Faculty Develop Relationships Worldwide

Prestigious Awards for Staff and Students

Oscar Pistorius Keynote Speaker at Conference

Students Organise Successful Networking Event
INTRODUCTION

Welcome from the Dean of Engineering

Welcome to the latest edition of Engineering Insight which has a focus on our International activities.

The Faculty is committed to bringing an international dimension to our Research, Teaching and Knowledge Exchange activities. We have established a large network of industry partners, many of whom compete on a global scale, and we are renowned for our world-class research. Many of our researchers collaborate with fellow academics from as far afield as the USA, China and South America, and are working on projects that will have global impact.

As well as building strong partnerships with industry, we have a significant number of collaborative and articulation agreements in place between the Faculty and universities from all over the world. These relationships are established and maintained through targeted visits to our partner institutions, including the recent Faculty visits to China, India and Malaysia as well as departmental visits to Thailand, Nigeria, Singapore and Germany.

Our staff recognise the importance of thinking on a global level, and many of our students embrace this outlook and choose to spend up to a year studying at an overseas University as part of one of our popular international exchange programmes. Students who choose to study in locations such as Europe, USA, Canada and Australia often tell us that their time abroad really enhanced their student experience and they feel this will better prepare them for their future careers. Employers also tell us that having an international experience can be a valuable asset in the job market.

As well as our success internationally, we have also been delighted with our recent national recognitions and successes, with a number of prestigious awards being won across the Faculty by our staff and students, including the Science, Engineering and Technology Student of the Year Award, a Royal Academy of Engineering Sustained Achievement Award and the Times Higher Education Award for Research Project of the Year. We are delighted that our staff and students are gaining the recognition nationally, and also internationally, that they thoroughly deserve.

Professor Scott MacGregor
Dean, Faculty of Engineering
The students of the Faculty of Engineering hosted its 12th Annual Gala dinner in November at the Hilton Hotel in Glasgow City Centre, an event that has become a regular and important fixture in the University’s calendar. This year saw the largest Gala event that has been held to date, with over 500 people in attendance from some 50 companies, including BAE systems, Diageo, Procter & Gamble, Rolls-Royce, Unilever and Subsea 7, representing a wide range of industrial sectors supporting the event.

Gala provides an opportunity for students and representatives from the engineering industry to communicate in a relatively informal atmosphere. The networking event is unique within the UK and has grown substantially since it was first established in 2000.

The ethos at the heart of the Gala event is that it is organised by students for students, ensuring that the event remains to be relevant and exciting. This year the Gala committee comprised of 10 engineering students from a number of disciplines, including Gala Chairman, Nicholas McCrossan, a fifth year Civil and Environmental Engineering student, and Laura Jack, a fourth year Chemical Engineering student who was the sponsorship coordinator for this year. Nicholas and Laura’s hard work, along with the other committee members’ help, ensured that the event was a success, and proved how dedicated our students are to trying to further their career prospects.

The companies attending Gala sponsor a table of ten people, at which three of their company representatives will sit and be accompanied by students. During the meal and in the networking time afterwards companies have the opportunity to inform students of the experiences available with their company. Students are able to speak to prospective employers and find out what it is really like to work for them, and how they might fit in to the company.

Previous Gala Events have shown that along with the excellent networking opportunities that the evening brings, there are further benefits for everyone involved. Industrialists have had their positive view of Strathclyde’s engineering graduates reinforced; students have understood better the value and quality of a Strathclyde education; academic staff have made contacts that have strengthened their teaching and research; and alumni have returned to the following year’s Gala event to help expand the network.

The Keynote Speech of the evening was delivered by Professor Stuart W Cameron, Vice President of the Institute of Mechanical Engineers. Stuart graduated from Strathclyde in 1970 with a first class Honours degree in Mechanical Engineering. He is also a Fellow of the Royal Academy of Engineering and was awarded an MBE in the 2011 New Years Honours List for services to mechanical engineering, in particular for his work on the career development and mentoring of young engineers.

Dr David Nash, Vice Dean, Knowledge Exchange for the Faculty of Engineering, hosted the evening and commented;

“Gala is a major highlight in the Faculty calendar and is an unmissable event. Whilst it is supported by the Faculty, it has been owned and driven by the engineering student community. This year’s event was a spectacular success with almost 50 companies represented, at a time when employers are operating in the face of difficult and tough business conditions. Employers now see Gala as a key fixture in their recruitment process and are committing to participation in the 2012 event. The Faculty will continue to support the Gala team as they grow and develop this highly successful event.”

Plans have already begun for Gala 2012, and if the event is anything like this year then it will prove to be even bigger and better than before.
A lighting system that can kill hospital superbugs – including MRSA, E.coli, TB bacteria and C.diff – has been named Research Project of the Year at the prestigious Times Higher Education Awards.

The decontamination technology was developed in Strathclyde’s pioneering Robertson Trust Laboratory for Electronic Sterilisation Technologies (ROLEST), which is dedicated to developing electrically-based technologies for controlling bacteria which can cause infection in healthcare environments. High intensity narrow spectrum light (HINS-light), is a new breakthrough technology, developed within ROLEST, that decontaminates the air and exposed surfaces by bathing them in a narrow spectrum of visible-light.

Each year, The Times Higher Education Awards recognise the very best achievements of UK universities across a range of disciplines. Commenting on this year’s entries, the judging panel said: “The unflagging quality and innovation evident in universities across the UK shows the sector’s resolute commitment to excellence.”

Professor John Anderson, Professor Scott MacGregor and Dr Michelle Maclean (Microbiologists) and Professor Gerry Woolsey (Optical Physicist).

Clinical trials at Glasgow Royal Infirmary have shown that the HINS-light Environmental Decontamination System provides significantly greater reductions of bacterial pathogens in the hospital environment than can be achieved by cleaning and disinfection alone, providing a huge step forward in hospitals’ ability to prevent the spread of infection and improve patient safety.

Commenting on the team’s success at the awards, Dean of the Faculty of Engineering, Professor Scott MacGregor said:

“The HINS-light research team are very excited about the clinical benefit that could result from this technology and we are working with stakeholders to further expand the range of application and to explore commercialisation opportunities. Winning the Times Higher Education Research Project of the Year award can only be seen as a very positive step in helping to achieve this.”

The breakthrough technology was developed in response to the urgent need for new approaches to disinfection and sterilisation within the clinical environment, as traditional methods have significant limitations. Decontamination methods involving gas sterilants or UV-light can be hazardous to staff and patients, while cleaning, disinfection and hand washing, although essential routine procedures, have limited effectiveness and problems with compliance.

The HINS-light technology kills pathogens but is harmless to patients and staff, which means for the first time, hospitals can continually disinfect wards and isolation rooms without the need to move patients. The technology uses HINS-light which has a violet hue, but the research team have used a combination of LED technologies to produce a warm white lighting system that can be used alongside normal hospital lighting thereby contributing to the provision of a comfortable and safe environment for hospital patients.

Professor Jim McDonald, Principal of the University of Strathclyde, said: “This pioneering research project epitomises Strathclyde’s approach of working with the health sector to tackle major challenges of the 21st Century.

“Receiving recognition with this prestigious award is a fantastic achievement for the research team and reflects the outstanding quality of work being undertaken throughout the University. This success underlines our commitment to providing real, tangible solutions to significant societal problems in areas including health, energy and the environment.”

The programme was successful in securing a competitive Scottish Enterprise Proof of Concept award in recognition of its considerable potential for clinical deployment in a priority area for the UK Health Services. It is also supported by the University of Strathclyde and The Robertson Trust.

The award was presented at the Grosvenor House Hotel in London. Keynote speakers included Minister for Universities and Science, David Willetts.
The Department of Naval Architecture and Marine Engineering (NAME) has landed three prestigious accolades at the Science, Engineering and Technology (SET) awards. This is the first time a Scottish University has won these top awards.

Fifth year marine engineering student Peter Dow, 22, won two of the prestigious awards. He won the 2011 Lloyd’s Register Educational Trust Award for the Best Maritime Technology Student. He also beat off tough competition to win the BP Award for the Science, Engineering and Technology Student of the Year as the most outstanding winner from all of the 15 categories. This success was boosted with Professor Chengi Kuo, Peter’s supervisor, winning the SET Lecturer of the Year award.

The SET Awards are Britain’s most important educational awards for science and technology undergraduates. Supported by industry and leading scientific and technical institutions, the awards are multidisciplinary to reflect the wide range of degrees universities have to offer. There were a total of 45 finalists, mainly from the Universities of Oxford and Cambridge, in 15 categories which included Aeronautical Engineering; Chemical Engineering; Chemistry; Civil Engineering; Electronic Engineering; Maritime Technology; Mathematics and Mechanical Engineering.

Speaking after the prestigious awards ceremony at the Millennium Hotel, London, Peter said:

“It is a real honour to have been recognised at such a prestigious awards ceremony, and to follow up the individual award in my category with the overall award makes it even more special.

“Professor Kuo has been a massive support throughout the process and the general level of support at Strathclyde has been excellent throughout my degree. This award opens up opportunities as I move towards the end of my course and get ready to find a job in industry.”

Professor Kuo, from the Department of NAME, supervised Peter’s project on carbon capture and storage, implementing his 3C education philosophy which assists students to achieve a balance of competence, confidence and communication skills. Professor Kuo remarked: “The SET awards are renowned throughout the world and I am very proud to be named Lecturer of the Year as this recognises the commitment and effort I have put into both my teaching and my research.

“What has impressed me most about Peter is the pace at which he has developed his confidence and communication skills in the past year. This was reflected in his thesis, his presentations and in what was sure to have been a demanding interview.

“It is a fantastic achievement for Strathclyde to win the awards in both major categories at the event. I hope this will inspire my colleagues to continue their hard work in both teaching and research.”

