

## Your EPC

### Directors

- **President:** Prof Sarah Spurgeon OBE
- **Immediate Past President:** Prof Stephanie Haywood
- **Honorary Treasurer:** Prof Jim Yip
- **Honorary Secretary:** Prof David K Harrison

### Committees

- The Executive Board is chaired by the President and includes the Directors, elected and co-opted members, the chairs of the sectoral groups (representing different engineering disciplines), the Congress Convenor and the executive officers.
- **Engineering Education and Employability Skills Committee:** chaired by Prof Henri Huijberts
- **Recruitment and Admissions Committee:** chaired by Georgina Harris
- **Research, Innovation and Knowledge Transfer Committee:** chaired by Prof Alan Smith

### Executive officers

- **Chief Executive:** Johnny Rich, j.rich@epc.ac.uk
- **Policy & Research Officer:** Stella Fowler, s.fowler@epc.ac.uk
- **Administration Manager:** Vicky Elston, v.elston@epc.ac.uk

The EPC would like to extend its thanks to the many individuals who have served on EPC Committees and working groups over the past year, contributing their time, expertise and enthusiasm.

**ENGINEERING PROFESSORS' COUNCIL**  
The voice of engineering academics

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Company Registration No: 06791295

 @EngProfCouncil

## Initiatives

**A** NEW STRATEGY and brand identity for the EPC, together with constitutional changes, were launched at last year's AGM. Since then, we have focused on changes and activities to maximise our effectiveness in representing engineering academics in national policy, to engage more members at all stages in their career and to support our members in new and direct ways.

The new Executive Board (replacing the Executive Committee as part of a host of changes to reflect a new, more representative structure for the EPC) has now completed its first year. The following are just three of the large-scale, ongoing areas being addressed by the EPC.

### The Engineering Academics Network

The Engineering Professors' Council is not just for professors, but for all engineering academics throughout their careers. So, in order to support all members better, we are establishing the Engineering Academics Network.

The Network will be hosted on a new-look EPC website which we are hoping to launch this year. You will probably have already received emails to confirm your contact details. This is part of ensuring the new site can give each member a personalised experience.

The website will be a place to share best practice, ideas and concerns, access resources and data analysis, express opinions (which will feed into the EPC's representative activity) and find out about events.

Many of these events and discussion will focus on communities of practice. Most of these are already in place – for example, the sectoral groups which represent different engineering disciplines and the Engineering Education Research Network, which has agreed to come into the EPC fold. Others are being established, such as the new groups for visiting professors and for early career academics. A group for deans has also been mooted.

If you want to know more about these groups or would like to start your own, please contact us.

### REF 2021

The EPC was a formal nominating body for REF and so, when we were invited to submit names for the REF 2021 Panels this year, we decided to run an open and transparent nominations process. We were delighted to receive a flood of applications of an exceptionally high standard. Thank you to everyone who put themselves or a colleague forward.

Sadly, it was simply not possible to nominate everyone, but we were delighted to be able to put forward a group who represented a wide balance of highly able individuals from a variety of disciplines and of diverse gender and backgrounds.

Congratulations to everyone who was nominated, especially those who were subsequently selected, and apologies that we couldn't support every one of the worthy applications.

### Brexit

The EPC has developed a strong reputation as a clear voice on the impact of Brexit on engineering academia through, for example, a widely cited analysis that we published jointly with CaSE and giving evidence to the House of Commons Science & Technology Select Committee inquiry last year.

This work is continuing with a paper we are preparing on Brexit and the future of research funding. Using a data analysis of Engineering HE research income, the paper will look at a few post-Brexit 'what if' scenarios, such as 'What if engineering research projects receive no funding from the EU after Brexit?'. The analysis will also include some data tables to help members understand how they may be impacted by Brexit.

In collaboration with Dr Inês Direito of UCL's Centre for Engineering Education, the EPC has also had a research paper accepted to the SEFI (European Society for Engineering Education) Annual Conference in Denmark in September. This research analyses whether there have been impacts on EU student and staff numbers since the Brexit referendum.

## Partners

At last year's AGM, the EPC agreed a new category of formal association with organisations with which we share some common goals. Since then, we have welcomed three 'Partner organisations'.

The first is the **Royal Academy of Engineering**, which which we have enjoyed a long-standing relationship.

