

Diversity in Engineering

Update October 2014

Welcome to the sixth update from the Diversity in Engineering programme.

These updates are produced twice a year to keep all stakeholders and interested parties up to date with activities and progress. To find out more, email diversity@raeng.org.uk or telephone Bola Fatimilehin or Jenny Young on 020 7766 0600.

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Engineering Diversity Concordat

Support for the Engineering Diversity Concordat continues to grow. Since our April update, the British Institute of Non-Destructive Testing has signed up to the Engineering Diversity Concordat. This brings the total number of signatories to 31. We would like to welcome them on board and look forward to working with them to increase diversity and inclusion across engineering.

Further information and support documentation on the concordat can be found at http://www.raeng.org.uk/about/diversity/resources/eng_div_concordat.htm

The focus of the October Concordat meeting chaired by Philip Greenish Chief Executive of the Royal Academy of Engineering, was on diversity data gathering, monitoring, reporting and benchmarking. The purpose of the meeting was to address potential barriers to the gathering and reporting of diversity data with the aim of encouraging more institutions to use it as intelligence to assess the extent they are retaining current and potential members and registrant.

Following on from the April Concordat meeting, in advance of the meeting, all PEIs were encouraged to forward data on gender, age and gender and age as a first step to

establishing a PEI benchmark against which all Professional Engineering Institutions (PEIs) can compare diversity profiles. We are pleased to report that 19 PEIs responded to the call with 14 submitting data and 3 confirming that they would submit in future.

Attendees had the opportunity to find out what the Institute of Physics (IoP), the Institution of Engineering and Technology (IET), the Institute of Mechanical Engineering (IMechE) and the Royal Academy of Engineering (the Academy) are doing to monitor and measure the diversity of their fellows, members and registrants.

The meeting spotlighted opportunities benchmark data against data from the Engineering Council's project MERCATOR and to use it to inform modelling to increasing members and registrants.

PEI Diversity Pilot Projects

A number of Academy funded PEI projects are currently underway with updates as follows:

1. Chartered Institution of Highways and Transportation – Routes to Diversity P project

The objectives of the project are to:

- establish the workforce profile of our Corporate Partners
- identify good practice that encourages and supports a diverse workforce
- provide a good practice tool kit for employers, and
- share findings across the sector.

CIHT has issued a diversity survey to which 25 corporate partners responded. The key themes identified from analysis of responses included workforce demographics – in particular lack of representation of people from ethnic minorities with disability almost invisible. Another theme was skills shortages as the main driver of activity with 82% reporting it to be the most important driver for work on diversity. A third theme was that whilst innovation and creativity is recognised as a potential benefit of diversity, not many corporate partner respondents acted on it. Other themes included leaders taking responsibility and the impact of external relationships (clients) in driving change. The next stage of the project includes interviews with corporate partners and the development of a toolkit to support culture change and increase diversity and inclusion.

2. BCS – The Chartered Institute for IT – Unconscious Bias Training for Volunteers

Fifteen regional BCS ambassadors have been trained in delivery of materials and sessions are being rolled-out to members and volunteers of the BCS. Further roll-out to different groups will take place between Ambassadors have their own secure area of the BCS website to access the necessary tools and documentation to run sessions plus other useful resources and background reading. The requirement for the officers of BCS branches and member groups to undertake the programme has been included in the Member Groups Rules via amendments made by the relevant committee at its August meeting. Central boards and committees have the requirement detailed in their terms of reference documents and a process is in place for addressing issues of anyone who refuses to engage.

3. Chartered Institute of Building Services Engineers (CIBSE)

An update on first project will be included in the next newsletter update. The project is in two parts. The first involves reviewing the institution's policies and procedures to remove language and practices that might have a negative impact on the participation of women. The second aims to generate evidence to the theory that diverse building services teams are more able to deliver results than homogenous teams and in so doing, enhance the business case for diversity in building services.

Diversity Leadership Group (DLG)

The DLG is an employer-focused group, chaired by Allan Cook CBE FEng, to co-ordinate action in stimulating demand for, and retention of, a diverse talent base. The DLG comprises senior leaders from around 40 engineering employers and employer-led organisations. Its focus is on practical collective action to establish and encourage greater inclusion in the engineering workforce, reflected through recruitment and retention.

