



Susan Kay

Executive Director  
Engineering Professors' Council



## 2012/13: year of change for HE... and the EPC



### Review of the year: 2012/13

#### Just a selection of our work this year

##### Submitted responses and evidence to:

- ✓ House of Commons Engineering Skills Enquiry
- ✓ Government consultation on A level reform
- ✓ Institute of Public Policy Research's Call for Evidence on the 'Future of Higher Education in England'
- ✓ Response to Government proposals to reform vocational education for 16-19 year olds
- ✓ Government consultation on National Curriculum Review
- ✓ Director General for Knowledge and Innovation on priorities for the Science Budget
- ✓ House of Lords inquiry into scientific infrastructure

##### Engaged with:

- ✓ Director of Office for Fair Access on data availability and the value of foundation degrees
- ✓ Minister for Universities and Science on on-going impact of Visa regulations
- ✓ Chief Regulator of OfQual on A level and GCSE reform
- ✓ HEFCE on the impact of the visa regulations plus funding of Master's degrees and Strategic and Vulnerable Subjects
- ✓ Engineering Council on its consultation about UKSPER

##### Delivered:

- ✓ IESTEM report on graduate employment: (recently agreed co-funding with the Royal Academy of Engineering for a wider study on the characteristics of unemployed engineering graduates)
- ✓ Engineering Council's KIS and accreditation support toolkit to members
- ✓ Enrolments 2012/13 survey, resulting in impactful press coverage and engagement with HEFCE
- ✓ Successful Recruitment and Admissions Forum 2012 and Congress 2013
- ✓ Occasional paper based on membership poll regarding recent experiences with UKBA and impact on student and staff recruitment, attracting media and political commentary
- ✓ Joint paper with Engineering UK based on membership poll regarding university ability to double capacity in engineering as evidence for BIS industrial strategy

##### Currently underway:

- ✓ On-going collection of impact narratives to support campaign to influence the Science Budget settlement in the Comprehensive Spending Review
- ✓ Supporting the All Party Parliamentary University Group's call for proposals "Frontiers of Knowledge"
- ✓ Kick-off projects for new working groups (incl. work on Master's funding)

#### We have Committee members sitting on panels and Committees in a range of influential organisations

##### Including:

- Advisory Panel for Next Generation BTEC Nationals
- RAEng-co-ordinated group F&E
- AQA Expert Panel for curriculum reform
- REF2014 Sub Panel for General Engineering

#### Members' Area

<http://epc.ac.uk/members-only/>

We've established a password-protected Members' Area on the new website. While some sections are still under construction (we'll be consulting with the membership on some of these this coming year), we have now made available a range of detailed engineering-specific HESA, UCAS and HEFCE data and benchmarking tools which we hope will be useful to members, particularly for departmental and university planning purposes. You should have received your password when your subscription payment was acknowledged for this year. If not, please contact us.

Also available - a range of useful policy papers and other publications plus the Committee and Working Group papers.

We've launched our new website, together with periodic InfoDigest and Twitter and Linked-In accounts

