



Engineering Professors' Council

Newsletter June 2010

The Future of Engineering Education

Professor Barry Clarke

President, EPC

The EPC is faced with a major challenge, which is to promote the role of engineering education and research at a time of immense challenges to the environment, the economy and society. It is for this reason that EPC has been working with other bodies to ensure that our views are represented across a broad spectrum of government, civil service, professional institutions and industry. In the last twelve months we have contributed to the House of Lords Science and Technology Committee, the Select Committee for Business, Innovation and Skills, HEFCE, EPSRC, QAA and the Browne Review. We also supported the need for the



Congress 2010

The Engineering Professors' Council held its annual Congress in Loughborough on 13-14 April.

This issues of the newsletter includes the keynote speech given by **Professor Sir William Wakeham**, and reports by the session chairs on the Congress debates, which focused on

- Incentivising excellence;
- Internationalisation; and
- Future Funding.

Further information about the Congress, including all presentations, is on the EPC website: www.epc.ac.uk/publications/meetings/presentations.php?id=56.

Next year's Congress will be held at London South Bank University.

New EPC Vice-President and elected Committee members

At the EPC's AGM, held during the Congress in Loughborough, the EPC elected

Professor Helen Atkinson

as Vice-President / President Elect – the first woman to be elected Vice-President in the history of the EPC.

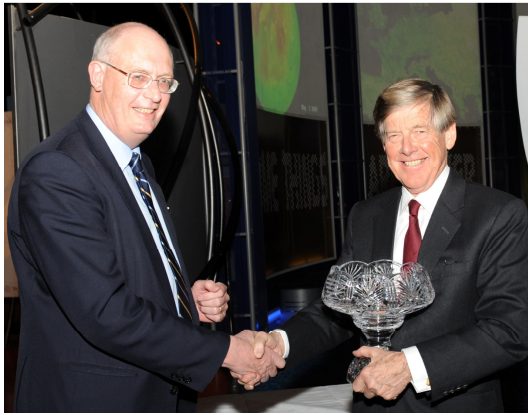
An election was held for three ordinary members of the Committee. The following were elected:

Professor Jonathan Cooper
Professor Kamel Hawwash
Professor Rob Krams

See pages 7ff for biographical notes on Professor Atkinson and the new Committee members, and the last page for the complete list of the Committee for 2010-2011.

Science and Technology Select Committee to be reinstated; this has happened, thus providing a focus for engineering within government. We have written to all the MPs with an interest in science and engineering and invited them to a reception in autumn so that we can explain the role of EPC in supporting them in promoting engineering and science in government. This is in addition to the programme of science literacy inductions that are to be run for new MPs because of the concern that parliament needs to fully understand the consequences of political decisions on engineering and scientific matters.

The appointment of David Willetts as Minister of State for Universities and Science in the Department for Business, Innovation and Skills (BIS) is welcome because of his long standing interest in education, but this is tinged with concern of further cuts to higher education and research council funding. While David Cameron



Presenting the President's Prize for Services to Engineering Education to Lord Broers at the EPC Congress dinner, Barry Clarke said, "Lord Broers is an internationally recognised engineer who has an outstanding history of championing engineering education and research through his leadership roles at the University of Cambridge, the Royal Academy of Engineering, the House of Lords and the US National Academy of Sciences. These have had a significant impact on EPC members' work which is being demonstrated through the shift in the higher education agenda as members start to address the grand challenges that face society."

stated that there is a need to invest in the science base it is not clear that the science budgets will be ring-fenced. The last government indicated they expected to see greater industry investment in universities. This is likely to continue emphasising the need for university research and education to have impact. Impact is also important for the forthcoming REF but it is not clear when the REF will take place. The TSB and Research Councils will have a role to play in focused funding to ensure impact. There is likely to be increased focus on a multi-disciplinary approach to research and education to address the global challenges. However, all the indications are it will be the research community that will control the allocation of funds given their expertise; therefore EPC has role to play in ensuring that engineering research delivers the solutions

The coalition government has made a commitment to STEM subjects with the aim of increasing the number of STEM graduates in universities. The decision on future funding will be based on the outcome of the Browne Review using the criteria to increase social mobility; to impact on student debt; to ensure a properly funded university sector; to improve the quality of teaching; to advance scholarship; and to attract a higher proportion of students from disadvantaged backgrounds. Much of this was highlighted by the last government in the Higher Ambitions report published in 2009.

