have an appreciation and respect for academia.”

Amardeep worked for IBM in Hursley on his industrial placement year as a graphic technician. “It was definitely a great experience there. I won two achievement awards for exceptional personal development and teamwork. No one else had ever achieved two awards like this.” After his placement, Amardeep took a second year out to establish a website development company called www.Mapleonline.co.uk. Although Gurmit was offered a one-year placement with Microsoft, he decided to join his brother, using his placement year to help establish the company. Amardeep said, “Our company was based in Rivington Street, central London. Within six months we acquired our own premises and now have a client-base comprising 25 clients. These include MTV, London Fashion Week and Mozafarian (based in Knightsbridge).

How did the multimedia course help to establish your company? Amardeep said, “Everything we now use in our successful company was learnt on the course. Multimedia Technology and Design is like a stirring pot with many different modules, and the real value of the degree is when you link the subjects together. The trick is to see these relations rather than keep them separate; we found company success required us to adopt a flexible and forward-looking approach. The great thing about the multimedia course is that we can diversify at any time. We are keeping our options open whether to diversify into broadcasting, 3D graphics and game design or sound engineering – the course has given us all these options and rather than restricting ourselves to website development we now see ourselves as a multimedia solutions company.”

EXCELLENCE IN TEACHING AWARD FOR BUILDING SERVICES COURSES

L-R: John Armstrong (CIBSE President), Professor Maria Kolokotroni (Course Director Building Services courses) and Michael Dickson (Buro Happold Ltd).

Brunel University has been awarded the annual Happold Brilliant Award for excellence in teaching by the Chartered Institute of Building Services Engineers (CIBSE). CIBSE praised Brunel’s three Building Services Engineering Master’s programmes by flexible learning, which it said are very well established and successful. The visiting panel were also impressed by the quality of teaching materials and the knowledge and commitment of the staff. Created to reward the excellence of teaching in Building Services Engineering, the award highlights and promotes the contribution that a quality education can bring to the work, values and ideas of the engineers of the future. Professor Maria Kolokotroni, Course Director for Building Services MSc programmes, said: “We are extremely pleased to have been awarded this honour. The team here have worked hard to ensure the best learning environment for training engineers.”

Amardeep Singh Shakhon and Gurmit Singh Shakhon graduated in July 2007 in BSc Multimedia Technology and Design.
BRUNEL GOES CIVIL!

The launch of the new BEng / MEng degree in Civil Engineering with Sustainability, linked to the opening of the Joseph Bazalgette Laboratories, marks the beginning of a major, exciting strategic development at Brunel University. Despite its reputation for engineering, and the activities of its namesake, Isambard Kingdom Brunel, the University has never had an identifiable subject grouping in this important academic area. This shortcoming has now been addressed.

Although Civil Engineering has always played an important part in the national and international economy (where would we be without roads, bridges, tunnels, power generation, water supply and drainage?), there is now renewed interest. Major construction projects, such as for the 2012 London Olympics and the recently announced Crossrail Project, as well as important issues such as climate change, sea level rise and flooding, highlight the demand for high quality graduates in this area.

The new degree builds on existing expertise at Brunel that covers the wide range of activities within Civil Engineering, for example, structures, construction, materials, geotechnics and, significantly, sustainability. Sustainability has been identified as a significant issue by the major engineering institutions such as the Royal Academy of Engineering and the Institution of Civil Engineers. Increasingly, there is a recognition that the full cost, as well as benefit, of a project needs to be considered. This ‘cradle to grave’ philosophy is at the heart of our new degree. The course considers core principles based upon the long history of civil engineering, and brings this into the 21st Century by looking at recent developments such as innovative materials and design, and improved understanding of the environment.

To mark the start of the new course and the new facilities, we held an opening event on 10 October 2007, with Professor Quentin Leiper, President of the Institution of Civil Engineers, as guest of honour. The encouragement given to us by the Institution has been very important and we are currently working with them to achieve accreditation, receiving very favourable initial assessments of the course as it begins. A full accreditation visit is planned later this year. However, JBM have already granted accreditation to the 2007/8 cohort (see back page).

Launch of International Engineering Design Competition

The Vice-Chancellor, Professor Chris Jenks (second left in the adjacent picture), presented the 2007 International Bursary to winners at the launch of the 2008 International Engineering Design Competition on 25 January 2008. The award of bursaries is supported by Niftylift for the Engineering Design MSc course and by the Anson Trust for the Biomedical Engineering MSc. For more information on the competition view individual course pages at: www.brunel.ac.uk/about/acad/sed/sedcourse/pg
Studying engineering at Brunel has always been a healthy combination of academic learning and application of skills in experimental work and lab-based projects. The careful balance that is encouraged throughout the course of study is expanded in the final year of a Master’s degree where students work together to complete a major group project. This year aerospace and aeronautics students have had the opportunity to take one of two paths: the first is to work on the design of a conceptual aircraft using the expert software available in the Mechanical Engineering Department; the second is to test, verify and construct a homebuilt microlight kit (see picture above) with the aim of having it fully operational for flight. The second of these routes being taken by a group of students who are studying to complete either their MSc or MEng in Aerospace / Aeronautical Engineering.