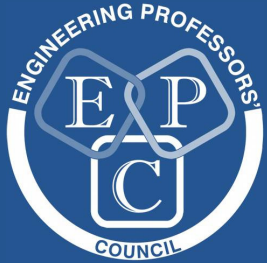
<http://epc.ac.uk>

Follow us: @epc1994

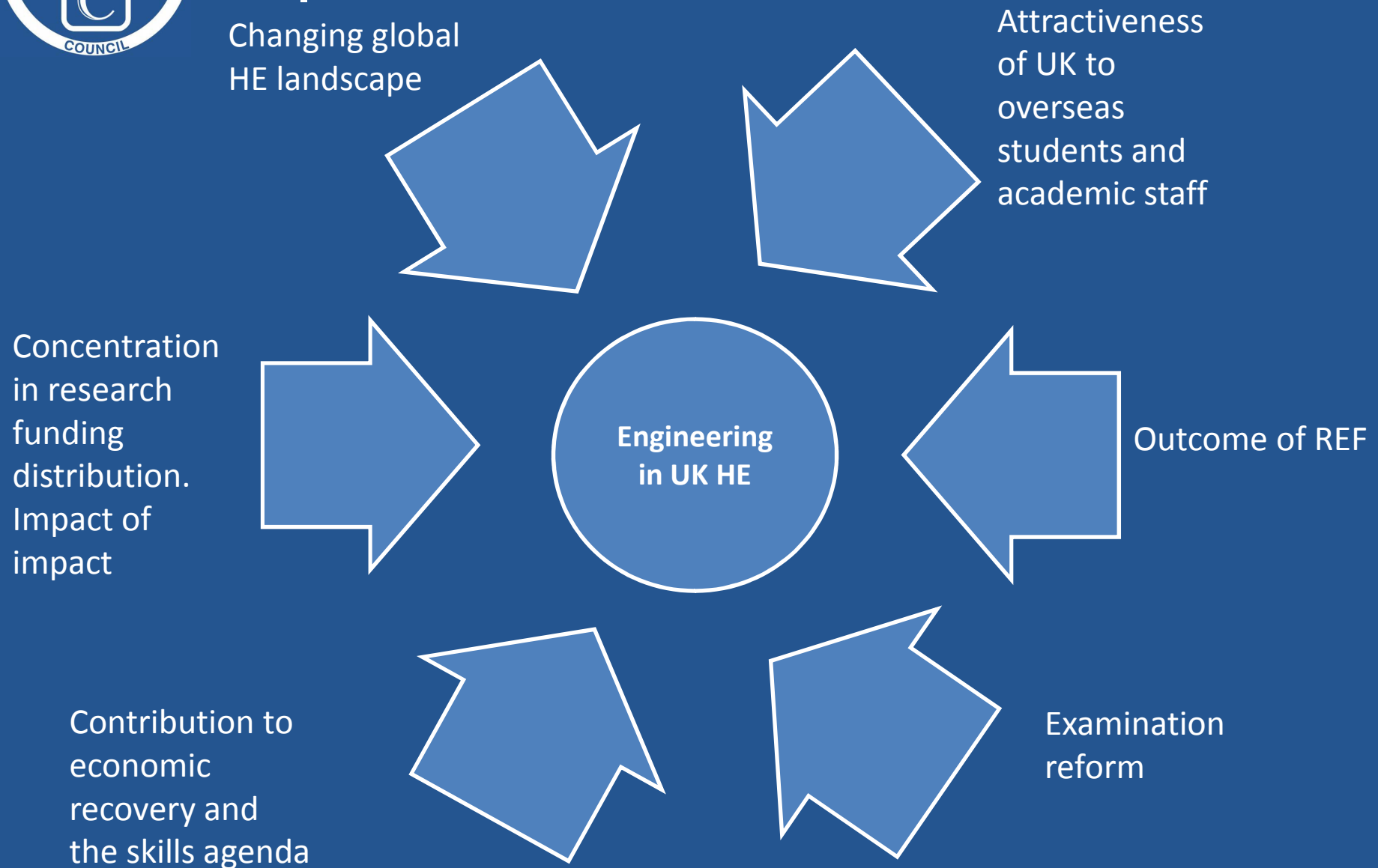


Patrons: Professor Lord Alec Broers FREng FRS K; DL Professor Dame Julia King CBE FREng Sir Peter Williams CBE FRS FREng

- New leadership
- New finances
- Strength in collaboration
- Evidence-based policy development



## Key issues: pressure from a number of directions





## Key issues: pressure from a number of directions

Changing global  
HE landscape

Attractiveness  
of UK to  
overseas  
students and  
academic staff

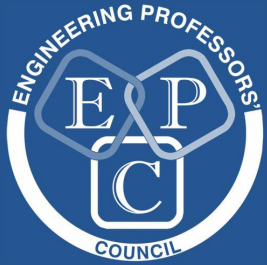
Concentration  
in research  
funding  
distribution.  
Impact of  
impact

