

Diversity in Engineering

Update April 2014

Welcome to the fifth 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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Background to the Academy Diversity Programme

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.

Engineering Diversity Concordat

Support for the Engineering Diversity Concordat continues to grow. Since our autumn update, two more institutions have become signatories bringing the total number of signatories to 30. This means that just over 94% of engineering registrants are members of institutions that have signed up to having an action plan in place to achieve Concordat objectives. Further information and support documentation on the concordat can be found at

http://www.raeng.org.uk/about/diversity/resources/eng_div_concordat.htm

We would like to take this opportunity to welcome the Institute of Water and the Institute of Structural Engineers into the Engineering Diversity Concordat Group (EDCG) and look forward to working with them to promote diversity and inclusion.

At the last EDCG meeting which took place in September, signatories to the concordat were invited to bid for money to support institution projects aimed at increasing diversity and inclusion. The primary aim is to provide resource to help institutions deliver projects for dissemination giving all engineering institutions access to a wider range of tools and best practice examples. As a result three diversity projects have been agreed as described below.

1. Chartered Institute of Building Services Engineers – this CIBSE project involves a two-pronged approach. The first part involves reviewing policies and procedures to remove language and practices that might have a negative impact on the participation of women. The second part is to provide evidence 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
2. Chartered Institution of Highways and Transportation – this CIHT project involves working with their corporate partners to identify good equality and diversity practice to incorporate into a toolkit, targeted at the highways and transportation sector, and hopefully, transferable across others.
3. BCS – The Chartered Institute for IT – funding for this project will enable the BCS to further develop and cascade a programme of unconscious bias training. Having already delivered the training to their Board and other groups, the Institution is aiming to cascade the training to volunteers through a network of facilitator using a set of 'out of the box' resources.

Each project will run for twelve months reporting back and sharing outputs with the EDCG in March 2015.

Chaired by Professor Dame Wendy Hall, FEng, the next Engineering Diversity Concordat Group meeting will take place between on Tuesday 29 April at the Royal Academy of Engineering. All institution CEOs and presidents, or their nominated representatives are invited to attend. The meeting will give concordat signatories an opportunity to share progress and good practice, hear more about the above projects and how they might get involved, network and find out about up and coming opportunities and events.

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 identified 3 areas of focus with subgroups identified to decide on priority areas, KPIs and outputs. Each of the subgroups identified below met for the first time in February 2014 and it is expected that the scope of the groups including their priorities and success measures will be identified before the next DLG meeting scheduled for 3 June.

- Subgroup 1 - Attracting and engaging the future generation (Paul Jackson, Engineering UK)
- Subgroup 2 - Employee engagement to build inclusive culture (Dr Nelson Ogunshakin, ACE)
- Subgroup 3 - Engineering employer interaction with Higher Education (see below)

A key focus of each subgroup is ensuring that the work they are doing is joined with that of the other subgroups. There will be constant vigilance to maximising impact over a short space of time. The fourth subgroup below has been set up to act as a sounding board for ideas and suggestions flowing out of the three subgroups above.

- Subgroup 4 - Young People/early career group - to act as a sounding board for DLG ideas (Kath Durrant, Rolls Royce)

Subgroup 3 is closely aligned with recommendations flowing from the review of engineering skills conducted by Professor John Perkins FEng, Chief Scientific Advisor to BIS. The review took place around the same time as the DLG was forming and identifying areas for action. Professor Perkins' report launched in November 2013 identified 5 key issues and 22 recommendations, several of which are being led by the Academy in their role as E4E secretariat.

An implementation plan for the Academy-led recommendations was put in place with individual Fellows invited to chair 'task and finish' groups for particular areas. The groups listed below have been set up for a 12 month period by which time they are expected to achieve results.

- Task and finish group 1 - Schools – experiencing industry (Steve Holliday FEng, CEO National Grid)
- Task and finish group 2 -Cutting edge skills in FE (Carol Burke FEng, MD Unipart Manufacturing)
- Task and finish group 3 - Employer engagement in HE (Prof Dame Julia King FEng, VC Aston University)
- Task and finish group 4 - Specialist Skills (Prof Helen Atkinson FEng, HoD Leicester University)

The 'task and finish' group themes have particularly strong links with aims of the DLG, Tomorrow's Engineers and PEIs.

Given the strong synergies between DLG subgroups and Perkins 'task and finish' groups, there is emphasis on coordinating activity rather than creating new or additional complexity, and ensure joined up working across groups especially on the issue of widening participation with HE. A number of DLG members have been invited onto the 'task and finish' group chaired by Dame Julia King, their mission being to ensure a diversity focus permeates the work of the group.