The group members are:
- Steven Arthur (studying for an MSc) who has a Bachelors degree in Mechanical Engineering from Dundee University
- Jennifer Caselton (studying for an MSc) who is continuing at Brunel after completing her Bachelors degree in Mechanical Engineering with Aeronautics
- Stephen Goodman (studying for an MEng) who is currently on his final year in Aerospace Engineering
- Joseph Muskett (studying for an MSc) who has recently obtained his Bachelors degree in Mathematics from Royal Holloway
- Mutinda Musuva (studying for an MSc) who has a Bachelors degree in Mechanical Engineering from the University of Nairobi, Kenya
- Jack O’Byrne (studying for an MEng) who is in his final year of Mechanical Engineering with Aeronautics

The aim of the group project is to test, validate and construct a fully operational microlight from a kit provided by Reality Aircraft. The final construction should weigh less than 115kg (empty weight) with no more than a 10kg/m² wing loading. If these objectives are fulfilled, the aircraft can be flown under the new microlight deregulation introduced by the CAA (Civil Aviation Authority), who govern the legislation for light aircraft in the UK.

At present tests are being carried out to ensure that the airframe, wings, engine mount and landing gear have the integrity to withstand the loads that they would be subjected to in flight. An example of one such test, performed on the landing gear in December, is shown on the opposite page. Once these tests are complete and any required modifications have been made the kit will be constructed under the supervision of academic staff and technicians.

After the aircraft is built it will be the job of the MSc students to organise flight-testing and instrument calibration for their individual dissertations, after the summer exam period. The flight tests...
will be carried out by a Brunel lecturer, qualified test pilot and microlight technical advisor, Dr Guy Gratton, with the assistance of a second test pilot, Rob Grimwood, who is the World Microlight champion and Brunel graduate in Mechanical Engineering with Aeronautics. Additionally, if spinning assessment is carried out, the project may employ the expertise of Rein Inge Hoff, the Chief Flying Instructor at Sula Airbase in Norway and part-time Brunel PhD student in flight mechanics. Beyond flight-testing, one MSc student will have the opportunity to programme the capabilities of the microlight into Brunel University’s flight simulator. The simulation model will be used as a final verification of the aircraft’s systems and flight regime, thus confirming it as safe to fly.

The ground tests and build are proposed to correspond with the final group hand-in date of 10 April 2008. Flight-testing will commence a couple of months after, for the MSc project. This will be the first time a university has completed such a project in the UK for about 25 years, since Cranfield University designed and built the Cranfield A1 in the early 1980s.

Previously, the first such project in the UK was the Southampton Man-Powered Aircraft Project that was run in the late 1960s. The opportunity to be a member of a team that builds an aircraft for manned flight does not come around very often, so the prospect has been very exciting for all involved!

The post-degree employment options for students involved in the project are expanded with such an applied experience and application of taught subjects and, interestingly, one of the students who worked on the Cranfield A1, Dr Bill Brooks, is now rated as one of the UK’s most successful light aircraft designers.
Babatunde Oyediran graduated in MSc Data Communication Systems in July 2006.

DATA COMMUNICATION SYSTEMS MSc

“I initially chose Brunel owing to its reputation as a research institution and its very strong links to Industry. I wanted to move into Telecommunications and with an IT background (BEng in Computer Engineering), I needed a course that would act as a bridge between the two. The programme at Brunel was perfect.

The MSc covered more than I expected! The curriculum reflected current needs in Industry and all the modules were relevant with up-to-date case studies. Lectures, laboratories and library facilities were all very adequate. The introduction of a PG study area in the new Bannerman Centre and the 24/7 Graduate School with computing, printing and leisure facilities made the study experience most enjoyable. Having a personal tutor as a mentor throughout the programme really helped with coping with the rigors of academic study. My worst fears concerned the electronics content, but these were allayed with the provision of tutorial materials, helping even the most naive person. I was most impressed by the calibre of the staff in the Department and also with guest lecturers from industrial research laboratories.

The University’s location was also a huge determinant in my choice. Being close to Heathrow airport and its proximity to central London offers easy access to the City’s many attractions. I felt at home because of the great mix of nationalities. Every ethnicity was fully represented in the Brunel community and friendly and helpful staff made settling in very easy. There is an on-campus nightclub, cool bars, a vibrant International Student Society, state-of-the-art sports facilities, en-suite accommodation, amazing course mates and flatmates, the peace and quiet of a serene location when you want it, and transport links to the City. I even got a part-time job with the IT Support Team at the Computer Centre, assisting students and staff with access to the Brunel Network. The list is endless. I’m really proud to have been a part of it all.