Outcome of REF

Contribution to  
economic  
recovery and  
the skills agenda

Examination  
reform

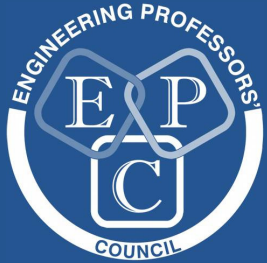
Engineering  
in UK HE



## Key issues: contribution to economic recovery and skills agenda (the Industrial Strategy)



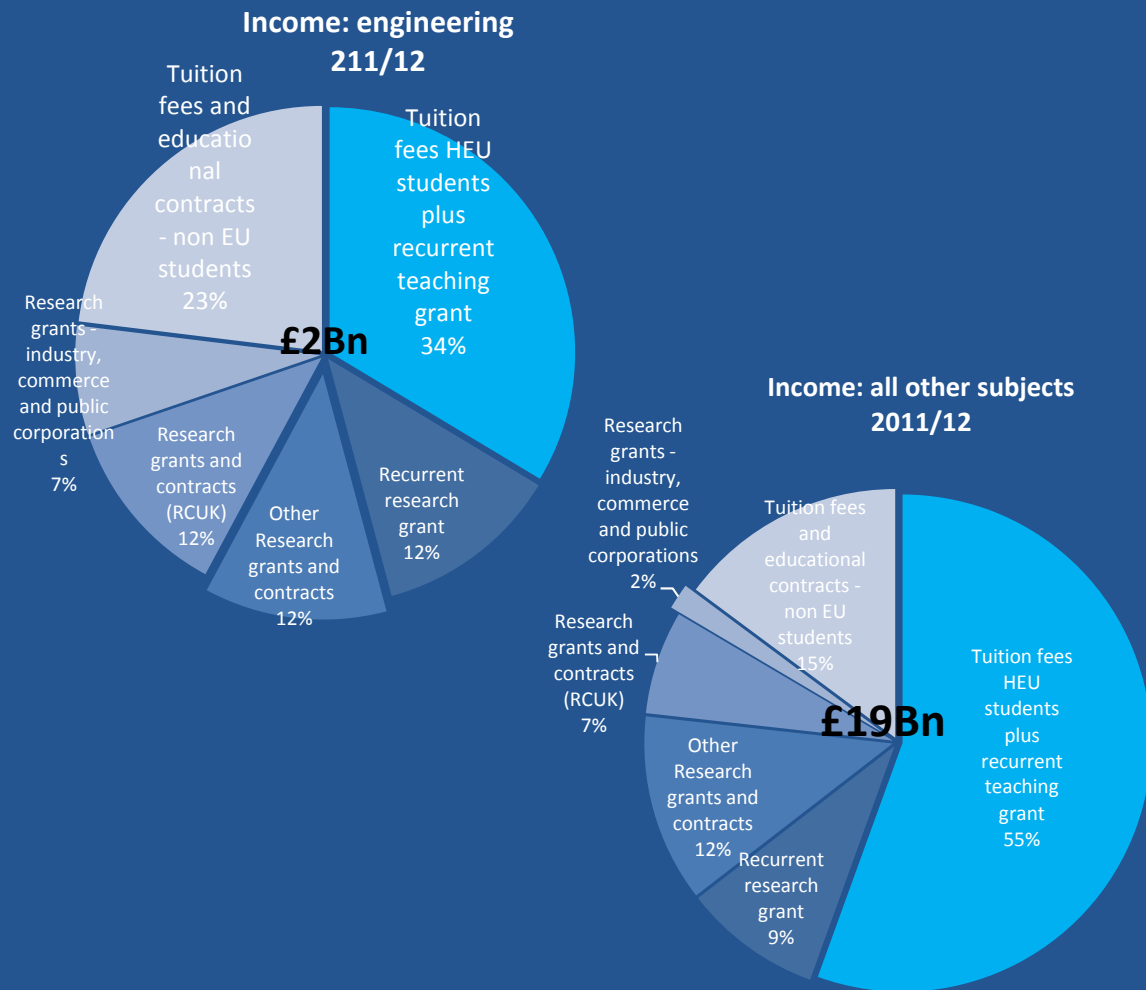
- Professor John Perkins, Chief Scientific Adviser to BIS
- Draft themes of recommendations
  - Perception
  - Diversity/gender
  - Industry engagement
  - Conversion/re-training
  - Education system
  - Apprenticeships



## Key issues: invited to discuss with BIS

- The **very substantial direct and indirect contributions engineering in higher education makes to the economic and cultural health of the UK** and its regions via its wide and diverse provision.
- The **risks to engineering associated with the recent changes to the funding mechanism.**
- The **risks associated with the recent changes to UK immigration regulations:** its direct impact on the financial and intellectual sustainability of engineering in UK HEIs and hence the longer term impact on the technological development of the UK economy.
- The risks associated with **research funding concentration** (regional impact, impact on equality and diversity).

## Engineering in UK universities income

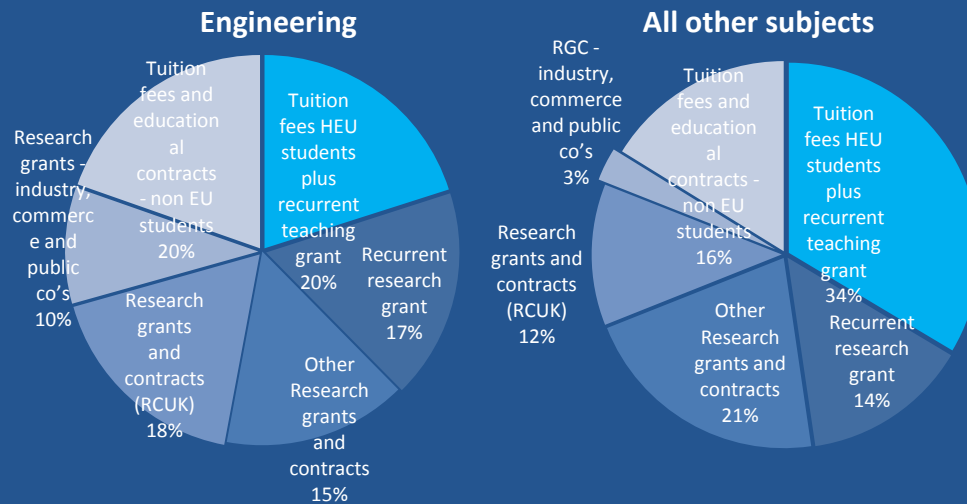


- The substantially different income mix is driven by...
- A substantially higher proportion of research funding.
  - Research and teaching arguably being even more inextricably linked than in other subjects because education must occur in context of industrial application and...
  - industry expects graduates and researchers to be working with the latest tools and techniques (and developing new ones).
- Substantially higher proportion of income from non EU students