Overall the coalition government appear to view science as an integral part of the economic recovery and vital to a healthy modern society, which implies that science and engineering must contribute to government planning. There is a need to inspire young people to pursue careers in engineering and science and to ensure that university research has economic and social impact as this is fundamental to the economic recovery model. Hence the important role EPC has in ensuring that our voice is heard.

Engineering graduates for industry

Professor Sir William Wakeham FREng

In his article in the last EPC Newsletter (October 2009), the Rt Hon David Lammy MP said "During this time of turbulence and uncertainty, it has been



constantly brought home to me how important higher education is, to the society of the UK, and to its economy, and how important is the contribution of engineering." This is a message that has been repeated in numerous recent reports.

The *Engineering graduates for industry* report (http://www.raeng.org.uk/news/publications/list/reports/Engineering_graduates_for_industry_report.pdf, February 2010), commissioned by the Department for Business, Innovation and Skills, is therefore timely as it identifies how to encourage and enable universities to develop engineering courses that better meet the needs of industry. Industry seeks engineering graduates who have “practical experience of real industrial environments”¹ and with these needs in mind, the report focuses on ‘experience-led’² teaching, designed and delivered mainly in partnership with industry and business. The study took in a wide range of experience-led higher education engineering provision - from intensively research-led programmes to employer-led foundation degrees in a broad range of university types and engineering disciplines. The 15 exemplars of experience-led teaching range in scale from an individual module to a complete faculty and from incremental, small-scale interventions to wholesale, radical change. The research was conducted by the Higher Education Academy Engineering Subject Centre, steered by engineering professors of substance with the study overseen through a Royal Academy of Engineering committee of senior industrialists and academics.

Analysis of the case studies found that experience-led teaching makes a valuable, high impact contribution to the education of engineering undergraduates, supporting a range of skills that industry needs. The report makes three recommendations:

- Experience counts and relevance motivates. Experience-led components must be embedded into every engineering degree, using the effective

practice outlined in these case studies as inspiration.

- Significant time and energy should be directed towards building, enhancing and sustaining university/industry partnerships.
- Investment in experience-led HE engineering is required to deliver the higher skills needed.

Experience-led engineering degrees benefit students and industry alike, helping to recruit and retain young people in engineering education and supporting economic recovery and future prosperity. However, the implementation of experience-led engineering degrees requires universities to review their priorities and develop innovative, sustained partnerships between universities, business and industry. The report acknowledges that the introduction of experience-led components into engineering degrees will require funding, both for capital investment and to cover recurrent costs. With reducing teaching budgets, this clearly poses a serious challenge for universities, particularly as, among those universities studied, the funding of engineering degree programmes already falls short of what is needed by an average of 15%.

In summary, the UK needs the best possible graduate engineers in order to underpin the future of the UK, as a society, as an economy and as an agent of global progress. Experience-led teaching is, in our view, a vital component of educating the best engineers to support all these aims and needs to be embedded and supported as a matter of priority.

¹ The Royal Academy of Engineering, *Educating Engineers for the 21st Century*, 2007

² Components of an engineering degree which develop industry-related skills including, but not limited to, direct interaction with industry



Congress Session 1: Incentivising Excellence

Professor Ray Allen
EPC Committee

The Congress began with a well-focused session dealing with excellence and how to create the incentives to make it happen. Five viewpoints were presented showing that, despite the importance of excellence to academics as a measure of success, there is little consensus on what it means and, whatever it does mean, there is a lot of work still to be done to achieve it.

The session began with a presentation of the student view of academic performance. Sami Benyahia from Ipsos MORI provide a fascinating background to the now well-established National Student Survey. 361,000 students are polled every year with a 62% response rate. His, and other Congress slides, may be found at

www.epc.ac.uk/publications/meetings/presentations.php?id=56.

The recently appointed Chief Executive of QAA, Anthony McClaran talked of the challenges that his organisation faces in

setting academic standards and the questions that it is now asking as it looks to the future. Not surprisingly, his presentation provoked a great deal of discussion centring around the key issue of establishing threshold standards and the need for comparability between degree classifications at different Institutions.

For the third presentation, the emphasis shifted to the skill base that Departments need to face the challenges of the future. Professor Denise Bower of the University of Leeds summarised the work of EPC's Staffing Working Group looking at the development of academic competences.