Head of the Department of NAME, Professor Atilla Incecik commented; “My colleagues and I are delighted with the outstanding success of Peter who has shown creativity, enthusiasm and full commitment throughout his studies in the Department. We are also delighted that, as Peter’s supervisor; Professor Kuo, who very ably guided Peter’s project, received the SET Lecturer of the Year award”.

He added “These three awards reflect the fact that strong research leads education and the culture to achieve the highest, in the Department of NAME and hopefully will inspire prospective students who will join us in the future”.

The SET awards provide a showcase for educational excellence by publicly recognising the exceptional achievements of both students and universities. The awards bring together hundreds of technology students and academics, as well as senior figures from industry, government, science and the media.

The Marine Technology category award made to Peter was sponsored by The Lloyd’s Register Educational Trust which is an independent charity whose principal purpose is to support advances in transportation, science, engineering and technology education, training and research worldwide for the benefit of all.

Success for Strathclyde at Prestigious International Awards
Strathclyde’s ‘Leading Light’ on Maritime Safety Sails to Victory

A Strathclyde engineer whose name is ‘synonymous’ across the world with developments in ship safety, has been recognised by the Royal Academy of Engineering for his achievements spanning more than 30 years.

Professor Dracos Vassalos, of the Department of Naval Architecture and Marine Engineering and Director of the Ship Stability Research Centre (SSRC), has won the 2011 Sustained Achievement Award for his career-long achievements and their profound impact on his discipline.

The 60-year-old has spent 32 years researching and developing ship stability and safety, through initiatives such as the SSRC, a Centre of Excellence for ship stability and safety research, which he established in 1996, and Design for Safety, which brought together industry and academia in an unprecedented effort to help catalyse continuous safety improvement in the maritime industry.

Professor Atilla Incecik, Head of Naval Architecture and Marine Engineering at Strathclyde, said:

“SSRC is the leading light on maritime safety while Design for Safety is realising step changes in ship design and operation with ambitious targets for zero tolerance in human life loss and environmental impact. All this achieved in a very traditional, inertia-fraught, industry."

“Professor Vassalos’ sustained achievements over the last 32 years have completely revolutionised maritime safety, the full impact of which is still being delivered.”

Ex-Chairman of the Maritime Safety Committee at the International Maritime Organisation, Tom Allan added: “Dracos’ name is synonymous with the development, improvement and ground-breaking work on the survivability of ships, and in particular passenger ships. I would suggest that today, most, if not all would refer to him and his knowledge in this field.”

During his career, Professor Vassalos has overseen over 100 major research contracts to the value of more than £25m and has supervised 41 PhD students. He has also served as a Government adviser and lectured around the world on maritime safety.

Professor Vassalos received his Sustained Achievement Award from the Academy’s Senior Vice President, Professor Sir William Wakeham. Collecting his antiqued silver medal, he said: “It is a humbling experience and a great honour receiving this award from the premier engineering institution that is the Royal Academy of Engineering.

“I am deeply grateful to all who have considered me worthy of this award and indebted to all my colleagues and students for their support all these years; above all to my family for their continuing encouragement and love. Thank you.”

Bioengineering Graduate wins IET Award

Alison Aird, a recent graduate from the Department of Bioengineering, has been presented with the Dennis Hill Award for her work on sleep apnoea at the annual IET Ambition and Achievements Awards in London.

The Dennis Hill Award recognises outstanding work in the field of healthcare technologies. The award is presented in memory of Professor Dennis Hill, a pioneering researcher and practitioner in many areas of endeavour, particularly in relation to anaesthesia and intensive care.

The prize is awarded annually to the student on a taught MSc programme who has, during the past year, submitted the best MSc project dissertation in the general field of healthcare, technologies and cognate subjects.

Alison’s Masters project was on the development of a new device for detection and treatment of sleep apnoea and she presented this work at the UKRI PGBiomed conference in Glasgow in August of this year.
The Department of Architecture has been selected to exhibit award winning student work from their Year 5 project ‘Changing Patterns...’ in the prestigious 5th International Architectural Biennale in Rotterdam (IABR) in April 2012.

Year five final projects on show in spring 2012 in Rotterdam will include Craig Johnston’s award winning project: National Apiological Network : An Illustrated History. Craig Johnston was awarded the prestigious Archiprix International 2011 Hunter Douglas Award. His project was one of 24 projects out of 300 graduation projects from 70 countries worldwide which was initially nominated and out of the 24 nominations the judges selected eight winning projects. The prestigious award was announced to the winners at the Award Ceremony in New York in the Guggenheim in 2011. Archiprix 2011 was organised in collaboration with the Massachusetts Institute of Technology, School of Architecture and Planning.

Also to be included in the International Architecture Biennale in Rotterdam will be two projects based in Bangladesh from Architecture graduates in 2010 and 2011. The projects were developed throughout their Postgraduate Diploma and Masters in Advanced Architectural Design (AAD).

Professor Sergio Porta, Head of the Department, said: “Once again our top students have been recognised for combining creative, artistic and technical talent to address both local and global issues with truly innovative design. We are immensely proud that their endeavour continues to be rewarded at international level.”

Steven Byrne’s ‘Farming the Flood Market’ project and Cara Shield’s and Marianne Keating’s project ‘Stabilising the Delta’ have both been selected for the Building Design Magazine Class Awards. Steven Byrne in 2010, and Cara Shields and Marianne Keating in 2011. The Building Design Class Awards recognise the best six architecture school graduates every year in the UK. This year for the first time the finalist project contributors were invited to compete for a fully funded year-long scholarship at the IE School of Architecture and Design in Madrid. In November 2011 the scholarship was awarded to Cara Shields at the awards ceremony in London.

Technology developed in collaboration with Professor Phil Rowe, Professor of Rehabilitation in the Department of Bioengineering and the School of Design at the Glasgow School of Art, was the recipient of the 2011 Nexxus Innovation Award (West). The award was presented at an annual event celebrating Scottish life science expertise in November.

The winning project is called ‘Envision’ and is concerned with gaining benefit from understanding the value of scientific data obtained from older adults during daily living tasks which will be visualised in an innovative format. The main aim is to facilitate cross-disciplinary discourse and to develop insights into the ageing experience using a process and an innovative tool which empowers older adults to participate on an equal basis with specialist disciplines. This is a process intended to influence care and rehabilitation strategies, ways of thinking about the design of the built environment, furniture, products and technological devices, and to determine quality-of-life issues and extent of working capabilities and daily living activities in later life.

Director of Nexxus, the networking organisation for Scotland’s life scientists, Graeme Boyle said: “It’s generally acknowledged that an ageing population will add more stress to an already stretched healthcare system and anything which can relieve this is to be welcomed. In developing this innovation, the designers worked not only with healthcare professionals but also with focus groups of older adults and their carers to ensure their innovation addressed the requirements of all concerned. It’s a wonderful example of two very different disciplines - design and biomechanics - working together to excellent effect.”

For more information visit http://www.newdynamics.group.shef.ac.uk/envision.html

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Nexxus Life Sciences Awards

The Wolfson building where the Department of Bioengineering is situated
China is one of the Faculty’s primary overseas markets and one in which the Faculty has experienced considerable success. Existing partnerships with North China Electric Power University (NCEPU); Beijing University of Chemical Technology (BUCT), Shanghai University of Electrical Power (SUEP); the University of Electronic Science and Technology of China (UESTC); Hohai University; and Northeast Dianli University (NEDU) have resulted in over 500 students graduating from the Faculty over the last five years.

To strengthen its position in this market, a senior delegation from the Faculty of Engineering undertook an extensive programme of visits to new and existing Chinese university partner institutions. The aim of the visits to existing partners was to strengthen relationships, identify lessons learned and discuss enhancements to the management and operation of undergraduate and postgraduate articulation agreements. These visits included presenting the benefits studying in the Faculty could bring to over 400 Chinese students who were considering joining the University. The delegation that travelled to China comprised Professor Scott MacGregor (Dean of the Faculty of Engineering), Professor Walter Johnstone (Associate Dean International), Professor Kwok Lun Lo (Director of the Chinese articulation programmes), Professor Stephen McArthur (Head of the Department of Electronic and Electrical Engineering (EEE)), Dr David Harle (EEE Courses Director), Mrs Gillian McArthur (Head of Marketing and Recruitment for EEE), Dr Andrew McLaren (Mechanical and Aerospace Engineering Courses Director) and Professor Carl Schaschke (Head of the Department of Chemical & Process Engineering).

Discussions with four potential new universities who wished to partner the Faculty were also undertaken. As a result of these, articulation agreements are currently being prepared with Lanzhou University of Technology, Nanjing Institute of Technology and Wuhan University. These will support student transfer, research collaboration and academic visitor opportunities.

Despite increasing competition from other UK universities Chinese students continue to choose the Faculty of Engineering at Strathclyde for their studies. It offers a high quality education in a range of technical areas with a very good student experience and holds strong partnerships with industry. These ensure students leave with relevant degrees that maximise their employment opportunities within their home country. The Faculty offers one of the largest Engineering Scholarship programmes in the UK and has the largest Electrical Power Engineering research institute in Europe. This is an industry sector which has experienced significant growth in China.

Professor Walter Johnstone commented on the success of the trip;

“The Engineering Faculty visit to China in November confirmed the enthusiasm within their universities for international student articulation. The strengths of our Faculty in teaching, research and its track record in international student articulation proved to be decisive in winning their commitment to partnership with Strathclyde. We visited five campuses where we have established relationships, three with fledgling relationships and four for exploratory talks. Overall the exercise was highly successful in forming new partnerships, greatly strengthening the existing relationships and gaining commitments to increase student numbers. We will sign four new broad Faculty agreements in the coming few months and we expect increasing student numbers across the Faculty in the coming years as a result.”

