

## Our year so far...

**Annual Congress 2014 hosted by the University of Glasgow**

**20<sup>th</sup> Anniversary Awards**

**Submitted responses and evidence to:**

HOUSE OF LORDS Select Committee on Science and Technology: Inquiry into impact of immigration policy on STEM students. EPC Committee members called to give evidence

HOUSE OF COMMONS

Business, Innovation and Skills Committee's inquiry into Business-University collaboration

DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS: proposals for long-term capital investment

OfQual: Completing GCSE, AS and A Level Reform

DEPARTMENT FOR BUSINESS INNOVATION AND SKILLS: Science and Innovation Strategy 2014

UNIVERSITIES UK: Student funding panel

Letter to Liam Byrne MP, Shadow Minister for Higher Education

Parliamentary and Scientific Committee annual lunch and lecture

**Currently underway:**

Perkins Review: EPC Committee/sub Committee members chairing or participating in:

- Development of a Postgraduate Portal for engineering
- Review of professional accreditation
- Engagement with the Industry Strategy Councils



*EPC President Simon Hodgson presents Sir John Parker with the President's Prize*

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## President's Report

It doesn't seem 20 months since I accepted the Engineering Professors' Council's nomination to become its President. It's been an enormous honour to represent and support the nearly 6,000 academic staff working in our member engineering departments. And that number is still growing as we've welcomed several new members during my tenure – including the Royal Academy of Engineering as our first corporate member. We're also privileged to have a new patron: Sir John Parker GBE FREng – former President of the Royal Academy of Engineering, recipient of our President's Prize for services to engineering education in 2014.

In my representational role, I've held meetings with the Department for Business, Innovation and Skills, sat on one of the Perkins Review Task and Finish groups (more of which elsewhere in this newsletter), attended meetings of the Parliamentary and Scientific Committee at both the House of Lords and Buckingham Palace and initiated our 20<sup>th</sup> Anniversary award schemes. The [student prize](#) was so popular last year that I'm delighted to say we're repeating it this year, supported once again by the Incorporation of Hammermen of Glasgow – please do encourage your students to enter – there's still time! I'm also delighted to say that our Members' Portal goes from strength to strength and I know that members appreciate having the sector data at their fingertips (because you tell me so).

But there's much still to do before I hand over the baton to **President-Elect Professor Stephanie Haywood of the University of Hull**. A number of the implementation projects arising from the Perkins Review are being led by the EPC – including the development of a portal for comprehensive information about postgraduate engineering programmes in conjunction with UCAS and a review of innovative practice in incorporation of work experience into degree programmes and the implications for professional accreditation.

I can't finish without mentioning the Research Excellence Framework. We've provided a round-up of the results for engineering in this newsletter (and added it to the Members' Portal) and there'll be an opportunity to dissect and discuss the whole process and the outcome at our Annual Congress. EPC Committee members Professors Sarah Spurgeon, Stephanie Haywood and Alison Hodge, all REF2014 panellists, will be running workshops...Congress will be held on April 14<sup>th</sup>/15<sup>th</sup> 2015 at Media City Salford – [please do book via the website](#). I do hope to see as many of you as possible there so I may thank you personally for your support during my term as President.

Professor Simon Hodgson



## Chancellor's Autumn Statement

“...Britain is raising its ambition. And nowhere is that clearer than in our commitment to science. It is a personal priority of mine. Scientific advance is a human endeavour worthy of support in its own right. It is also crucial to our economic future.....”

As we mull over the results of the Research Excellence Framework which will determine how HEFCE's Quality-Related research fund will be allocated, we were all keen to hear what the Chancellor had to say about the Science Budget in his Autumn Statement at the beginning of this month.

There were some clues as to the priorities for the £1.1bn pa capital committed to science for the next five years in announcements about new research facilities, many of which will be located in the north of England reflecting the Government's stated aspiration to rebalance the economy. But the Statement also confirmed the Chancellor's plans to turn a surplus on the Government's accounts by 2019 mainly through further public spending cuts. No detailed budgets for Government departments from 2016 have yet been published, and, according to an article in Research Fortnight on 12<sup>th</sup> November, the Minister for Universities, Science and Cities, Greg Clark, has declined to commit the next Conservative Government to increasing the science budget or indeed to continue the 2010 ring fence. So there seems to be a general consensus emerging that existing plans mean cuts of around 30% to 40% everywhere apart from the NHS and schools. The Chancellor says that savings were made between 2010 and 2015 so it should be possible to make the same order of savings again, leading to energetic debate about whether this is actually possible...