The Industrial view point was presented by Dr Alison Hodge of QinetiQ who is Chairman of the CBI's Inter-Company Academic Relations Group. She urged academics to engage more with industry and to listen more to their problems.

Finally Professor Annette Cashmore of Leicester University covered the often neglected area of incentivising excellence in teaching. She summarised work showing that that in many universities teaching does not explicitly or adequately form part of the Institutions promotion criteria.

Congress Session 2: Internationalisation

Professor Fred Maillardet
EPC Committee

This session enabled four speakers with very different perspectives to address this topical issue. Christina Yan Zhang, a Loughborough PhD Student, started with a wonderfully enthusiastic exposition of how much students can benefit from study in the UK. However, she also warned against the tendency to form “national cocoons” and not mix with other nationalities. Christina also pointed out the disappointing lack of confidence among UK students as demonstrated by their reluctance to mix readily with students from other countries and to travel abroad (*for more on Christina’s presentation, see below*).

Keith Sharp, the Head of the HE International Unit based within Universities UK, presented a thought-provoking look at the current situation regarding international engagement and made some predictions for the future. He felt that the number and type of ‘partnerships’ between educational institutions would continue to increase as a direct result of what he termed “the new global regionalism”. This was already having a marked effect in discouraging some students from travelling half way around the world to study.

Richard Shearman, the Director of Formation and Deputy CEO at the Engineering Council, presented a very different perspective on international standards which focused on the growing number of international accords. He drew particular attention to the International Engineering Alliance (IEA) and the European Network for the Accreditation of Engineering Education (ENAE). He summarised the current trend as establishing “meta frameworks” rather than concentrating on the detailed course components as had

perhaps been the tendency in the recent past.

Michael Peak, the Market Research and Intelligence Manager at the British Council, completed the quartet by focusing on international recruitment. He presented a wealth of data to confirm the continuing popularity of UK qualifications, but also sounded a warning call about a possible downward trend if quality - the key selling point - was perceived to be falling. He drew attention to the fact that 82% of full-time PG students in the UK today are from overseas!

The question time covered a wide range of issues including the growing reliance of many university engineering departments on teaching staff from overseas (who, it was noted, tended to have more industrial experience than UK applicants) and the growing concern over the inability of many departments to replace their ageing laboratory equipment, one very tangible measure of course quality.

Think Globally, Act Locally

Christina Yan Zhang
*Global Development Officer of Loughborough Students Union,
NUS National Executive 2009-2010 and
NUS International Students Officer Elect
2010-2011*

Christina argued that most international students, who pay expensive fees to study in the UK, are expecting this experience will enhance their employability, both initially upon



graduation, and for life-long career advancement, in the UK and back home. Therefore, all universities should provide support outside academic study, with opportunities to cultivate transferable skills for employability. This is why all universities should work closely with students' unions to engage international students in all kinds of students' activities to cultivate an integrated British experience. However, too much emphasis has been put on international students' effort on integration while UK students remain domestic-orientated. Therefore, it is imperative to create a truly globalised experience for all students, especially for UK students, so that they understand the difficulty of being international students, and will therefore welcome, support, integrate them studying in the UK.

After the funding cuts, increasing numbers of universities are recruiting more international students to fund their institutions. However, international students are a far more important strategic resources for the UK as a whole, rather than just cash cows. All universities should make every effort to create the best possible experience for them when they are studying here so that they will adopt a more pro-British attitude and vision. When they return to their home countries, leading various industries, they will become ambassadors to strengthen the political, cultural and economic partnerships between their home countries and the UK, which is immeasurably important for the UK for promoting its ideology and influence globally.

Congress Session 3: Future Funding

Professor Helen Atkinson,
EPC Vice-President

Chris Millward, the HEFCE Associate Director for the North, summarised the current position of HEFCE. Meeting the information needs of students (by which I think he meant that students should know what they are going to get on a course) is a key theme. HEFCE will be funding 'invest to save' projects to reduce costs in future years. HEFCE are currently consulting on future funding mechanisms (EPC will be making a submission...views from members will be welcome). The principles undergirding the review are: institutions should be free to manage provision in a way that best responds to the needs of students, employers and society; change which is in the public interest should be incentivised;

funding should be compatible with various modes of study, including flexible provision. The aim is that the system should be responsive, dynamic and as simple and easy to understand as possible. It should achieve value for money and continue to reflect the income from tuition fees and contributions from employers. It is likely that funding will be linked to public priorities and that the Browne review will be implemented in 2012/13.