An annual strategic programme of meetings, discussions and interaction with Chinese partners is being developed by Professor Johnstone. This will ensure ongoing and effective management of the articulation agreements, development of new opportunities and that Chinese students continue to choose to study engineering at the University of Strathclyde.
Making a World of Difference

A team of enthusiastic fundraisers from the Faculty got together on a morning in early December and raised just over £3000 for the Gambia Project. The Project which is organised and run by students and staff from the Department of Electronic and Electrical Engineering has, since 2006, installed solar power at seven schools and two health clinics in rural Gambia.

The fundraiser was attended by university staff and other supporters of the project. The fundraisers are a determined – and persuasive – team. They baked and convinced friends and colleagues to bake, as well as persuading them to give their favourite recipes for publication in the new Gambia Cookbook. It was a sell-out as soon as it hit the book stall!

For the raffle, they talked several local restaurants into donating ‘dinners for two’, hair dressing salons to donate gift vouchers, distilleries to contribute high quality malt whiskies, and theatres and orchestras to give tickets. Additionally, a day’s sailing on the yacht owned by the Department of Naval Architecture and Marine Engineering, and a weekend at Ross Priory on the bonny banks of Loch Lomond were given as raffle prizes. Gambia Project Christmas cards were also sold on and after the day.

The Principal’s wife Mrs Eileen McDonald who is an enthusiastic patron of the Gambia Project came along to lend her support at the fundraiser. She said: “I am delighted to support this worthwhile cause – for the Gambian communities it is simply life-changing. Having solar power means that the school days are lengthened and that almost twice the number of children can receive an education.”

The Project team extend their thanks to all those involved in raising so much money for a worthwhile cause. If you would like to help to sustain this work or would like to get more information about the project contact Christine Donald cdonald@eee.strath.ac.uk or visit www.strath.ac.uk/eee/gambiaproject

The Faculty Agent of the Year Competition

Following last year’s very successful visit from two Indian agents, the Faculty of Engineering is again running its Agent of the Year Competition, although this year the competition was opened to agents from Nigeria.

In order to win, the agents had to answer a number of questions based on articles in the Autumn/Winter 2011 issue of Engineering Insight and also outline three things which they think that the Faculty could do to encourage well qualified students from Nigeria to come to Strathclyde.

The best two entries were chosen by the Dean, Professor Scott MacGregor, and the winners will come to Scotland for two weeks after Easter and spend time with all the departments in the Faculty - as well as being shown some good Scottish hospitality and visiting some of the main Scottish tourist sites.

After learning about the variety of teaching and research activity happening in the departments’, the two agents will be invited to give a short presentation on what they see as ways to improve the appeal of Strathclyde to Nigerian students. Looking at each department in turn they will suggest ways of making better connections with Nigerians interested in Engineering.

The competition forges stronger links not only with the agencies that won but also with all those who entered. Due to the fact that the agents had to concentrate on what the Strathclyde Engineering Faculty can offer in order to answer the questions, the hope is that they should have Strathclyde at the forefront of their minds when directing students interested in engineering to a particular university.

This year there was a good response to the competition from Nigerian Agents and the two winners were chosen from a shortlist of 10. They represent two different Agencies – PFL Education and UKEAS Nigeria.

One of the impressive Scottish landscapes that the agents will visit on their trip...
International Exchange Programme
Department of Architecture

The Department of Architecture at Strathclyde is involved in a wide range of international activities; International Staff and Student Exchange, International Workshop programmes, International Consortia and International Cultural Events.

These activities underpin a Department that has a fundamentally global outlook, which informs everything the Department does: teaching; research; culture; and social activities. The exchange programme lies at the heart of its international collaboration. The Department is proud to promote one of the largest and most expansive international exchange programmes of any school of architecture in the UK. Currently over 25 formal exchange agreements are in place, primarily in Europe through the Erasmus exchange programme, but also further afield in Canada, Singapore, North America, South America and Australia.

Students at both undergraduate and postgraduate level have the opportunity to undertake a semester’s exchange, within Year three of the BSc in Architectural Studies (Hons) degree, and Year five of the postgraduate Diploma/Masters in Advanced Architectural Design. Approximately 30% of any given cohort take advantage of this opportunity at some point in their education. The pedagogical benefits of such opportunities are difficult to measure - but if grades are an indicator, typically those students who undertake the exchange achieve 2.1/1st class level. The personal benefit is even harder to quantify – increased independence and maturity is consistently noticeable in exchange students.

For all the students who go out on exchange, the Department is pleased to welcome an equal number in. This enhances the international outlook of the Department’s education programme. This is, in turn, reflected in the staff contribution to this programme. Staff international mobility is vastly enhanced by these formally acknowledged agreements and this broadens pedagogical experimentation, and development of other areas of academic activity. The exchange programme is one part of the international policy which the Department has pursued for some considerable time. Exchange is not seen as an adjunct to the Department’s activities, but is fundamentally embedded. It aligns itself with core curriculum, further international collaborations in the form of International Workshops and International Consortia, and underpins a capacity to network and co-exist comfortably in the international arena.

International Workshops offer the students and staff opportunities to engage in intensive periods of study on specific agendas, often in support of core curriculum, but equally in areas that might be outwith typical activity. Recent workshops have covered such diverse themes as: identification and representation of place (Warsaw), navigating the urban environment through sensory impairment (Brussels), the relationship between architecture and scenography (Paris), community centre construction and community engagement (Bangladesh), amongst others.

Many of the workshop programmes are delivered with partners in the Department’s consortium groups, some formalised, some informal. The Department is a partner in the META-UNIVERSITY consortium, working with nine partners across Europe concerned with the re-development of the existing urban fabric (generated from the only EU-funded consortium in the academic discipline of the built environment). This consortium has spawned the ALFA programme, which has worked with partners both in Europe and South America for a number of years, working on similar themes to the META programme, and about to embark on a three-year programme investigating comparatively the nature of architectural and urban design pedagogy and the profession (with 12 partners in South America).

Of the Department’s informal links, there is a consortium looking at the relationship of ‘memory and the city’, currently working with six partners in Berlin, and further collaborations are being discussed with a number of international partners to expand the Department’s interest with ‘live build’ as a method of learning through engagement with materiality.

The result of this extensive international activity is that the Department hosts a considerable number of international guests on an annual basis. The Department runs several social activities as a celebration of this rich cultural mix – from informal international evenings (currently in the year four it was identified that there were 17 different nationalities, each of which is hosting an ‘international evening’), to formalised events – the Department introduced in the previous session the ‘International Week’, a range of activities that culminated in the opening of the Departments first International Exhibition of student work: ‘A View From Abroad’.

Michal Scieszka meets some of the locals on his exchange to Singapore
Branching Out in Malaysia

With globalisation of strategic importance for many organisations within the engineering sector, the Faculty is playing a key role in educating graduates for this worldwide market. It has a long tradition of attracting students from around the world and this year was no exception: over 80 nations, spanning South America, Africa, Asia and Australasia, are represented within its student body.

Along with China, India and Nigeria, Malaysia is a key overseas market for the Faculty, and one in which its international reputation is growing. Since 2007, the Faculty has operated highly successful partnerships with a number of leading Malaysian academic institutions including Taylors’ College, University of Kuala Lumpur (UniKL) and INTI University College. Earlier this year, following a Faculty visit to strengthen its position in this market, two new partnerships with KDU and Sunway Universities were established. These will support research collaboration, undergraduate and postgraduate student articulations and academic visitor exchange opportunities. Further visits to these institutions are planned over the coming months, with the first student intake expected in September 2012.

In November 2011, the Faculty welcomed a delegation from UniKL to Strathclyde. Representatives from two of UniKL’s institutes, the British Malaysian Institute (BMI) and Malaysian Institute of Chemical and Bioengineering Technology (MICET) met with staff from the Faculty and the Departments of Electronic & Electrical, and Chemical Engineering, to discuss development of the existing partnership, tour the teaching and research facilities, and meet with existing UniKL students. The Faculty has recently been appointed a preferred partner by UniKL on its UK degree transfer programmes and is looking forward to welcoming students to a number of its undergraduate courses in September.

Environmental Expertise in International Demand

A team of environmental experts from Strathclyde were recently in Thailand, running an international workshop on pollution control for the United Nations Industrial Development Organisation (UNIDO). The participants were environmental regulators, industry experts and academics from China, Indonesia, Laos, Cambodia and Vietnam. These countries have all signed up to the Stockholm Convention, to control Persistent Organic Pollutants (POPs), a group of chemicals found in older pesticides and some industrial equipment. The chemicals can have severe effects on human and animal health, and although their production is now banned in most countries, they have left a legacy of contamination across the world.

Scotland has a long history of industrial development, and the clean-up after those industries have gone. The evaluation and management of contaminated sites is one area of expertise in the David Livingstone Centre for Sustainability in the Department of Civil Engineering. The team included specialists in land remediation (Dr Christine Switzer), environmental chemistry and marine pollution (Dr Helen Keenan), environmental management (Dr Janey Andrews) and environmental forensics, hydrogeology and risk management (Professor Robert Kalin). The workshop also drew on the experience of regulators in Thailand and Southeast Asia to develop locally appropriate approaches to the problems of contamination by POPs.

This workshop was the third in a series supported by UNIDO to develop capacity in pollution control among regulators and industry specialists in industrialising countries. The Strathclyde team works closely with other academic institutions through the UN to support the development of this expertise worldwide. For example, Kasetsart University in Thailand and the University of Malawi have sent some of their best students and staff to study for PhDs at Strathclyde to allow them to return and develop relevant educational programmes within their own countries.
Reach for the Stars: A Challenge for Engineering Students in India

This year, the Faculty is launching an innovative challenge for Engineering students in India. The “Reach for the Stars” competition will provide two Indian college students with an all-expenses paid, month-long trip to the University. Students who enter the competition will work in teams of two and will be challenged to come up with a new business idea related to the Space Industry. Participants registered their teams and the challenge was released at the end of January 2012 when students were asked to submit a three minute presentation which was posted on YouTube within 24 hours of the challenge being released.