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

No 10 Policy Unit - Women into Technology and Engineering Compact

In December last year, the No 10 Policy Unit convened a meeting with the aim of initiating a campaign to encourage more girls to study STEM subjects. Sir Richard Olver FREng, Philip Greenish and Paul Jackson (Engineering UK) were among the attendees. Following on from the meeting, the campaign is being developed around a Women in Technology and Engineering Compact which will set out a draft vision to increase female participation, signed by government, educators and employers. The plan is for a short document with quantitative outcome-focused commitment – working on the principle that what gets measured happens. Commitments are currently being sought across the engineering community and the Academy is keen to ensure that any Compact commitment made is allied with on-going work to avoid duplication and maximise impact.

In response to the call for Compact commitments, the Academy is offering support through its work with industry and other partners involved in an emerging Women in STEM alliance, with particular elements led by WISE and the Royal Academy of Engineering.

The Academy has committed to working with WISE to ensure that elements of activity are connected. Atkins, through its leadership and participation with the Academy diversity activity, as a WISE Corporate Partner and also as a member of the Royal Society Diversity Steering Group, is also supporting these aims in a very active role.

Pilot Projects

In the second year of the Diversity in Engineering Programme, we funded pilot projects. Two of the projects reported last year with the IChemE Proactive membership pilot due for dissemination at the EDCG meeting on 29 April – see below.

Lapsing membership and poor retention – the presentation from this collaborative project between the Institution of Mechanical Engineers (IMechE), the Institution of Engineering and Technology (IET) and the Royal Aeronautical Society was disseminated at the EDCG meeting in September, the presentation can be found here http://raeng.org.uk/about/diversity/news_events/pdf/Presentation_RAEng_lapsing_1209_2013.pdf.

Access to civil engineering careers via the apprenticeship route – the dissemination of this project took place at an Academy event on 7 November last year. The primary goal of the pilot was to support the recruitment of more people from non-traditional backgrounds onto apprenticeships in civil and building services engineering. The pilot involved a partnership between the Technician Apprenticeship Consortium (TAC) the Institution of Civil Engineers (ICE) and Hoile Associates. The partners, working with the Construction Youth Trust (CYT), developed a pre-apprenticeship programme that recruited 67% of apprentices from BME and 80% from socially disadvantaged backgrounds. The dissemination event involved input from a number of high profile speakers including government, engineering employers the National Apprenticeship Service (NAS), pilot partners and recently recruited apprentices. Good practice developed during the pilot and disseminated at the event can be found in this report which includes steps employers and professional engineering institutions can take to increase diversity http://raeng.org.uk/about/diversity/news_events/pdf/TAC_apprentice_recruitment.pdf.

Proactive membership - this pilot being run by the Institution of Chemical Engineers (IChemE) is based on a best practice example put forward by the Royal Academy of Engineering. The IChemE is creating a Proactive Membership Committee with the aim of

increasing the diversity of chartered chemical engineers and Fellows. It will report at the EDCG meeting on 29 April.

Everywoman Leadership Academy for Advanced Manufacturing and Engineering

We were delighted to partner with Everywoman to host this inaugural event for the advanced manufacturing and engineering sectors. Over 90 aspirational female engineers at various stages of their careers attended the event to be inspired by successful women working in a range of engineering sectors, to grow their own networks and take part in development masterclasses. The audience heard from keynote speaker Jenny Body OBE, the first female President of the Royal Aeronautical Society, a lady with a wealth of experience in the aerospace industry. This was followed by discussion with four panellists with a wide variety of experience and routes into engineering. All attendees had the chance to take part in two masterclass sessions focused on 'Perfecting your Elevator Pitch' and 'Leadership and Career Progression Planning'. The final motivational presentation was given by Penny Mallory, the first woman to compete in World Rally car. The energy and enthusiasm from the participants was evident throughout the day and provided a great chance for leaders of the future to take stock of their own career and development journeys. For more information, please follow the link to

Reaching out to the Next Generation

In celebration of National Science and Engineering Week, the Royal Academy of Engineering released two free-to-download booklets which promote diversity in engineering.

1. *How many engineers does it take to make a tin of baked beans?* is the question posed on the cover of the first publication which aims to encourage more young people from different backgrounds to consider a career in engineering. The booklet uses baked beans as a backdrop to highlight the range of engineering disciplines involved in making an item not usually associated with engineering. With profiles of 20 engineering role models from a range of backgrounds and routes into the profession, it also includes advice on becoming an engineer and useful links for further information. The booklet complements the careers resources and information available from Tomorrow's Engineers.

