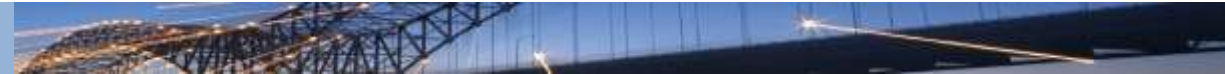




Tell us what you think...

We're currently overhauling the website. Drop us a line and tell us what you'd like to see there. What sorts of information would you like us to provide? Would you be interested in becoming a guest "blogger"? Do you use Twitter? Email us at s.kay@epc.ac.uk



Upcoming events

Annual Retreat	11 th /12 th September 2012:	University of Lincoln
Admissions Tutors' Forum:	7 th November 2012:	Venue TBA
Congress 2013	16 th /17 th April 2013:	University of Portsmouth



Engineering Professors' Council

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Issue

06/12

Engineering Professors' Council: newsletter

On my mind...

We're hoping it's good news for engineering that for 2013/14 the AAB+ entry criterion for student number entry control in England has been widened to ABB+. Interestingly, one of the uncertainties of the original AAB+ proposal was the lack of data on "equivalency", that is, how many students would "count" as part of the AAB+ numbers by having non A level qualifications such as BTEC: a particular issue for engineering entrants. It turns out there are actually rather significant numbers so it will be interesting to see how many more are drawn into the ABB+ net. Although HEFCE have asked for numbers in Strategically Important and Vulnerable Subjects (SIVs) to be maintained, it appears universities have taken a number of different approaches to this in their student number planning and it is not clear how HEFCE will go about monitoring this. We will therefore be keeping an eye on the actual admissions figures amongst our members to find whether the numbers in engineering have indeed been maintained. We'll report back on our findings...



President's Report

The University of Leicester was delighted to host the Congress this year, with lively debate ranging from 'Developing Universities in a New Era' (Professor Sir Robert Burgess) through Key Information Sets (KIS) to the Research Excellence Framework (REF). In this newsletter we have a full report on Congress 2012 seen through the eyes of next year's Congress convenor, Professor Djamel Ait-Boudaoud of the University of Portsmouth.

As President, during the Congress, I was honoured to present the biennial President's Prize for services to engineering education to Professor Julia King CBE FEng, the Vice-Chancellor of Aston University. Julia has made a profound contribution to engineering education, driven by her belief in the power of education to transform lives. She has had a distinguished career including periods in industry as a Director at Rolls Royce, in universities and as Chief Executive of the Institute of Physics. Julia led the Royal Academy of Engineering Working Party on 'Educating Engineers for the 21st Century' which produced a landmark report with significant influence on Government and on our thinking in the University sector.

The EPC Committee has for some time been discussing establishing a small and influential group of Patrons, drawn primarily from those who have received the President's Prize. We are therefore delighted to announce that Sir Peter Williams, Lord Broers and Professor Dame Julia King have agreed to be Patrons. We look forward to welcoming them at future EPC events and to their advice and counsel.

this issue

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Finally, I must report some changes at EPC. At the Congress Dinner we said 'Goodbye' to Fiona Martland, who has been EPC Director for the last 10 years, and who is retiring. We have been fortunate indeed to have Fiona working with us. She has been extraordinarily committed, working far beyond the 'call of duty'. In particular, Fiona has been gifted at networking and finding ways for us to influence the thinking about engineering in higher education. We shall miss her. We are also saying farewell to Piers Baker, who has been offered a post as Clerk to one of the Livery Companies. We wish Piers well and thank him for his work, particularly in relation to international student matters and relationships with Brussels. We welcome Susan Kay as our new Director and offer our grateful thanks to Vicky Elston, our very experienced Administration Manager who continues to provide excellent support and continuity for the future. At the Dinner, we also thanked Ian Whyte, who has stepped down after seven years as Treasurer. Ian has put a great deal of his own time into supporting EPC in this role and through his competency and efficiency has made the job seem simple. We are grateful that Professor Jim Yip has agreed to take over.

This being our last newsletter for this academic year. It only remains for me to wish you well for the remainder of term. This coming year will be a challenging one for UK higher education as the consequences of the new fee regime become clearer and we enter the final straight in our preparations for the Research Excellence Framework. These are indeed interesting times!

**Professor Helen Atkinson FEng CEng FIMMM
FIMechE**

Inquiry into engineering skills

This look at the work of Engineers Without Borders is very timely as in the middle of June, we submitted our response to the House of Commons Science and Technology Select Committee inquiry into Engineering Skills.