My dissertation was entitled ‘WLAN-Fibre Optic Convergence for Wireless Broadband Communication Systems’. The convergence between Information and Communications Technologies was my main reason for choosing this topic. During my dissertation I was attached to the Wireless Networks and Communication Research Group in the Department, which exposed me to research methodologies like the use of Discrete Event Simulation techniques to model and analyse the integration of wired optical fibre communications with IEEE 802.11 wireless technologies, to achieve higher data rates. The work carried out in the project included network modelling, simulation of varying scenarios, tests for robustness and applicability, analysis of results obtained and specific antennae modelling using OPNET network tools leading to the postulation of stochastic models.

The evolution and success of VoIP telephony has opened a lot of business opportunities for Telecoms companies and there is a huge demand for the skill set to deploy new VoIP networks. As a result of my MSc I now had the necessary edge in a highly competitive industry. The job I landed on graduation was Project Coordinator for Easynet Limited, a BSkyB Company. The skills I acquired at Brunel encouraged the company to promote me to Project Manager within eight months, which was fantastic! My day-to-day role involves the effective project management of activities common to all Unified Communications voice and video projects, ensuring that these are managed smoothly and efficiently, facilitating the availability of all relevant information and timely end-to-end scheduling i.e. project/programme planning, requirements definition, scope definition and validation, project delivery, risk management, and quality control.

Why Brunel? Brunel offered me a great opportunity to study a course that has an industry-relevant curriculum in a high calibre Department, a balanced study experience and excellent career opportunities after graduation.”
ENGINEERING DESIGN MSc

“Having graduated in BEng Mechanical Engineering in India I decided to take up my Master’s in Mechanical Design. I looked into several universities in the UK for related courses and without much hesitation I joined the MSc Engineering Design in September 2005 as a raw student with no vision and knowing nothing much about Design. But today I am working as a Mechanical Design Engineer with a leading UK-based building service design consultant. This course has transformed me from a raw engineering student to a professionally employable engineer.

There were several reasons for this transformation. Firstly, the course content, which covers a wide area of engineering, provided all the knowledge needed in industry today. Secondly, the course incorporated an industrial project which gives the opportunity to work and liaise with a UK-based company. This helped me a lot to learn and to build confidence in myself. The company project also brings all the students together to work as one, and brought a bond of affection and understanding among all participants. I have already started to miss all the fun and care given by my friends. And the most important factor of this transformation was a sole person behind the formation of the course and what I am today. I am referring to Dr S Sivaloganathan, the Course Director, whose door was always open and who always had the time to talk to and support each and every student on the course.

It is true that ‘Engineers make the world’ and, believe me, the Engineering Design MSc course will make you an engineer if you come with the will to put in real hard work and to show the world what you are capable of. Without doubt I would say, ‘MSc Engineering Design – A PATHWAY TO INDUSTRY’.”

SUSTAINABLE ELECTRICAL POWER MSc

“After my graduation in Electrical Engineering from India I found the Brunel MSc catered to my interests. I wanted a course teaching aspects of electrical power, but also focusing on renewable generation, and that offered something extra in terms of issues of a global concern. Brunel University’s reputation as a good engineering university was unquestionable and I decided to apply.

My experience after joining Brunel University was one of satisfaction. Although we were the first batch of students on a new programme, the course was very well designed in terms of content and practical assignments. The teaching delivery was a good mix of lectures from the University-based professors, guest lecturers from industry, and from other universities, and technical visits. It not only taught me about the subject, but I also came to know about the current industrial situation in my field.

The Brunel Institute of Power Systems has considerable research and development links within UK industry, and a number of companies were invited to select students for industry-led MSc projects. Following an informal interview, I was lucky enough to be chosen for an industrial project with a company called Converteam. My project on Power Park Modelling for Transmission Line Parameters involved the modelling of Converteam’s products to match the grid code of the National Grid. The technical work involved in the project gave me a very good insight into the topic. I also had to deliver technical presentations to company engineers and present a technical poster, which honed my presentation skills.

The knowledge that I gained from the MSc helped me secure a position as a graduate trainee electrical engineer with EDF Energy, a major distribution network owner and operator in London and the South-east. After finishing my dissertation, I commenced working with EDF and it has been a great experience. The company’s two-year graduate scheme is accredited by IET and will ultimately lead me to Chartered Engineering Status (CEng).

I would encourage anybody who is interested in electrical power or power systems to join this MSc course, and take the advantage of an excellent education and a brilliant university life.”
Expert in Design and Management Science joins the Brunel Design Team

International

- 1995 to date: Member of the Design Management Institute (DMI Boston USA) Board of Advisors.
- 1994, organised and chaired the Sixth International Forum on Design Management Education and Research, held in Paris.
- Appointed as Chair of the Research Advisory Council for DMI in 1998.
- Editor of the Academic Review of the Design Management Journal and established the DMI’s International Scientific Committee.
- Received the DMI highest award “DMI Life Fellow” in 2004 in recognition of her role in research for DMI and the design profession.
- Founding member and sits on the Board of the European Academy of Design (EAD), the network of European academics researching design.