There was (ostensibly) better news on the subject of postgraduate loans, though. Postgraduate funding is an issue on which the Engineering Professors' Council has been working hard to raise up the agenda, particularly through our work with BIS on the Perkins Task and Finish group on Specialist Skills through which we've also kept a close eye on progress with the HEFCE postgraduate funding pilot schemes for STEM subjects, the largest proportion of which were focused on engineering. The Chancellor announced that up to £10,000 would be made available for students under the age of 30, to fund postgraduate study in any subject. Decisions about the final details of the system will be informed by pilot schemes currently being funded by HEFCE and there will be a consultation before the final system is agreed, with a view to implementing it in time for the start of the 2016/17 academic year. The Treasury says it is assuming repayment at rates higher than for current undergraduate loans, but lower than the current commercially available loans to help ensure that the majority will be paid in full. Concerns have been raised, though, about the fact that the postgraduate loans are to be repaid “concurrently” with undergraduate loans (putting an age limit of 30 on them will have exacerbated that...) leading the Institute for Fiscal Studies to warn that those taking out postgraduate loans could, in effect, face a marginal tax rate of 50% once income tax and National Insurance were included. We are planning to work with the Industry Strategy Councils to explore the possibility of obtaining industrial financial support for those studying postgraduate degrees in engineering subjects as the rate of unemployment is so much lower for engineering graduates compared with other disciplines that the risk of non-repayment is consequently lower and so could be supported by an interest rate subsidy, for example. Colleagues at Cranfield University have been piloting a loan scheme for postgraduate STEM students – and you can read about it in Annex G of the Perkins Review's Progress Report: <http://bit.ly/169HLQ1>. We'll keep you up to date with any further progress.

## Perkins Review

Engineering community commits to maintain the long-term work initiated by Perkins through the *Engineering the Future* consortium.

EPC Past President Professor Helen Atkinson FEng and Executive Director Susan Kay joined an impressive group at Shell UK's London headquarters on 3rd November, 2014 to launch Tomorrow's Engineers week 2014. Erik Bonino, Chairman of Shell UK and Vince Cable, the Business Secretary, spoke passionately about the need to feed the pipeline of engineers to ensure we have sufficient to meet industry's needs. They endorsed warmly the Review of Engineering Skills led by Professor John Perkins, Chief Scientific Advisor to the Department for Business, Innovation and Skills, who also attended to launch his [Progress Report](#) which has brought together an array of partners – professional engineering institutions, universities, schools, further education colleges and businesses – to address the need at every level from schools to postgraduate specialist skills.

The Engineering Professors' Council leads the work, on behalf of Education for Engineering, on postgraduate specialist skills.

Professor Perkins' progress report is available from the Department for Business, Innovation and Skills and a fuller account of the progress of the Perkins Task and Finish Groups is available from Education for Engineering.

## Winners of inaugural 20<sup>th</sup> Anniversary Awards

As one of the initiatives to celebrate our 20th Anniversary (in our current form), we offered our members the opportunity to bid for funding for public engagement projects. While proposals could encompass completely new ideas and activities, we were also looking for ideas that built on existing initiatives and had worked well locally or regionally but which might, with some additional funding and/or collaboration with other members, extend the reach and impact to the national level. Four candidates were shortlisted and invited to Congress 2014 to pitch their proposals to delegates who then voted on those they felt best met the brief.

Delegates decided to make 2 awards – to Dr Catherine Hobbs of the University of the West of England with science policy colleague Laura Fogg-Rogers and Dr Emma Carter of the University of Sheffield. You may read summaries of all four proposals here: <http://epc.ac.uk/engaging-in-engineering-awards/> and the successful applicants will be updating future Congress delegates on their progress.