The questions ranged from “Does the current engineering skills base meet the needs of employers?” through “Do employers in the engineering sector prefer an academic or a vocational profile?” to “What impact will recent changes relating to engineering qualifications in England have on the uptake of technical subjects and the skills base needed by the engineering sector?”

We have underlined the importance of close engagement between employers and academia, the fact that academic and vocational qualifications should not be seen as mutually exclusive and the importance of a fully rounded education in the arts, humanities and languages, as well as technical education to help engineering students deal with the social implications and context of their work. Above all we emphasised just how essential it is that students have a range of opportunities to acquire substantive work experience.

Our thanks to Barry Clarke for leading on this and to those of you who contributed. We'll be keeping a close eye on the outcome.



Engineers Without Borders UK (EWB-UK) is an international development organisation, created by engineering students as a club to help them learn about, and get involved in, poverty reduction work. It maintains very close links with the engineering profession in the UK, as well as its international partners. With 31 affiliated university branch societies (with another seven being formed) and eight regional professional networks, EWB-UK has about 4,500 members.

In its education work, EWB-UK has found that international development is a powerful lens through which people can gain a new perspective on engineering. The skills, ideas and thinking that is needed for international development can be used to develop transferable skills, systems thinking and non-technological aptitudes – areas which academics and universities can find difficult to teach (or perhaps neglect) in their engineering degrees.

Andrew Lamb, Chief Executive of Engineers Without Borders–UK talks to us about solving global problems

“Engineering students are our main constituency and they care about what they are being taught and its relevance to the global problems they hear about, day in and day out.”

Through conversations at conferences and other fora, EWB-UK has identified a number of common issues or ‘problems’ that concern engineering academics and has considered how its activities can help to address them:

Problem: Students need work experience to boost their employability.

Solution: EWB branches at universities are managed and run by student committees, just like any other society. But they are also part of a national organisation and the delivery of national programmes. They often manage large teams, complex activities and significant budgets. Some students join the National Executive team of EWB-UK – and lead and co-ordinate entire ‘departments’ for the organisation alongside its small staff team. EWB-UK’s overseas placements and UK-based internships are recognised by most engineering departments as formal

engineering work (indeed, they are often much more challenging than for most engineering summer jobs) that can be counted towards the experience requirements of the degree.

Problem: Lack of understanding of basic engineering principles.

Solution: Working in resource-constrained contexts such as in developing countries requires ‘going

back to basics’ and practical hands-on approaches.

Further, volunteers are encouraged to share their skills to train local

technicians and engineers – which means they must really know the subject. Many of EWB-UK’s training courses look at particular technologies – pumps, water filters, solar panels or brick-making – encouraging a depth of understanding about the principles behind them. In its school outreach activities, students teach school children about basic engineering principles and how technology can help the world’s poorest.

Two new Committee members for EPC

Tony Brown joins the EPC Committee and is Head of the School of Electrical and Electronic Engineering and Associate Dean for the Faculty of Engineering and Physical Sciences (EPS) at the University of Manchester. He holds the Chair in Communication Engineering and is a Fellow of the IET and the IMA, a Senior Member of the IEEE and a Member of the Institute of Directors.



Tony joined academia in 2003 as a research group leader after a 30 year industrial career including senior Board level positions. A member of the University’s senior management team

with responsibility for Teaching and Learning, his research focuses on antennas, propagation, wireless communications and in radar. Tony has acted as an international consultant on marine safety related radar matters and served on numerous international committees. He is currently UK representative to the EU-COST ASSIST initiative and is retained as (part time) Chairman of Easat Antennas Ltd. He has also been involved directly with governments in Europe and the Far East as a technical advisor.

An alumna of the University of York, **Sarah Spurgeon** has held academic positions at the Universities of Loughborough and Leicester and is currently Professor of Control Engineering and Head of the School of Engineering and Digital Arts at the University of Kent. She is a member of the Editorial Boards of the International Journal of Systems Science and of the IET Proceedings D, a Subject Editor for the International Journal of Robust and Nonlinear Control and an Editor of the IMA Journal of Mathematical Control and Information. Her research interests are in the area of robust nonlinear control and estimation, particularly via sliding mode techniques in which area she has published in excess of 270 refereed papers.



