MAKE IT HAPPEN
BECOMING A TECHNICIAN CAN OPEN UP A WORLD OF OPPORTUNITIES

INTRODUCTION

WHO MAKES A GOOD TECHNICIAN?

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ATTENTION TO DETAIL

COMMUNICATING COMPLEX IDEAS

CRITICAL THINKING

DECISIVE

INSTRUCTING OTHERS

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PRECISE

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TECHNOLOGICALLY-MINDED
From editing the smallest piece of DNA to building the Large Hadron Collider, technicians make it happen.

There are currently 1.5 million people in this country who are the backbone of our economy. They work in our hospitals and our schools. You can find them in research labs and deep underground, working on cutting-edge design and innovation.

They are technicians. The job of one technician could be very different to the next, but what they all have in common is that their work is challenging, interesting and important.

Their varied roles and responsibilities mean that technicians have lots of different job titles depending on where they work. Some work in labs; but most work elsewhere. In fact, you’ll find a technician making things happen in just about every workplace you can think of.

Technicians aren’t just solving the problems of today; they will be integral to overcoming some of the great challenges of the coming years and decades, from updating our transport infrastructure to securing our future energy supplies. That’s why it’s never been a better time to become a technician.
Who makes a good technician?

Are you interested in how things work? Do you like fixing problems? Are you the one coming up with ways to make things happen? Then you could be a technician.

The best technicians, regardless of whether they work in a lab or a field, share a certain set of skills and attributes. Most technicians work in teams, so good teamwork and communication skills are key. They’ll also often have particular science, technology, engineering, or maths knowledge (depending on what they specialise in) that they’ll apply at work.

This prospectus sets out what we believe are the ten most common attributes of a good technician, regardless of their field of expertise.

Analytical
Attention to detail
Communicating complex ideas
Critical thinking
Decisive
Instructing others
Practical application
Precise
Problem-solving
Technologically-minded

If you feel that these are traits you have or would like to develop, then there is bound to be a technician career for you. Becoming a technician can open up a world of opportunities. Their skills are highly valued by employers and are very transferable, meaning that as the job market changes, technicians can move across industries and sectors.

What are the typical paths to becoming a technician?

If you take a look at the different technicians in this prospectus, you’ll quickly realise that technicians can start their careers in many different ways. Some may have gone to university. However, many technicians find that the best way to start their career is by doing an apprenticeship or studying a technical qualification full-time.

These paths suit people who have some idea of the type of career they’d like, or who want a course that’s more practical or that includes some work experience.

Apprenticeships are offered by a huge range of employers in this country. By doing an apprenticeship, you would be gaining skills in the workplace while working alongside experienced staff. You would receive a wage and holiday pay and typically you’d spend one day a week doing ‘off-the-job’ training, which usually happens in a college.

At the moment there are many technical qualifications in a wide range of subjects and career areas, and there are qualifications available up to very specialised levels. The Government is working to make the system much simpler to understand and from 2020 will roll out a new system of technical qualifications called T-Levels.

At the back of this prospectus we have listed some websites where you can find out more about the types of technical qualifications currently available and how to apply for an apprenticeship.
Liam’s story

The Science and Technology Facilities Council’s RAL Space is a test facility for cutting edge space hardware. As well as maintaining its day-to-day operation, Liam also provides electronic and mechanical support to other space technology projects.

It was his interest in testing that prepared the path to his current role. “I’m quite methodical. I like to do things a certain set way and it suits the type of work I do”.

After landing his first job as a Test Engineer, he moved on to do installation work for Cryogenic Engineering Facilities. This took him around the world – from Europe to Singapore to California.

Now he works on projects that are literally out of this world. “You have to be extremely careful in space engineering. Mistakes are very expensive”.

Analytical. An ability to look at a problem in a methodical way, to consider all possibilites, before identifying possible approaches.
Amy K’s story

As a Process Technician at TechnipFMC, Amy’s creating subsea technology to enhance the performance of the world’s energy industry.