We have also recognised two important initiatives working in engineering education:

**Engineers Without Borders UK** runs a number of ongoing initiatives both in the UK and around the world that change how we inspire people to become engineers, how our future engineers are educated and how practicing engineers can apply their skills to make a positive contribution as responsible global citizens.



2017 ceremony for Primary Engineer's London Leaders Awards, held at UCL, which the EPC helped to judge.



**Primary Engineer** works in schools around the UK, developing children's enthusiasm for engineering skills and bringing them together with universities and students.



# Engineering Professors COUNCIL

The voice of engineering academics

## Annual Review May 2018

 @EngProfCouncil

### President's Report Prof Sarah Spurgeon OBE

**I**T'S BEEN A very busy year for EPC in what continues to be a turbulent landscape.

The Higher Education Research Act has seen the birth of UK Research and Innovation (UKRI) and the Office for Students (OFS).

The Teaching Excellence Framework released Year 2 results at institutional level in June. The Knowledge Exchange Framework (KEF) was announced in October. And the Research Excellence Framework (REF) 2021 Main and Sub-panels have now been recruited – with a number of EPC nominees being accepted – and are now working hard to develop draft criteria for consultation.

REF, and its predecessor RAE, have come to seem like 'old friends', but the move to the single Engineering Unit of Assessment (UOA) has created significant change for our community even in this relatively established area.

Meanwhile, the environment of uncertainty and opportunity around the national and international landscape post the Brexit referendum continues to impact across Higher Education. At the same time, the Industrial Strategy places engineering education at the nexus of the Government's economic plans and 'the fourth industrial revolution' also reflects the need for innovation.

Against this background, the role of the EPC in representing the views of the entire engineering community within HE has never been more crucial.

One of the important ways in which we make our voice heard is through our responses to consultations. This year has seen a rapid stream of inquiries, reviews and consultations, ranging from accelerated degrees and value for money to KEF metrics and immigration.

While the EPC regularly submits responses on behalf of our members, we take great pride in our active role in collaborative responses through the E4E group (Education for Engineering), which co-ordinates collective policy campaigning across the whole engineering sector. For example, we have been instrumental in defining E4E's responses to the Post-18 Education Funding Review (led by Philip Augar) and the Office for Students' consultation on subject-level TEF.

In the past year, the EPC has adopted a new protocol for campaigns (see website) to ensure our members can provide input personally and to have their views reflected. We could not do this



without your support and we are well aware that members are extremely busy and that frequently time for responses is very tight. I would like to take this opportunity to thank you all for your support with this particular area of EPC work.

The sheer volume of work being led from what is a relatively small EPC Executive Team is exceptional and I would also like to take this

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opportunity to thank our team who, under the excellent leadership of our Chief Executive, Johnny Rich, deliver so much to our cause.

EPC also provides our community with the data required to assess the position of engineering whether at national, institutional or departmental/school/faculty level, and to inform evidence-based decision-making.

Our well-established Engineering Enrolments Survey, which was published at the Recruitment & Admissions Forum held at Manchester Metropolitan University, enables us to be agile, as the data gives a snapshot of the position across the community long before national figures are disseminated. This year's data signposted the dominant growth of mechanical, aero and production engineering as well as providing useful insights into the impact of international and European recruitment on the gender balance of students.

The need for robust data and associated analysis at a time of change is clear, and we have been delighted to welcome Stella Fowler and her considerable HE expertise in this area to the Executive team. You may already have seen her new Data Blogs on the EPC website.

We have also been bringing a robust, evidence-driven approach to a number of campaigns, working in strategic collaborations to maximise our impact.

With the Royal Academy of Engineering, the IET and the Engineering Council we published our consultation report *Designing apprenticeships for success* at the sell-out Degree Apprenticeships Forum (see below). The event provided a unique opportunity to engage across the community of employers, providers and other stakeholders to pave the way for successful degree apprenticeships in engineering. The findings will inform our work in this area in the coming year: we will be releasing a major policy paper soon.

The New Approaches to Engineering Higher Education Conference, in partnership with the IET, was another hugely successful event whose effects will be felt for some time in academia. The event sought to confront major challenges facing the world of engineering education around recruitment, the national skills shortage, diversity and the interface between university study and employment. The conference proceedings are available on the EPC website and the initiative has spawned a range of follow-on projects.

The New Approaches initiative has also inspired the themes of this month's EPC Congress 2018 at Harper Adams University. The theme is 'Fit for the Future: reshaping engineering in a world of change'. I shall look forward to seeing representatives of many of our EPC members at this event where it will be my great honour to present the EPC President's Prize to Professor Dame Ann Dowling, President of the Royal Academy of Engineering.

