

Engineering



Our speaker grew up in rural Aberdeenshire and picked up an interest in mountain bikes, skiing, quad bikes and go-karts. He achieved good grades in Maths, English, Physics, Chemistry and Graphic Communication while at Aboyne Academy which allowed him to go to University in 2012. He graduated from the University of Edinburgh in 2017 with a Masters Degree in Mechanical Engineering. He now works for Babcock International as a Graduate Mechanical Engineer in Rosyth.

2018 is the Year of Engineering : the government is running a campaign, as there is a huge shortfall of engineers presently.

<https://twitter.com/YoEgovuk>

<https://engineering-update.co.uk/>

Engineering shapes the world we live in. Presently the industry is:

- Understaffed
- Well paid
- 94% white
- 92% male
- Underrated and misunderstood

There is a need for greater diversity of people, from different backgrounds and cultures, and for more women to become interested in Engineering.

The industry involves:

- The latest technology
- Massive projects
- Inspires people

I have been working on the Queen Elizabeth Aircraft Carrier. The flight deck is 280 metres long, it has 17 decks and can hold over 1600 people. It is the largest warship ever to have been built in the UK.

There is a huge variety of jobs in Engineering. These are just a few:

- Racing Cars
- Mobile Apps
- Chocolate
- Spaceships
- Fashion

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- Prosthetic limbs
- Submarines

I have brought in a part from a water turbine that I made at university.

I feel that Engineering is a chance to make a difference, to change how we live. It can revolutionise transport, clean the oceans, solve the energy crisis, or anything else you feel strongly about.

The government estimates the UK alone will need 182,000 Engineers per year until 2024.

From a career perspective, Engineering is:

- Engineering degrees can earn 18% more than other subjects
- Locations and industries all over the world
- Creative, practical or technical

(Work on site - on the production line - or in design)

Would recommend you take Maths plus sciences (Physics, Chemistry, Biology all or any of three) plus whatever else interests you

Career Path:

I took Highers in Maths, Physics, Chemistry, Graphic Communication and English.

I took a Masters in Mechanical Engineering at Edinburgh University (5 year course with a year abroad)

I took out a SAAS loan and applied for grants.

I applied and was accepted by Babcock in his final year of University

National 5 Maths is important, but if you achieve that, there is a wide range of opportunities in Engineering: courses in college or university and apprenticeships.

With an apprenticeship, you can study and work at the same time.

For Edinburgh University, the minimum entry requirement is 4 Highers at AABB (ideally 4 As), but other Universities have different requirements.

Engineering Firms in Edinburgh:

Babcock International are one of the UK's leading engineering services companies and big players across the globe. It has divisions in Aerospace, Marine, Land and

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Nuclear. All of which are running world changing projects around the globe. Firefighting operations, submarine support, pilot training, major infrastructure (rail, airports, power transmission) and ship building to name just a few. A recent large contract was for Cavendish Nuclear (part of Babcock) for Hinkley Point C Nuclear Power Station mechanical systems and pipework.

Artemis, Senvion, ST Microelectronics and Renishaw are just a few of the other firms around the Edinburgh area.

Companies also start new contracts whilst you are working with them which open up new opportunities such as Artemis, which is now owned by the Japanese company Mitsubishi Heavy Industries. This gives their employees the opportunity to work in Japan. Artemis are currently working with offroad plant equipment (diggers) and Scotrail (trains) to make them more efficient using less energy and producing less emissions.

New Research?

In Japan a new area of research is Fusion Reactors for Energy - they will need engineers, as this is an incredibly exciting area. Tokomak are in Oxfordshire researching Nuclear Energy, ITER in Southern France is international research and reactor development facility.

Scope for Promotion?

The Babcock Rosyth Managing Director left school early, and started as an apprentice at Rosyth. He gained his qualifications (in Engineering and Business) as he worked for the company. Companies will support you in Further Education if you have the desire and show commitment.

My Work at Babcock:

I am on a graduate scheme at Babcock. For 2 years, I will work on 8 placements which are each 3 months long. In this way, I will get a wide breadth of experience and interact with many different people. I see all aspects from the technical side to managing projects and the “soft skills” work to the strategy aspect and also the cutting, welding, building in the production facilities.

I have also had experience with offshore platforms, wind turbines and racing cars. At university I was part of a team which designed, and were sponsored to build, a Racing Car which went to Silverstone.

Fellow students worked on a project called the Hyperloop - an idea for transportation of the future - using trains that travel in an “evacuated tunnel” (without air). They can reach speeds of 700 miles an hour, so the journey from Edinburgh to London could take 30 minutes.

Exam Stress?

When asked if he ever felt overwhelmed, the speaker said he often felt that way: I got very nervous about exams, and working on my thesis was stressful.

“Often things which give you satisfaction are difficult, but this can be part of what makes them worthwhile. Don't assume everything will go exactly as you planned it, and if they don't understand that you and the people around you can help you fix them, never be afraid to share your problems if you are struggling”.

My thesis was about the “Flettner Rotor” - this spins on top of a boat and in a cross wind can help to power the boat - an alternative energy solution to the use of diesel in the future. I had to build a rig, and run water past it to check the forces and the viability of the device.

Moving to other jobs within Engineering?

If you wish to move from the company you are employed by, there are many other opportunities as this is an industry which needs more people. Babcock have opportunities in UK, Australia, Canada, Europe and South Korea for example.

Year of Engineering:

<https://www.yearofengineering.gov.uk/partner-tools> (intro video and routes to employment under digital assets)

Aircraft Carrier facts:

<https://www.youtube.com/watch?v=hID-UcqEitg>

Formula Student:

<https://www.imeche.org/events/formula-student/about-formula-student>

Hyperloop:

<https://www.youtube.com/watch?v=M36cvKBfI6o>

<https://www.youtube.com/watch?v=ODsIbwb5aL8>

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