For Amy, the best part of the job is having to think on her feet. “There’s always something different for me to do which requires work-around fixes for the problems we’re faced with. This role allows me to be both involved with the technical side of things, as well as working directly on machinery.

“At TechnipFMC we design subsea umbilicals systems for every global environment. Umbilicals provide the critical link between remote subsea wells and fixed or floating production systems, and in 2007 we installed the world’s deepest umbilical in the Gulf of Mexico!”

“There’s always something different for me to do, which requires work-around fixes for the problems we are faced with.”

Amy, Process Technician, TechnipFMC
Attention to detail. The ability to focus on the details of each task, so that no part, large or small, is overlooked.

Claire’s story

Claire’s job as the only electronics technician in the Particle Physics department sees her creating apparatus for experiments to detect sub-atomic particles.

She was picked for the job because of her great attention to detail – she paints miniature figurines in her spare time and so has had plenty of time to hone her precision: “If you see the size of the components on some of these boards, they’re so tiny – most of the resistors are like a millimetre. One board can have about 300 resistors!”

2004
GCSEs including Triple Sciences & Electronics

2009
Graduated from Lancaster University with a Physics degree

2010 – 2017
Worked as a pharmaceutical dispenser at the Manchester Royal Infirmary Pharmacy

2017
Working as the only Electronics Technician for Particle Physics at the University of Manchester
Gabriel’s story

Gabriel programmes the software that enables wind turbines in remote substations to be controlled on screens. He has always loved computers and gadgets. While studying for his BTEC in Electronics he learnt more about what’s inside them. “It’s fascinating how all these tiny resistors, capacitors and microcontrollers come together in a smartphone that connects you to the world.” As part of his training, Gabriel completed his apprenticeship with Siemens in Berlin. It was an experience he really enjoyed, despite an initial setback. “I didn’t know until the first day that we would be taught in German!”

“It’s intriguing how a few lines of code can make these huge machines do whatever you want.”

Gabriel, Software and SCADA Engineer, Siemens
Communicating complex ideas. Being able to make difficult things easy to understand and communicating them to others.

Graeme’s story
Managing a team of five, he works in French and English to figure out the best ways to take apart and reassemble equipment that can weigh up to 32 tonnes. He also creates instruction kits so that other teams can put together components and provides technical expertise to make sure engineering designs work 100 metres below ground in the Large Hadron Collider.

Graeme’s job is also to figure out how to maintain, upgrade and assemble cryostats – chambers that keep the Large Hadron Collider’s superconducting magnets colder than out of space.

“When I was at school, I wasn’t that academic to be honest with you, but I enjoyed physics - it was the only science lesson I enjoyed. I found it really exciting.”
Anjna’s story

Anjna’s job is to develop, manage and organise the practical resources needed by science teachers. This helps them give children a hands-on experience of the science curriculum.

During her own school days she always preferred practical activities to textbooks. “It really is a much better way to demonstrate certain concepts.” She now works at Haringey Sixth Form College where she’s been since it opened in 2007. During that time she has faced the challenge of setting up a new system across all three areas of science.

“It’s really gratifying when students come back and tell us how they’re getting on.”

Anjna, Science Technician, Haringey Sixth Form College
Critical thinking. The ability to think carefully about a subject or idea, using logic and reasoning. Listening carefully, asking the right questions and acting upon what you’ve learnt is key.

Robyn’s story

As a Maintenance Team Member at Toyota, Robyn uses a broad range of skills to maintain and upgrade the machines that manufacture the vehicles. She loves the variety.

She chose an apprenticeship because she wanted something more practical and ‘hands-on’ than a university degree. However, her initial interest wasn’t so much in engineering as in problem solving. She recently completed her apprenticeship but Robyn hasn’t finished learning. She is about to finish a HNC in General Engineering and hopes to begin a workplace degree scheme.
“Here you’re not coming to work and doing the same thing every day, you have to think. That’s what I like most.”

Michael, Equipment Technician, CPI
Melissa’s story

During Melissa’s apprenticeship, she learnt all about the Openreach network, rolling out superfast broadband and working in customer premises to connect phones and internet.