The prize for the winning team consists of a fully-funded, action-packed, four week-long trip to the University of Strathclyde during June and July 2012. During the first week the lucky winners will join the Scottish Space School and participate in an amazing week of space-related activity: they will meet NASA astronauts and be challenged both as individuals and as members of a team on a range of space-related challenges. They will meet like-minded Scottish Space School attendees from all around Scotland in a truly memorable week.

The pace changes in the second week and the winners will discover all of the interesting, exciting and life-enhancing things that Strathclyde Engineers do. They will be invited to interact with Strathclyde students: they will join the Formula Student Team for a day and also find out how one of our student-led Engineering for Development projects has altered the lives of some African villagers. A visit to the innovative Edinburgh company ThinkTank Maths is planned and they will be asked to solve a real life problem using mathematics.

The winners will visit our off campus world-class research facility - The Advanced Forming Research Centre. The week’s activities will round off with the researchers at the award winning Advanced Space Concepts Laboratory.

The third week will be spent on the Faculty’s Accelerate Programme. This is a great chance to put theory in to practice! From design to production – they will find out all about it.

Week Four is the Steepest Ascent Consultancy Week. This company was established in 2004 by engineers with extensive knowledge of DSP and digital communications systems and exploitable wireless/ mobile and DSP software. The winning team will put everything they have learned in the past weeks into practice and produce a consultancy report for the company.

The winners will then travel to London to spend an afternoon at the world famous Farnborough Airshow before flying home.

Dean of the Faculty, Professor Scott MacGregor, said,

“We decided to launch this challenge in India because we had to choose one market and we are very impressed with the quality of engineering students from India. We have had a long established relationship with India, both in terms of teaching and more recently with research collaborations. We also wanted to showcase all the interesting projects and activities in this Faculty.”

The challenge was launched simultaneously on Facebook, Twitter and the Challenge website.
Mechanical and Aerospace Engineering Study Abroad Success

The Department of Mechanical and Aerospace Engineering has been sending students on overseas exchange for well over 20 years. From humble beginnings with a few European partners, it now has one of the largest study abroad programmes of any engineering department in the UK, with over 50 students currently on exchange. By the time they graduate, approximately 35% of students in the Department will have studied overseas for at least one semester.

Popular destinations include universities in the USA, Canada, Australia and Singapore, as well as a variety of partner institutions in Europe. Students register for modules at a partner university, choosing a curriculum that aligns with the one they would study at Strathclyde. Many students study modules taught in English, but some attend universities in France, Spain, Germany and Italy and take classes that are taught and examined in the language of the host country. As an alternative, project work can be carried out under the supervision of staff at the host university, and the language of communication is English, although the students may need to learn the language of the host country for social purposes.

The majority of students study abroad in third year, although a small number of fifth year MEng students also take part. On their return, students receive credits towards their Strathclyde degree, and the transcript from the partner university is used to generate a grade that contributes to the students’ degree results.

The most prestigious fifth year exchange is with the Tokyo Institute of Technology, Japan. Students spend the autumn semester in Tokyo, working on a group design project with Japanese students.

This is a highly intensive experience which exposes the students to Japanese culture, working and living practices, and is also technically very demanding. The fifth year group project programme has been expanded this year by a group of three students who are completing their group project in the laboratories of the Technical University of Denmark (DTU) in Copenhagen.

Dr Andrew McLaren, Deputy Head of the Department comments on how rewarding it is for students to participate in the programme: “Students returning from study abroad regularly comment that the most important outcome of the experience is what they have learned about themselves. Yes, they studied a range of modules and learned a lot of useful engineering concepts, but they also value the opportunity to experience living in a different culture, and studying at an institution where they do things differently. Having succeeded in this new environment, they feel mature enough to approach new challenges with confidence. Hearing this type of reflection from students is one of the most rewarding parts of my job.”

“I studied at Virginia Tech for a full year. My exchange was an opportunity without which I would be a different person. Between meeting new people, experiencing fantastic new things and discovering an ambition for Engineering, it was a year I feel I will be building on for the rest of my career.”
Ross Murison, MEng Mechanical Engineering

“Erasmus – the most fulfilling and worthwhile experience you will have in your life! An unforgettable social and academic 10 months that gives you the opportunity to learn a new language and develop worldwide cultural awareness. Invaluable skills that make you irresistible to employers, as I well know! I’m now on my second period abroad, doing an internship with Toyota in Belgium.”
Gordon Taylor, MEng Mechanical Engineering with International Study (studied at Università di Bologna, Italy)

“Studying at the Concordia University in Montreal gave me the opportunity to meet people and experience things which I will never forget. It has opened my eyes to a whole new world of opportunities and I feel I now have the confidence to push myself further in everything that I do.”
Robert Thompson, MEng Mechanical Engineering with International Study

“If you’re thinking about ERASMUS, forget the nerves and go for it! As soon as you arrive, and meet all the people who are doing the same thing, you will start to realise how brilliant an experience it is. I will never forget my adventure in Bologna! And if nothing else, the weather is better!”
Gordon McIntyre, MEng Aero-Mechanical Engineering
Sixteen year-old Kirsty Boswell, from Houston in Renfrewshire, was one of the lucky 10 students who was chosen to go to Houston, Texas with the Scottish Space School 2011, an outreach programme hosted by Strathclyde and supported by the Faculty of Engineering. Whilst the pupils were away they updated the Scottish Space School blog online and posted pictures of their time in Houston. All of them described it as an amazing experience, and upon her return Kirsty posted the following blog about her time in Houston, thanks to the Faculty of Engineering at Strathclyde;

“First and foremost you must understand that the Scottish Space School was downright amazing. I cannot explain how fortunate I feel to have been part of such a unique, eye opening and completely fabulous experience!

The week was a blur of excitement and once in a lifetime experiences that I could never have anticipated. The things that I saw, the people I met and the places I visited; unbelievable. How many other 16 year olds can talk about sitting in NASA’s mission control, listening to inspirational speakers, chatting with a team of astronauts, holding baby alligators, attending air shows, hot air balloon festivals and American football matches? I can, and in the words of the Toy Story Martians I am ‘eternally grateful’ to the organisers of the week’s visit Gordon McVie, Marianne Ballantyne and Dr Gayle Wilson from Strathclyde and Hyang Lloyd (President of Scottish Space School Foundation USA) for giving me the opportunity to do all of these things and so, so much more.

Each day presented us with a new adventure, brought us another inspirational guest and introduced more unique experiences. It was a brilliantly intense seven day learning curve which taught us not just facts about space but also the importance of determination, commitment and hard work which can be summed up in the wise words of NASA legend, Gene Kranz: “Dream, aim high, never surrender”. This philosophy appeared time and time again amongst each and every NASA success story allowing me to realise that such an attitude can be applied to any career, endeavour and aspect of life. However, the recurring theme of NASA tells of a multitude of qualities required in the correct balance to make your average, well rounded rocket scientist!

I would thoroughly recommend any fifth year pupil to apply to the Scottish Space School. Not only could it change your career aspirations, your perception of engineering, your circle of friends, but it could possibly change your life.”

How Scottish Space School Alumni Can Support Outreach Activity

Lauren Stewart attended the Scottish Space School in 2008, and as a result she enrolled the following year on the MEng course in Computer and Electronic Systems in the Department of Electronic & Electrical Engineering (EEE). At the end of her first year she volunteered to be one of 12 mentors to the S5 pupils attending the Space School at Strathclyde in June 2010. All of the mentors were undergraduates within the Faculty and Space School alumni.

After her second stint as a mentor on the 2011 programme, Lauren got involved with Hunter Primary School in East Kilbride where the Primary 6 teacher, a family friend, was looking for support and ideas for the space topic her class were doing. Lauren was able to provide this through class based activities, but she knew that it was the ‘Mars Rover Challenge’ that really captured young people’s imagination, so she approached the Department of EEE to find out if the pupils could come into the University to ‘have a go’ at it.

There had been similar requests from schools that had seen NASA astronaut, Alvin Drew, and rocket scientist, Amber Gell, demonstrate the challenge in a live webcast to 59 schools across Scotland in June, and in response the first Primary School Space Week was held from 7-11 November. In total 211 pupils from eight primary schools attended during the week, along with 20 teachers and support staff, and eight parents.

Feedback was extremely positive and demand is likely to grow substantially, and so an equitable selection procedure will need to be developed.

At any one time it is estimated that up to 100 Space School alumni are studying at Strathclyde, most within the Faculty of Engineering, and by tapping into this valuable resource and encouraging others to follow Lauren’s example, the Faculty’s outreach activity would be greatly enhanced.
Architecture Department Continues to be Popular in Malaysia

In November Faculty members including delegates from the Department of Architecture and the Department of Naval Architecture and Marine Engineering (NAME) travelled to Kuala Lumpur in Malaysia to attend the British Council UK Education fair. The event was typically busy with representation from some 60 UK institutions offering admission to a wide range of undergraduate and postgraduate courses. The Department of Architecture has been a regular attendee of these events over the past five years and through this route has built up a cohort of over 50 capable and well-qualified Malaysian students.

There is every indication that Malaysia will continue to be a strong source of International students. However, in regard to recruitment, it is evident that there is a changing attitude to studying abroad due to increasing financial pressures, a wider range of in-country choices and a greater level of competition among UK universities. In these circumstances it is reassuring that Engineering at Strathclyde is still seen at a destination of choice for many students.

These Education Fairs run twice yearly and are a popular opportunity for all local students to meet and discuss their future plans with prospective universities. The visit is also an opportunity to meet partner institutions, their agents and also to interview potential students. The next British Council Fair will be in mid March and is normally the busiest event.

Both Departments found the trip to be a useful and profitable opportunity resulting in the development of new contacts and prospects.

Professor Incecik Builds New Links with China

Professor Atilla Incecik, Head of the Department of NAME, was invited to present a keynote speech at the Second Qingdao International Blue Economy Summit Forum held on 28 and 29 October 2011 and to join the official opening ceremony of the new ocean basin at the Ocean University of China in Qingdao.