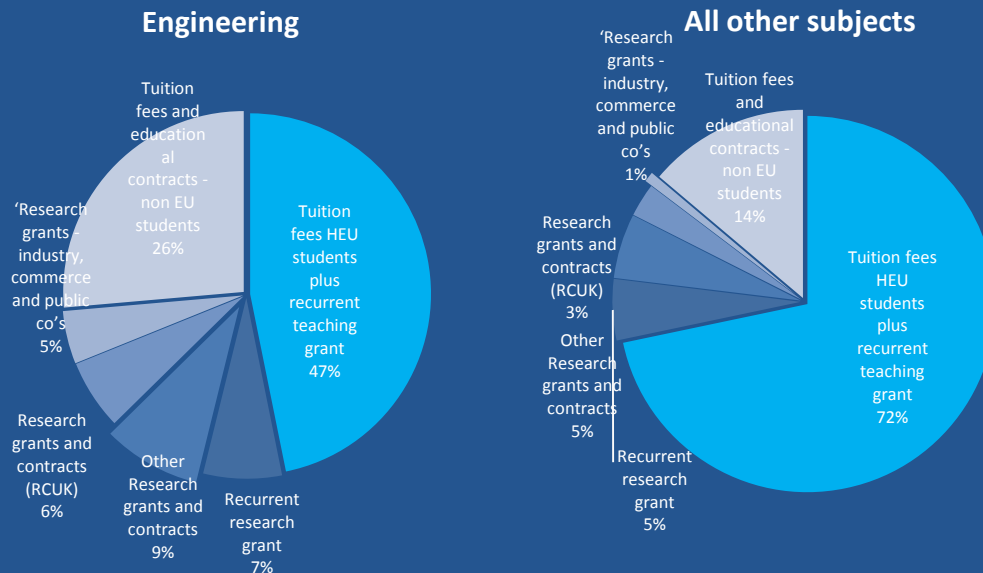


**Perturbation in one part of the fragile eco-system that underpins the income generating capacity of high cost subjects like engineering can have unintended consequences**