- Her previous and continuing work in France includes: collaboration in the creation of a Design research network, “Les Ateliers de la Recherche Design”; establishing a Design Management magazine and journals; research laboratories in Management Science and participation as a board member of design associations; seminars at conferences and various research articles.

Brigitte said she came to Brunel because “Brunel Design has an international reputation of leadership in Branding and in Human-Centred Design. In our postmodern society, the designer’s empathy for people, gives them a great social responsibility to help organisations and institutions cope with change. I wanted to bring my design management expertise to this brilliant design education team, with the objective of educating our Brunel students into adopting a holistic ‘design thinking’ attitude, in order to invent new business models, ‘design driven’, for the future.”

The School offers a warm welcome to such a distinguished colleague in the Design Management field and wishes her every success in her current post.

Dr Brigitte Borja de Mozota came to Brunel in February 2007 as a Senior Lecturer in Design Management in the School of Engineering and Design, retaining a visiting Professorship at ESSEC Business School, France.

Dr Borja de Mozota started her career in 1969 as a Buyer in the department store chain, Au Printemps, and later became an entrepreneur for an import company specialising in distributing designer gifts and party goods. During the period 1969 to 1982 she held a number of management positions in industry before completing her PhD in 1985 in Management Science.

Dr Borja de Mozota has enjoyed a distinguished career in Design Management in both France and on the wider international stage. This career has resulted in her advising and acting as Chair in a number of the world’s most influential design management forums. The fruits of her work have resulted in a number of published books, magazines and research papers.

Academic career

- 2007 to date: Senior Lecturer in Design Management and dissertation supervisor on the MA in Design and Branding Strategy and MA in Design Strategy and Innovation at Brunel.
- 2001 to 2006: Université Paris Ouest (formerly Paris X Nanterre), after 10 years of previous teaching experience at Université Paris V. In this latter role, she taught Marketing, Design Management, Innovation and Strategy at Master’s level.
- Further teaching experience was gained delivering Design Management to PhD students at Université Nancy 2, two Master’s programmes in Design and Marketing at Toulon EID Design School and Audience Business School, Mastère in Design and Creativity and in ESSEC Business School on the MBA programme.

Dr Borja de Mozota’s specialist research focus is Design Management and exploration of the common ground between the two disciplines of design science and management science. She is the author of the reference book, Design Management, published in a number of different languages which has run to a number of editions.

Dr Borja de Mozota joined Brunel University in 2007 as a Senior Lecturer in Design Management in the School of Engineering and Design, retaining a visiting Professorship at ESSEC Business School, France.
On visiting the campus, I saw the University facilities available, which was a big encouragement. I particularly liked the campus environment, with the lecture centre, halls of residence, library, shops, sports facilities and bars all very close to each other. Coming from Kent, Brunel's geographical position was ideal. The University has excellent facilities and has in the past five years redeveloped the whole campus. I was fortunate enough to live in brand new halls of residence in my last year and they were amazing, almost like a hotel. The Students' Union has been completely refurbished and now the bars and clubs (very important to a student!) are fantastic. The new sports facilities are top class too.

Another great fact about Brunel is the number of student clubs and associations there are. No matter what you are in to or what you fancy trying, I am sure Brunel will have a club for it. Also, Brunel is within the London transport system, so getting into central London for the sights and attractions was very easy and cheap.

One of the aspects I particularly enjoyed at Brunel was the School's lecturers and their ability to learn your name within the first day. It made my degree far more enjoyable as I was able to form really good relationships with particular members of staff. The lecturers had often worked for, or with, big engineering companies such as Lotus, Ford and Ricardo, so what they teach has a direct relevance to your future career.

I carried out two final year projects. Both of them involved Brunel's Formula Student racing car. My third year BEng project was the design and analysis of the driver control system using various CAD programs, such as IDEAs and SolidWorks and FEA programs, such as Abaqus and Ansys, which are standard industrial computer programs. For my Master's project I was the chassis and body-panel's group manager. That project taught me a lot about managing team members and liaising with companies to get the best results.

On graduation, I felt that my degree and experiences at Brunel had given me the perfect tools for tackling my next target – getting into Formula One. I have recently realised that dream as I started a new job in January 2008 as a Model Designer for the Formula One team, Force India F1, based in Brackley, Northants.

In conclusion, Brunel has the ability to equip a young person with the necessary tools to tackle the world. As the University is named after the legendary engineer, Isambard Kingdom Brunel, I think it's appropriate that the University produces people like him: determined, innovative and intelligent."

Dan Marshall studied Motorsport Engineering MEng and graduated in July 2007 with a First Class Honours degree.
Postproduction Studio completed for Broadcast Media course

Staff and students on the Broadcast Media (Design and Technology) BSc course are pleased that the building work on their new studio is now complete, after a year of alteration of existing space and equipment installation. This new facility features cutting-edge technology that will enable students to construct ‘broadcast quality’ motion graphics material.