Sarah received the IEEE Millennium Medal in 2000 and the Honeywell International Medal in 2010. She is currently a member of Sub-panel 15: General Engineering in the 2014

Research Excellence Framework and is also a member of the Defence Scientific Advisory Council (DSAC) which provides independent advice to the Secretary of State for Defence on matters of concern to the Ministry of Defence in the fields of Science, Engineering, Technology and Analysis (SETA). She is a Fellow of the IET, a Fellow of the IMA, a Fellow of the InstMC, and was elected a Fellow of the Royal Academy of Engineering in 2008.

New EPC Director



We welcome **Susan Kay** who took up the role of EPC Director at the end of May. An economics graduate with professional qualifications in accountancy, banking and marketing, Sue joined the higher education sector in 2005 following 10 years in senior marketing positions and five years in corporate strategy consultancy during which time she had the challenging task of disposing of a number of South American banking businesses from a well-known UK bank’s portfolio... Having “seen the light”, she self-funded a year’s sabbatical to do a Master’s degree in science and technology policy at the University of Sussex’s Science Policy Research Unit (SPRU) where she specialised in innovation networks and the power of collaborative capability in resource-constrained environments. During that time, she was also invited to work on the recommendations for SIVs for Higher Education South East. Subsequently, she helped establish a research institute at London Business School, developing a major Knowledge Transfer Partnership (KTP) and securing the platform for a substantial financial endowment, before taking up the role of Director of Strategic Development at Royal Holloway, University of London and then Director of Strategy and Planning at City University London. It was in these two roles that she acquired a geekish knowledge of the HESA and UCAS data and league tables which she promises only to use for good...

New President-elect

Simon Hodgson

At the EPC’s Annual General Meeting, held during the Congress, Professor Simon Hodgson was elected Vice-President (President-elect); he will take over from Helen Atkinson at next year’s AGM. As reported in our May 2012 newsletter, when Simon was elected to the Committee, he is a Materials Engineer by background. He is currently Dean of the School of Science and Engineering at Teesside University, with overall



responsibility for programmes delivered to 2,500 students encompassing Electrical, Mechanical, Chemical and

Civil Engineering, as well as courses in the physical and life sciences. Outside his management role, he leads a research group focusing on Advanced Processing, working in areas such as catalytic materials and functional coatings for industrial application and also maintains an active interest in teaching and learning development, for example as lead for a current RAE/HEA project on new approaches to enhance industrial engagement in the design and delivery of relevant and engaging engineering programmes. He has worked in both the pre- and post-92 parts of the sector, at Sheffield Hallam, Humberside (now Lincoln) and Loughborough Universities.

- There were 12,105 academic professionals on permanent or open ended contracts recorded by HESA in the seven engineering cost centres in UK universities for the academic year 2010/11. (2009/10: 12,267). 10,354 are represented by the Engineering Professors' Council.
- Of these, 1,995 (16%) held the title of Professor (2009/10 1,983). (1,776 being represented by the Engineering Professors' Council).
- One third of all permanent academic staff in engineering were classified as Information technology & systems sciences & computer software engineering. The next largest group were the Electrical, electronic and computer engineers (19%) followed by Mechanical, aero and production engineering (18%), General engineering (14%), Civil engineering (8%) and Chemical engineering and Mineral, metallurgy and materials each represented 4% of the total.

Committee Members for 2012/13

Officers

President	Professor Helen Atkinson	University of Leicester
Vice-President (President Elect)	Professor Simon Hodgson	Teesside University
Honorary Secretary	Professor David Harrison	Glasgow Caledonian University
Honorary Treasurer	Professor Jim Yip	University of Salford

Elected members

Professor Tony Brown	University of Manchester
Professor John Davies	University of Glasgow
Professor Kamel Hawwash	University of Birmingham
Professor Rob Krams	Imperial College London
Dr Geoff Parks	University of Cambridge
Professor Sarah Spurgeon	University of Kent
Professor Peter R S White	Coventry University

Co-opted members

Professor Ray Allen	University of Sheffield
Professor Bill Banks	Strathclyde University
Professor Barry Clarke	University of Leeds
Professor Fred Maillardet	University of Brighton
Professor Dik Morling	University of Westminster
Professor Tony Unsworth	University of Durham

Annual Congress Convenors

2012	Professor Helen Atkinson	University of Leicester
2013	Professor Djamel Ait-Boudaoud	University of Portsmouth
2014	TBA	

Sectoral Group representatives

Civil	Professor Bob Lark	Cardiff University
Computing	Professor Jim Yip	University of Salford
Manufacturing	Dr Linda Newnes	University of Bath
Mechanical	Professor Clive Neal-Sturgess	University of Birmingham
PHEE	Professor John Senior	University of Hertfordshire

Working Group chairs

Admissions	Professor Dik Morling	University of Westminster
"Designing the Future"	Professor Denise Bower	University of Leeds
International	Professor Clive Neal-Sturgess	University of Birmingham
Mathematics	Dr Rob Best	
Research	Professor Stephanie Haywood	University of Hull

Observers

Higher Education Academy	Dr Simon Steiner	
Scottish Deans of Science and Engineering	Professor John Watson	Robert Gordon University



Phil Moutousamy (pictured left) wins the 2012 ACE/NCE Young Consultant of the Year award.

