TARGET careers

FUTURE WISE

2019

Edition 5

Construction, Engineering & Property

Published by gti

targetcareers.co.uk

In partnership with citb

GO CONSTRUCT

TAKE CONTROL GO CONSTRUCT

Over 320,000 women choose to work in the UK construction industry. With many ways to start out including paid apprenticeships and traineeships, along with degree entry-level jobs, there is a role for everyone.

GOCONSTRUCT.ORG

POWERED BY:

citb

Construction Industry Training Board

Welcome

2019 Edition

What's the right path for you?

Welcome to the fifth edition of TARGETcareers FUTUREWISE *Construction, Engineering & Property*. As a school or college student, this guide will help you explore all of your career options in the construction, engineering and property professions. It will also help you decide on the best study route for you, whether that's university, an apprenticeship or a training programme.

Here at the Construction Industry Training Board (CITB), we appreciate that choosing your career path is an important task. That's why we're proud to support this publication and its website **targetcareers.co.uk**. We also have our own dedicated careers resource at **goconstruct.org**, where you can complete our popular personality quiz to find out what career may suit you and use our career explorer tool to learn about the broad range of opportunities on offer. We also have lots of useful careers resources for your teachers and careers advisers so that they can be as informed as you are!

With over 2 million people already working in construction roles in the UK and one of the highest average salaries across all sectors, there are truly plenty of opportunities for you to be part of something big. You could be hands-on in a skilled craft to maintain heritage buildings or use your technical and artistic skills to improve designs. You could oversee construction work, manage the building of schools and hospitals, help shape your city's skyline, or make buildings more environmentally friendly. If you wanted to, you could work for an international company, a small family business or, if you'd like to be your own boss like many within the sector, you could be self-employed. Whatever your skills, ambitions, interests or qualifications, construction has a role for you.

You could to go university full time, but many students choose to start out on an apprenticeship after their GCSEs or A levels (or equivalents). Some choose to go to university for free by completing a degree apprenticeship. The opportunities are varied and this publication will help you find out more about all of your options.

We look forward to you joining a successful and dynamic sector at the heart of the UK's economy.

Best wishes,

Stephen Cole, head of careers strategy, CITB

The Grade I listed Humber Bridge is the eighth longest single-span suspension bridge in the world.

With thanks to Go Construct and CITB

Contents

Welcome to your future

Which route?

Which job role?

Career stories from students and apprentices

Applying to uni

Apprenticeship applications and interviews

33 PROPERTY DEFINED

55 GET UP TO SPEED WITH APPLICATION FORMS

22 THE CRAFTS AND TRADES

With thanks to Go Construct and CITB

Construction is...

Saying 'I helped build that!'. Designing and building the 'built' environment around us: the tallest skyscrapers, state-of-the-art football stadiums, homes for people to live in and so on.

See page 16
for more about construction careers

The Al Wakrah Stadium for the 2022 FIFA World Cup in Qatar.

With thanks to Barratt London

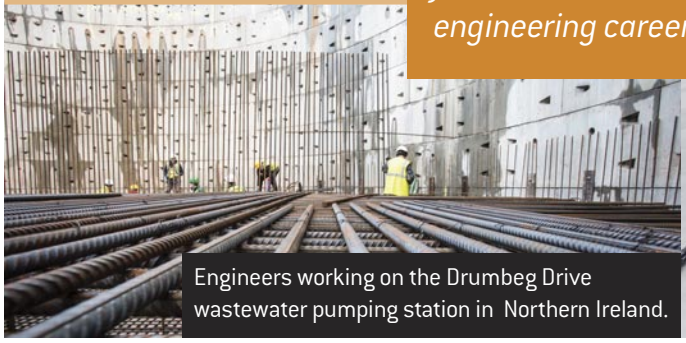
WELCOME TO YOUR FUTURE

Your choice of careers

Engineering is...

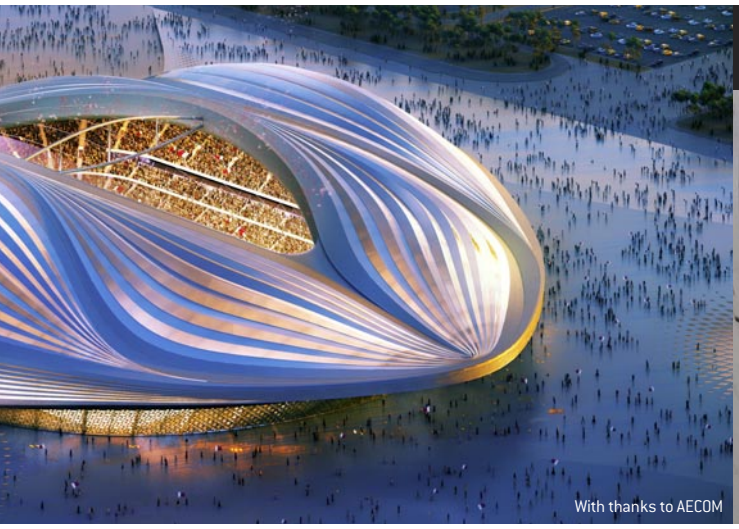
Problem solving. Designing, creating and fixing many of the items that make our lives easier – from smartphones and satellites to cars and medicines.

See page 24
for more about engineering careers



Engineers working on the Drumbeg Drive wastewater pumping station in Northern Ireland.