The most visible feature is the large ‘green screen’ area used for chroma key work enabling students to combine actors, physical sets and models with other video footage or computer graphics, just like they would in Hollywood!

A studio of course is nothing without camera equipment and a number of High Definition cameras are available for use, including a Panasonic broadcast camera capable of capturing uncompressed video, for maximum image quality. For manipulating all the material recorded in the studio and creating new graphical elements there are twelve very fast workstations running visual effects software such as Shake, After Effects and Final Cut Pro. Creating high-end video effects generates lots of digital data, and to move all of that around the studio area, and to work on projects collaboratively, the studio has its own fibre optic network to which all the computers are connected. All of this data is stored on a central clustered file system, currently 21 terrabytes in size, as much as some large organisations would have to store all their data on.

The studio will now represent the ‘home’ of the Broadcast Media course and students on all years use the studio each week. The course is currently in its second year and aims to equip students for careers in the digital television industry, particularly as motion graphics artists. During the course they will study many aspects of practical production including camera work, compositing, 2D and 3D animation as well as appropriate theory.

“I chose Design at Brunel as the course offered me the opportunity to do something both scientific and creative.

The course was amazing and I thoroughly enjoyed my time at Brunel. There was a huge range of topics, which I found very interesting, and over the four years we covered a wide range of subjects from structural analysis to contextual design. I think the lecturers were inspirational and some have experience in Industry, which provides a valuable real world insight. They were also very approachable and supportive throughout my degree. We moved from Runnymede to the Uxbridge campus in the second year. In the final year we lived on campus and in my opinion it was the best year. The Uxbridge campus has everything you need and we experienced true University life in that final year.

In my third year I did a placement at Chanel Design UK. I worked on graphics and point of sale design and carried out a huge range of projects over the year. It was a great experience to live and work in London. My placement year gave me more confidence for my final year and a real insight into the application of my degree. On leaving the placement, Chanel offered me a full-time freelance job as their junior designer.

My final year project was called SOS Guardian, a concept for the RAC that makes the breakdown experience much safer and less traumatic. Compacty stored behind your tax disc, this reassuring product continually updates how long you will have to wait for help to arrive when broken down. Using GPS technology it sends the exact location of your vehicle to the breakdown company, then informs you with easy step-by-step instructions about where to wait for the best position of safety.

The project was an interface design and usability study, and I looked at the user group in detail to design a product that was intuitive for them to use.

Why recommend Brunel? I think it is the best place in the country for Design.”

Fenella Holden graduated in July 2007 in BSc Industrial Design with a First Class Honours degree and has a permanent position working as toy designer for LEGO in Denmark.
MA Design and Branding Strategy graduate returns to UK to take up a high flying job with placement company

"I was trained in Mexico as a graphic designer. After 10 years of professional experience as a "hands-on" designer in various companies, I developed an ambition to become more influential within organisations and to actively engage with those who make the future. In 2004, I joined the Design and Branding Strategy course at Brunel and found the course appealing and its structure coherent.

In the last month of the course, I had the opportunity to join the New Business Department of CDT, a renowned Design and Branding consultancy who were experienced in creating and developing consistent branding strategies. Amongst its clients are the Royal Mail, The Scottish Parliament and The English National Opera.

The New Business Development Director of CDT approached the MA's Course Director asking him to refer various students to be considered for the role of Marketing Coordinator as an industrial placement. He sent 10 people and we were all from different nationalities and different academic backgrounds, a reflection of the diversity of students in the current MA cohort. We were all interviewed and I was appointed Marketing Coordinator. Although the placement was only for three months, it was a very unique and valuable experience. It was the first time that I was at a Design agency and was not doing ‘hands-on’ design. At CDT my role consisted of carrying out research on various industry sectors and brands, which led to new business opportunities for the agency.

My Master's degree provided me with a wider view of design, and encouraged a better understanding of design management. After taking the Brunel's MA course, undertaking research for my dissertation and doing my placement, my career aspirations changed: I was no longer interested in sitting behind a computer doing design, but was more eager to be involved in roles which encouraged and promoted a better recognition of this powerful engine for innovation called Design.

After my MA I returned to my home country, Mexico. After a few interviews, I was appointed Executive Director of IDD Estudios, an online development agency. It was an appealing job and I learned a lot, however I developed an interest in furthering my professional development as an independent business consultant. I created my own brand called Creative Achievements, and provided a design management consultancy for a design agency called Pantiestudio. Although there were attractive job opportunities in Mexico, my desire to return to the UK prevailed. I applied for the UK highly skilled migrant permit in order to seek work or self-employment opportunities in the UK.

After six months I was granted this permit and in the meantime I was in contact with CDT.

In November of last year I was appointed Business Development Director at CDT, and amongst my responsibilities is to set and agree on sales targets and objectives. I am also responsible for: researching and delivering a suitable competitive sales strategy for the Company; researching and contacting new leads; follow up and making initial credential presentations; developing relationships, networking and meeting needs of existing clients; developing and pitching creative solutions to clients; developing suitable presentations for clients; presenting a consistent image to clients and potential clients; and raising the profile of CDT amongst targeted groups and audiences.