Afterwards, Melissa successfully applied for a managerial role and now has responsibility for a team of engineers. “They have targets, but they must also meet the correct quality standard. My priority is to ensure they do it safely and well.”

Melissa carries out quality checks on completed jobs and spends time out and about coaching engineers. She likes being outdoors and isn’t afraid of climbing poles when required.

Decisive. To be able to consider the costs and benefits of your actions to choose the best way forward quickly and confidently.
Morgan’s story

Morgan enjoyed Physics, Metalwork and Woodwork at school and wanted to get skills that were in demand. So, he chose to do an apprenticeship with his local electrical engineering company.

Wanting to expand his skills, he successfully applied for the Technician Training Experience at CERN, and now works on the biggest experiment in the world as an Electronics Technician. His main role is to maintain, operate and upgrade radiofrequency systems. These systems speed up particles to travel at just below the speed of light, so the Large Hadron Collider to recreate the conditions of the Big Bang.

Morgan was eager to learn and asking questions means that he has gained lots of new skills at CERN, including the ability to operate overhead cranes, work in radioactive environments and CAD electrical design.

“The experiments at CERN reveal what actually created the universe, so it’s definitely a pretty cool place to work!”

Morgan, Electrical Technician, CERN
Amy C’s story

Many people think of a hospital pharmacy as a type of dispensary. The truth is that technicians like Amy make up a lot of patient prescriptions from scratch.

Amy works at Guy’s and St. Thomas’ NHS Foundation Trust as part of a small team providing everything from prenatal nutrition to prescriptions for Crohn’s Disease. She also supervises trainees when they’re making medicines, as well as training new members of staff. “It’s interesting, but you do need to be quite organised.”

Instructing others. A knack for showing and guiding others how to do a particular task or skill.

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<thead>
<tr>
<th>Year</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>2005</td>
<td>Left school with 9 GCSEs</td>
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<tr>
<td>2006</td>
<td>Studied Childcare at Croydon College</td>
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<tr>
<td>2008</td>
<td>Worked at a pharmacy as an assistant for 18 months</td>
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<tr>
<td>2010</td>
<td>Completed two years as a Student Technician and qualified as a Pharmacy Technician</td>
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<tr>
<td>2016</td>
<td>Senior Pharmacy Technician</td>
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Solomon’s story

At age 26, Solomon still hadn’t settled on a career. A friend reminded him of his long-standing interest in aircraft and suggested he consider the RAF. It was just what he was looking for.

He discovered that the RAF is quite receptive to people with a bit of life experience. Since joining up he’s enjoyed a varied career path, starting out as a technician on Jaguar aircraft, then working in recruitment before moving to his current role in training.

Solomon is passionate about the work he does now. “Helping others achieve their best gives me a real buzz. It’s also taught me to keep an open mind about all the opportunities that are out there.”

“I’m always open to change and the skills I’ve developed as a technician and trainer will give me plenty of options for the future”

Solomon, Defence Trainer, RAF
Practical application. Being able to apply the skill or skills you have developed by putting them into practice in a range of different situations.

Victoria's story

At school, Victoria struggled and didn’t know what she wanted to do – but she did know that she wanted it to be physical. Now she helps to create near-perfect vacuum conditions so the Large Hadron Collider’s particle beam can travel close to the speed of light.

“My job is really varied – one minute I can be building chambers, so spending the day lifting really heavy equipment and using spanners to tighten flanges; the next I could be fixing an RCA which is a really technical, small and clean equipment which needs delicate tools.”

Victoria is gaining skills she can use in any industry. “That’s the great thing; the skills that you learn – problem-solving, being organised, being able to communicate with people with different skill-sets and backgrounds to find solutions – are transferable.”
Tamykha’s story

At college, while studying for a BTEC in Performing Arts, Tamykha found out she wanted to work backstage. Now she lights up the stage for performances at the National Theatre in London.

“The apprenticeship and in-house training confirmed that this is what I wanted to do. Lighting is such a versatile field that’s so important to performance.”