2. *University Technical Colleges (UTC) - Opening up new opportunities for girls* provides practical advice on specific action UTCs can take to attract more girls. The publication has been produced for the Academy by Women in Science and Technology (WISE) with support from the Women's Engineering Society (WES) and Women into Engineering and Technology (WiSET). Although primarily targeted at UTCs, the content of the publication also has far wider application. Any organisation wanting to engage more girls in engineering and technology will find a range of useful tips and advice.

Both booklets were circulated widely at the Big Bang Science and Engineering Fair which took place on 13 - 16 March 2014 at The NEC, Birmingham. To download a pdf of the booklets visit the following links:

<http://www.wisecampaign.org.uk/about-us/our-projects/utc-booklet>

<http://www.tomorrowsengineers.org.uk/inspire>

For hard copies of either booklet, email diversity@raeng.org.uk.

Research into engineering internships and graduate destinations

Two pieces of research have been commissioned from CRAC and the Engineering Professor's Council and will be reported in the spring. These are:

1. Exploring unemployment amongst engineering graduates
2. Investigation into the different success rates of diverse groups securing internships/work placements.

The report from the first piece of research is due to be disseminated at the Engineering Professor Council (EPC) on 8 April; the second is currently under peer review in preparation for dissemination

National Mentoring Consortium 20th Annual Award Ceremony

The National Mentoring Consortium (NMC) is staging its 20th Annual Award Ceremony in partnership with the Royal Academy of Engineering (the Academy) between 1pm and 5pm on Wednesday 7 May 2014. The event will bring together students and employers to celebrate successes of mentors and mentees involved in NMC mentoring and careers programmes.

In partnering with the NMC, the Academy aims to bring an engineering flavour to the Awards, and provide employers and others with insight into the work of an organisation which aims to enhance the employability of Black and Asian graduates.

Speakers and Award presenters currently confirmed include:

- Philip Greenish CBE Chief Executive of the Royal Academy of Engineering
- Bobby Barnes, Deputy Chief Executive of the Professional Football Association (PFA)
- Chi Onwurah MP
- Rev Rose Hudson-Wilkin, The Chaplain to the Speaker of the House of Commons
- Dr Nelson Ogunshakin OBE, Chief Executive of the Association for Engineering Consultancy (ACE)
- Dr Victor Olisa, Chief Superintendent, Borough Commander for Haringey

Other speakers are in the processes of being confirmed. For an up-to-date list, please visit our events page <http://raeng.org.uk/events/>.

The NMC was founded in 1994 and since then its membership has grown to include over 250 employers and 20 universities across the UK. It is based at the University of East London and its patrons are Lord Michael Bichard, Lord Herman Ouseley, Tarique Ghaffur, Reeta Chakrabarti, Lord Sawyer of Darlington, David Blunket and Sir Trevor MacDonald OBE. The NMC aims to:

- Promote equality and diversity in graduate recruitment of BAME graduates
- Enhance the employability of ethnic minority graduates
- Assist employers with the implementation of diversity and equal opportunities policy

Use this link to register for a place <http://raeng.org.uk/events/details.htm?Event=527>.

Coming out of the Cubicle: find out the facts about LGBT Engineers

The Academy is partnering with BP to host this ground breaking event which aims to set the scene for Diversity in Engineering as regards people who are Lesbian, Gay, Bisexual or Transgender (LGBT). With input from Stonewall, it will offer an industry context on data and use case study material to outline the experiences for LGBT engineers. The event aims to give attendees increased understanding of LGBT metrics relating to

engineering and manufacturing; how other industries “Do it better” and an opportunity to network with others interested in removing barriers to diversity and inclusion.

For more details on the event, visit our events page <http://raeng.org.uk/events/>.

Stem Disability Committee

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

The committee is currently working on a project to support assessors of STEM students in higher education. This project will help assessors who conduct Disabled Students Allowance (DSA) Needs Assessments for STEM students. It provides details of specific core skills required for studying different STEM degrees (such as lab skills, level of maths skills needed etc.) and gives examples of adjustments that assessors could consider <http://www.stemdisability.org.uk/projects/default.aspx>.