## Income 2011/12: Russell Group universities

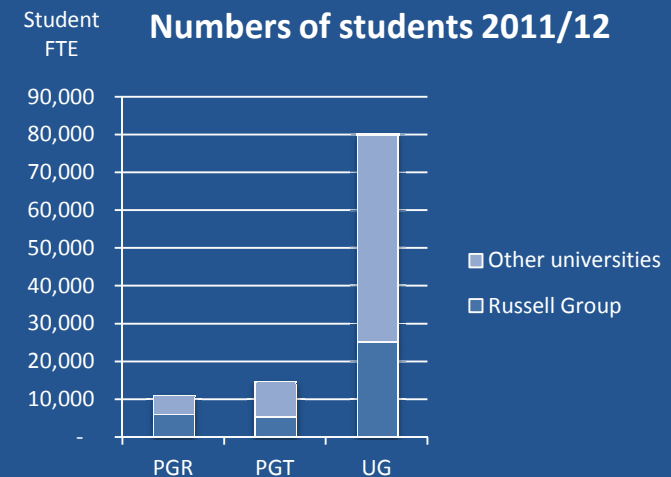


## Income 2011/12: All other universities

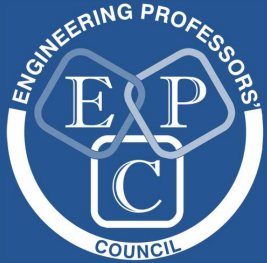


## Engineering in UK universities ensuring supply-side diversity

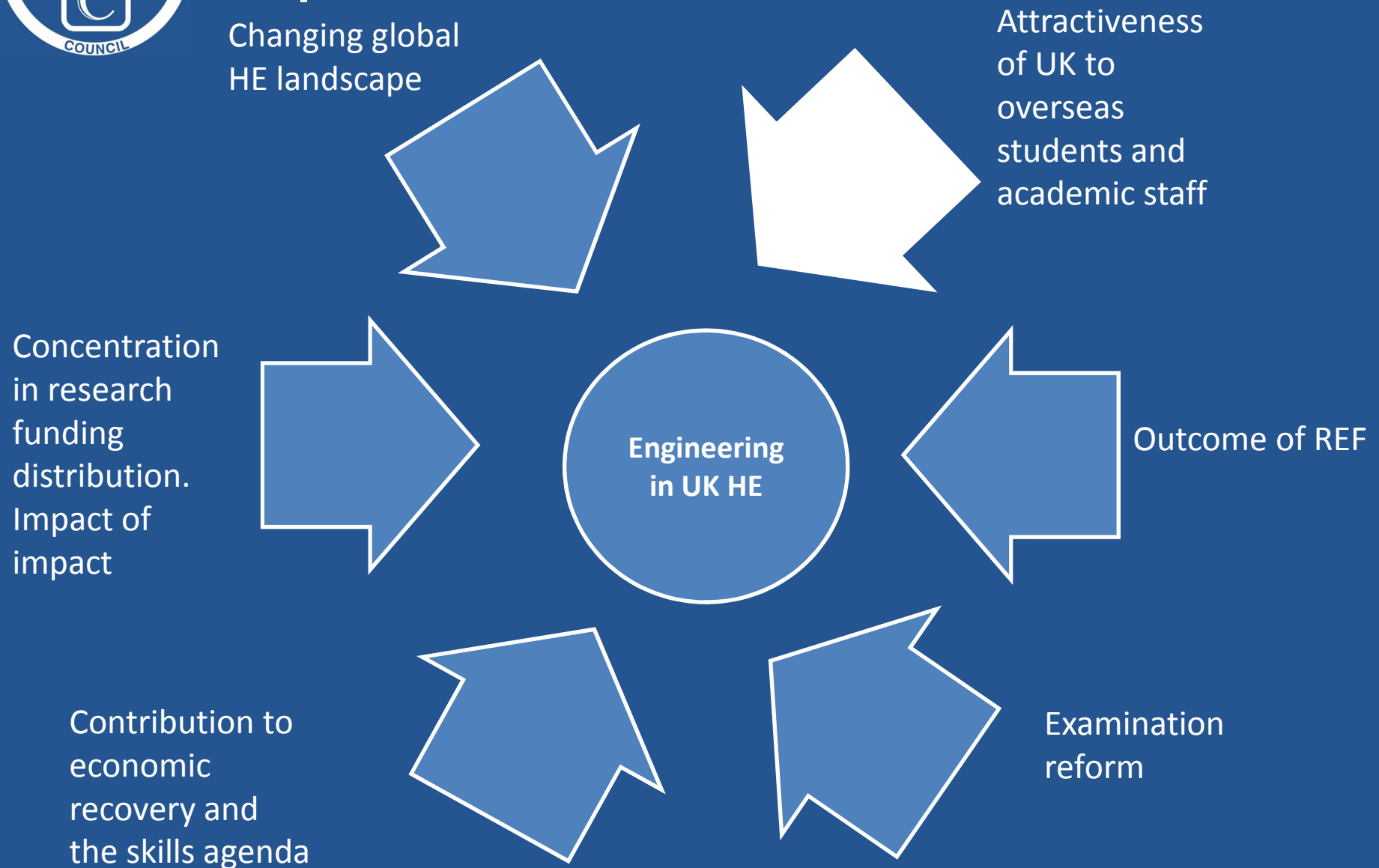
- While the engineering income mix in non Russell Group universities is less markedly skewed to research, it should be noted that more than a quarter (27%) of income for engineering in these universities is generated from research. This compares with only 14% in all other subjects.
- Furthermore, the majority of undergraduate students are educated outside of the Russell Group.

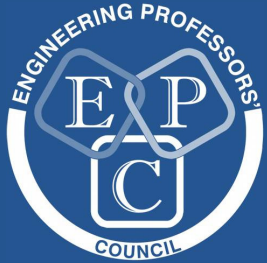






## Key issues: pressure from a number of directions





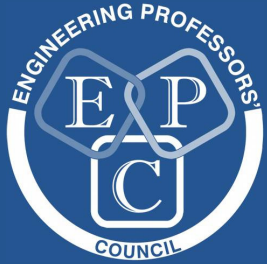
## Engineering UK: the state of engineering 2013

### Engineering UK report December, 2012

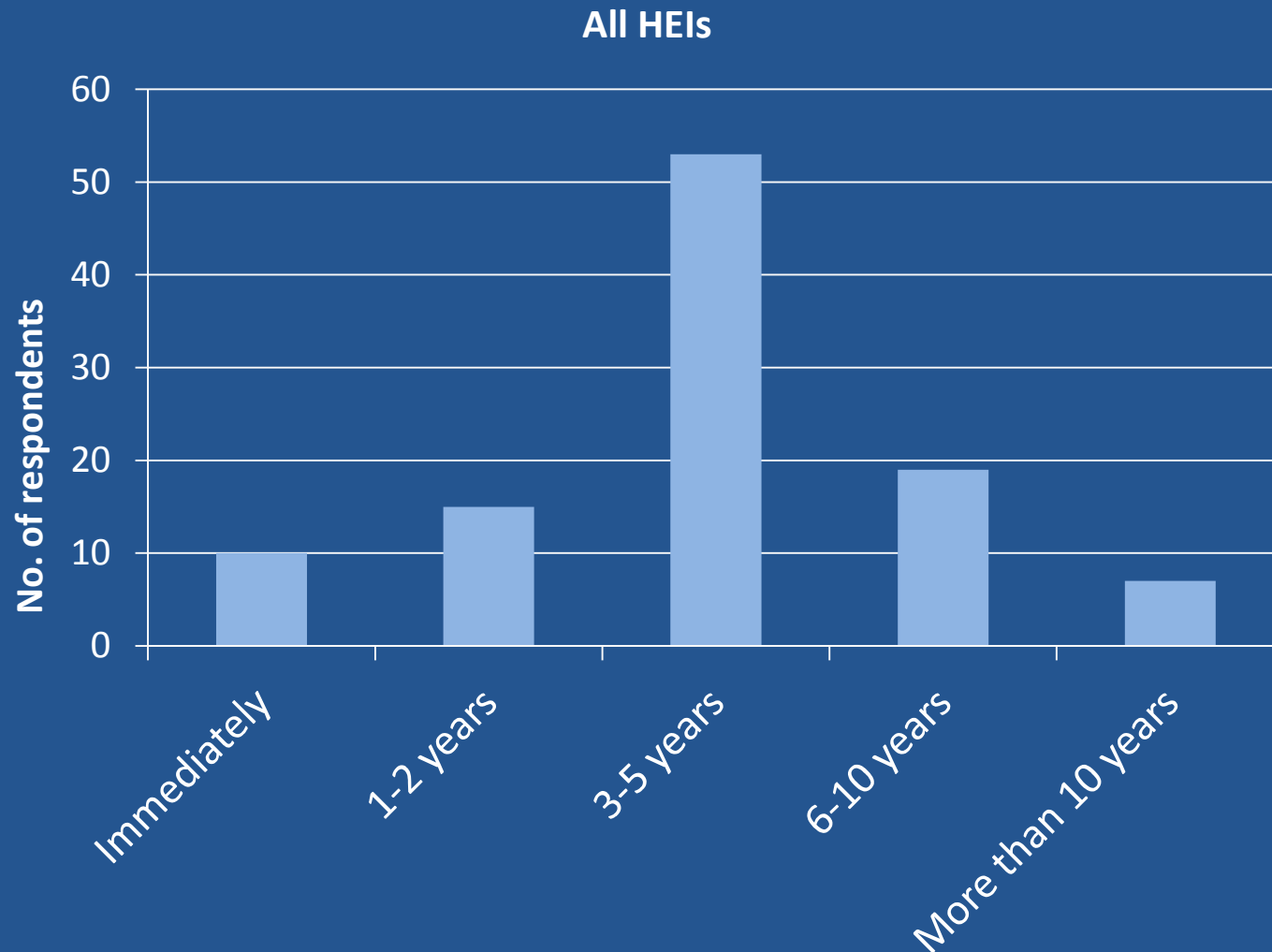
#### **“The UK needs to double the number of recruits into engineering to meet demand**