The International Blue Economy Summit Forum which was attended by over 500 delegates from 18 countries focused on technological innovation for the development of the region’s marine economy, addressing the strategic issues on ocean space utilisation, management and related policies, marine environmental protection, ocean energy exploitation and resource utilisation, shipbuilding and offshore engineering, and marine biotechnology.

The two-day forum was sponsored by 12 Ministries of China and hosted by the Qingdao Municipal Government.

Professor Incecik in his address presented the development of innovative multi-use offshore platforms for marine energy, aquaculture and marine transport for optimum ocean space utilisation.

The opening of a new ocean basin at Ocean University of China which is 60 metres long, 36 metres wide and 6 metres deep preceded the Forum. Professor Incecik gave a presentation at the inauguration of the new ocean basin on challenges in the hydrodynamic design of deep water oil and gas platforms.

The Department of NAME has agreed to establish research collaboration and a joint education programme with the Shandong Provincial Key Laboratory of Ocean Engineering at Ocean University of China. Professor Ning Mei, a senior professor from Ocean University of China has recently spent three months in the Department for the establishment of a joint research programme.
International track sensation Oscar Pistorius made a special visit to Scotland as a guest speaker at the National Centre for Prosthetics and Orthotics (NCPO) Sporting Prosthetics Conference on 11/11/11.

Oscar, who made history earlier this year by becoming the first Paralympic athlete to win a medal at the IAAF able-bodied World Championships, joined a number of high profile speakers at the conference held at Hampden Park, Glasgow, hosted and organised by the NCPO.

The NCPO at Strathclyde is an international leader in prosthetic and orthotic education and the conference provided a forum for inspirational and motivational speakers to encourage people to become more active and participate in exercise and sport. It included presentations from some of the leading paralympians of our generation, including Paralympic cyclist Colin Lynch, and with over 200 delegates in attendance it proved to be a successful event.

The conference brought together a mix of health and sports professionals, engineers, designers and prosthetics users to present on ability, achievement and mobility in sports. Paralympics GB and Scottish Disability Sport were also represented as the conference explored the latest developments in research, technology and design, and looked forward to the 2012 Olympic Games in London and the 2014 Commonwealth Games in Glasgow.

Professor Jim McDonald, Principal of the University of Strathclyde, said: “It is a real honour for the University of Strathclyde to welcome Oscar Pistorius to Scotland and his visit is evidence of the reputation that the National Centre for Prosthetics and Orthotics holds throughout the world.

Oscar’s success at the Paralympics and his recent achievements at the World Championships have revolutionised athletics, and he continues to inspire the next generation of athletes and prosthetics and orthotics professionals alike.

“There is a great deal of interest in Glasgow as the countdown continues to the 2014 Commonwealth Games, and the University is delighted to play its part in promoting the fantastic work being done to encourage participation in sport and physical activity for everyone.”

Oscar’s appearance in Scotland comes ahead of his attempt to create another piece of history by qualifying for the South African 400m team for the 2012 Olympics in London.

Oscar said:

“I am delighted to be here in Glasgow and attending this conference on a topic very close to my heart. Sport can inspire us all and the more we can do to promote how anyone with any ability can become active will encourage current and future generations. I’m particularly excited to be speaking at one of Scotland’s most famous stadiums - Glasgow is a city with rich sporting heritage and I am excited about the possibility of coming back and competing here in 2014 at the Commonwealth Games.”

Acting Head of the NCPO, Elaine Figgins commented on the success of the conference; “The hard work of the staff involved in organising the conference has resulted in it being a real success, bringing together engineers, healthcare and sports professionals alongside prosthetics users to motivate us all to work collaboratively and improve the health and wellbeing of the disabled and able-bodied. It has been a pleasure to have Oscar Pistorius as our keynote speaker; he is a well grounded and inspirational athlete, who is obviously dedicated to his sport.”

The NCPO promotes excellence in education and enables rehabilitation professionals to learn and develop enhanced methods of practice in the field. It is one of only two institutions in the UK offering undergraduate and postgraduate education in Prosthetics and Orthotics, and is the only institution in the world to offer the five-year programme to MSci level. It is recognised at the highest level by ISPO, the International Society for Prosthetics and Orthotics.
Researchers in the Centre for Ultrasonic Engineering have started a new international collaboration to investigate how spiders communicate. Dr James Windmill, from the Centre for Ultrasonic Engineering (Department of Electronic & Electrical Engineering) in collaboration with Dr Damian Elias, from the Department of Environmental Science, Policy, and Management at the University of California, Berkeley, USA, received funding for this new collaborative project after applying to the British Council’s Prime Minister’s Initiative fund for new UK-USA partnerships.

The partnership aims to study one of the fundamental questions in biology: how do species evolve? Understanding the process of evolution requires an integrated understanding of the physiology and behaviour of animals, the physical properties of their environment, and their evolutionary history. Communication is an important behavioural aspect of evolution. It requires a successful exchange of information that is dependent on the behaviour and physiology of a sender to produce information (signals), the successful transmission of that information through the environment, and finally the behaviour and physiology of a receiver to detect, decode, and process that information. The Habronattus jumping spider provides the collaboration with a unique opportunity to understand communication within an evolutionary context.

Male spiders court females using combinations of substrate vibrations, which are detected using sensory organs within the spider’s legs, and visual “dances” which are detected by their specialised eyes. The new collaboration’s research goal is to explore the mechanisms of communication and speciation by studying the physics of the environment as it relates to substrate signal transmission, as well as receptor biomechanics, and the behaviour of different Habronattus species communities that occur in the same area.

Dr Windmill said: “This new international collaboration gives us a chance to work across the boundaries of our disciplines. Not only will biologists get new input from state-of-the-art engineering techniques, but the engineers may learn something from the substrate signalling used by the spiders.”

For more information visit the Centre for Ultrasonic Engineering:
www.strath.ac.uk/eee/research/cue

DMEM Students Collaboration with China

Dr Winifred Ijomah from the Department of Design, Manufacture and Engineering Management (DMEM) is the University of Strathclyde’s work package leader in an international collaboration to exchange sustainable manufacturing knowledge between the EU and China. The three year, eight University project ‘Globally Recoverable and Eco-friendly E-equipment Network with Distributed Information Service Management, (GREENet)’, concludes in July 2014.

It involves the top four Chinese Research institutions: Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences; Tsinghua University; Huazhong University of Science and Technology; the Institute of e-Business, Fudan University and four European Universities; Strathclyde University; University of Skövde, Sweden; Coventry University and Technical University of Cluj-Napoca, Romania.

In this work, six of Dr Ijomah’s PhD students, in pairs, will spend two to three months at a time in China to disseminate their research findings and undertake further research. The Chinese contingent will do the same when they visit the University of Strathclyde starting from February 2012. This project will team up trans-continental researchers in Waste Electrical and Electronic Equipment (WEEE or e-waste) management and enabling Information and Communication Technologies, (ICT). The goal is to enhance understanding and the knowledge base in both areas whilst achieving research synergies such that effective technical solutions can be developed to forward globally sustainable WEEE management.

Dr Ijomah comments; “Research on sustainable WEEE management and enabling ICT is timely and significant because our current manufacture and consumption modes are unsustainable. Raw material and landfill space are becoming increasingly expensive as they are getting exhausted. A key research issue here is to develop processes and technologies to extend the value and usefulness of WEEE (e.g. recovering) and to better manage WEEE after service to generate less or even zero environmental impact. In future all WEEE needs to be traceable, manageable, recyclable and recoverable in order to meet this goal.”
Tucked away in a corner of the Faculty of Engineering, a small team is thinking big and forging links across the world.

The Scottish Environmental Technology Network (SETN), founded in 2006 to support the development of the environmental and clean technology (ECT) sector in Scotland, has facilitated business collaborations and drawn interns from as far away as Zimbabwe.

Director, Dr Colin Cunningham, said: "Although our remit is to support Scottish businesses, it by no means prevents us from working on an international scale and many of our member companies are now selling green technology, developed in Scotland, on an international platform."

Recent successful collaborations include:

- William Curle Developments Ltd who are establishing themselves in Russian markets with their Therm-X technology (for the treatment of hydrocarbon contaminated drill muds and soils);
- Soilutions’ acquisition of a contract to clean up oil-contaminated land in Bahrain, won with support from Dr Cunningham;
- Visiting researcher, Dr Lara Russo, from Salerno Italy, is also working with Soilutions and SETN researching techniques to stabilise heavy metal contaminated soils;
- A 13-year collaboration with the Institute of Ecology and Genetics of Microorganisms (IEGM) in Perm, Russia has now resulted in an award of 9 million roubles (£180k) to support the development of biological remediation technologies for hydrocarbon contaminated sites under moderate and cold climates.

Dr Cunningham added: “SETN is establishing itself as a hub for the ECT sector in Scotland but our work is being picked up in regions across the world. In fact, we’ve just had a request from the largest logistics company in Lithuania, JSC Lithuanian Railroads, to provide a solution to greenly dispose of 3,000 tonnes of oil-contaminated railway sleepers generated annually in the country.

“This is just a taste of things to come; we aim to open up more opportunities for Scottish businesses on an international scale, bringing vital work to Scotland during difficult economic times, and putting Scotland firmly on the map for green technology."

For more information about the work of SETN, visit www.setn.org.uk

International Internship Opportunities at SETN

A core element of SETN’s support for Scottish ECT businesses is the provision of internships which provide cost-effective methods of undertaking research and development to businesses that don’t have the funds and/or the facilities. Intern applications have come from many regions across the world, including Brazil, Mexico and Zimbabwe as well as a number from within the EU.

