Women Engineers

Portraits of the changing face of engineering - a photography project by Geraldine Curtis.

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In the modern world, images are everywhere. Every day, we are bombarded with pictures, memes, infographics on social media and as we go about our business. Every message needs to be reduced to a bite-sized phrase, or a picture which says it all. People have become accustomed to making snap decisions based on a brief glance at an image or 180 characters.

Promoting careers is no different, and many studies have found that girls tend to not take up careers in Engineering because they do not believe it is for people like them1. Despite more than 30 years of focus on ‘enthusing, fascinating or encouraging’ girls into STEM, there has been very little change in the proportion of girls choosing physics A-level. One off interventions don’t work, neither do initiatives that try to get girls to “fit in” to the science and engineering world. What has been shown to work is the use of role models - showcasing the breadth of types of people involved in engineering and the thousands of fascinating career options available in STEM.

Photography collections like this one, of normal women doing extraordinary things in engineering, is how we can tell our story to a digital world. Each picture tells a tale, of women changing the world, making things better, creating something new. All working hard in teams or alone to truly make a difference.

I hope that this book inspires the same awe that I felt as a young girl when I was first introduced to careers in engineering.

Amelia Gould

1WISE Campaign Not for People Like Me
The 23rd of June 2021 will mark the eighth International Women in Engineering Day (INWED), a global awareness campaign established by the Women’s Engineering Society raising the profile of women in engineering. As an employer of engineers and an advocate of diversity and inclusion, this is an opportunity for BEIS to celebrate women engineers, dispel stereotypes about the profession, and shine the light on engineering role models.

Engineers make a significant contribution to the UK’s economy. They are critical in fighting Coronavirus, unleashing innovation, and tackling climate change. Research consistently shows that more diverse teams and organisations, harnessing the whole talent pool, deliver better results, so these vital challenges must be tackled by the most creative minds, from all walks of life. But figures show that only 12% of the UK engineering workforce is female, which is why it is important to promote the career to a more diverse range of people, increasing participation to deliver the best results for society.

Geraldine Curtis, a Derbyshire-based photographer, was struck by the lack of visibility of female engineers. She decided to spend two years photographing the women in this series, learning more about their backgrounds and careers, to raise the profile of women in engineering.

The resulting images, which include BEIS engineers working on energy innovation and with the vaccine taskforce, show the changing face of engineering, and will hopefully change the perceptions of what an engineer looks like.

Sarah Munby, Permanent Secretary
"It all started with a chance conversation I had with a group of female engineers. They explained that in the UK, less than 13% of all engineers are female. This led me to question why so few women take it up as a career."

"It struck me that there are too few visible role models for women in engineering. Women in the field have such a low profile. There is a real risk that girls simply don’t believe that it is a career in which they would be welcome, or that they could thrive. I felt that really ought to be addressed”.

Geraldine spent two years not only photographing the women whose images are showcased here, but also learning more about them, their backgrounds and careers, and about the engineering field and its diversity.
Diversity & Inclusion
At BAE Systems

Our organisation has a number of inclusive groups run by employees for employees. These Employee Resource Groups (ERGs) include communities for women in cyber security, gender balance, mental health, disability, LGBTQ+, race and ethnicity and more. We actively encourage and support the development of ERGs to foster a diverse and inclusive workforce.

Embracing difference – the best people for our business come from all walks of life.

The more we are able to fully embrace people from all backgrounds, the more sustainable we will be as a business and the more successful we will be in the long term. Our focus on inclusion helps us find and nurture the best people, engage with them and develop their skills.

Focusing on an inclusive workplace is at the heart of creating the right conditions for us to improve and enrich our business, help us to meet our ambitious business plans and most importantly allow the people within our organisation to thrive.

Our three-pillared approach

People
Talent from all walks of life

Wellbeing
Promoting health by supporting balance

Engagement
Difference and new ideas is part of our culture

We have an increasingly diverse global workforce who share fresh ideas, help us to challenge the status quo, inspire creativity and drive innovation. We employ a holistic view of diversity and inclusion - with focused efforts on ensuring inclusive practices across all areas of the business.

The pillars of our approach are People, Wellbeing and Engagement. Through this we strive for two key themes to gauge our success: measureable impact and things that just feel right. The result being the creation of a community where our employees feel as if they are valuable, contributing members, respected for their unique abilities, experiences and differences.
Lauryn Steel, BSc (Hons) EngTech MICE
Civil and Structural Engineer

Photographed at Annan Business Park

Completing a project and seeing something tangible and knowing that your work has addressed a need or solved a problem for a community is one of the most rewarding parts of the job.
Mrs Faryal Maggs, BA Meng
Electronics/Software Engineer (Rail)

My physics and chemistry teachers contributed to my desire to become an engineer. I loved the sciences and discovering how and why things worked and what rules governed them.