The current situation with the EPSRC was summarised by Philippa Hemmings, currently Head of programme for Process, Environment and Sustainable Engineering. The EPSRC is currently funding 900 departments but 55% of these have less than £1M funding and 50% of DTA funds are in 10 universities. 85 universities have project studentships but 50% of these are in 10 institutions.

High energy density batteries, high efficiency electric motors, lighter weight car bodies, biofuels without impacting on food production, electrical and electronic control systems which can be reconfigured several times during the life of the car, were all challenges put to us during David Bott's talk. David is the Director of Innovation Programmes for the Technology Strategy Board. Essentially, to get TSB money, you need to be able to demonstrate that the funding will make the industrial partners bigger, stronger and faster to market.

Finally, Professor Shirley Pearce, Vice Chancellor of Loughborough University, summarised Loughborough's relationships

with industrial partners and the mechanisms by which those relationships are nurtured.

In the Q&A session, there was heated debate about future funding, highlighting the evidence the EPC (in collaboration with what was the ETB) has gathered about the systemic loss which most departments are operating with on teaching home engineering students. At a time when HEFCE is encouraging universities to take on additional STEM students, this is serious issue. Departments are asked to keep us in touch with the situation as we move into the stringent financial years which are facing us. A significant number of those in the room had already been affected by budget cuts.

EPC AGM: changes on the EPC Committee

This year's AGM saw the election of Professor Helen Atkinson as Vice-President and President Elect – the first woman to be elected Vice-President of the EPC in its 50-year history. It also saw the first contested election for new Committee members, at least in recent years. Professors Jonathan Cooper, Kamel Hawwash and Rob Krams were elected to take the places vacated by Professors Bill Milne, Sarath Tennakoon and Alistair Sambell. Professor Bob Reuben also left the Committee; his place will be taken in due course by the convenor for the Congress in 2012.

Professor Helen Atkinson FREng



Professor Atkinson is Head of the Mechanics of Materials Group in the Department of Engineering at the University of Leicester and was recently named as one of the UKRC's Women of Outstanding Achievement 2010 for her leadership and inspiration within Science, Engineering and Technology (SET).

Helen Atkinson is a Fellow of the Royal Academy of Engineering. She is also a Chartered Engineer, a Fellow of the Institution of Mechanical Engineers and a Fellow of the Institution of Materials, Minerals and Mining. Helen developed an

interest in science from an early age and was the first member of her family to go to university. She graduated from Girton College, Cambridge with a first class degree in Metallurgy and Materials Science and then went to work for the UK Atomic Energy Authority at Harwell in Oxfordshire. Whilst at Harwell, she gained her PhD on the transmission electron microscopy of grain growth in oxide scales from Imperial College London and also acted as technical assistant to the Director for Nuclear Power on strategic business planning. Her first university post was with what was then Sheffield City Polytechnic (now Sheffield Hallam University) where she taught a range of materials courses from access level, OND and HND through to degree level. Helen subsequently moved to Engineering Materials at Sheffield University where she established a leading reputation in the area of semi-solid processing of metallic alloys.

In 2002, Helen was appointed to a Chair in Metals Processing in the Department of Engineering at the University of Leicester and is currently the Head of the Mechanics of Materials Research Group. She has an outstanding record of achievement in industrially relevant research in the area of metals technology and manufacture. Alongside research, she is passionate about engineering education and its quality. In 2007 she led a national study on behalf of the Engineering Professors' Council and the then Engineering Technology Board on the costs of undergraduate engineering education which gained wide publicity. The study showed that there is increasing pressure on engineering university departments across the UK because the HEFCE funding allowance per UK origin engineering student is below what is required to teach that student (and to teach them well). As part of her wider interest in the student learning experience Helen is currently leading the £15M redevelopment of the Students' Union at the University of Leicester.

Prof Atkinson was a member of the UK Government Technology Foresight Materials Panel from its inception in 1994 to 1999 (reporting to Cabinet on the priorities for materials R & D in the UK). She was one of only four academics on a Panel of twenty two. She was a member of the Chemicals and Materials Task Force for the Foresight Crime Prevention Panel run by the UK Government Office of Science and Technology (OST) and served on the OST Action Group on Sensors, which published its report in 1997. She served as a member of the Implementation Group for the Government's Strategy for Women in Science, Engineering and Technology from 2004-7. She is a member of the Engineering and Physical Sciences Research Council (EPSRC) Structural Materials College and has served on and chaired a number of Panels prioritising proposals for funding.