Internships usually last between three and six months and provide a life-line to small businesses during the vital product development stage as well as creating opportunities for students to gain valuable experience working on commercially relevant projects. The latest intake included three students from the National Graduate School of Chemistry, Montpellier: Alexis Sancey, Jeremy Kryczynz and Florence Martig. Alexis assisted Spruce Fuel Cells Ltd with the development of their Aluminium-air fuel cell. Jeremy worked on a collaborative project between SETN and Strathclyde’s Chemistry Department, assessing functionalised silicates for the removal of potentially toxic elements.

Florence, returning for her third internship with SETN, undertook a desk study analysing the potential markets available for anaerobic digesters coupled to algal photo-bioreactors for Scottish Bioenergy Ltd. Florence said of her time with SETN: “it enabled me to gain confidence in my abilities, improve my English and get a clearer idea of which type of career I should choose.”

2012 will see another cohort arrive from across the EU and beyond. Colin Patterson, Project Coordinator, said: “The internships are an integral part of what we do at SETN; they provide vital R&D opportunities for small businesses as well as giving students valuable experience in a live setting – everybody wins.”

Contact colin.patterson@strath.ac.uk in relation to internships at SETN.

SETN interns with members of the SETN staff
The Global Innovation Management (GIM) MSc programme, which recruited its first cohort of students in 2007, is the first ever Erasmus Mundus programme at the University. The Faculty’s Department of Design, Manufacture and Engineering Management (DMEM) is the lead administering University for the programme.

The GIM programme is a two-year, 120 ECTS, joint MSc degree programme awarded by the consortium of the University of Strathclyde, the Center for Industrial Production (CIP) at Aalborg University (AAU) in Denmark, the Institute of Technology and Innovation Management at Hamburg University of Technology (TUHH) in Germany and the Australian Graduate School of Entrepreneurship (AGSE) at Swinburne University of Technology (SUT) in Australia. The collaboration brings depth and breadth to the innovation management curriculum, and the student experience, through student mobility and the complementary expertise of partners.

Key to the programme’s implementation was a successful application to the 2007 call of the European Commission’s Erasmus Mundus programme. Erasmus Mundus is a cooperation and mobility programme in the field of higher education that aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries. This provided development incentives and a framework aligned with best practice guidelines for collaborative European Higher Education.

The programme provides Erasmus Mundus student scholarships each year of up to €48,000 per year for non-EU applicants and €23,000 for EU based applicants. Places on the course are in high demand and the consortium received approximately 1000 applications from over 50 countries in 2010.

All student cohorts have a common first year at Strathclyde and select AAU, TUHH or SUT for their second year of study. Mobility choice is based on location and learning style. Year 1 at Strathclyde provides a strong foundation in the Innovation Management process, where design is viewed as a critical innovation process, and essential practical experience of working within globally distributed teams and with industrial clients on product/service development briefs.

The programme is delivered entirely in English with local language courses available with all the partners. The common foundation year ensures a consistent MSc award, initiates student community and facilitates quality assurance and programme management where all students start at the administering institution of Strathclyde. A joint MSc degree award is made by Strathclyde and the second year partner.

Staff mobility ensures integration and coherency of the programme and, already, the programme has facilitated staff exchanges between DMEM at Strathclyde and the AGSE at Swinburne. New perspectives are introduced through four scholarship places each year. Through this mechanism, non-EU academics receive funding to contribute to programme teaching, research or development at consortium partners.

Professor Bill Ion, GIM Programme Director comments on the success of the programme;

“GIM has attracted extremely highly qualified applicants from all parts of the world, contributing to the internationalisation of DMEM and to a vibrant and highly motivated student community. The academic and student network generated by the GIM programme has helped DMEM to build research and teaching relationships with leading Universities across the globe.”

Students develop skill sets and a global perspective suited to both larger organisations and SMEs, supported through industry based projects/ modules in both years of study, including an internship in Denmark. Graduates are research capable and have an increased understanding of activities inputting into the innovation process. Our graduates have secured high profile positions in the UK, Germany and Denmark. A strong alumni network is expected to validate expectations of employability in the future.

For more information, visit: http://www.Globalinnovationmanagement.org/
Scottish Soil Research Findings Could Help Fight ‘Superbugs’

Natural metal levels in the environment are contributing to the growing global problem of antibiotic resistance – according to researchers at Strathclyde and collaborating universities.

The research has found that antibiotic resistance genes, which are among the primary causes of the ‘superbug’ epidemic, are more prevalent in areas of high metal content and a better understanding of geographical areas of concern could help to combat transmission.

The project involved the examination of soils throughout Scotland and found a strong correlation between the natural levels of metal and the relative resistance. The common understanding is that the misuse, or overuse, of antibiotics in medicine and agricultural operations are major suspects for increased antibiotic resistance. While this remains true, researchers have found that environmental conditions may play a major role. The team believes a better understanding of geographical areas of concern could help combat the problem and ensure antibiotic medicines improve illness.

Dr Charles Knapp from the Department of Civil Engineering, who led the research, said: “There is a growing concern about antibiotic resistance in natural and clinical settings and the World Health Organization considers it to be a global problem.

“There is an assumption that improper use of antibiotics is the sole cause of resistance, however, the vast majority of antibiotic resistance genes have originated from the natural environment. Therefore, understanding the factors that influence the levels of these genes is critical to tackling the problem.

“The research provided us with a unique opportunity to examine how geochemical and soil-metal conditions affect the selection and prevalence of resistance genes in nature.

“Our results will aid further surveillance efforts to determine base levels of resistance; with our chemical arsenal to battle infections ever decreasing, the findings will help to develop an effective approach to address these environmental factors.”

The research was conducted by Dr Knapp and PhD student Seánín McCluskey (University of Strathclyde), Brajesh Singh (University of Western Sydney, Australia), Colin Campbell, Gordon Hudson (The James Hutton Institute in Aberdeen) and David Graham (Newcastle University).

The initial research in Scotland has generated interest and opportunities to further examine metal-related effects on the occurrence of resistant infections in Malawi, England, Canada, USA and Australia. Additionally, Dr Knapp is part of an international team examining the fate of antibiotic resistance in the global scale, with additional collaborators in India, China, Cuba, Canada and UK.

Dr Knapp concludes, “It is an interesting problem. Greater impacts are observed in areas of elevated pollution. If you ‘stress’ the bacteria, they defend themselves by exchanging genes; this often results in ‘stronger’ bacteria that are less susceptible to chemical attack. Unfortunately, we may need to reshape how we view the consequences of pollution on public health, and re-think our strategy in combating ‘superbugs’.”

Canadian Collaboration to Examine Wastewater Treatment Facilities

As awareness and concerns for water-quality increase, wastewater treatment facilities are challenged to meet these- environmental, societal or regulatory expectations. Removal of residual nutrients, pharmaceutical and personal-care products, and micro-organisms becomes difficult or costly.

Dr Charles Knapp has joined Dr Mark Hanson (eco-toxicologist, University of Manitoba) and Dr Charles Wong (chemist, University of Winnipeg) to examine ways to treat wastes, laden with hard-to-treat pharmaceutical compounds, from agricultural operations and small communities. Of particular interest to Dr Knapp are the effective removal of drug-resistant bacteria and enhancing microbial communities that increase treatment performance. The project involves monitoring of existing treatment processes and using mesocosms (small-scale, pseudo-natural ecosystems), including “mini” constructed wetlands, to see what improvements can be made to improve discharge quality without large capital investment and operation costs.

Dr Knapp comments, “What is important is understanding the ecological processes that best drive the system, and find a natural way of enhancing its efficiency.”
International Dimension to AFRC

The University’s Advanced Forming Research Centre (AFRC), hosted by the Department of Design, Manufacture and Engineering Management (DMEM) but housed in a bespoke building at Inchinnan, near Glasgow Airport, has had a strong international dimension since its inception. A joint venture between the University, the Scottish Government, Scottish Enterprise and a number of multi-national engineering companies, it operates on a membership model whereby companies who become “Tier 1” members invest substantial sums in the Centre in return for influencing the research programme carried out there into forming and forging of metals.

Of the four founding Tier 1 members, two are UK-based - Mettis Aerospace Ltd and Rolls-Royce plc - and two are US-based - the Boeing Corporation and TIMET. The AFRC began operating in 2009 and since then two further Tier 1 members have joined, one based in the US (Barnes Aerospace) and one in France (Aubert & Duval). Aubert & Duval, Mettis Aerospace Ltd, Rolls-Royce plc and TIMET all have staff based permanently at the AFRC to enhance interaction between the Centre and its industrial partners. Representatives from all member companies visit the AFRC regularly for Board and Technical Board meetings and research workshops.

Several other international companies have joined as Tier 2 members. This requires a much smaller contribution and is typically in kind, such as in the form of a piece of equipment, software or other supplies. About half of the AFRC’s 11 Tier 2 companies are based overseas.

Two Directors oversee all aspects of the Centre: Professor Bill Ion, Operations Director, and Professor Jeff Brooks, Research Director. Both travel extensively, meeting potential members and suppliers, and to discuss potential research collaborations. Thanks to the Centre’s industrial partners, it is linked into two global research networks, Rolls-Royce’s AxRC network and Boeing’s GlobalNet network. In 2010, GlobalNet held its annual conference in Italy, and in 2011 in Singapore. The AFRC was represented at both. In addition, the 2011 AxRC conference in January 2011 was the first conference the Centre hosted, only a few months after the building opened. In the autumn of 2011 Bill Ion was invited to assist with the set up of the Commonwealth Center for Advanced Manufacturing in Virginia (part of the AxRC network). The AFRC was selected to give a presentation to the EU’s Committee of the Regions in July 2011 as an example of a successful innovation centre, and in September 2011 the Centre hosted the EuroSPF conference which, despite its name, attracted delegates not just from Europe but beyond.

The AFRC is a regular stop for visitors from abroad. Some are interested in working with the Centre, while others are on fact-finding tours. Some are introduced by DMEM or other University departments, such as Research and Knowledge Exchange Services, or the European Policies Research Centre. Others are introduced by Scottish Enterprise’s international arm, Scottish Development International, or by the UK Trade and Investment Department. To date the AFRC has welcomed visitors from North and South America, China and India, as well as several European countries. Fortunately the research staff are drawn from over a dozen countries of origin which has proven invaluable as they provide specialist support to the translators accompanying groups of visitors.