Tamykha went from local to national – starting out at Wimbledon Theatre before taking on a development role at the National Theatre.

“This development position is designed to build skills and knowledge for those with a keen interest in lighting. I didn’t have the confidence or knowledge to apply for a lighting technician position when I started out so it’s been a great opportunity.”

“My job role involves making and building lighting effects and props, and operating lighting equipment.”

Tamykha, Lighting Technician, the National Theatre

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PRACTICAL APPLICATION

2013 – 2014
Technical Theatre Apprenticeship with the Ambassador Theatre Group (ATG) and North Hertfordshire College in partnership with The Association of British Theatre Technicians (ABTT), Whitelight and Fairfield Halls

2014 – 2016
Technician at Wimbledon Theatre

2016
Lighting Technician at the National Theatre
Precise. Being very careful and accurate, particularly about small details, so that what you are doing can be repeated and replicated time and again to the same standard.

Yao’s story

When Yao joined Kolak Snack Foods as a Laboratory Technician four years ago, she was unaware of the opportunities for advancement. But she learns fast. Now, following several promotions, she is a Senior Quality Assurance Manager.

Yao’s is a wide-ranging role that includes quality control, customer satisfaction and managing the analytical laboratory. What she enjoys most is working with people. “I love being part of a team, whether we’re in the laboratory, on the factory floor or developing new products. I even get to work with our customers.”

2010
Completed a course in English Language

2011
Joined Kolak Snack Foods Ltd as a Quality Assurance Technician; carried out analytical tasks, flavour checks, CCP checks and nutritional checks

2014
Promoted to Internal Auditor; carried out internal audits on site; works with engineering/production to develop solutions to production issues

2015
Promoted to Quality Systems Manager

2016
Senior Quality Assurance Manager
Stephen’s story

As a child Stephen was fascinated with science, and conducting experiments. Now he uses his scientific expertise to preserve and look after donated bodies before they’re used to teach medical and dental students about human anatomy. He is also responsible for the smooth operation of the laboratory.

People skills and management are key to his work. Stephen has to talk to potential body donors and their families, so they understand what’s going to happen, what they should expect, and how long the process is going to take.

He also makes sure the lab sticks to laws and regulation, like the Human Tissues Act, while managing a team of laboratory technicians and preparing solutions that will preserve bodies for up to three years.

“It is always essential that we treat our body donors and their relatives and friends as we would wish for ourselves and our loved ones. Do this and we won’t go far wrong.”

Stephen, Technical Manager, University of Manchester
Alex’s story

As a Network Engineer, Alex designs, troubleshoots and fixes network issues, creating technological solutions so businesses can get the most out of the internet.

Alex left school without any GCSEs, but fast forward six years, and Alex has not only achieved his GCSEs, but BTEC AND NVQ qualifications as well. He was the first in the UK to pass the BCS Network Engineering Level 4 apprenticeship – and he passed with distinction. “Access to the internet is such a massive leap forward – you can learn about anything, you can Google, you can do whatever you want.”
You can go anywhere in the world and you'll find the truck. When you see them driving on the highway, to know you've played a part in building it, that's really rewarding.

Molly's story

Molly never thought she would do a job in engineering. Now it's her responsibility to assess newly completed trucks, identifying and fixing any mechanical issues before they are sent on to customers.

While finishing her GCSEs, Molly spoke to her school careers adviser, who suggested she look at the Government's apprenticeship website – Get In Go Far. Spotting the apprenticeship with Caterpillar flicked a switch, and after a tough selection process she got offered the job the day before her school prom.

Today she loves what she does, and never looks back. “We always say here that working on the truck is like playing with those construction kits you got when you were younger – all nuts and bolts but on a much bigger scale. It's always lots of fun and the day goes by really quickly.”