### ...and for your students...

We're delighted to be offering, once again, a prize for students (in collaboration with the Incorporation of Hammermen of Glasgow). The winner will receive £1,000 and the opportunity to speak at the EPC Congress at Salford in April 2015. For more details, go to: <http://epc.ac.uk/20th-anniversary-awards-2015/>

The annual Recruitment and Admissions Forum took place at the Institution of Mechanical Engineers on 10th November 2014 convened by new EPC Recruitment and Admissions sub Committee chair, Professor Mike Bramhall from Sheffield Hallam University.

Colleagues from Sheffield Hallam, Imperial College, the Engineering Development Trust, FabLab, Women in SET and Primary Engineer joined delegates to share details of their activities to encourage the study of engineering. We were then joined by Dr Paul Wakeling of the University of York who had been asked by HEFCE to evaluate the funded postgraduate pilot schemes to improve diversity and participation in master's-level STEM education. We rounded off the day with workshop sessions on current perspectives and issues for admissions tutors and the increasing role of placements and internships in attracting students to engineering programmes. We're grateful to the National Centre for Universities and Business, BP, NTR, enginterns and the universities of Leeds, Coventry, Sheffield Hallam and Trinity St David for supporting those sessions.

## EPC Enrolments Survey 2014/15

**"80% of the university engineering departments that responded said that their intake of UK and EU undergraduates had either increased or stayed the same in 2014/15..."**

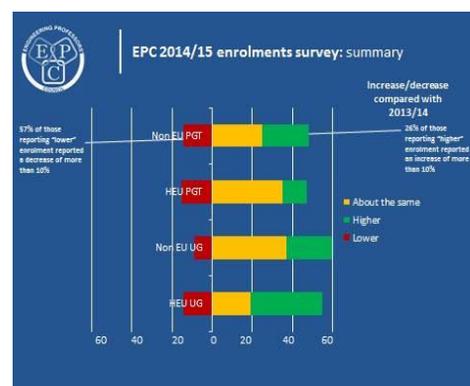
We also provided a summary of the results of the EPC's latest survey of the

enrolment experience of member institutions and we're grateful to the very many members who completed the survey. While we can't claim that the figures are precise - its intention is to give members a sense of their position relative to national position for planning purposes – it does attract a lot of external interest and seems to be becoming widely recognised as the early barometer of recruitment levels to engineering. While UCAS provide applications data for undergraduates, there can be a time lag, particularly at sub-discipline level, and there's no similar service for post-graduates so we tend to have to wait for the official HESA statistics on student numbers which are published up to 18 months after the event.

There was an increase in home/EU undergraduate students across the sector as a whole, with undergraduate applications to engineering for 2014/15 entry up 10.4% compared with 2013/14 and 17.1% compared with 2012/13. But as we know, it's the overseas postgraduate numbers which have been declining in recent years so it was a pleasant surprise to see what appears to be some stabilisation amongst this group. More than three quarters of those responding said their overseas postgraduate numbers had stayed the same or increased: of those saying their numbers were higher, over a quarter reported that they were more than 10% higher. Members can access the full survey presentation (along with the other presentations from the Recruitment and Admissions Forum) at: <http://epc.ac.uk/recruitment-and-admissions-forum-2014/> and access all the latest data on applications and student numbers at: <http://epc.ac.uk/services-2/>.

## Recruitment and Admissions Forum 2014

**"...a great chance to swap experiences and I enjoyed the short sessions from organisations working with schools – I'll definitely be getting in contact with them" Feedback from delegate**



As [Patrick McGhee wrote in the Guardian](#) a few days ago, “We should not underestimate the capacity of the results to stimulate research endeavour in its own right. I was impressed by the advances in set theory achieved

by some university PR departments in 2008 when they created new branches of mathematics by promoting groupings that contained only the top 10 elements thereof...But we should also watch out for the “Woodstock effect” in which 90% of researchers in a department will claim credit for the 5% of work classified in the four-star “world leading” category. They can’t all have been there...”

Enough with the levity...this is a serious business. The first clues as to the outcome of REF14 dropped onto Vice-Chancellors’ desks on 16<sup>th</sup> December with the average grade profiles for each Unit of Assessment. This was followed on 17<sup>th</sup> with the full dataset...an Excel spreadsheet which has been sorted, pivoted, cut and pasted in offices up and down the land to try and make sense of what it means for each university. The EPC Office has been no less attentive and you can check out for yourself the results of our endeavours by logging on to the Members’ Portal (contact us if you need your password again...) and downloading our “comparator” tool for the engineering units of assessment. We’ll be doing more work on this in the coming weeks – especially as details of the funding implications emerge, but for now, the highlights...