Engineering seemed the only way to apply that knowledge instead of just acquiring it and I was desperate to ‘use’ it, to test it, to push its boundaries and to create from it.
Melissa Ahmed, MSc IEng
Design Engineer

Photographed at Technocover Ltd, Welshpool

My choice of degree and masters was influenced by my father, an aircraft dispatcher and my grandfather, a mechanical engineer.
Mrs Jo Parker, MBE MBA CEng FICE FIWater FCIWEM
Civil Engineer (Water)

I decided I wanted to be a civil engineer at the age of 14. Over 50 years later I am still a civil engineer and still love the work.
I always loved creating, taking an idea and turning it to reality, and working with my dad as a kid helped to reinforce that passion. As a woodwork teacher, he had the summers off to spend time doing odd-jobs or building furniture for home, and I helped him at every opportunity. I knew I would end up doing something practical for a career. Mixed with a draw towards maths and physics in school, engineering was the perfect fit. I am an engineer, and believe I was long before I knew what that meant as a career or before I started to study.
I was always interested in science so decided to do an engineering degree as a way of translating science into useful applications that would give an applied outcome for the world at large.
Yvonne Chaplin, CEng MIET CMgr MCMI MWES
Aeronautical Engineer

Photographed at Raytheon UK, Harlow, Essex

The first time I remember being interested in engineering was after reading about space exploration and thinking that one day I could become an astronaut. However, I think it started a lot earlier than that - I had influences from my father and grandfathers and was always interested in building things with Lego and Meccano.
I chose to go into engineering after participating in the Royal Academy of Engineering’s BEST Scheme at school and a WISE-organised university insight day at UCL.
Dawn Childs, MA MDA CEng MIMechE FRAes FICE
Aeronautical, Civil & Infrastructure and Electrical Engineer

Photographed at The London Eye

I was inspired to become an engineer from a booklet that I read in my school’s career office which detailed all of the sponsorships available for reading engineering at university – it seemed to be a subject that there was a lot of demand for from industry.
When I was 16 I went to Kennedy Space Centre where I decided that I want to be an astronaut (and still do!). At 19 I won a competition and as part of this prize, I was invited to the Houses of Parliament to meet three British-born astronauts, including Dr Helen Sharman, the first Briton in space. I asked her what I needed to do to become an astronaut and she suggested engineering.
A key moment at school was learning about climate change in geography, but it was learning about renewable energy technologies in my Design and Technology A-Level that really got me interested in sustainability. At university, the key moment was learning about what a sustainability consultant does from a guest lecturer – at that moment I knew what I wanted to do with my career.
The main inspiration to become an engineer came from my family, particularly my dad, who always encouraged me to study maths, physics and ask “why” or “how” things work. At school, some of my teachers suggested it was a man’s job but this only motivated me to prove them wrong.
Mrs Nicola Bagshawe, MEng MCIBSE MIMechE
Building Services Engineer

Photographed at Coal Drops Yard, London

I love how my job allows me to turn what is essentially a building shell into an environment that people can live and work in; especially when they go beyond meeting just our physiological needs.
Yasmin Ali, CEng MIChemE
Chemical Engineer

Photographed at The Engineer Expo 2019, Birmingham NEC

Getting rejections to study medicine at University was a lucky turn that led to me becoming an engineer.
I became an engineer a bit by accident - I was interested in business and economics but chose engineering as a ‘versatile’ degree with lots of options on graduation.
Dr Jo Douglas-Harris, MChem FEWS
Chemical Engineer

Photographed at Chemistry Laboratory, Warwick University

I never really knew if I wanted to study maths or chemistry, and I also enjoyed physics. When I found out what chemical engineering is, everything seemed to fall in to place - it was just perfect for me.
Ms Karen Steele, MEng CEng IMechE
Mechanical Engineer (Rail)

I fell into engineering through being good at maths and science at school - I hadn't even heard of engineering until I was about 14 or 15.
My career choice was inspired by my very intrepid mother who taught me that I can do whatever I want to do as a career as long as I work hard; it is my choice not the choice of anyone else. Also reading the 'Which' Careers guide helped me decide at the age of 12 that I was going to be a chemical engineer.
Dr Connie Wilson, DBA MSc (Hons) BA(Hons) CEng MIET MAPM MWES
Senior Systems Engineer, (Naval ships)

I was inspired by my science teachers; Mr Trout, who let me teach the class about refraction when I was 11 and my chemistry teacher Miss Lawrence, who always encouraged my rather exuberant enthusiasm and excitement in class.
Links

BAE Systems Early Careers

BAE Systems Women in Engineering

Cybergirls Challenge
https://cybergirlsfirst.com/

Female Cyber Security Challenge
https://www.cybersecuritychallenge.org.uk/

Maritime Careers
https://www.maritimeuk.org/careers/

Opportunities for Women in Engineering

Science Museum Stories on Women in Engineering
https://www.sciencemuseum.org.uk/objects-and-stories/women-engineering

She’s An Engineer
https://www.wes.org.uk/content/shes-engineer-1

STEMettes
https://stemettes.org/

Ten Female Engineers Whose Inventions Changed the World

Top 100 (Historical) Women in Engineering
https://www.magnificentwomen.co.uk/top-100-women.html

WISE and People Like Me Campaign

Women Engineering Society
https://www.wes.org.uk/
Acknowledgements

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