The skills gained on my MA course gave me confidence with selling design services. On the course, I developed excellent communication, listening and questioning, relationship development and negotiation skills. Furthermore, as a result of the course, I am able to put together effective presentations, and presentation materials to clients. I would highly encourage any person who is passionate about creativity to enrol on the MA course, not because they will acquire technical skills, but mainly because they will develop particular thinking skills. These thinking skills will allow them to succeed in any management position, in whatever industry appeals to them and, most importantly, enables them to emphasise and promote social, cultural, economic or environmental change."

Prizewinners of the annual award of the Thomas Gerald Gray Trust

The Thomas Gerald Gray Charitable Trust was established in memory of Thomas Gerald Gray, who died in 1988. During his working life in the field of engineering, Thomas Gray was concerned by the lack of appreciation and status of engineering within society. The charity was registered in 1997 with the objective “to advance public education, particularly concerning engineering and technology and the promotion of study and appreciation of engineering and technology”. In 1999 the Trustees formed a partnership with Brunel University with a view to fulfilling the aims of the charity. The above picture depicts the 2008 undergraduate award winners who each received a cheque in financial support of their studies. The ceremony was also attended by Professor Abdul Sadka (Head of Electronic and Computer Engineering), Professor Savvas Tassou (Head of School) and Professor David Wright (Deputy Head of School (Undergraduate Studies)).

BEng Computer Systems Engineering graduate profile

“My home country is Kenya. I decided to come to Brunel firstly because of its location, and secondly because of the reputation for research. Also, I found Brunel was well known by companies in the UK.

The course was very exciting and wide-ranging in its focus on both hardware and software. Having the opportunity to do a lot of practical work made understanding the theory that was taught easier. A good deal of support and guidance was given by the different lecturers. Brunel enjoys very rich resources: computing facilities and access to any information you needed in the library and e-journals. I witnessed a large campus redevelopment and modernisation and the campus has improved a lot with these recent developments, e.g. the library, the lecture centre rooms, coffee shops and sports facilities.

I undertook a one-year placement in Hammersmith with a company called Computeach. My initial role was support for on-line learners and helping the IT team in software development and project management. The placement was very valuable because it improved my skills in planning and organising, communication, teamwork and working on one’s own initiative. I was also paid well for that year. The placement helped me with the software and project management modules in my final year.

It’s been great being at Brunel. I have a lot of memories to cherish and I’ll miss it a lot. I would encourage students to come to Brunel because of its diversity, its ranking and its reputation within companies, and this has helped me to get a great job on graduation.

On graduation, Amit began a full-time job as a technical consultant with SQUIZ, an open source web development company originally based in Australia. Recently he has taken up a new position with Siemens-BBC as a Broadcast Systems Engineer.”


FOCUS ON RESEARCH

INSPIRE Marie Curie Research Training Network

A meeting of the INSPIRE Marie Curie Research Training Network was held at Brunel University from 17-20 December, organised by Professor Luiz Wrobel from the School of Engineering and Design. The main theme of the INSPIRE network is the Optimisation of Systems, Energy Management and Environmental Impact in Process Engineering. The network involves 10 universities and six industrial companies from 10 European countries, and was awarded funding from the Framework Programme 6 of the European Commission to fully support 18 fellowships for Early Stage Researchers (typically PhD students) and two fellowships for Experienced Researchers (post-doctoral fellows). The meeting was attended by 33 participants, including 16 senior scientists and 17 PhD students, and was followed by a workshop on Computational Fluid Dynamics given by engineers from ANSYS Fluent Germany (a network partner) and Brunel University.

A highlight of the meeting was a lecture by Dr Ferit Boysan, Vice-President, ANSYS Fluent Inc., on ‘25 Years of Commercial CFD; Extrapolations to the Future’. Dr Boysan became Fluent’s Chief Operating Officer in 1997 and its President in 1999. After the acquisition of Fluent by ANSYS in 2006, he became Vice-President of ANSYS Fluent Inc and General Manager, Fluids Business Unit. The combined company ANSYS Fluent Inc is valued at over $1 billion.

More information on the Marie Curie Research Training Network may be seen at http://ec.europa.eu/research/mpb/mariecurie-actions/action/training_en.html
RESEARCH FOCUS: MOBILE TV A STEP CLOSER

Article by Professor John Cosmas

Researchers working on the Pluto project (Physical Layer DVB Transmission Optimisation), a consortium of academics, equipment manufacturers, propagation experts and broadcasters from Finland, France, Germany and the UK, co-funded by the European Commission, have demonstrated that splitting the transmit power between multiple antennas can provide substantially more effective coverage than using a single antenna. This digital transmission technique called ‘transmit diversity’ brings mobile TV a step closer.