"Many EWB members are top-performing students and go on to win awards early in their careers."

Problem: Working across engineering disciplines.

Solution: EWB-UK cannot organise its activities by engineering discipline because in international development everything is multi-disciplinary. It organises its work under headings of 'Water & Sanitation', 'Energy', 'Habitat & Shelter', 'Information & Communication', 'Transport', 'Industry & Agriculture' and 'Healthcare & Medical'. For example, its series of education workshops for the Royal Academy of Engineering – which are also now being delivered at some universities – specifically explore these themes, with technologies and issues that bring everyone together. The EWB Challenge also organises its team briefs by similar headings, so that students from every engineering discipline can learn together, and learn from each other.

Problem: Not enough young people choosing engineering degrees.

Solution: EWB-UK's Outreach Programme demonstrates fun, people-sized engineering to children at schools near their university departments, and at major festivals and fairs. Many of these outreach

workshops support and augment the university's own outreach activities.

Many training events organised by EWB-UK attract sixth-formers as participants. Finally, EWB branches are regularly featured in prospectuses.

Problem: Not enough graduates staying in engineering.

Solution: A recent survey of EWB-UK's student members showed that almost all its 'graduates' go into engineering, whether for a firm, a charity or governmental agency. Of those, 75% said that involvement in their EWB branch at university was a significant factor in staying with engineering. Many of those who have done undergraduate research projects based on briefs we have developed with our partners in developing countries continue to work with the partners after graduation, leading to jobs and some interesting new start-up businesses.

Problem: Finding opportunities to develop communications skills (to aid job application).

Solution: The EWB Challenge is based on teamwork, listening skills and presentation skills – and a great opportunity for students to communicate issues and technology's role within them.

As part of its research programme, EWB-UK hosts an annual Research Conference which provides students the opportunity to present their final year projects to an audience of peers, academics and development experts and to have their papers published in its proceedings. EWB-UK runs a programme of about 160 training events each year to encourage students to engage in discussions with speakers, to work in teams on practical activities and to present their own learning.

Problem: Lack of enthusiasm for a career in engineering.

Solution: EWB-UK thinks that part of this problem is that engineering is rarely placed in context. The EWB Challenge presents a new, and quite different context within which engineering solutions have to be considered – a real community in a developing country. The reality of it and the direct engagement online with that community adds a sense of purpose to the project. EWB-UK has worked with the Engineering Council to ensure that the learning outcomes of the EWB Challenge meet the UK-SPEC and runs workshops to train the academics who deliver the challenge.

For more information about EWB go to <http://www.ewb-uk.org/>

Ofqual A-level reform consultation

"We have some concerns about the content as well as the structure of A-levels. Maths A-Level poses particular problems: some modules are just not challenging enough to equip students not only to do a maths degree but also to go onto to degrees in engineering or physics."

Extract from Russell Group Press Release 19 June, 2012

We're sure that cries of "hear, hear" echoed through engineering departments across the land. EPC, together with the Royal Academy of Engineering has been campaigning on this subject for some time.

The OfQual consultation is now open with responses requested by 11 September. While we might echo the sentiment about content of A levels and Mathematics in particular, we will have suggestions and recommendations about the other proposals contained within the 58 page consultation document. We will be responding so please do send any thoughts and comments to: Vicky Elston at v.elston@epc.ac.uk.

Distinguished Guest Lecture

In Julia King's words in her Lecture at Congress entitled "Climate Change, Green Growth, Opportunities for Engineering and Manufacturing - now is the day, now is the hour. See the fronts of battle four... See - the approach of Engineering's power!"

Julia gave the Distinguished Guest Lecture which was a powerful endorsement of the role of engineering in the economy and many people who were there have since asked for copies so they could take it back and share with work colleagues.