Professor Bill Ion, Operations Director said: “The Centre is one of many linkages that the University of Strathclyde has formed with global companies. The AFRC is proud to be connected to companies and other research institutions around the world. The innovative processes developed here will help transform the capabilities of manufacturing companies not only at home but across the globe.”

The Centre is about to embark on an ambitious expansion, thanks to its involvement in the recently-announced High Value Manufacturing ‘Catapult’ centre, which is a newly-formed consortium of research centres around the UK, supported by the UK’s Technology Strategy Board. It is hoped that this expansion will allow the AFRC to build up membership and expand its research programme and thus be catapulted into an even more successful future.

For more information visit www.strath.ac.uk/afrc
National Centre Invited to Launch of WHO World Report on Disability

On 27th June 2011 Elaine Figgins, Acting Head of the National Centre for Prosthetics and Orthotics (NCPO) at Strathclyde, was invited to attend the World Health Organisations (WHO) Launch of its World Report on Disability at their head offices in Geneva, Switzerland.

The two day event’s opening address for the ‘World Report on Disability’ was launched by Dr Etienne Krug, WHO Assistant Director General of Disability and Rehabilitation, followed by remarks from Professor Stephen Hawking via video link. The themes of implementation of the report, the global health agenda, and advancing the disability human rights and development agendas were all presented during the opening ceremony.

Invited participants including the NCPO at Strathclyde University were then asked to report on their own activities through poster presentations. The International Partners invited ranged from China, Japan, Australia, Africa (Tanzania) and Europe (including Sweden, Germany and the UK).

The following day invited partners were asked to contribute to focus group work looking firstly into areas such as: policy, awareness and advocacy, capacity building; data and research. This was followed by grouping academics, development and professional groups and NGO (including patient organisations such as China’s Disabled Peoples Federation).

The NCPO was challenged to consider what it can and should do in partnership with the World Health Organisation to help implement this report which brings together all the data currently available on the world’s disabled and also highlights the need for further research in this section of the population. The report is the first to provide global guidance on implementing the United Nations’ ‘Convention on the Rights of Persons with Disabilities’ (CRPD).

The report and a summary of its main findings and recommendations can be found at www.who.int/disabilities/world_report. The NCPO as part of the University of Strathclyde is keen to re-establish its collaboration partnership with the World Health Organisation. Elaine Figgins is keen that further linked events with the WHO and the University are developed throughout 2012.

Norwegian Architecture Practice Hold Exhibition at Strathclyde

The Department of Architecture was honoured to be chosen to host the only Scottish showing of an exhibition of unique work by one of the greatest independent architectural practices in the world. The Norwegian practice, Reiulf Ramstad Architects (RRA), is one of the top five winners in the World Architecture News Awards (May 2011), highlighting practices considered as the leading lights of architecture in the 21st century; outstanding, forward-thinking people and organisations who have the demonstrable potential to be the next big thing in the architectural world.

The ‘Transforming Landscapes’ exhibition was sponsored by the Norwegian Government and was a major event in the Department’s Knowledge Exchange Programme. It was formally opened in the Architecture Department Gallery by the Norwegian Ambassador to the UK, Mr Kim Traavik, at a reception on 3 February 2012, and the exhibition was open to the public throughout February. Mr Reiulf Ramstad also gave an inspiring lecture on the work of the Practice.

The philosophy of RRA is that architecture must be instructed by the uniqueness of its location. Each project becomes a unique departure when highly individual design emerges from a set of clearly defined and controlled elements.

RRA is an independent architectural firm with a high level of expert knowledge and a distinct ideology. The firm demonstrates a multitude of approaches in solving their national and international assignments, winning numerous prizes and awards for their projects. They have completed work at every scale, including urban development, parks, river landscape and transformation of cultivated and natural landscapes. They have a permanent staff of 12 graduate architects, comprising one managing director; two admin staff and two students and they are currently one of the few studios in Norway with a remarkable range and diversity of assignments and commissions.

National Tourist Route at Trollstigen, Rauma, to be completed 2012 by RRA.
Case Study: The FutureSME Project

FutureSME is an €8 million project funded by the EU’s Framework 7 programme. Led by Professor Umit Bititci from the Department of Design, Manufacture and Engineering Management, the international consortium of 26 partners includes 13 manufacturing SMEs, research and development organisations as well as support agencies. The consortium represents a collaborative effort amongst eight European countries: Czech Republic, Ireland, Italy, Poland, Turkey, Slovakia, Sweden and the UK.

The project began in January 2009 and is approaching its final year of funding. The overall objective is to produce a sustainable business model for future manufacturing SMEs, along with tools and methodologies to enable them to grow and sustain their competitive positions now and in the future. Research during the first year of the project highlighted the key challenges facing manufacturing SMEs today and predicted challenges over the next 10-15 years. It also looked at the futility of developing prescriptive business models, which at best would match the predicted changes in the business environment for a short time, but in reality would be redundant almost immediately. Thus, it was quickly realised that for SMEs to compete and indeed grow in an increasingly complex and ever changing global economy, they need the capability to think operationally in the short-term and strategically in the long term. They must also keep an eye on the developments in their environment, so that they can identify and respond quickly and in an innovative way to opportunities and threats that may be emerging.

These can be summarised as four generic capabilities that any organisation should develop: managerial, strategic, operational and adaptive.

To enable manufacturing SMEs to develop their managerial, strategic, operational and adaptive capabilities, the partnership has developed an integrated transformation process onto which various tools, methodologies and information are organised. SMEs engage with the project via an online web portal at www.FutureSME.eu and are encouraged to complete a business diagnostic which provides a current state assessment of the business in terms of the four capability areas. This then points to help and support available on the portal to close any gaps identified. The planning stage focuses on a tool for visual strategy development and management, leading to visual deployment of the strategy throughout the business. The web portal contains ‘how to’ guides, general information, case studies, videos, checklists… all organised according to the capability areas, and the key areas of any business such as performance management, operational effectiveness, leadership and change. The FutureSME consortium is also keen to ensure SMEs are engaged in continuous learning and development, and so also offer a sustainable growth programme that SMEs can attend to support their capability improvements.

Each of the 13 SME partners has gone through this transformation process, resulting in numerous improvement projects, efficiency gains and opportunities for market expansion. These are detailed as case studies on the web portal. At this stage the team is gearing up to officially launch the web portal and make the project available on the portal to close any gaps identified. This then points to help and support available on the portal to close any gaps identified.

For more information on the project please visit www.futuresme.eu or contact Dr Catherine Maguire, c.maguire@strath.ac.uk
NCPO Director Invited to Present at Seminar in Brussels

On 30 November 2011 Elaine Figgins, Acting Director of the National Centre for Prosthetics and Orthotics at Strathclyde, was invited to present on behalf of the International Society of Prosthetics and Orthotics (ISPO) their accepted paper at the International Network for Quality Assurance in Higher Education (INQAAHE) Seminar in Brussels.

The paper entitled ‘Evaluation and Recognition of Prosthetics and Orthotics Education Programs-Experiences and Challenges’ looked at the Global recognition process into education in this biomedical engineering discipline of which Elaine Figgins has been an experienced evaluator for the International Society. The two-day event was extremely multi-disciplinary with presentations and keynote speeches from Teacher Education, Business, Engineering, Medicine, Health Professions and Science.

Policy, international mutual recognition and quality assurance in Higher Education were all on the agenda, the audiences and speakers arriving from across Europe, the United States, Australia, India, Africa and the Caribbean. The European Network for Accreditation of Engineering Education (ENAAEE) presented multi-cultural examples of accreditation of engineering education from Italy, France and Australia as well as their EUR-ACE framework standards and certification. (www.enaaee.eu)

Global trends in internationalisation in Higher Education research were presented. The European Alliance for Subject Specific and Professional Accreditation and Quality Assurance (EASPA) was also introduced as a newly founded body in an attempt to rationalise the varying and growing quality assurance agencies globally.

The event itself was stimulating and full of debate including that of who regulates and quality assures the quality assurance agencies. ISPO were keen to forge links with quality assurance for evaluation and recognition processes at a global level and many excellent links were established.

Strathclyde’s Suaineadh Experiment Ready for Launch into Space

Students from the Department of Mechanical and Aerospace Engineering are preparing to launch one of their experiments into space. In December 2010, the Suaineadh experiment got selected by the Rocket-borne Experiments for University Students (REXUS) programme to be launched onboard a sounding rocket into space. REXUS is a programme funded by the German Aerospace Center (DLR), the Swedish National Space Board (SNSB) and the European Space Agency (ESA), giving students the possibility of launching their experiments into micro gravity.

Since the selection workshop at ESA’s ESTEC (Noordwijk, NL), an international team formed by the Advanced Space Concepts Laboratory (ASCL) from Strathclyde, the University of Glasgow and the Royal Institute of Technology (Stockholm, Sweden) worked on the design and manufacturing of the experiment through various reviews required by the organising agencies. The team consists of students from Scotland, Germany, Sweden, Poland and China. Thomas Sinn, a PhD student from the ASCL at Strathclyde is the project manager and the team will be supervised by Dr Massimiliano Vase, a highly experienced space systems engineer from the Department of Mechanical and Aerospace Engineering.

The aim of the Suaineadh experiment is to deploy and stabilise a space web which should demonstrate a novel concept of deploying large structures in space. Shortly before the rocket’s apogee, the free flying section of Suaineadh will be ejected from the nose cone of the rocket. Once the experiment’s motion is controlled and at a specific distance from the rocket, a 2 x 2 m² space web will be released. Four daughter sections situated in the corners of the square web will serve as masses to stabilise the web due to the centrifugal forces acting on them. The four daughter sections contain inertial measurement units (IMUs).