In a typical broadcast transmission, radio signals bounce off objects in the environment, reaching the receiver over multiple paths. Distortion from multi-path signals can produce fading resulting in temporary failure of reception. Most of us have experienced this, moving a cellphone around a room to get the strongest signal. Modern broadband wireless technologies like WiMAX, DAB for audio, and DVB-T and DVB-H for video, use a modulation scheme called Orthogonal Frequency-Division Multiplexing (OFDM). An OFDM transmission is spread across thousands of different sub-carriers each carefully organised at slightly different frequencies within the channel. Spreading the transmission across a high number of sub-carriers increases the probability of maintaining error-free transmission.

The transmission-splitting technique ‘transmit diversity’, benefits the worst environments most. Reception can be spectacularly improved indoors, or whilst walking or driving in cities. Fewer transmitters and less power is required to achieve economical coverage.

“This technique does not require revision of any WiMAX, DVB or DAB standards,” says Maurice Bard of UK company Broadreach Systems, the technical leader of PLUTO. “All you need is an additional box that can split the signal. The transmit antennas need to be spatially separated by between 10 and 20 wavelengths and a delay applied to one antenna to achieve effective decorrelation. Coverage can be further improved if there are two or more antennas at the reception end.”

Even with the reception improvements promised by transmit diversity, there will be reception black spots, particularly indoors, where on-channel repeaters will be needed. The repeaters are prone to instability caused by the feedback of echoes from the transmitter to the receiver. Here, the academics at Brunel, led by PLUTO Project Coordinator, Professor John Cosmas, have developed an innovative method to remove these echoes. “A pseudo-random sequence is buried deep in the re-transmitted DVB-H signal,” explains Cosmas. “The sequence acts as a signature, allowing the repeater to differentiate the unwanted echoes from the wanted original signal and remove them from the re-transmission. The method can work for repeaters of any OFDM based network.” Broadreach Systems has provided equipment to process signals at the transmitter and monitoring stations that intercept and measure transmitted DVB signals. The monitor stations are networked to a Control Centre developed by Brunel enabling the effects of diversity to be evaluated in real time.

There are still some hurdles to be overcome before PLUTO’s transmit diversity solution is suitable for all types of broadcast networks. The principal obstacle is the fact that transmit diversity actually results in a degradation in reception where the receiver is in clear line-of-sight with the transmitter and the signals from each antenna are received at exactly the same power level. The line-of-sight reception loss may not be a problem for many networks; in a mobile TV network all receivers will be in a non- or near-line-of-sight situation, very few will have rooftop antennas. But ‘good enough’ is not a position that the PLUTO consortium is prepared to stop at. “We have a broadcaster in our consortium, TDF in France, and they have very tough requirements,” John Cosmas explains. “They want to have gains in non-line-of-sight but no loss in line-of-sight.

The biggest challenges for PLUTO going forward are: identifying and documenting the most effective ways of generating diversity signals; measuring the effectiveness in representative scenarios; explaining it to a doubting audience (the technique sounds far fetched to a designer of traditional networks) and persuading the industry to try it and adopt it. Cosmas says: “we still have a long way to go; we need to show that the performance we saw in the lab can be achieved in all real situations, rain, snow, cities, on the way to work or brushing your teeth. Next, we have to convince broadcasters, who designed traditional analogue networks where multipaths had to be avoided, that MULTIPATHS ARE GOOD!” More information on the PLUTO project may be seen at www.ist-pluto.org.
Ten years ago, The Teletubbies, created by award-winning Ragdoll Productions for the BBC, transformed the world of children’s television and captured the hearts of children everywhere. This outstanding series immediately became the benchmark for innovative children’s programming across the globe and is one of the most successful children’s programmes of all time. To mark this unparalleled success, BBC Worldwide and Ragdoll opened up discussions with Paul Turnock, Course Director in Brunel Design, School of Engineering and Design. Together they devised a cunning plan to bring The Teletubbies to Brunel and to set the Design students the task of exploring new innovative ideas for BBC Worldwide and Ragdoll Productions. After a year of preparations, the project was unveiled in the early part of 2007. The BBC/Ragdoll/Brunel team was tasked with encouraging young, talented university students and, at the same time, enhance and extend enjoyment of the global pre-school iconic brand, The Teletubbies.

“Teletubbies is a hugely successful brand which celebrates its tenth birthday this year,” says BBC Worldwide Creative Director, Frances Adams. “One of the things that has kept it fresh is our willingness to explore new ideas – to keep evolving the brand so it stays relevant to each new generation of parents and children.” Paul Turnock and Frances Adams created a briefing, a week of academic timetable magically disappear and, without any pre-warning or clue as to the true identity of the guest industrial client…introduced 118 Design students to Tinky Winky, Dipsy, Laa-laa and Po, their creators and the highly powered BBC Worldwide business team. To add a little spice, the whole briefing session was filmed. Professor Joseph Giacomin, Head of Design, and the students were introduced to The Teletubbies, watched a programme, received gifts of little ‘Tubbies’ and their very own CDs of a selection of episodes set in Tubbyland. The project was then carefully briefed by The Team – Richard Hollis, Head of Licensing, BBC Worldwide, Andrew Kerr, Executive Vice-President, Global Licensing and Marketing, Ragdoll Worldwide Ltd, Andrew Davenport, Co-creator and Sole Writer, Teletubbies, Jacqueline Harding, Director, Tomorrow’s Child, Frances Adams, Creative Director, BBC Worldwide, Mary Renouf, Head of Communications Children’s, Mary Hagger, PR and Promotions Manager, Ragdoll Ltd, and Sally Steggall, Events Manager, BBC Worldwide.