A report launched at No 11 Downing Street by EngineeringUK on 3rd December highlights the need to double the number of annual recruits into engineering to 2020 to meet expected demand.

Engineering companies are projected to have 2.74 million job openings from 2010 – 2020, 1.86 million of which will need engineering skills. **Of these, approximately 87,000 per year will require people with degree (including foundation, undergraduate and postgraduate) qualifications. Currently the UK produces only 46,000 engineering graduates each year.** There will also be demand for around 69,000 people qualified at advanced apprenticeship or equivalent level each year. Yet only around 27,000 UK apprentices a year currently qualify at the appropriate level.”



## EPC Poll of members (May 2013) : Over what time period could you accommodate a doubling of your intake of undergraduate engineering students?



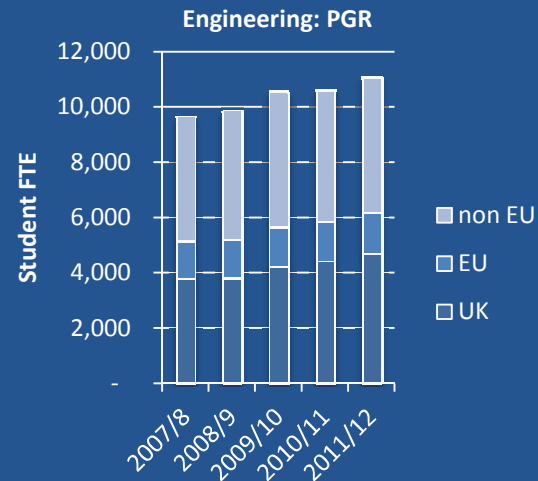
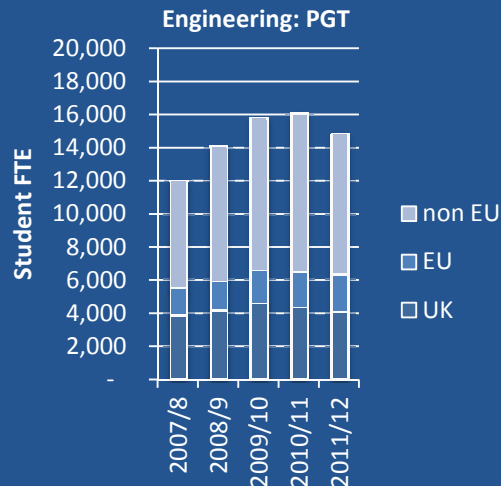
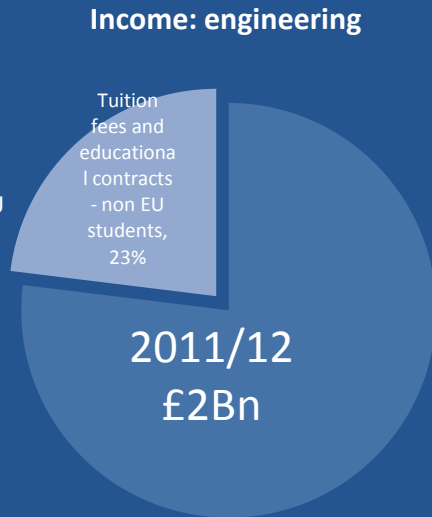
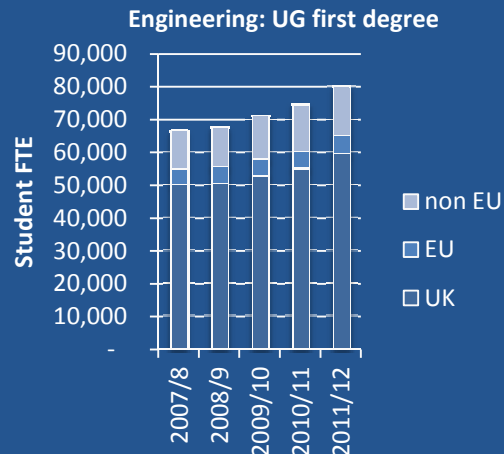