Prof Atkinson has been a member of the Institute of Materials Council and of the previous Institute of Metals Council. She was a Teaching Quality Assessor for the Higher Education Funding Council for England (HEFCE). She is a member of the Committee of the Engineering Professors' Council, for which she chairs a working group on the costs of engineering degrees; and served on the QAA body reviewing the benchmark for engineering degrees. For the Royal Academy of Engineering, she currently serves on the Standing Committees on Education and Training and on Engineering Policy. For Engineering UK, she represents the university perspective on the Education and Skills Panel.

Professor Jonathan Cooper

Jonathan Cooper was educated at Cheltenham Bournside School. He obtained a BSc in Engineering Mathematics and a PhD in Aeronautical Engineering from Queen Mary College, London. Following a 3-



year post as a Senior Research Fellow at RAE Farnborough, he spent 18 years at the University of Manchester, becoming a Professor of Engineering in 2001, and was the last Head of School of the Manchester School of Engineering. He undertook sabbatical leave at KU Leuven (1995) and British Aerospace (1997) and was a Royal Academy of Engineering / Leverhulme Trust Senior Research Fellow in 2005-2006. Prof Cooper joined the University of Liverpool in August 2007 as Professor of Aerostructures and Aeroelasticity. His research interests include aeroelasticity, morphing structures, nonlinear structural dynamics and optimisation. He is the co-author of Introduction to Aircraft Aeroelasticity and Loads published by Wiley in 2007. In his spare time, he enjoys playing cricket, hill walking, skiing and salsa.

Professor Kamel Hawwash



Kamel Hawwash graduated from UMIST with a BSc degree in Civil and Structural Engineering and then continued to study for an MSc by research into aspects of tendering for

construction projects. Following completion of his MSc, he worked as Temporary Lecturer in Construction Management in the Civil Engineering Department at Nottingham

University prior to joining the University of Birmingham as Lecturer in project Management in 1989. He was promoted to Senior Lecturer in 2004

As well as teaching modules on both the undergraduate and MSc programmes he has delivered short courses on project management in a number of countries including Sierra Leone, Armenia and Pakistan.

He was Civil Engineering Programme Manager for six years with overall responsibility for the Department's teaching activities; and a member of the School of Engineering's Teaching Committee and Deputy Director of Teaching for the School of Engineering.

Professor Rob Krams



Professor Krams holds a Chair of Molecular Bioengineering at Imperial College, London. Prior to joining Imperial College he worked as Associate Professor in the department Bioengineering, Thoraxcentre

Rotterdam, the Netherlands and as associate professor/chair in the department of Medical Physics, Free University in Amsterdam. He received his Medical Degree and Ph.D. from the Free University, Amsterdam in 1989. His research is focussed on the molecular mechanism underlying biomechanical stimuli. To that end he uses a combination of engineering techniques (imaging, systems biology and synthetic biology) and molecular techniques (high throughput, qPCR, life cell imaging) to study the interaction of gene expression and shear stress and wall stress on cells in culture and in whole animals. It has led to the development of new devices

for patient and experimental studies and to the development of new analysis techniques for images obtained by microscopes. The work that will be started up in London

consists of imaging of animals and application of system biology and multi-scale modelling to vascular biology.

The National HE STEM Programme

Michael Grove

Director of National HE STEM Programme

While number of students choosing to study Science, Technology, Engineering and Mathematics beyond the age of 16 is increasing, many still choose not to progress these disciplines further. Many fail to be inspired, motivated or enthused by the current school curriculum and do not have chance to explore the joys that studying STEM can offer. There remains a need to enliven the curriculum; we need to inspire, enthuse and motivate future generations by demonstrating the fascinating and cutting edge applications of the STEM disciplines.

But what about the large number of people within society without a STEM qualification? These may be people who were put off STEM, or indeed education in general, while at school, college or university, or who felt that the further study of STEM was simply not accessible. They may be people who chose to progress other careers but now have a desire to explore some of the most fundamental questions the world, or indeed the universe, has to offer. There now needs to be a mechanism to enable all within society to engage with what is a fantastic voyage of self-discovery, and one that at the same time enables their personal and professional development. After all, engagement with STEM enables the

accelerated development of skills and competencies that enable us to make appropriate judgements and decisions.