Among other points, she highlighted that reducing emissions means replacing our current operations, infrastructure and manufactured goods with low carbon alternatives; this will stimulate research and development, providing opportunities for innovative companies to claim new markets and for the UK to rebalance its economy through 'green growth'. She also noted that Engineering

UK, in its report on the state of engineering in 2012, predicted that over the next 10 or so years there will be a growth wave in engineering jobs – the UK will need over 2 million additional engineers – are we on the threshold of a new golden age for British engineering?

Julia's presentation may be downloaded from the EPC's website.



Professor Djamel Ait-Boudaoud of the University of Portsmouth reports on Congress 2012

"While there's the daily tension involved in needing to do more with less, there's the excitement of knowing that it is engineers who have the skills the world needs right now and the opportunities this presents"

The EPC's annual Congress was held at the University of Leicester on 17th and 18th April, with our President, Professor Helen Atkinson as the Congress Convenor.

Congress opened with a speech from Leicester's Vice-Chancellor, Professor Sir Bob Burgess entitled "Developing Universities in a New Era", in which he outlined his views on how universities can operate today against the background of change, without damaging their ability to do so tomorrow. This provided a very suitable introduction to the sessions that followed on issues such as the employability of engineering graduates, the developments in the UCAS applications process, the new Key Information Sets requirements and the implications of the HE reforms on Strategically Important and Vulnerable subjects amongst others.

Following a session from David Delpy of the EPSRC on "Shaping Capabilities in Engineering" and then the EPC Annual General Meeting, the formal part of the day closed with a Distinguished Guest Lecture by Professor Julia King - see panel left). The event was rounded off with a dinner at the Belmont Hotel at which Professor King was awarded the biennial President's Prize.

The second day's highlights included an opportunity for a Q&A session on the Research Excellence Framework (REF14), followed by a session on graduate employability – firstly on a Higher Education Academy Project: "Enabling Graduates to become global engineers" and then from the organisation "Engineers Without Borders" which is doing some great work in offering students real work experience on useful projects developing countries. We've provided more information on

EWB's work elsewhere in this **"Now is our day. We can deliver the future..."**

We were then able to enjoy a visit to the research laboratories at the University of Leicester's Engineering Department.

Regardless of the day to day tensions of having to do more with less (as David Delpy from the EPSRC said), I sensed a good deal of positivity, dare I say, excitement about the future. "Honestly?" I hear you ask. Yes, because there were some really good examples of the contribution engineering and the engineers of the

future have to make to solving some of the biggest global challenges and how engineering departments in UK universities are really engaging with their students and employers to adapt their programmes to equip their students and graduates to do so.



Professors Julia King and Helen Atkinson

I look forward to welcoming you to Portsmouth next year when a timely theme for discussion will be around making the case for engineering following the announcement of a Comprehensive Spending Review (more of which on page 8...).

I've provided some highlights from the conference presentations here. Full copies of these presentations and others may be downloaded from the EPC website. There's no substitute for being there though, so I hope to see very many of you in Portsmouth next year.



The Royal Society published its report "Science as an Open Enterprise" report on 21 June 2012

"Exploring massive amounts of data using modern digital technologies has enormous potential for science and technology and its application in public policy and business."

Two complementary reports were published in June addressing the issue of Open Access from different perspectives. Firstly the Finch Report "Accessibility, sustainability, excellence: how to expand access to research publications" and, hot on its heels, the Royal Society's report "Science as an Open Enterprise".

As the Finch Report articulates the issue "Communicating research findings through journals and other publications has for over 350 years been at the heart of the research enterprise... but there is a widespread perception, in the UK and across the world, that the full benefits of advances in technologies and services in the online environment have yet to be realised."

The Royal Society's report focuses on the need to make available the datasets which underpin many science publications as it is in the public interest (and that of good science) to do so. As one of the discussants at the Royal Society's meeting to launch the report said: "Today's data will become the foundation of products and processes of the future".

Indeed there was a lively debate following the initial presentation of the

report at the launch meeting, focusing on the not insignificant challenges of implementing the recommendations. While there was considerable agreement that the data and outcomes of publicly funded research should be made publicly available, there was some debate also about what should be made available in the public interest, regardless of how the research was funded. And then there was the issue of "how does the public see the public interest"? Interestingly, in a number of workshops that were held as part of the Royal Society's work on this report, members of the public perceived research in specific areas only - public health, the environment and national security as being in the public interest. They had

a concern that if extensive data were available without intelligent interpretation, it would be confusing and potentially dangerous.