Since the last update, the group has had 2 meetings with the subgroups having a number of meetings between them to progress actions. The DLG and its subgroups are working on a number of actions and projects which include:

- A DLG action plan for 2015/16
- Delivery of a DLG diversity and inclusion survey to assess current activity across members organisations and provide a baseline against which to measure progress
- Development of good practice case studies for wide dissemination to encourage more good practice
- Production of guidance on delivering work experience to a diverse student groups, dovetailing with Perkins group outputs
- Development of a common career perception evaluation that aligns with other large scale attitude surveys
- Development of a shared philosophy/code of conduct for suppliers based on current good practice

If you are an employer interested in working with us in these aims, please get in touch at diversity@raeng.org.uk.

Your Life campaign

On 7 May 2014 the Your Life campaign was launched by government bringing together business, educators, civil society and government to show how science and maths lead to exciting and successful careers. The campaign sets out a vision to increasing female participation through a focus on commitments to action by key players; an awareness campaign which aims to increase the proportion of students studying physics and maths at A level; and the pairing of post-doctoral researchers with schools to improve the teaching of maths and physics. Along with a number of organisations, employers and engineering institutions, the Academy has pledged to take action to support the aims of *Your Life*. To view Academy pledges and get involved, visit <http://www.yourlife.org.uk/>.

The Academy pledges to support the aims of the campaign through its Diversity programme and wider Academy activities and including:

- Activities under the Engineering Diversity Concordat and Leadership Group
- A commitment to aspirational targets for shortlists and nomination pools for awards and fellowship.
- Supporting University Technical Colleges (UTCs) to inspire girls to pursue STEM
- Improving progression and retention of women in STEM – see WISE 10 Steps <http://www.wisecampaign.org.uk/business/ten-steps>.
- Networking and leadership development for female engineers
- Inspiring young women to consider careers in engineering

National Women in Engineering Day (NWED)

On 23rd June, to celebrate National Women in Engineering Day, the Academy took part in, and delivered the activities below:

- Wikipedia edit-a-thon this focused on the achievements of women engineers to help increase the visibility of female engineers in Wikipedia. During the event, [Ann Dowling's](#) page was updated, and a page for [Jane Atkinson's](#) was created.
- As part of its work with the DLG, the Academy sponsored an advertorial in the Independent newspaper. Targeted at industry leaders, the article <http://bit.ly/1s1vgsP>.
- Women in Engineering: the challenge event – Allan Cook joined the business panel at the Tuesday Women's Engineering Society (WES) NWED conference at the Institution of Mechanical Engineers (IMechE), speaking about the work of the Diversity Leadership Group (DLG) of engineering employers.

Women's Engineering Society (WES) Prestige lecture – Prof Ann Dowling DBE ScD FRS FREng

On 29 October 2014 the Women's Engineering Society invites all guests to a Prestige Lecture titled '*Towards a Silent Aircraft*' given by Professor Ann Dowling DBE ScD FRS FREng followed by the presentation of the Karen Burt Award 2014 for best newly qualified chartered engineer.

Professor Dowling, Patron of WES, will talk about her engineering research work giving a lecture entitled 'Towards a Silent Aircraft' and will also give some insights into her historic Presidency of the Royal Academy of Engineering as the first woman President.

Professor Dowling is Head of the Department of Engineering and Deputy Vice-Chancellor at the University of Cambridge, where she is Professor of Mechanical Engineering and chair of the University Gas Turbine Partnership with Rolls-Royce. She has held visiting posts at MIT and at Caltech. Professor Dowling's research is on efficient, low emission combustion for aero and industrial gas turbines and low noise vehicles, especially aircraft and cars.

Karen Burt Award 2014

The Women's Engineering Society is delighted to announce the winner of the Karen Burt Award 2014 as the Institution of Engineering and Technology's candidate **Elaine Greaney**. This prestigious annual award for a newly chartered woman engineer, now in its 16th year, recognises the candidate's excellence and potential in the practice of engineering, highlights the importance of Chartered status, as well as offering recognition to contributions made by the candidate to the promotion of the engineering profession.

