What work is the National Centre for Universities and Businesses (NCUB) conducting in order to promote gender equality?

I run two programmes associated with gender equality. The first is our Women in Engineering programme and the second is a newer programme on Women in Leadership. One of the key drivers behind both of these programmes is the economic benefit of a more diverse workforce, whether in leadership positions, the engineering sector or in general. There is a lot of information about the lack of women in engineering and we need so many more engineers – one source highlights nearly 850,000 by 2020, but only 7 per cent of professional engineers are women. So, the reason for our Women in Engineering programme is to increase the number of engineers – the best source is women because that’s half the population.

The Women in Leadership programme is still fairly new. There are very few women in leadership positions, particularly at the most senior levels. But diverse boards and teams have proven to be more successful. Steered by our Women in Leadership group, which is led by the new Chairman of the BBC Trust, Rona Fairhead, we’re going to design bold, practical actions to increase the number of women in leadership positions using university-business collaboration.

Could you describe some of the obstacles that girls and women currently face in science fields and the ways in which you are working to overcome them?

We are targeting girls early in the pipeline into engineering, going right back to choosing the right GCSE, A level and degree subjects. There are many influences dictating whether girls choose science. In terms of careers advice, there are many misunderstandings about engineering. Teachers are a big source of advice for girls – Engineering UK conducted a survey citing that nine out of 10 teachers provide careers advice to pupils but only 56 per cent of them deemed engineering as a suitable career. This shows how much more work is needed. Among teachers, parents and girls there are still huge stereotypes that we are trying to eliminate.

The substantial shortage of physics teachers is another factor. In addition, only 50 per cent of women that obtain a STEM degree go into STEM industry, whereas 65 per cent of men do. There is a higher dropout rate and the attrition rates are generally higher for women throughout their careers in engineering.

Have you read the Not for people like me? (see pg 9) report by Professor Averil Macdonald?

It’s fantastic! Some of it I had come across before, but the area I found most enlightening, as the title suggests, is the part around self-identity. Our Women in Engineering programme includes a campaign called Talent 2030 to encourage girls into engineering, and that comprises the website, social media, outreach trips and a competition. On our website, and promoted through social media, we try to focus on role models – we call them heroes – and that ties in with what Macdonald’s report says about being able to identify with people. We should no longer be saying ‘be an engineer and build things’, where the focus is on the product and not the person, as this is not always attractive to girls. It’s a great report and I plan to use some of the ideas to shape our campaign.

You are the Project Manager for Talent, Enterprise and Development. What skills and expertise do you bring to the role?

At NCUB, I manage all of our talent projects. Some of this work is sector-specific, like the Women in Engineering programme, and some is more general. I focus on how we can encourage universities and businesses to collaborate to improve graduate skills.

Over the past 18 months, I have developed an expertise in STEM skills research and policy. However, our Women in Engineering programme is the reason I started at NCUB, as I am a chartered civil engineer by background. I’ve worked as a consulting engineer for a large international company and a small specialist company, and before this chose to study maths and physics at A level and...
Would you say that you have personally experienced gender stereotyping in your field?

I’ve had two advantages that many girls aren’t so fortunate to have. First, I attended an all-girls school, and secondly, I had a physics teacher who had actually completed a physics degree. I chose engineering because I loved physics, which is quite a common reason among girls. A substantial amount of physics is now taught by teachers with biology and chemistry backgrounds, because there is a shortage of physics graduates going into teaching, and they don’t have the passion and depth of understanding to encourage girls into physics.

In addition, research cites that girls perceive physics as too difficult, or a ‘boys’ subject, and that’s where the advantage of all-girls schools come into play, because you can’t make that comparison. However, no one in my family had studied engineering, and I was very much in the minority during my degree – just under 20 per cent of my course were female. When I worked in a small company of 20 people I was the only female engineer. I personally haven’t come across any discrimination, being female, however, occasionally my age is an issue – but I think most graduates experience ageism when they are thrown into the workplace. I have read reports of women saying that it is tough and definitely would have appreciated more senior role models – that is something we are trying to address at NCUB.

The Talent 2030 Campaign is targeted at every girl in secondary education in the UK. Could you provide an overview of the Campaign, including its objectives and the reason for its initiation?

Talent 2030 was launched as a result of one of the recommendations from NCUB’s Engineering and Manufacturing taskforce. They identified that future talent – or lack of it – was going to be one of the most influential issues on the sector and that failing to harness the whole of the talent base put it at risk of losing its competitive edge.

The National Engineering Competition for Girls is the most exciting aspect of the Talent 2030 campaign at the moment. It’s national and has good publicity. We are working with many organisations to promote it – the Women’s Engineering Society and British Science Association, for example. Some find it a little controversial, that it’s a competition just for girls, but by promoting the event it sends out the message that engineering is for girls too.

Aside from the Talent 2030 website, social media, outreach and competition, as part of our Women in Engineering programme we also aim to influence policy makers. For example, we were asked to write a paper for Number 10 last year, which argued for changing the STEM acronym to MTEC – manufacturing, technology, engineering and computing. There isn’t a problem with female participation in all sciences – women make up over half of individuals in biological sciences and there are many in chemical sciences. Our paper said that when encouraging more women into science, the focus must be on the industries where the proportions remain very low.

What criteria must the girls meet in order to be eligible for entry into the competition, and what prizes are awarded to the winners?

Talent 2030 is open to girls aged 11-18. The 2014 competition started in September and was open until 19 December. The competition is sponsored by Rolls-Royce and EDF Energy, and prizes include £1,000 for the winner of each age category, split: £500 for the winning girl(s) and £500 for their school.

All the shortlisted entrants are invited to attend an event called the Big Bang Fair in March – last year we took 70 girls. They set up their entries on stands and are given the chance to showcase their hard work to the public.

We posed a very open question for the competition: how can engineers solve the challenges of the 21st Century? We deliberately made it open, stating ‘engineers’ not ‘engineering’, so that it focused on the person. As part of the criteria, entrants were required to brainstorm some of the challenges, which meant they started to realise there’s more to engineering than what is seen in the press – trains, people in hard hats looking at buildings, etc. – but areas such as the global energy crisis, food shortages, overpopulation. They seemed very enthusiastic about it.

How do you work to foster a community between the girls once the competitions have ended?

This is the third year we have run the competition. There was a pilot conducted soon before I started and then I took it on board and created the full version. We have two years’ worth of winners and runners up and created an alumni group of previous winners. Rolls-Royce organises an annual trip to their site in Derby and we also send newsletters encouraging them to speak with each other.

What are your expectations for 2015?

Next year, to make it bigger and better, we are planning to carry out some more work with universities and businesses, as part of our wider Women in Engineering programme, to look at the leak in the pipeline between A level and degree to see if we can increase recruitment onto engineering and technology courses. Some universities we are working with have simply changed the name of their degree and as a result have got a much larger percentage of women applying – implementing the word ‘design’, for instance. Interviewing candidates so that they can come to the campus and speak to someone about the course appears to be successful (girls generally take longer to make decisions, conduct more research and need more reassurance, so interviewing might help with that). These are quite anecdotal at the moment, so we would like to create a programme to look at the recruitment practices, monitoring them over time to be able to understand what really makes a difference.