There were a number of concerns expressed by the university community around the incentives to comply with open access policies...as well as the costs of compliance. While some research councils and charity funders, such as Wellcome, have said that they will cover such costs as part of grant awards, some have also said that they will prevent further grant applications from universities and researchers who do not comply with the open access requirement. There is then the tension of the need for academic researchers to publish their findings, not least for career development purposes but

might be prevented from doing so if they are wholly or partially funded by private sector organisations who have a commercial interest in protecting the research for competitive advantage. That said, we heard of some examples from BP where it had very consciously made available research data in the interests of transparency because there were public interest implications (typically around the environment and public health).

Another perspective on this was the sheer practicality of archiving and curating very large datasets. Which were to be kept? Which to be discarded?

It seems that there are some real challenges for the engineering community here: from the policy tensions arising from publication versus protection when working with industry through to the practical challenges of storing data and making it accessible. Do you have a view, or perhaps some examples of good practice? If so, let us know and we can follow up in the next newsletter. Email Susan Kay s: kay@epc.ac.uk

Royal Society report recommendations: areas for action

Six key areas for action are highlighted in the report:

- Scientists need to be more open among themselves and with the public and media
- Greater recognition needs to be given to the value of data gathering, analysis and communication
- Common standards for sharing information are required to make it widely usable
- Publishing data in a reusable form to support findings must be mandatory
- More experts in managing and supporting the use of digital data are required
- New software tools need to be developed to analyse the growing amount of data being gathered

One to watch...

We're all waiting for an announcement about the next **Comprehensive Spending Review (CSR)** which will provide the backdrop for the settlement for university funding in the post-REF period.

At a meeting convened by the Campaign for Science and Engineering (CaSE) in May, we heard that there will be no announcement before October at the earliest (in the Autumn Statement) but could be as late as 2013 Budget. One message was clear, however, that this is a very volatile economic and political environment and this will not simply be a re-run of the last Review: we heard that *"the hostility in some quarters to the science 'ring fence' achieved in the last Review is not to be under-estimated"*. That said, given the economic environment, it is acknowledged that investment in the knowledge base will be of paramount importance and we need to start marshaling our arguments.

The strong message from the Department for Business Innovation and Skills (BIS) was that the Science and Engineering community needs to argue for the right thing at the right time ...that is, only when the case for more money has been made will it be appropriate to campaign for how it is to be divided up. We are therefore encouraged *"to form a unified voice and to learn to tell impactful, engaging stories that illustrate the evidence"*. While the Treasury likes hard numbers it is essential that they are contextualized with compelling narrative: *"We have to remember that the decisions will be made on both emotional AND rational bases ..."*

We heard that there will be no "hierarchy of evidence sources". Any and all contributions are welcome, especially those that can address the three weak spots identified by the Treasury in its evidence base for the public funding of research:

1. Evidence of how funding can be leveraged (pump priming)
2. Evidence of efficiency improvements (particularly under-utilisation of expensive capital facilities – more room for collaboration?)
3. The value and spillover effects of capital investment.

EPC will be working closely with CaSE and other organisations to prepare our evidence.

One idea which is gaining some support is using the extensive material that is being prepared for the REF as impact case studies to support the narrative evidence. If you have a view on this, or would be prepared to allow your impact case material to be used to support this work, please contact Susan Kay: s.kay@epc.ac.uk.

Session Five

Session Chair: Professor Djamel Ait-Boudaoud, Dean of the Faculty of Technology, University of Portsmouth

Guest Speakers: Dr Simon Steiner, Discipline Lead at the Higher Education Academy; Andrew Lamb, Chief Executive at Engineers Without Borders

Dr. Steiner's presentation focused on the transition from being a graduate engineer to becoming a global citizen, highlighting the initiatives in Higher Education for both staff and students. He addressed two themes regarding this transition: the first was based upon the development of curriculum and pedagogy, enhancing the experience for UK and International students, allowing international engagement between such peer groups. The second theme noted that voluntary and/or charitable extra-curricular and co-curricular activities in Education for Sustainable Development (ESD) and citizenship could provide graduate engineers with a deeper understanding of becoming a global citizen. Dr Steiner proposed that sustainable development and ethics are necessary to be embedded into the curriculum, and that there is a need for inter-disciplinarity within respective courses.



Andrew Lamb introduced the activities of 'Engineers without borders (EWB)' and spoke about the placement opportunities for students through EWB. He highlighted the range of projects that are already underway with several institutions and the support provided by EWB for both students and institutions to learn about engineering's role in tackling poverty. He expressed the importance of evolving engineering education to address global challenges and recognised that engineering courses are already making the necessary steps to equip graduates with skills, knowledge and attitudes to become global engineers of the future.