The rocket launch campaign is scheduled for the 12 till 23 of March 2012 at ESRANGE in Kiruna, Sweden.
Staff in the Department of Civil Engineering have built a strong international reputation for capacity building in health and the environment. The David Livingstone Centre for Sustainability supports universities in many countries to build the skills to protect human health. In Africa, where medical expertise is in short supply, environmental health specialists help families to protect themselves from disease and provide basic healthcare. Staff from Strathclyde who are based in Malawi, have established The Africa Academy for Environmental Health, which has supported the development of the profession through 12 universities in nine countries. The curriculum addresses the most critical needs of water, sanitation and disease control.

Environmental health students in Blantyre, Malawi compete for the David Livingstone Awards, named after the Department’s famous alumnus, known in Scotland and throughout Africa for providing practical and vocal support to Africans in their struggle against disease and slavery. These awards, funded through Strathclyde’s Malawi Millenium Project, are given to the best students in the Faculty of Engineering at the University of Malawi (Polytechnic) in Blantyre. As well as providing some financial reward, they also inspire enthusiastic students throughout the institution to work hard and gain recognition for their efforts. One student who won the award twice is now studying for an MSc in Environmental Health at Strathclyde. After working with Dr Tracy Morse in the Scotland Chikhwawa Health Initiative in Malawi, Kondwani Chidziwisano was awarded a Commonwealth Shared Scholarship to support his studies in Scotland.

Kondwani shares his experience of studying at Strathclyde with Engineering Insight:

“I first heard about the University of Strathclyde during my undergraduate studies at the University of Malawi (Polytechnic). At the Polytechnic, the best performing students from the Civil Engineering and Environmental Health departments receive the famous ‘David Livingstone Awards’ from the Malawi Millennium Project through Strathclyde. This motivated me to work hard in class in order to be among those outstanding students and I was a two time winner of the award. This opened my mind to start dreaming of studying at Strathclyde. I was always in search of opportunities and then I got a Commonwealth Shared Scholarship to attend Strathclyde to study for the MSc in Environmental Health, I was over-the-moon! After my arrival I realised that I was studying in a diverse community where everyone is friendly and there is extensive academic support. Now I am living my dream.

During my flight to the UK, I was really worried because it would be my first time in Scotland and I had no idea what it was going to be like. However, as soon as I arrived at Glasgow Airport and met some Scottish people, their warm welcome made me feel like I had arrived home.

Glasgow, where the University of Strathclyde is situated, is one of the most beautiful cities I have seen in my life. I really like Glasgow’s impressive historical and modern architecture. The city offers a great night life, especially with restaurants and pubs. Strathclyde campus is very beautiful and the environment has definitely won my heart. Even more beautiful is the fact that the University comprises of a very diverse student body taught by gifted and friendly professors and staff members. I knew the instant I set foot here that this is the place to be!

As soon as I arrived on campus, all my worries were gone. I was surprised at the large number of international students from literally all over the world. My first few weeks in class were even more amazing because I could interact with different students from diverse cultures. Being an international student among many other international students at Strathclyde makes me conscious of who I really am as a person, as a Malawian, and true African. But at the same time it teaches me how to open my mind to those different from me and to embrace these differences. It’s an experience I wouldn’t trade for anything else. I shall ever cherish being a Strathclyder!”

To learn more about the Environmental Health Programme go to http://www.strath.ac.uk/civeng/pg/envhealth/

To watch a video about our Environmental Health work with the Polytechnic University of Malawi, see http://www.youtube.com/watch?v=vlACojnqgVE
In My View

José Luis Rudeiros Fernández is an international student from Spain who is currently studying for his PhD in Mechanical and Aerospace Engineering at Strathclyde after completing his MSc in Sustainable Engineering; Engineering Design at the University. José shares his experiences at Strathclyde with Engineering Insight.

Why did you choose to study at Strathclyde?

One of the main reasons I chose to come to Strathclyde to study was because the Mechanical and Aerospace Engineering Department has an excellent reputation in the UK. I also chose to study for my PhD at Strathclyde because the project I am working on represents an incredible opportunity in terms of research and gaining experience in an international collaboration.

Explain a bit about the research you are working on?

The primary aim of the research project is the substitution of high density friendly natural fibre reinforcements. The use of these natural fibres leads to a reduced energy required in their production (lower carbon footprint) and light weighting of automotive parts (reduced carbon emissions). The project will provide fundamental research and in collaboration with the SABIC Technology and Innovation Centre in the Netherlands, who are co-funding the project, will develop and investigate potential routes to successfully improve the performance of natural fibre reinforced thermoplastic compounds. SABIC is one of the world’s leading manufacturers of commodity and specialty polymers, so it is great to be working with them!

What do you like about the course?

The group I am working with in the newly installed Advanced Materials Research Laboratory (AMRL) are friendly and interesting people and I am really looking forward to working closely with them in the coming years. The AMRL provides state-of-the-art facilities to departments not just across the Faculty but across the University and beyond, the research possibilities that it offers are huge and I am excited that I can be involved in this.

Would you recommend Strathclyde to other international students?

Yes I definitely would recommend Strathclyde! It is a great University, especially for international students, studying here is sure to be an unforgettable experience.

Bing comes to Faculty from China

Bing came to Faculty from China last year to study at Strathclyde for his PhD in Chemical Engineering. He discusses his time at Strathclyde with Engineering Insight.

“Studying abroad was a dream for me as I wanted to expand my worldview and enhance my employment opportunities. The dream came true last November when I came to Strathclyde for my doctoral degree. After being here for a year I would like to say that it is a life-changing experience and one of the most rewarding things I have ever done.

My English skills have improved greatly because I am surrounded by the language on a daily basis and I am seeing and hearing it in the cultural context. Moreover, at Strathclyde, I have had the opportunity of making friends with excellent people from all over the world and it has allowed me to get to know other cultures first-hand. For example, I have group members who are from Libya, France, and Malaysia.

By learning from them, I understand that cultural differences are more than just differences in language, food, appearances, and personal habits but also beliefs and values that influence the way they live and the way they view the world.

As for my research, I have been working on fuel cell technology which is a new electricity-generating way with high converting efficiency. For the past year, I have been working on developing new materials for solid oxide fuel cells, especially new electrolytes. Now I am very familiar with varieties of synthetic methods required for material preparations and have prepared many materials using sol-gel method, co-precipitation and high temperature solid state reactions, etc. Moreover, I have characterised my materials employing X-ray diffraction, scanning electron microscope, thermal analysis techniques and so on. During studying here, I have the opportunity of attending academic seminars every Wednesday which are held by the Department, and I have a group meeting every week, where I can communicate with group members about our research and we solve difficulties together.”
As a young boy Barry Colford was fascinated with the construction of the Erskine Bridge. Designing and building bridges seemed exciting and Barry decided he wanted to be involved in this. With the influence of his dad, who was a Production Engineer at Rolls Royce, Barry chose to study Civil Engineering at Strathclyde and today, several years later, he is the Chief Engineer and Bridgemaster on the Forth Road Bridge Project.

Barry graduated in 1978 from Strathclyde with an Honours degree in Civil Engineering and secured a job with Babtie Shaw & Morton, a well established consulting civil engineering practice in Glasgow, as a Graduate Engineer in the design office, working on buildings and structures. During this time he studied to become a Chartered Civil Engineer and four years after graduating from Strathclyde he passed the Institution of Civil Engineers interview and exam, allowing him to practise as a Chartered Civil Engineer.

Barry then chose to take his knowledge and skills elsewhere and spent two years in Saudi Arabia working for an oil company building roads and bridges for the transportation of land based oil platforms and rigs. After working for a firm of consulting engineers in London on returning to the UK, he moved back to Glasgow and worked for a local authority on the design and construction of bridges and other highway structures. During this time he also became involved in the maintenance of large bridges, including the Erskine Bridge which had first inspired him into his profession in the first place.

Barry joined the Forth Road Bridge Board in 1996 to take on the role of Chief Engineer and Bridgemaster, the position he still holds today. He is responsible for the safe passage of the 24 million vehicles that cross over the bridge every year and his role involves ensuring the structural integrity and operation of the bridge.

Barry and his team of 72 people not only carry out the key functions of inspecting, maintaining and operating the bridge, but they have taken on a number of significant projects to strengthen or replace major bridge components. This includes strengthening the main towers to take additional traffic loads; replacing all the vertical hangers which support the deck from the main cables; acoustic monitoring and dehumidification of the main suspension cables and constructing pier defences against shipping impact. Barry is responsible for ensuring that all of these multi-million pound schemes are carried out with a minimal disruption to traffic and risk to users.

The team are currently working on a number of different projects, some of which are unique and very challenging. This includes; the investigation of the condition of the post tensioned anchorage tunnels; internal inspection of the main cables to determine current strength and the trial refurbishment of the suspended span deck half joints.

In addition to these jobs, they are also replacing all the bearings on the approach viaducts. This involves major construction work to the top of the concrete piers to enable the viaduct twin steel boxes to be jacked up by 2mm to remove the old bearings and slide in new replacements. This is a very complex civil engineering project which involves Barry not only managing the engineers and contractors, but also the users and residents in adjacent properties and other stakeholders.

Barry is keen to encourage others into his profession and remarks on how rewarding he finds his job; “As an engineer, I enjoy getting things done and seeing work taken from an initial design idea right through to completion. I am very fortunate that I am able to bring teams together to carry out these varied and challenging multi disciplinary tasks. I am also very fortunate that I can still have involvement in the engineering side of solving problems as they occur, whether at the design or construction stage of a project.

“I have been very lucky in my career and would encourage anyone that is thinking about a career in Civil Engineering to pursue this, as I find it an incredibly rewarding profession and love the variety of work that I can be involved in. Civil Engineering is all about benefitting society and sustaining the environment, and I would definitely recommend it to anyone who is considering studying Civil Engineering.”
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