### What does the outcome look like compared with 2008?

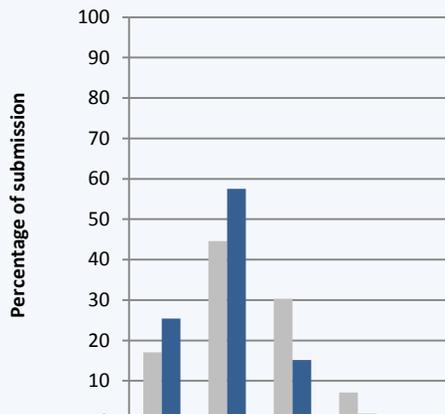
We can’t, of course, make a direct comparison with the last assessment exercise, RAE08. First there was the inclusion of “impact” rather than “esteem” for REF14 and second, the Units of Assessment were organised quite differently. The number of Units of Assessment for engineering was reduced from 6 to 4<sup>1</sup>. The chart on the right, however shows what the overall grade profile was in 2008, compared with that of REF2014 by calculating the “staff adjusted mean” for the 6 engineering-related units in 2008 and the 4 in 2014.

We might have expected an increase in 4\* and 3\* work as a proportion of submissions as a result of universities being increasingly selective owing to the way the HEFCE quality-related (“QR”) funding is now allocated (only 4\* and 3\* work is funded and is weighted in the proportion 3:1). This, together with the stringent funding regime since 2008 with reports of significant reductions in staff numbers in some areas, might have led us to believe that we would see a reduction in the number of staff submitted. Not for engineering it seems. 5,060 category A full time equivalent staff were submitted across the four engineering Units of Assessment in 2014, compared with only 4,458 across six in 2008. The Higher Education Statistics agency will shortly publish the number of “REF eligible” staff – another difference compared with the 2008 exercise when it was not possible to tell what proportion of staff were entered.

## REF2014 round-up

Early Christmas presents.....or was it “Bah humbug”?

### Comparison of RAE08 and REF14 outcomes for engineering



■ RAE08 (4,458 Cat A FTE)	17	45	30	7	1
■ REF14 (5,060 Cat A FTE)	25	57	15	2	0

## Quick facts...

EPC was a “nominating body” for the Research Excellence Framework (REF).

Two of our committee members were panellists for General Engineering, one for Electrical and Electronic Engineering, Metallurgy and Materials and former EPC President, Professor Tony Unsworth of the University of Durham, was an assessor.

Professors Sarah Spurgeon, Stephanie Haywood and Alison Hodge will be providing some insight at Congress 2015 in April about their experiences as panellists...

For institutional-level comparisons, together with sub profile information, do take a look at the Datasets and Analysis section on the Members’ Portal.



<sup>1</sup> 2008 engineering Units of Assessment: Electrical and electronic engineering; General Engineering and Mineral & Mining Engineering; Chemical engineering; Civil engineering; Mechanical, Aeronautical and Manufacturing Engineering; Metallurgy and materials

2014 engineering Units of Assessment: Aeronautical, Mechanical, Chemical & Manufacturing Engineering; Electrical & Electronic Engineering Metallurgy & Materials; Civil and Construction Engineering; General Engineering



## What about funding?

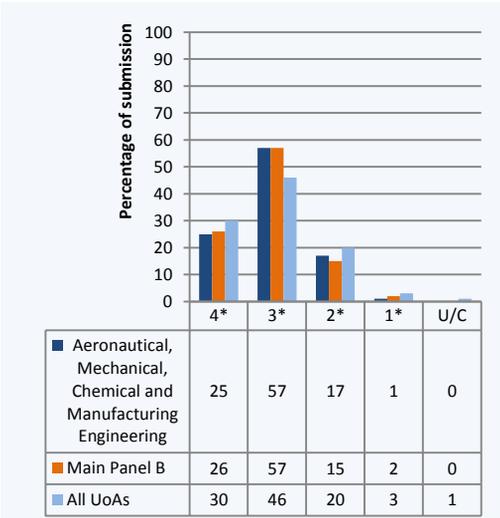
There's no news about funding yet.