The event is free, but booking is required. [BOOK HERE.](#)

10 Steps for retaining Women in STEM

As part of its work with the Diversity Leadership Group (DLG), the Academy has supported the development of a 10 point plan of actions to sustain the pipeline of women in the STEM sector. The plan is targeted at encouraging more Chairs and CEOs of organisations in STEM sector organisations to take consolidated action to retain more women in STEM. The 10 point plan emerged from a WISE Working together meeting hosted by Atkins on 10 February 2014, as an action which would join up and scale up efforts by industry to increase the retention and progression of women in STEM. It includes the following 10 Steps:

1. Understand the starting point and put plans in place to improve performance and monitor progress
2. Educate leaders and give them responsibility for change

3. Change mind-sets by challenging bias and sexism whenever and wherever it occurs
4. Be creative in job design
5. Make flexible working a reality for all employees
6. increase transparency of opportunities for progression
7. sponsor talented women, giving the same exposure as men and support to develop their career
8. demonstrate to women we want to retain them through career breaks and beyond
9. treat this as we would any other issue affecting our core business
10. share learning and good practice with our industry partners

The 10 Steps plan was launched on 29 September with an initial 20 signatories. We will be working with signatory companies over the coming months to showcase and share good practice. Our ambition is for many more companies to adopt the 10 Steps. Please contact diversity@raneg.org.uk to get involved.

The Academy will be presenting a joint seminar with Akins about the 10 Steps development as part of the daytime programme for the WISE Awards on November 13 <http://www.wisecampaign.org.uk/about-us/wise-awards/2014-wise-awards/daytime-programme>.

For more on the 10 Steps visit <http://www.wisecampaign.org.uk/business/ten-steps>.

Supporting University Technical Colleges (UTCs) to inspire more girls into STEM

To encourage implementation of good practice from the booklet [*UTC - Opening up new opportunities for girls*](#) the Academy is supporting WISE in delivering a number of workshops targeted at Principals, Governors, leadership teams of UTCs, and their lead sponsors in order to:

- Facilitate the integration of good practice into relevant UTC activity
- Identify actions for Principals, Governors, leadership teams of UTCs and their lead sponsors, both their own within their roles, and actions for their UTCs to support increased participation of girls in STEM.
- Develop the first stages of a strategic approach to working together regionally, and nationally, to address the under representation of women in STEM

Following a launch at the UTC National Conference in July 2014, four regional sessions are being delivered between May and end of November 2014. Events have already taken place at Greenwich, Reading and Sheffield UTCs, and an additional event in Manchester will be delivered by the end of 2014. This project has the longer-term potential to influence and reach out to large numbers of girls through the actions taken by UTCs in seeking to attract students at the end of key stage 3.

If you are interested in this UTC work, please email f.best@wisecampaign.org.uk.

National Mentoring Consortium (NMC) 20th Annual Award Ceremony

On 7 May 2014, the Academy partnered with the NMC to host its twentieth annual award ceremony. The NMC brokers relationships between Black and Asian graduates from universities across the UK and employers across a range of sectors, including engineering. During its twenty year history, the NMC has brought together over six thousand mentees from forty universities with over six hundred employers. The event provided the Academy with a platform to raise awareness of mentoring as a route to

increasing diversity and inclusion across engineering. Awards were presented by Dr Nelson Ogunshakin OBE, Chief Executive of the Association for Consultancy and Engineering (ACE), Sue Cooper HR Director, Atkins, Chi Onwurah MP amongst others.

LGBT in Engineering

2014 saw a lot of action on LGBT in Engineering, the next three items give a summary of 3 activities in this area.

Data Driven Diversity - In partnership with BP and Stonewall, we staged a lively evening discussion and networking event on 13 May. This explored inclusion of lesbian, gay, bisexual and transgender (LGBT) employees within engineering companies and organisations. It is the first specific LGBT event we have organised under the diversity programme. The session provoked illuminating and frank discussion about the challenges in the engineering sector compared to other professions, with speakers and audience members sharing their experiences candidly.

In advance of the event a hashtag was created and is still in use for sharing and promoting LGBT in engineering activity it is [#LGBTinEng](#).

As a result of direct feedback from the event, the Academy has set up an LGBT in Engineering LinkedIn group <https://www.linkedin.com/pub/lgbt-in-engineering/98/573/138>. The Academy is actively exploring further engagement in conjunction with Stonewall, to meet the clear appetite for networking.

InterEngineering – A cross-disciplinary and pan-institute group for Lesbian, Gay, Bisexual and Transgender engineers is being set up to “Communicate. Inform. Empower”.

Key plans till February 2015 are to:

- 1) Have a kick-off launch social event in early December;
- 2) Host a meeting on setting up Business Resource Groups in mid-January; and
- 3) Populate website with positive role model profiles in engineering.

A website is under development which, whilst not yet readily accessible on Google, can be viewed using this link <http://www.interengineeringlgbt.com/> .