Once students commence study at university, let's look at how we sustain and develop their interest while at the same time preparing them for either further study or the workplace. We want our current and future undergraduates to act as ambassadors so that when they enter the workplace they can encourage their colleagues to re-engage with STEM learning, or work with schools and colleges to inspire future generations.

What I am advocating is a programme of activity that not only considers the progression of students from school, through university, and into the workplace, but also encourages those currently within the workforce to re-engage with learning and to assist with the recruitment of future generations into the STEM disciplines. Is such a programme of activity fanciful? Not at all, the recently funded National HE STEM Programme will aim to do just this.

The success of the Programme will require engagement from all across the HE STEM sector. I encourage you to contact me at m.j.grove@bham.ac.uk to find out more and explore how you might be involved.

Open Engineering Resources Pilot Project completed

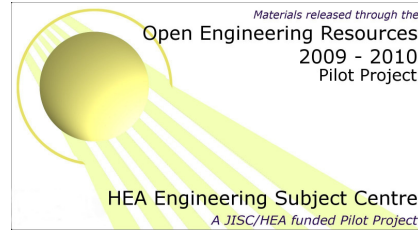
The EPC is a partner in the Higher Education Academy Engineering Subject Centre's pilot Open Educational Resources (OERs) project, which concluded recently with a resounding feeling of success. The project achieved its goal of releasing almost 360 credits worth of resources within its 12 month duration, with many resources proving extremely popular.

The 'SuperSearch' tool available at <http://tinyurl.com/engoer> allows you to search for these resources, while resources from all of the HEFCE-funded Higher Education Academy/Disc projects can be found by searching of the tag 'UKOER' online, or by visiting the Jorum OPEN section of www.jorum.ac.uk. This exciting new facility was demonstrated during the EPC Congress, and generated lots of interest.



Alex Fenlon from EngSC discussing OER and the pilot project with EPC Congress delegates

Some of the highlights from the project include Weekly Assessed Tutorial Sheets (WATS) from Mark Russell (Blended Learning Unit at University of Hertfordshire), along with the WATS generator wizard and two short introductory videos explaining how to



use the tools, a selection of FE materials from Leicester College, and a complete textbook 'Fundamentals of Particle Technology' by Richard Holdich, all released under Creative Commons licence for re-use and repurposing.

There have been significant lessons learnt during the project especially in terms of understanding intellectual property rights outside the virtual learning environment, and enhancing accessibility of resources. If these lessons can be introduced during resource creation, the whole OER experience will be a lot easier and cheaper, leading to increased sustainability.

The Centre itself will be looking at releasing more and more of its resources as OER over the coming months as well as being available to share their expertise in the field.

The Subject Centre's conference EE2010 (July 6th - 8th, Aston University) will provide an opportunity for those interested in OER to take part in a hands-on session demonstrating how to produce resources. If you can't wait that long, require more information, or a further demonstration or explanation, please contact Rob Pearce or Alex Fenlon via www.engsc.ac.uk.

"Trust Researchers" Initiative

A website was launched in February inviting researchers to sign a declaration encouraging simplification of the administrative burden of European research funding: see <http://www.trust-researchers.eu>.

Professional engineering qualifications for engineering academics

The Engineering Council is keen to encourage more teachers and researchers in HE to gain CEng or IEng qualifications. With input from several members of EPC, a new Engineering Council leaflet has been published that outlines the benefits of holding a professional engineering qualification, and explains how the necessary knowledge and competencies can be demonstrated. Explicit mention is made of the benefits of status and recognition, improved career prospects and enhanced credibility with students.

The leaflet, 'Professional engineering qualifications for teachers and researchers in higher education', aims to dispel the perception held by some in HE that registration is not for them. The Engineering Council is also developing a bank of case studies about becoming professionally qualified. This work complements existing initiatives from some of the engineering institutions, and also ties in with the EPC's work on future skills needs of engineering academics, to which the Engineering Council is contributing.

The leaflet may be downloaded from <http://tinyurl.com/3aynn93>; hard copies are available on request from info@engc.org.uk.