National Women in Engineering Day (NWED) Wikipedia Edit-a-thon

On 23rd June, to celebrate National Women in Engineering Day, the Academy is planning a Wikipedia edit-a-thon focused on the achievements of women engineers. The day will be run in sessions, and will give attendees the chance to learn how to edit Wikipedia and then add/edit entries. The masculine influence on Wikipedia is evident from the fact that only 13% of editors are women. Events like the edit-a-thon aim to both encourage more women to become editors, and to improve the representation of women’s achievements in the resource. We welcome your views on whose entries need creating/improving! There are rules about ‘notability’ which content must follow, so sadly, we cannot just create entries for ourselves...

If you are interested in taking part and/or have a view on entries that need updating or including, please email Claire.donovan@raeng.org.uk.

Academy Diversity Events Calendar

WISE Business Breakfast

Thursday 9 April 8.00-10.00am at Atkins. Please contact info@wisecampaign.org if you would like more information on this series of events.

Engineering Diversity Concordat Group Meetings

Meetings will take place as follows at the Royal Academy of Engineering

Tuesday 29 April 3.00-5.00pm

Wednesday 15 October 1.30-3.30pm

National Mentoring Consortium (NMC) 20th Annual Awards Ceremony

Wednesday 7 May 1.00-5.00pm at the Royal Academy of Engineering For more details, see above. To register for a place use this link

<http://raeng.org.uk/events/details.htm?Event=527>.

Coming out of the Cubicle: find out the Facts about LGBT engineers

Tuesday 13 May 6.30-9.30pm at the Royal Academy of Engineering For more details, see above. To register for a place please visit our events page during week commencing 7 April <http://raeng.org.uk/events/>.

Diversity Leadership Group Meetings

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

Tuesday 3 June 1.30-3.30pm

Thursday 4 September 9.30-11.30am

National Women in Engineering Day (NWED)

- **Monday 23 June - Wikipedia Edit-a-thon** – timing to be confirmed at the Royal Academy of Engineering
- **Monday 23 June** – Women in Engineering – the Challenge, 9.30am-4.30pm, Institution of Mechanical Engineers, 1 Birdcage Walk, London SW1H 9JJ. For more event details, visit this page <http://www.wes.org.uk/wie>.

Stem Disability Committee Meetings

Thursday 11 September 2014 11.00am–1.00pm at the Royal Academy of Engineering

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

Royal Society Diversity Day

Tuesday 17 June 2014 - Save the date! The Royal Society is holding its second Diversity Day celebrating diversity in science.

RAEng Diversity Committee Meeting

Monday 22 September 1.00-3pm at the Royal Academy of Engineering

Everywoman Leadership Academy in Advanced Manufacturing and Engineering

Thursday 13 November 9.30am-5.00pm at the Royal Academy of Engineering

Academy internal activity

The Academy has a business-linked Diversity Strategy and Implementation plan in place. This is being used to integrate a focus on diversity across all Academy activities. Internal directorates now have action plans in place for their areas. Some examples of actions to date include:

- The establishment of a system that monitors the diversity of those who interact with it is seen as fundamental to the Academy's ability to make progress on increasing diversity given that, in most cases, what gets measured gets managed. The Academy has had a paper-based diversity monitoring system in place for a number of years. However, this is cumbersome and in need of updating. To resolve these issues, the Academy is therefore in the process of moving its paper-based system online. The move to an online system will increase capacity to gather and report diversity data across all Academy activity.
- The inclusion of diversity responsibility and accountability clauses in all Academy director job descriptions
- Update of application packs for the Ingenious Awards to reflect a focus on communicating to diverse groups
- Updating the Academy equality opportunity statement to incorporate a focus not only on staff but also on applicants for awards, grants and
- Diversity integrated into the new Academy performance review process
- Academy Education team is consolidating good practice in integrating diversity into developing resource materials through production of a guideline document to share good practice and embed good practice
- The Programme Managers team are about to embark on a workshop to review processes for selecting/nominating applicants/awardees for Academy programmes.

Diversity resources

The Academy has led the development of two new resources:

1. *How Many engineers does it take to make a tin of baked beans* – aims to inspire young people to consider a career in engineering

<http://www.tomorrowsengineers.org.uk/inspire>

2. *University Technical Colleges (UTC) – Opening up new opportunities for girls* provides practical advice on specific action UTCs can take to attract more girls

<http://www.wisecampaign.org.uk/about-us/our-projects/utc-booklet>

For hard copies of either booklet, email diversity@raeng.org.uk.

The Academy website is undergoing a major overhaul during which time the diversity pages will also be updated. During this time, it will not be possible to include more resources, although the resources currently available will remain and should be of some use. 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

Diversity Team

April 2014