Representatives for the InterEngineering committee are currently being sought from across all PEI's. If you are interested and/or would like to represent your institution, please contact mark.mcbridewright@gmail.com.

LGBT survey: E&T hears from the engineering industry – in a bid to address the perception that engineering is more LGBT-discriminatory than other industries, the IET *E&T* (Engineering and Technology) magazine conducted a survey into the experiences of lesbian, gay, bisexual and transgender engineers in the workplace.

Although a lot of employers take the stance: ‘why should we care what you get up to in the bedroom?’ While many question the relevance an engineer’s sexual orientation bears on their employment, many recognise the business case. Studies have shown that workplaces that are truly inclusive are proven to attract and retain staff that are more creative, productive and able to reach their full potential. This is particularly pertinent in industries such as engineering, which is not only experiencing a skills shortage but is also struggling to recruit younger engineers into an ageing workforce.

Published on 14 July in the *E&T*, analysis of survey respondents revealed an almost even split in openness about sexual orientation at work. Just over 45 per cent say they are open at work about their sexuality, while 41.8 per cent say they are not. For more on results of the survey, visit <http://eandt.theiet.org/magazine/2014/07/never-good-to-carry-secrets.cfm>.

Social Mobility Foundation (SMF) – Engineering Futures

On 28 May 2014, the Academy hosted its second Engineering Futures day in partnership with the SMF. The SMF is a charity which aims to make a practical improvement in social mobility for young people from low-income backgrounds. It works with young people to support them to make informed choices by giving them greater insight into their options.

At the Engineering Futures Day, students received a detailed introduction into the range of institutions they could potentially join should they become an engineer. In the afternoon students were given a real life engineering problem to solve which put their knowledge of maths and physics to use. Following on from the practical session was a discussion panel consisting of three engineers from Rolls Royce who spoke of their career journeys and passion for the job. The day rounded off with an exciting talk given by Dr Geoff Parks on aerodynamics, which led to a very well received activity with students building their very own gliders. The young engineers then put their carefully constructed creations to the test, with the fastest and furthest flying glider winning gold.

The Academy Diversity has also supported the SMF through engagement with year 12 students at careers fair.

Aside from running Futures Days, the SMF supports ambitious young people from less-privileged backgrounds to access top universities and careers. Programmes (including one to two week residentials) are completely free of charge programmes featuring mentoring, internships with top companies, university application support, as well as professional development and skills workshops for high achieving Year 12s across the UK. They provide support in 11 professional sectors, including Engineering. Support continues throughout university to help young people obtain graduate jobs.

Applications are now open. The closing date is 9am, Monday 22nd December 2014. For more information, please visit www.socialmobility.org.uk .

STEM Disability Committee

<http://www.stemdisability.org.uk/>

The STEM Disability Committee is a cross-STEM collaborative group concerned with improving access to science, technology, engineering and maths subjects in education and careers.

The committee is keen to highlight and share the stories of those who love studying or working in Science, Technology, Engineering and Maths (STEM) and also have a disability. If that is you, the committee would be delighted if you would consider writing a short piece (around 400 words) for the website to share your STEM story. In particular, in your piece it would be interesting to hear:

- What you enjoy about studying or working in STEM?
- What you do day-to-day in your work or study?
- What has been your biggest challenge and how have you overcome it?
- What has been the highlight of your career so far and/or what are you hoping to go on to do in the future?

If you are happy to do so, please send your name and a photograph along with your written piece to diversity@royalsociety.org

Academy Diversity Events Calendar

Diversity in STEM: Challenges to using, manipulating and managing data

The Royal Society and Royal Academy of Engineering are hosting a joint discussion meeting to take a practical look at the challenges to using, manipulating and managing diversity data in the area of science, technology, engineering, mathematics and medicine (STEMM) education and employment.

Tuesday 4 November 10am -12.30pm at the Royal Academy of Engineering
<https://royalsociety.org/events/2014/11/diversity-in-stemm/>.

Tomorrow's Engineering Week

Monday 5 – Friday 7 November - Tomorrow's Engineers Week ([#TEWeek14](#)) aims to change perceptions of engineering among young people (focusing on 11-14s), their parents and teachers. For more information visit <http://www.tomorrowsengineers.org.uk/TEWeek/>.

University Technical College workshop – Greater Manchester UTC

Academy is supporting WISE in delivering a number of workshops targeted at Principals, Governors, leadership teams of UTCs, and their lead sponsors in order to increase the representation of girls in UTCs - using guidance from the booklet UTCs – opening up opportunities for girls – see above.