If you or a colleague would like to contribute a case study about your experience of achieving your CEng or IEng qualification, please contact Sue Brough on sbrough@engc.org.uk



A Global Dimension for Engineering Education

is a three-year project coordinated by Engineers Against Poverty (EAP) and supported by UKaid from the Department for International Development, in association with the Engineering Professors' Council, the Engineering Council, Engineering Subject Centre, and the Development Education Research Centre of the Institute of Education (IoE). Its purpose is to strengthen the commitment and capacity of UK HEI engineering faculties to embed global issues into the curriculum.

Engineers face an increasingly complex world, in which the large intractable problems such as poverty, sustainability and economic crises merge with increased globalisation. Engineering graduates will need to be able to work in multidisciplinary, multicultural teams to both assess needs and co-create solutions with local and global communities. Engineering students will need to be familiar with concepts more usually associated with other disciplines and professions.

Following workshops involving seven UK partner HEI institutions and drawing on recent work related to engineering and globalisation, poverty reduction, sustainability and ethics, a framework has been developed which presents a range of issues that are relevant to the global dimension under four main headings; (a) Diversity, Rights and Working with Conflict,

(b) Sustainable Development, (c) Interdependence and Global Professionalism and (d) Social Justice, Values and Ethics.

In this next phase of the project the Global Dimension team are offering a holistic programme of workshops related to these themes, hosted by the partner HEIs and co-facilitated by experts from engineering development and engineering education together with professionals in development studies, ethics, human rights and values education as well as cultural studies. The workshops will contain a common thread,

that of developing a negotiated understanding of the Global Dimension of Engineering Education. The workshops will be nationally distributed and thematically unique. Participants are welcome to attend one workshop hosted in their local area in order to build capacity in a particular aspect of the global dimension, or to enroll in the entire programme.

For further information and details of the workshops, see www.engsc.ac.uk/global-dimension.

The Big Bang Fair is the UK's biggest single celebration of science and engineering for young people. Representing an unprecedented partnership of the UK's science and engineering communities, The Big Bang celebrates and raises the profile of young people's achievements in science and engineering. For more information on the Big Bang and how to get involved, please visit www.thebigbangfair.co.uk.

Contact Us

Fiona Martland,
Director
School of Engineering (D3)
University of Surrey
Guildford GU2 7XH
F.Martland@surrey.ac.uk
www.epc.ac.uk

EPC Committee Members for 2010/11

President	Professor Barry Clarke	University of Leeds
Vice-President / President-Elect	Professor Helen Atkinson	University of Leicester
Honorary Secretary	Professor David Harrison	Glasgow Caledonian University
Honorary Treasurer	Mr Ian Whyte	University of Manchester
Elected Members	Professor Denise Bower	University of Leeds
	Professor Robin Clarke	University of Ulster
	Professor Jonathan Cooper	Liverpool University
	Ms Angela Dean	University of Derby
	Professor Kamel Hawwash	Birmingham University
	Professor Rob Krams	Imperial College London
	Professor John Turner	Portsmouth University
Co-opted Members	Professor Ray Allen	University of Sheffield
	Professor Bill Banks	Strathclyde University
	Professor Tony Brown	Manchester University
	Professor Fred Maillardet	University of Brighton
	Professor Dik Morling	University of Westminster
	Professor Tony Unsworth	Durham University
Annual Congress Convenors	Professor John Dickens	Loughborough University 2010
	Dr Rob Best	London South Bank University 2011
	<i>to be appointed</i>	University of Leicester 2012
Sectoral Group Representatives		
Chemical	Professor Raffaella Ocone	Heriot-Watt University
Civil	Professor Bob Lark	Cardiff University
Computing	Professor Jim Yip	University of Huddersfield
Manufacturing	Dr Linda Newnes	University of Bath
Mechanical	Professor Clive Neal-Sturgess	University of Birmingham
PHEE	Professor Stephanie Haywood	Hull University
Working Group Chairs		
Admissions	Professor Dik Morling	University of Westminster
Costings	Professor Helen Atkinson	University of Leicester
Ethics	Professor Raffaella Ocone	Heriot-Watt University
External Relations	Professor Ray Allen	University of Sheffield
Future degrees	Professor Barry Clarke	University of Leeds
International	Professor Clive Neal-Sturgess	University of Birmingham
Maths	Professor Fred Maillardet	University of Brighton
Staffing	Professor Denise Bower	University of Leeds
Sustainability	Ms Angela Dean	University of Derby