Currently, HEFCE distributes quality-related research funding ("QR") by applying the percentage of work judged to be 3\* and 4\* to the number of staff submitted – and there's a weighting of 3 applied to 4\* work. This weighting has changed a couple of times over the period since 2008.

Immediately post-RAE08, 2\* work was also funded and there's been an increasing concentration towards 4\* with adjustments to the weighting. We'll aim to create some simulations in the coming weeks on what the outcome might mean for institutions' funding under various scenarios. The 2014/15 mainstream QR allocation amounted to just under £132M for the engineering Units of Assessment.

Co-incidentally ...HM Treasury published its strategy - delayed from the Autumn Statement - "[Plan for Growth – science and innovation](#)" on 17<sup>th</sup> December – the day before the public announcement of the REF results. While its tone is reassuring, with a General Election in the offing it makes no specific commitments to continuing the ring fence on the Science Budget. Even more disappointingly, in some ways, it fails to set long-term goals for science and engineering investment to create stability, something the EPC has consistently called for.

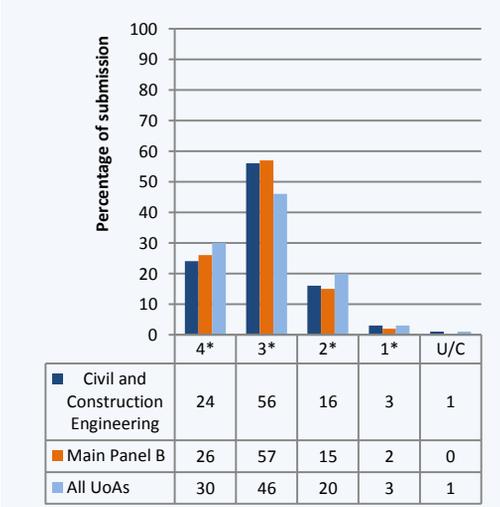
## Aeronautical, mechanical, chemical and manufacturing engineering



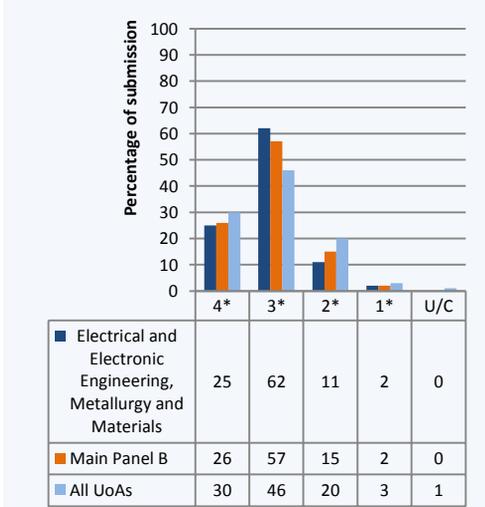
## What about the individual Units of Assessment?

We've shown here an analysis of the average profiles for each engineering Unit of Assessment at Overall level. (The sub profile outcomes – Outputs, Impact and Environment may be viewed in the analysis on the Members' Portal). The Unit of Assessment profile is compared with the average profile for Main Panel B (of which the engineering Units of Assessment were part) and the average profile for ALL Units of Assessment.

## Civil and construction engineering



## Electrical and electronic engineering, metallurgy and materials

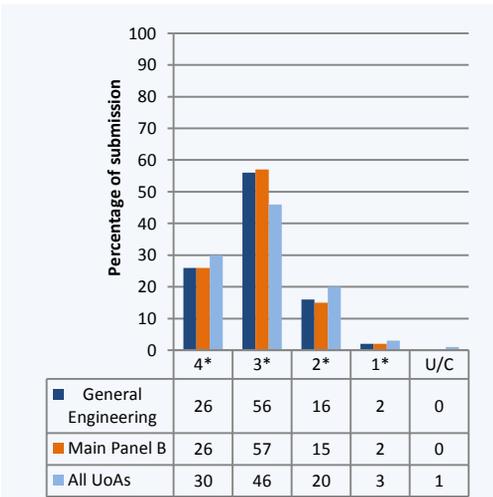


## Quick stats round-up

Of the 5,060 Category A staff submitted in 2014:

- 1,152 were in **Aeronautical, Mechanical, Chemical and Manufacturing Engineering** across 25 submissions.
- 1,071 were in **Electrical and Electronic Engineering, Metallurgy and Materials** across 37 submissions.
- 390 were in **Civil and Construction Engineering** across 14 submissions.
- 2,447 were in **General Engineering** across 62 submissions.
- 83%** of submissions in **engineering** met the standard of 3\* or 4\* compared with **76%** in **all disciplines**.