There's more about the work of Engineers Without Borders elsewhere in this newsletter.

Opening Session

Guest Speakers: Professor Sir Robert Burgess, Vice-Chancellor at the University of Leicester, Professor Helen Atkinson, President of the Engineering Professors' Council



internal tools to manage cost and financial performance of Departments.

Following the opening presentation, **Professor Helen Atkinson**

examined the underlying reasons behind the perceived high level of unemployment of engineering graduates (13%: July 2010 HESA published figures) when employers were reporting a national shortage of engineering graduates. In an attempt to understand this conundrum, a selection of Universities from the Midlands established a project to investigate and 'look for evidence as opposed to opinions'. The methodology included direct interviews with 64 graduates who were unemployed within a short time of graduation and interviews with employers. The key finding of this project is that despite the efforts made by institutions in the support and guidance of graduates, the biggest single reason for unemployment is the lack of work experience. The findings also suggested that unemployment does not correlate with degree classifications and that doggedness and an early start in seeking and applying for jobs would improve the graduate prospects of securing employment.

In **Professor Burgess's** opening address on 'Developing Universities in a new Era', he explored the major challenges facing the HE sector in the UK with particular emphasis on the sustainability of the sector in a changing environment. Professor Burgess touched upon pertinent issues surrounding the recovery of full economic costs, the subject of cross subsidy of research and teaching, and the potential role of students in influencing expenditures and investment plans of HE institutions. In his analysis, Prof Burgess presented the Leicester experience and how these changes have affected the strategic planning of the University. He discussed the process of financial forecasting to deliver the University's aspirations, the development of fundraising to provide an additional sustainable source of revenue for the institution, and the consideration of

Session One

Session Chair: Dr. Geoff Parks, Directory of Admissions - University of Cambridge

Guest Speakers:

Richard Skerrett, Senior Policy Executive (UCAS), Janet Bohrer, Assistant Director in Research, Development and Partnerships (QAA)



Richard Skerrett's presentation focused on the developments in the UCAS applications process and announced the results of their proposal for post-results applications consultation. He reported that 454 consultation and 11,164 survey responses were received across a broad section of the sector. The consultation highlighted concerns about the practicalities of implementation and the risks to certain applicant groups. Consequently UCAS came to a decision not to recommend a move to post-results applications. Some of the reasons were based around the loss of teaching time, lack of time for processing applications, applicant relationship building, loss of motivational effect of offers and a compression of key activities. From this review consultation, UCAS have prepared proposals to streamline and support applicants in the near future. The delivery phase for new projected models is due to be implemented before the 2014 entry of applicants, giving a large scope for process refinement. UCAS made some recommendations

referring to such topics as the introduction of myUCAS web portal, improved guidance, ability to upload portfolios and related documents are all believed to be a large step towards achieving these goals.



Janet Bohrer followed with an evaluation of the quality assurance of postgraduate taught courses and the role of the QAA. Janet pointed out that it is their role to provide comprehensive and thorough standards to ensure that quality targets are exceeded and sustained throughout the foreseeable future. The four main strategic aims for the period of 2011-2014 were to liaise with students and meet their expectations, safeguard Higher Education standards in an increasingly diverse environment, drive the improvements to Higher Education and increase awareness of Higher Education standards and quality marks. Janet drew attention to the fact that the Quality Code was introduced to eventually replace the academic infrastructure with the key objective of protecting the interests of all students, regardless of where they are studying or whether they are full-time, part-time, undergraduate or postgraduate students.

Stop Press...

Since Professor Julia King accepted our invitation to become a Patron of EPC, she has been awarded the DBE in the Queen's Birthday Honours List for her services to education and technology.

Speaking about her honour, Julia King said 'I was particularly delighted to receive the letter recommending me for a DBE in the Queen's Diamond Jubilee year. It is a great privilege to be honoured in this way – and not just for me personally but also for Aston University, and for the recognition it bestows on things I am passionate about: engineering, technology and higher education'.

We have offered our warm congratulations to Professor Dame Julia.