## **Key issues:** attractiveness of UK to overseas students and academic staff

“Overly bureaucratic immigration rules are preventing world-class researchers from coming to the UK, even when they are funded by European research grants, a group of leading engineers has said. The Engineering Professors’ Council, which represents engineering departments at 78 universities, is calling on the Home Office to be more flexible in granting visas to young researchers wishing to visit the UK for training purposes or to work short-term contracts. It follows reports to the EPC by several universities that engineers on Marie Curie fellowships - the EU’s flagship pre- and postdoctoral research scheme - have been refused visas to enter the country.”

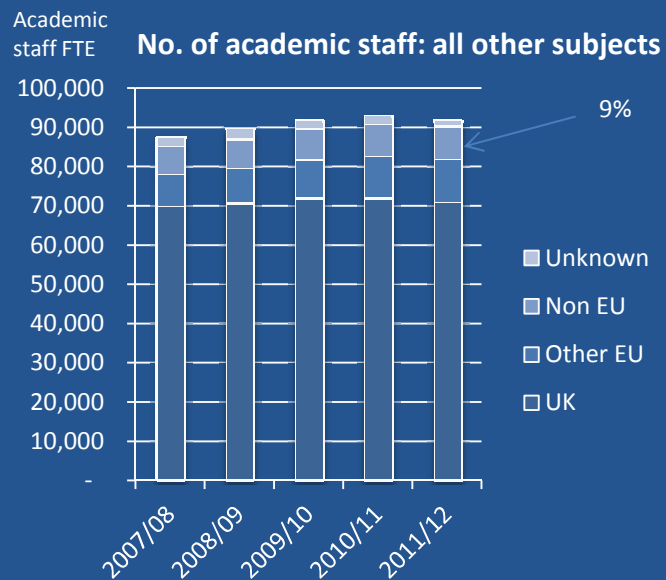
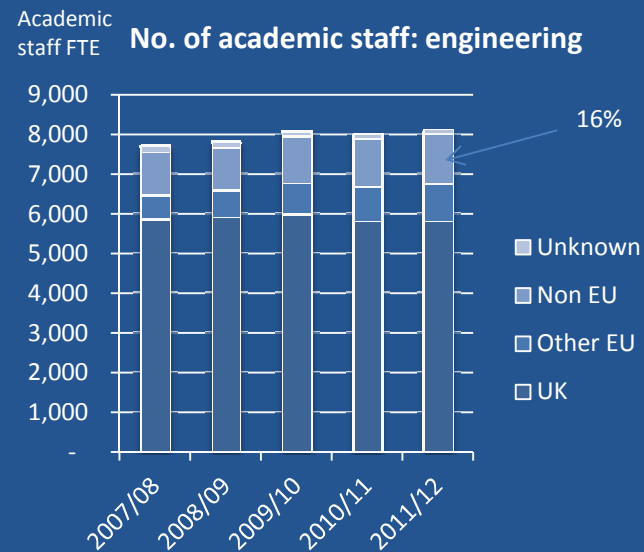
**Times Higher Education 30 May, 2013**

## Income mix overseas students



- The proportion of students from outside the EU is substantially higher in engineering than for other disciplines.
  - UG: 19% *cf* 8% in all other
  - PGT: 57% *cf* 31% in all other
  - PGR: 44% *cf* 31% in all other
- It seems that a worrying trend is emerging in PGT numbers with a fall in both the numbers of UK students and those from outside the EU...
- Overseas students are essential to the viability of Master's programmes... and by extension MEng programmes (included in UG figures) and hence the training of Chartered Engineers and the pipeline of future engineering academics.

## Engineering in UK universities overseas staff

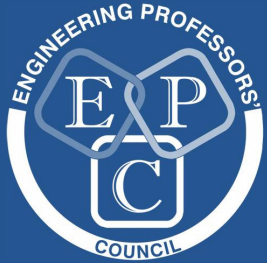


- In addition to the higher proportion of overseas students in engineering, 16% of all academic staff in engineering are from outside the EU (*cf* 9% for all other subjects)
- Members report it is increasingly difficult (but necessary) to recruit from outside the UK owing to:
  - the “squeezed” pipeline of UK citizens with the appropriate higher level qualifications
  - the damage to the image of the UK as a destination to work and study as a result of the recent changes to visa regulations (now, hopefully, being addressed) and the slow and complicated associated administrative systems. The latter has a particular impact on the ability to recruit staff for short term contracts.