## General Engineering



## Get involved...



...we've a number of surveys, consultations and working groups in which to get involved...

### OfQual consultation on GCSE reform

We'll be responding to the recently-opened consultation on reforms around the assessment of practical work in GCSE science. Let us have your views:

<http://www.smartsurvey.co.uk/s/OFQUALGCSE>

### Postgraduate portal

One of the projects which has arisen from the work of the Perkins Task and Finish Groups is the development of a trusted single source of information for postgraduate engineering education. As UCAS has recently stated its intention to launch a postgraduate information portal and identified engineering as one of the three disciplines to be covered in their first wave of work, we have joined forces to work with them to develop appropriate, comprehensive and engaging content. We have a number of members on our working group and **asked VCs to identify a liaison contact at each member institution – if you haven't done so yet, please provide details of a contact here:**

<http://www.smartsurvey.co.uk/s/PGPORTAL>



## Upcoming events

Date	Venue	Location	Notes
<b>January, 2014</b>	PHEE/ PHOMME (EPC Sectoral Groups) Joint Conference	Institution of Mechanical Engineers, London	Mechanical and electrical/electronic sectors To register: <a href="http://epc.ac.uk/phee/">http://epc.ac.uk/phee/</a>
<b>14/15 April, 2015</b>	Engineering Professors' Council Congress 2015	University of Salford at Media City, Manchester	All welcome <a href="http://epc.ac.uk/events/epc-congress-2015/">http://epc.ac.uk/events/epc-congress-2015/</a>

## Members

The following universities/organisations are all current members of the Engineering Professors' Council. For university members, membership provides all academic staff in engineering departments with access to EPC resources and initiatives. Our team of only 2 highly flexible staff collaborate with you and a whole host of other organisations to ensure we're delivering value for your subscription. If you have ideas about other information and support you'd like to receive from us, please let us know.

Royal Academy of Engineering  
University of Aberdeen  
Aston University  
Bangor University  
University of Bath  
University of Bedfordshire  
Queen's University of Belfast  
University of Birmingham  
Bournemouth University  
University of Bradford  
University of Brighton  
University of Bristol  
Brunel University  
The University of Cambridge  
Cardiff University  
University of Chester  
City University  
Coventry University  
University of Derby  
University of Durham  
University of East London  
Edinburgh Napier University  
University of Edinburgh  
University of Essex  
University of Exeter  
Glasgow Caledonian University  
The University of Glasgow  
Glyndŵr University  
University of Greenwich

Harper Adams University  
Heriot-Watt University  
University of Hertfordshire  
The University of Huddersfield  
The University of Hull  
Imperial College of Science, Technology and Medicine  
The University of Kent  
Kingston University  
The University of Lancaster  
Leeds Beckett University  
The University of Leeds  
The University of Leicester  
The University of Lincoln  
Liverpool John Moores University  
The University of Liverpool  
London South Bank University  
Loughborough University  
Manchester Metropolitan University  
The University of Manchester  
The University of Newcastle-upon-Tyne  
The University of Northumbria at Newcastle  
The University of Nottingham  
The Nottingham Trent University  
The Open University  
Oxford Brookes University

The University of Oxford  
The University of Plymouth  
The University of Portsmouth  
Queen Mary University of London  
The University of Reading  
The Robert Gordon University  
The University of Salford  
Sheffield Hallam University  
The University of Sheffield  
The University of Southampton  
University of South Wales  
Staffordshire University  
The University of Strathclyde  
The University of Surrey  
The University of Sussex  
Teesside University  
University of Wales, Trinity St David  
University of Ulster  
University College London  
The University of Warwick  
University of the West of England, Bristol  
The University of the West of Scotland  
The University of Westminster  
The University of Wolverhampton  
The University of York



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Please contact us if you have forgotten the password for the Members' Portal on <http://epc.ac.uk>