The EPC continues to go from strength to strength and I am enormously grateful to Past President Professor Stephanie Haywood for the excellent state of the EPC on her handover as well as her unstinting personal support during my first year of office. I look forward to working with you all in the coming year as we build further on our strategic plan, *Making Waves*, and increase still further the influence and voice of engineering academics.

## The year at a glance

### MAIN EVENTS

- *New Approaches to Engineering in HE*, in collaboration with the Institution of Engineering & Technology, 22 May 2017
- Degree Apprenticeships Forum, in collaboration with the Royal Academy of Engineering, 7 July 2017
- Annual Congress 2017: *Beyond Borders*, Coventry University, 11-13 September 2017
- Recruitment and Admissions Forum, 15 November 2017

### REPRESENTATION

- HESA, NewDLHE: The future of graduate outcomes data (HEFCE)
- Industrial Strategy\* (BEIS)
- Value for money in Higher Education (DfE)
- T levels\* (DfE)
- Office for Students Regulatory Framework (DfE/OFS)
- International students: economic and social impacts (Migration Advisory Committee)
- KEF metrics (HEFCE)
- Accelerated degrees: widening student choice in Higher Education (DfE)
- Subject level TEF\* (OfS)
- Digital Skills\* (DfE)
- Post 18 Education Funding Review\* (DfE)

\* Responses made in collaboration with the cross-sector E4E group.

### INITIATIVES AND CAMPAIGNS

- Working group on Degree Apprenticeships
- New structures to ensure democratic engagement, consultation and representation
- Brexit: RIKT impact on research funding
- New Approaches to Engineering HE (joint campaign with IET)
- Review of member communications and benefits

## Events

### Annual Congress 2017



THE THEME for the 2017 Annual Congress, the flagship event in the EPC calendar, was 'Beyond Borders', exploring the many ways internationalisation requires universities and engineers to prepare themselves for a new world.

As the UK lurches towards Brexit and following the Government's announcement to harden further the line on international students, the issues could not have been more timely.

We were honoured to be hosted by Coventry University in its stunning new Engineering & Computing Building, designed by Ove Arup Associates. We were also privileged to have the opportunity to tour the Faculty's cutting-edge facilities, the famous Coventry Transport Museum and the university's world-leading National Transport Design Centre.



Highlights of the Congress included dinner in the historic Coventry Guildhall and presentations by Hayaaten Sillem (now CEO, Royal Academy of Engineering) Carol Burke (MD, Unipart Group), Teena Gade (BBC presenter & engineer for Sahara Force India) and Paul McNamara (Technical Director, Williams Advanced Engineering).

### New Approaches Conference

IN MAY 2017, in partnership with the IET, the EPC hosted a prestigious thought leadership conference for academics, employers, engineers and policy-makers to highlight the new approaches to engineering higher education that are being explored in the UK and internationally.

The landmark conference, chaired by Professor John Perkins, featured keynote presentations from Professor Jeremy Watson (President of IET), Professor Rick Miller (President of Olin College in the USA); Professor Janusz Kozinski (Founding Dean of the Lassonde School of Engineering at York University, Canada, and now Founding President of NMiTE in Hereford).

Other papers and posters examined how engineering degree students now need a greater emphasis on creativity and they kickstarted a radical and ongoing reappraisal of whether our conventional approaches to teaching engineering in HE are as effective as they could be. The conference asked whether improvement in attracting a sufficient pipeline of engineering students is possible and, if so, how.

In a packed and lively venue, the need for three changes came out clearly from the discussion:

- Entry criteria to UK HE engineering courses should not create a roadblock to those students who have studied humanities or

**We need to make courses more appealing and accessible to students of all backgrounds.**

The Conference proceedings have been published as a free eBook available on the EPC website.

The Conference has sparked an ongoing campaign for the EPC and IET which has so far included: a survey of our membership exploring the approaches to the necessity for Advanced level maths and physics, which showed a broad mix of practises in the sector; a round table of high-level academic leaders in May 2018; and a forthcoming policy round table event.

### Degree Apprenticeships Forum

THE EPC's task group on Degree Apprenticeships, led by Professor Mike Sutcliffe (Kingston University) launched a paper entitled 'Designing apprenticeships for success' on Engineering Degree Apprenticeships at the Degree Apprenticeships Forum, held jointly with the Royal Academy of Engineering on 7th July 2017.