“We were looking for something that would take us out of our comfort zone and make us think in a new way about Teletubbies,” explains Adams. “So what better place than a university, where students are too old to have formed an emotional attachment to Teletubbies when it launched – but too young to be thinking about becoming parents.”

One week later, all 118 students had completed their immersion into Teletubby-ness and had generated ideas for future brand extension products and services. These concepts were taken to BBC Worldwide by Professor Giacomin and Paul Turnock. The BBC Worldwide and Ragdoll Productions team then carefully analysed them and began to select a shortlist of students who would continue the project with professional support from the sponsoring companies. According to BBC Worldwide’s Adams: “The Brunel students devised a very broad range of high quality ideas, from interactive Teletubbies toys...
Michael Abate, Madeleine Case, Kevin La (an international exchange student from San Francisco State University), Tim Holley, Femke Lemmens (another international exchange student from Antwerp) and David Wood developed their ideas, over the next four months, to prototype level and then had to present their final design proposals to a panel of “dragons” from BBC Worldwide and Ragdoll. Among these were Tubby guru Andrew Davenport, and Ragdoll licensing Chief Andrew Kerr. According to Kerr, “We were really impressed with all six finalists which made it very difficult for us to choose a winner. But after a lot of discussion we went for Michael Abate’s Warm-Me-Up Teletubby – a soft toy that is warm to the touch. It combined simplicity, innovation and a universality that truly reflected Teletubbies.”

For Paul Turnock, Brunel’s Course Director of Industrial and Product Design, the beauty of the project was that it gave his students an insight into the realities of the commercial world: “These are all highly creative and technologically-skilled students, but this process gave them an insight into the way big business works – in a sector which many were unfamiliar with.” He added: “The best initial ideas were developed into working prototypes which could meet the rigorous standards expected by manufacturers, retailers, licensing companies and, of course, families. All this had to be achieved while staying focused on the client and never losing track of the brand values and design themes that made Teletubbies a globally successful franchise.”

“Building relationships with external partners and developing talent is at the hub of what BBC Worldwide does,” says Adams. “Brunel’s Design students opened up new possibilities for us and hopefully we’ve done the same for the students.”

The prize is a three-month work placement at BBC Worldwide where Michael will have the opportunity to experience at first hand the challenges of designing within the commercial environment of the children’s licensing and merchandising department. Michael Abate joins the BBC Worldwide team in March 2008 and will have a unique insight into the inner workings of Televisionland… Uh-oh!
Brunel Professor publishes new book in collaboration with leading academics in Japan

The book is a result of long standing research co-operation between Brunel University and Tokyo University of Science. It is a must for all engineers and students coming to finite element analysis or to ANSYS software for the first time. The best way to learn complex systems is by means of hands-on experience. With an innovative and clear tutorial-based approach, this powerful book provides a comprehensive introduction to the fundamentals of engineering analysis that students require as part of their studies, and helps to develop knowledge of using ANSYS software in working life. Step-by-step explanations, worked examples, sample problems and solutions all contribute to developing a clear understanding of finite element analysis – a powerful tool of modern engineering.

Professor Tadeusz Stolarski is Head of Mechanical Engineering at Brunel University and his co-authors, Yuji Nakasone and Shigeka Yoshimoto, are both Professors in the Department of Mechanical Engineering, Tokyo University of Science.

NEW COURSES SEPTEMBER 2008

- BEng / MEng Communication Networks Engineering
- MEng Electronic and Computer Engineering
- MEng Electrical Engineering with Renewable Energy Systems
- BEng / MEng Medical and Surgical Engineering
- BEng / MEng Networked Media Engineering
- MSc Digital Signal Processing
- MSc Distributed Computing Systems Engineering
- MSc Enterprise Engineering
- MSc Human-Centred Design
- MSc Integrated Product Design (Subject to Approval)

New Course accreditation

- Aviation Engineering with Pilot Studies – Royal Aeronautical Society
- Civil Engineering with Sustainability (2007/8 Entry) – The Institution of Civil Engineers, The Institute of Structural Engineers and the Institute of Highways and Transportation.

CALENDAR OF SCHOOL EVENTS

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<td>The 1st School of Engineering and Design Research</td>
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<td>1 July 2008</td>
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<td>9, 10, 11 Sept 2008</td>
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For information on all courses and previous Spotlight newsletter issues see: www.brunel.ac.uk/about/acad/SED

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