Session Two

Chair: Professor Simon Hodgson, Dean of Science and Engineering -Teesside University

Guest Speakers:

Chris Millward, Associate Director (HEFCE)

Dr. Ruth Graham, Consultant to the Royal Academy of Engineering

Naomi Drinkwater, Policy Researcher – (Universities UK)

Chris Millward presented the Higher Education reforms and their implications for engineering. Over the past 18 months, a number of changes were announced starting with the Browne review, the Higher Education White paper, the BIS Technical consultation on new regulatory framework for Higher Education, and more recently the consultations on funding for teaching and student number allocations. HEFCE's analysis suggests that the projected levels of teaching income, despite an initial dip in 11/12, will see a gradual increase in the following 3 years.

There is an expectation of the continued additional funding support for STEM subjects and the protection of areas of strategic importance including chemistry, engineering, maths and Physics. There will be an additional £39M and £35M for postgraduate taught and postgraduate research respectively. The end of the presentation reflected on the future of engineering in the long term and asked whether engineering will be vulnerable?



Dr Ruth Graham's talk explored the ingredients of a successful change in achieving excellence in engineering education. Dr Graham reported on a study that was conducted between January and December 2011 to assess the experiences of 6 international institutions involved with programs of change, noting any common areas of success and failure. The study concluded that a change energetically supported by the Head of Department is a key ingredient in delivering success but that surprisingly, systemic and successful change is not typically triggered by

pedagogical evidence. Moreover, ambitious curriculum wide reforms appear to hold greater potential for long-term change than module-level innovations.

The last presentation of the session was delivered by

Naomi Drinkwater from Universities UK, examining the Key Information Set (KIS) data in relation to their implications for Engineering. It was reported that there were 16 items for the KIS, within which the majority were based upon results from the National Student Survey (NSS), Destination of Leavers from Higher

and the institutions themselves. A KIS widget is being developed to allow users to view course information, such as results from NSS, links to Unistats, accreditation and the price-range of courses. It was also stated that developments within the Unistats site were underway to increase the level of clarity, readability and usability for associated users. In recognition that the data would have to be checked, from 2012-13, QAA will make a judgement in the area of public information in addition to the existing judgements on management of quality and management of standards.



Members of EPC Committee and Congress speakers at Congress 2012

Session Three

Session Chair: Professor Kamel Hawwash, Regional Director of HE STEM - University of Birmingham

Guest Speaker

Professor David Delpy, Chief Executive at EPSRC

Professor Delpy's presentation started with an overview of the objects for which the Council is established by the Royal Charter (2003) that replaced the Founding Charter of 1993. The Council is operating within the constraints of having to do 'more with less' and where business investment in R&D is not rising in the UK. It is recognised that the impact of UK research is still high per £ invested, however, impact on growth needs to be made more clearly. The Council is consolidating its role in shaping capability, developing leaders and delivering impact. In practice, it means that the Council is providing a sense of direction including the support for new adventurous and innovative ideas. The second strand of the strategy focused on the development of research leaders through building a fellowship framework and maintaining a balance of doctoral training grants is

for PhDs in the respective area. Finally, the importance of delivering impact cannot be overstated and there is currently a plan for the introduction of Impact Acceleration Accounts to replace KTAs and KTS. These will provide greater flexibility for institutions to accelerate impact from previous investments and support mobility between academia and industry.

Professor Delpy stated that Engineering is supported via many EPSRC's themes and many opportunities are available. £103M have been earmarked for 2012-13 focusing on ground breaking research, mobilising leadership and supporting national priorities. In addition, other commitments have been made available for 2012-13 with £122M in support of 'Manufacturing the Future' and £177M in support 'Healthcare Technologies'.

Session Four

Session Chair: Professor Tony Brown, Associate Dean of the Faculty of Engineering and Physical Sciences, University of Manchester

Guest Speakers: Professor Stephen Williamson, Chair of Sub-Panel 13, Deputy Vice Chancellor, University of Surrey; Professor Stephanie Haywood, Member of Sub-Panel 15, Director of CASS, University of Hull; Professor Chris Taylor, Member of Sub-Panel 11, Associate Vice President of Research, University of Manchester

The session focused on the Research Excellence Framework (REF). Presentations from REF panel members outlined the scope of their respective Unit of Assessment (UoA), their working methods, the Sub-Panel members' interests and potential outputs. Some key messages that emerged from the presentations included the importance of the '100 word' box in highlighting the originality, significance and impact of outputs, the change in the co-authorship of outputs guidelines, the consideration of double-weighted papers, and the peripheral nature of journal impact factors and standing in evaluating research outputs. The presentations

concluded with an extended panel session which enabled the audience to raise questions and seek clarifications directly with the panel representatives.