## Engineering in UK universities **key messages**

- There is an inextricable link between engineering education and industrial application. Engineering programmes would operate in a vacuum without strong research/industrial links. This is true for all types of university.
- As a discipline, we have demonstrated our understanding of the need to be less reliant on direct Government funding. Different types of university have used their different strengths to generate income and develop relationships that enable them to maintain and grow strong industrial links to both underpin research programmes and provide opportunities for students.
- These links need to be maintained regionally, nationally and internationally if university engineering departments are to continue to be a pivotal agent in delivering the objectives of the industrial strategy.
- We need also to protect the supply of those with higher level skills who will be the industrially and academically-based Chartered Engineers of the future.



## Key issues: pressure from a number of directions

Changing global  
HE landscape

Attractiveness  
of UK to  
overseas  
students and  
academic staff

Concentration  
in research  
funding  
distribution.  
Impact of  
impact

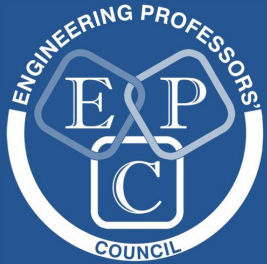
Outcome of REF

Contribution to  
economic  
recovery and  
the skills agenda

Examination  
reform

Engineering  
in UK HE





## Key issues: examinations reform

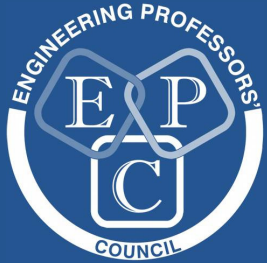
- A submission to the recent consultation on A level reform emphasising:
  - the current inadequate coverage of mathematics in science A Levels and the need for integration of learning and teaching across related subjects
  - the need to involve universities in determining the content and standards of A Levels but that the whole HE sector should be able to contribute.
  - As universities liaise extensively with, and academic staff are represented on, the learned societies, they appear to be the appropriate bodies through which to work.
- EPC Committee members sitting on Awarding Bodies ' exam content reviews, Institute of Physics working group and Advisory Committee on Mathematics Education, amongst others.



## Other EPC work and plans

Now provide benchmarking data to members for each of the engineering disciplines encompassing:

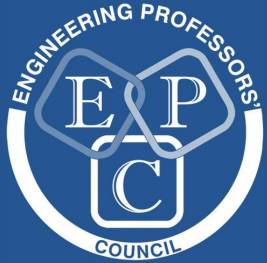
A screenshot of the Engineering Professors' Council website. The header features a large image of a bridge at night with the text 'Engineering Professors' Council' and 'Promoting excellence in engineering in higher education'. Below the header is a navigation menu with links: Home, About us, Our network, Join us, Events, EPC people, EPC publications, Members' area, and Forum. The main content area is titled 'Engineering Professors' Council news' and includes a sub-header 'Now taking bookings for Recruitment and Admissions Forum 4th November 2013'. The main text discusses the annual report 'Engineering UK 2013: The State of Engineering' and the upcoming forum. A sidebar on the right contains a search bar, a 'Members' portal' link, a 'Committee resources' link, and a 'Datasets and analysis' link. Below these are links for 'Academic staff numbers', 'Applications', 'Completion', 'Degree classification', 'Destination of Leavers from Higher Education (DLHE)', 'Expenditure by academic cost centre', 'Gender benchmarking', 'National Student Survey (NSS)', and 'Research Assessment Exercise 2008'. At the bottom, there is a 'Latest newsletter' section with a thumbnail image and a 'click to read' button.



## Other EPC work and plans: **developing the evidence base**

**Re-energising the occasional papers series to underpin evidence-based policy work and development of toolkits for the membership**

- Tracking effect of policy of award of fewer, larger grants on impact (using bibliometrics and other TBC) *subject to funding*
- Trends in postgraduate study and recommendations for future funding
- Analysing the effects on funding of the inclusion of impact in REF on engineering
- The role and contribution of knowledge transfer activity in universities (esp. in relation to promotional opportunities)
- Outcomes: levels and skills – what's essential for employment? Is accreditation important? What level of degree do employers want? (Potential for sponsorship from Engineering Council)
- Establishing overseas faculties – “toolkit for TNE”
- Telling the impact story. **Submit your impact narratives at <http://www.smart-survey.co.uk/v.asp?i=55751cosxh>**



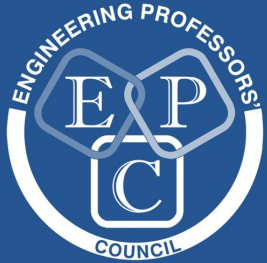
## Other EPC work and plans: **participation and collaboration**

### **Widening participation...**

- New Professors
- All academic and administrative staff working in engineering welcome at events and provided with access to website
- We've welcomed 3 new members this year:
  - University of Bedfordshire
  - University of Chester
  - Royal Academy of Engineering

### **Student prize**

### **Funding call**



## Upcoming events

**Recruitment and Admissions Forum:  
4 November 2013  
at the Institution of Civil Engineers**

**Annual Congress:  
8/9 April 2014  
at the University of Glasgow**

**\*\*20<sup>th</sup> anniversary awards\*\***

**<http://epc.ac.uk>  
Follow us on**