Monday 10 November, 11am-2pm, at Greater Manchester UTC.

If you are interested in attending this event, please email f.best@wisecampaign.org.uk

WISE Awards and Daytime Seminar Programme

Thursday 13 November 2014

A daytime programme will be delivered 11.30am - 4.30pm at the South Bank Centre
<http://www.wisecampaign.org.uk/about-us/wise-awards/2014-wise-awards/daytime-programme>

The awards dinner and ceremony will take place at the Grange Hotel Tower Bridge, London. <http://www.wisecampaign.org.uk/about-us/wise-awards/2014-wise-awards>.

Everywoman Leadership Academy in Advanced Manufacturing and Engineering

Thursday 13 November 9.30am-5.00pm, at the Royal Academy of Engineering. Registration is open now at www.everywoman.com/engineeringacademy.

National Engineering Competition for Girls

Rolls Royce and EDF Energy are sponsoring a competition which opened on **Monday 29 September with a closing date of 19 December 2014**. All girls aged 11-18 are eligible to enter and will be split between 3 age categories. Applicants can apply individually or in groups and need to address the question '*How can engineers solve the challenges of the 21st Century?*' For more on the competition visit, <http://www.talent2030.org/register-your-interest/competition/>.

Diversity Leadership Group Meetings

Full meetings of the DLG will take place as follows at the Royal Academy of Engineering

Thursday 11 December 1.30-3.30pm

Tuesday 3 March 9.30-11.30

If your company is interested in joining our DLG work, please contact diversity@raeng.org.uk.

Stem Disability Committee Meetings

Thursday 18 December 2014 11.00am-1.00pm at the Society of Biology

Tuesday 10 March 2015, 1.00pm – 3.00pm, Royal Society of Chemistry

Engineering Diversity Concordat Group Meetings

Meetings will take place as follows at the Royal Academy of Engineering
Thursday 14 May 10am-1pm

RAEng Diversity Committee Meeting (internal)

Monday 1 December 11.00am-1pm at the Royal Academy of Engineering

Academy internal activity

The Academy is in the process of moving its paper-based diversity monitoring to an online system capable of tracking individuals through key processes. When the monitoring goes live, all visitors to Academy activities will be invited to input diversity data, although there will be a 'prefer not to say' option against all characteristics. The online system will provide the opportunity for the Academy to track applicants through processes such as those concerned with the distribution of grants and awards in order to identify trends and any inherent bias. The online system which reflects Concordat monitoring categories will be piloted in December and go live in 2015.

In addition to a focus on diversity monitoring, the Academy is reviewing diversity training and development options with a view to delivering training that reflects its diversity strategy. The aims of the training and/or development will be to achieve a position where all staff understands how their role can support the Academy in becoming more inclusive.

Academy Diversity resources

The Academy Diversity webpages host a number of resources to inform the understanding of diversity in engineering. The information is organised into separate strands to make it easier to navigate www.raeng.org.uk/about/diversity/resources/default.htm

If you have any reports or case studies you would like to share, please send them to diversity@raeng.org.uk

If you would like to follow up on any aspect of our diversity work, please do not hesitate to contact either Bola Fatimilehin (0207 766 0656) or Jenny Young (0207 766 0621) or email us at diversity@raeng.org.uk

Background to the Academy Diversity in Engineering Programme (DiEP)

The Royal Academy of Engineering and the Royal Society are funded by the Department for Business, Innovation and Skills (BIS) to run a programme of work aimed at addressing the issue of diversity in the STEM workforce. The programme, originally funded for 4 years from 2011, is made up of two strands one run by the Royal Society and the other by the Royal Academy of Engineering (the Academy). Since our last update, we are pleased to report that our funding has been extended for an additional year - till the end of March 2016. Our diversity brief BIS challenges the Academy to lead the 'mainstreaming' of diversity in all its aspects across the engineering profession.

The Academy works with the Royal Society across a number of areas of overlap including data gathering, pilot activities, showcasing role models, and more recently, in running a joint Wikipedia edit-a-thon to raise the profile of prominent women in STEM. Both organisations work together on events when launching research findings and programme activities.

The programme has established productive links with key stakeholders, particularly professional engineering institutions (PEIs) and engineering employers. The other focus of the programme continues to be proactively collaborating with partner organisations

and to deliver activities and research that supplement the existing literature and evidence available surrounding diversity.

Diversity Team
October 2014