This discussion document – which is a companion report to the EPC's degree apprenticeships toolkit published last year – outlined the concerns that, as an academic community, we believe should be raised to ensure degree apprenticeships in engineering are a success for employers, universities, the economy and, most of all, learners themselves.

The free event was addressed by, among others, Peter Lauener, the then Chief Executive of the Institute for Apprenticeships. It also included presentations from a host of experts and

enlightening insights from a number of apprentices themselves.

During the course of the discussion, there was widespread support for the potential of degree apprenticeships as a method of delivering both the applied in-practice learning and theoretical understanding that modern engineering careers demand.

Following the Degree Apprenticeships Forum, the EPC's task group has been developing a policy paper, representing the academic perspective on how to ensure engineering degree apprenticeships achieve the right outcomes for all stakeholders.

This paper includes recommendations for the Government, the Institute for Apprenticeships, employers and universities. It will be published later in 2018 and presented to ministers and senior officials.



### Recruitment & Admissions Forum

STEM NEEDS a makeover. So was the claim of Mary Curnock Cook, former Chief Executive of UCAS and now leading education consultant and commentator at the EPC's annual Recruitment & Admissions Forum, held at Manchester Metropolitan University on 15th November 2017. She opened the day by highlighting a number of solutions to address the "failing brand" of Engineering.

At the other end of the day, Professor Les Ebdon CBE (Director, Office of Fair Access) presented evidence of what actually works in access.

In between, there were lively presentations and discussions on under-represented groups, degree apprenticeships and entry requirements. The

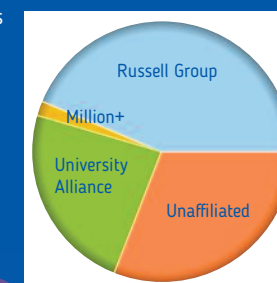
community agreed that this final topic – the assessment of aptitude requirements for engineering degrees – should be a focus for the EPC for the coming year.

The Forum also featured the announcement of the findings of the annual EPC Engineering Enrolments Survey (see panel below), which reveals patterns in the recruitment and enrolment experience in engineering across UK universities many months before official data is released. Members find it invaluable for benchmark performance relative to the national position.

Many thanks to Georgina Harris and Manchester Metropolitan University for hosting the Forum so splendidly.

The EPC Enrolments Survey canvasses EPC member institutions on the actual numbers of students admitted to their engineering courses within a few weeks of them starting. This provides EPC members with benchmark and sector data well over a year before data is released by HESA. Some of this year's key questions and findings drawn from this year's survey include:

- The growth in undergraduate Engineering in the Russell Group is mirrored by a decline in non-Russell Group universities.
- The gender balance at Russell Group Universities is more equal (which corresponds to a larger international cohort, see below).
- Mechanical, aero and production engineering continues to be the sector's growth superstar.
- Last year there was a counter-trend decline in acceptances to General Engineering, which may have been a wobble?
- Has Chemical, process and energy engineering had its day?
- What's evolving? Does growth in 'other engineering disciplines' mean some universities have found successful innovative approaches? This corresponds to the development of new interdisciplinary models of engineering that may be more attractive to a wider range of students.
- There's no apparent collapse in EU students in advance of Brexit, but there is a detectable decline, borne most obviously by English universities.
- Women are better represented among engineering students that come from the EU than among those from the UK. Will Brexit worsen gender inequality in engineering departments?



## The year ahead

### MAIN EVENTS

- Annual Congress 2018: *Fit for the Future*, Harper Adams University, 14-16 May 2018
- Engineering Ethics Conference, University of Leeds, 6 September 2018
- COMEH Annual Conference, University of Skövde, Sweden, 11-13 September 2018
- Recruitment and Admissions Forum Sheffield Hallam University, November 2018

### NEW AND ONGOING INITIATIVES

- Website and personalised membership offer
- New Approaches to Engineering Higher Education
- Degree Apprenticeships: 'Creating the supergrads'
- Development of new communities: Visiting Professors, EERN, early career staff
- The Perkins Review: 5 years on
- Brexit impact on research funding analysis
- Higher Education Hub for Engineering
- Working with Engineering Council on review of AHEP (Accreditation of Higher Engineering Programmes)

### RESOURCES

- Toolkits on intellectual property, inclusion and ethics
- Signposting widget for high-quality resources that support professional practice