PROBLEM-SOLVING

2015
Studied for GCSEs including a GCSE in Graphic Design

July 2015
Applied for the Caterpillar Peterlee apprenticeship scheme

September 2015
Began her apprenticeship and a Level 3 BTEC Engineering Diploma at Hartlepool College

2016 – 2017
Started studying for a Level 3 NVQ alongside her BTEC

2017 – 2018
Started a Level 4 HNC in Mechanical Engineering
Baldeep’s story

Halfway through his A-levels, Baldeep realised he wanted something different. “I was studying Maths, Physics and Business Studies which felt like just reading from a book and trying to learn something. That didn’t work for me – I wanted to do something more hands on.”

Starting a technician apprenticeship with Reaction Engines seemed like the best way forward.

At its base in Oxfordshire, Reaction Engines is developing the future of high speed flight, a hypersonic air-breathing engine called SABRE™. This new class of engine will bring together rocket and jet aircraft technology to help bring about the next generation of air and space travel vehicles.

“A technician’s role isn’t just to do one specific task – it’s to look at an engineering design and look at implementing it, maybe manufacturing things, inspection and assembling things, and then if something doesn’t work, looking at what the root cause is.”

**TECHNOLOGY-MINDED**

- **2009**
  - Completed GCSEs, began studying for A levels in Maths, Physics and Business Studies

- **Sept 2010**
  - Stopped his A-level courses to start a Level 3 Mechanical Engineering apprenticeship

- **2014**
  - Became a Junior Design Engineer whilst studying for a HNC and HND in Mechanical Engineering at Newbury College

- **2016**
  - Began a part-time BSc in Mechanical Engineering and Design at Birmingham City University

- **2018**
  - Finished his degree and became a full-time Design Engineer

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**Technologically-minded.** Possessing a knack for using new technology or creating things on a computer.
Alan’s story

“It’s really rewarding to be able to help improve someone’s way of life.” For Alan, his role as a Senior Orthotic Technician is more than just a job. At Peacocks Medical Group, Alan creates bespoke orthotic devices such as braces and surgical supports to help patients with injuries or lifelong conditions.

An NVQ Level 2 in Manufacturing paved the way, before Alan completed an apprenticeship in Industrial Applications. Using a mix of cutting edge technology and traditional manufacturing techniques, Alan creates custom-made devices that support, protect and improve the function of a person’s limbs or upper body.

“I once made splints for a lady who had been unable to stand for five years. Thanks to the orthotic splints, she was able to stand at the altar for her wedding. There’s nothing more rewarding than that.”

Alan, Senior Orthotic Technician, Peacocks
Useful information and resources

For more technician stories, or for information about the Technicians Make it Happen campaign, please visit: www.technicians.org.uk

FAQs

What is a technical education?
A technical education can be classroom (based, normally in an FE college) or workplace-based, like the apprenticeship system. At the moment, there are thousands of different qualifications in a range of subjects and career areas. The Government is working to make the system simpler and will begin this with the roll out of T-levels.

What are T-levels?
T-levels are new, two-year programmes designed with employers. As the next step after GCSEs, T-levels combine classroom study, practical learning and a three-month industry placement to give young people the technical skills, knowledge and experience needed to start a career in a skilled profession. Take a look at the T-level video on the Department for Education’s YouTube channel to learn more. www.bit.ly/2ygLkVd

Useful websites

UCAS Post-16 qualifications
Website explaining the options available to you after GCSEs. www.ucas.com/further-education/post-16-qualifications

Apprenticeships
The National Apprenticeship website provides information for parents, students, educators and employers about apprenticeships, including vacancies, role descriptions and resource materials. www.gov.uk/apply-apprenticeship

National Careers Service
Provides information and advice to young people from age 13 to support decisions on learning, training and work. www.nationalcareersservice.direct.gov.uk

Not Going to Uni
An online guide that offers advice on how to become an apprentice, and on finding traineeships or college courses. www.notgoingtouni.co.uk

iCould
Website with advice, information and media to inspire and inform you on your career options. www.icould.com
The encouragement and promotion of vital STEM technician roles in the UK is supported by the Gatsby Charitable Foundation. Find out more at gatsby.org.uk

Find out more at technicians.org.uk