With thanks to AECOM



With thanks to AECOM

The Crossrail project in London.

With thanks to Mott MacDonald

The San Francisco skyline, including the Transamerica Pyramid.

With thanks to Turner & Townsend

Property is...

Increasing the value of land and real estate. From houses and offices to farmland and wind farms, property professionals work to ensure that land and property make money.

See page 33 *for more about property careers*

Your choice of caree

Your options at 16

Finish key stage 4

PAGE 10

Apprenticeship

You can complete an intermediate or advanced apprenticeship. You will study part time while working for an employer. All your training is paid for and you get paid too.

Intermediate (level 2) apprenticeships

- Entry requirements vary – from no GCSEs to five GCSEs.
- The end qualification you receive is equivalent to five GCSEs or an NVQ level 2.
- For jobs such as electricians, bricklayers, mechanics and plumbers.
- Lasts one to four years.

Advanced (level 3) apprenticeships

- Entry requirements vary – typically five GCSEs A*–D or 9–3.
- The end qualification you receive is equivalent to two A levels or an NVQ level 3.
- For jobs such as bricklayers and maintenance engineers, civil engineers, aerospace modellers and instrument fitters.
- Lasts one to four years.

This can lead to...

- A job (either with the same employer or a different one).
- Another, higher level apprenticeship or qualification (if an employer supports you).

Stay in education

You can go to a sixth form or further education college and study:

- A levels.
- Vocational qualifications, eg an NVQ in engineering.

This can lead to...

- An entry-level job, eg building surveying technician.
- A higher apprenticeship or alternative school leaver training programme.
- University – HNC/HND/BEng/MEng/BSc qualification.

r routes

Your options at 18

Finish key stage 5

PAGE 10

Apprenticeship

The traditional apprenticeship option is the higher apprenticeship, in which you'll work full time for an employer with dedicated time for studying. However, employers are now also offering degree apprenticeships. With an apprenticeship, your training is paid for and you get a salary too.

Higher (level 4) apprenticeships

- Entry requirements vary – usually two A levels and five GCSEs.
- The end qualification is equivalent to an NVQ level 4 or a foundation degree/HNC/HND.
- For jobs such as designers, construction managers and engineers – but you'll have less responsibility than if you'd got a degree.

Degree (level 6) apprenticeships

- Complete a degree and a relevant professional qualification.
- Typically lasts three to six years.
- Entry requirements vary – usually two A levels and five GCSEs.
- For jobs such as engineers, architectural assistants, quantity surveyors and site managers.

This can lead to...

- A job (with your employer or a different one).
- University (for higher apprentices).

PAGE 11

School leaver training programme

Some employers offer alternatives to apprenticeships for A level students who don't want to study full time at university. These are similar to apprenticeships, but are customised to the employer rather than having to follow apprenticeship frameworks. These employer training schemes usually involve you studying for a degree while working for the employer; the employer pays all (or most) of your fees.

This can lead to...

- A job.

PAGE 12

University

You can study a degree qualification full or part time.

- Entry requirements vary – all ask for a number of UCAS points, some require specific subjects and some won't accept general studies or critical thinking A levels.
- Fees cost up to £9,250 a year for UK students. Can be funded by a student loan, bursaries or through an employer.
- Courses typically last three or four years, plus an optional work experience placement year.

This can lead to...

- A graduate scheme or graduate-level job, which often includes management responsibility.
- Further study.

TARGET careers

FUTURE WISE

Degree Explorer

Match your interests to UK university courses.

Take part online at
targetcareers.co.uk/degree-explorer

Which route is best for you?

What would suit you best: university, apprenticeship or training programme? Our quiz can help you work it out. Choose the statement you most agree with.

A		B
I enjoy the learning environment and am looking forward to student life.	1	I am keen to enter the workplace straight away.
I enjoy learning in the classroom.	2	I enjoy learning through doing.
I don't want to work full time and have to study on top.	3	I feel able to combine full-time work with part-time study.
I want higher earning potential in the long term, even if I have student debt in the short term.	4	I want to earn some money straight away and I don't want any student debt.
I want to be in a position to be offered management opportunities virtually straight away.	5	I don't mind working my way up to management level.

Mostly As?

You might want to explore...

University courses and full-time study

SEE PAGE 12

Mostly Bs?

You might want to explore...

Apprenticeships or training programmes

SEE PAGE 10

WHICH ROUTE?

Thinking about apprenticeships?

Apprenticeships and school leaver training programmes offer you the chance to develop your skills and work towards qualifications while earning money in a real job. They are a tried and tested way to start your career, but you need to know what you are signing up to.

What's involved?

Apprenticeships allow you to work in an entry-level job while getting trained up. For example, you might spend one >

day a week at a further education college or training centre. You can gain vocational and technical qualifications and improve your functional skills (for example, in maths and English). Some employers provide training in business skills too.

Apprenticeships can be found in a huge number of different areas – from crafts such as stonemasonry to aspects of project management. An apprenticeship will train you to do a specific role and it may be hard to change that role later on. See pages 6–7 for an outline of the different types of apprenticeship available.

You may also start working towards a 'professional qualification' during or after your apprenticeship. These tell clients and employers that you are trained to 'industry standard' and are an important step in construction, engineering and property professionals' careers. See page 38 to find out more.

Find out more at targetcareers.co.uk

Cashing in

As of April 2019 the minimum wage is £3.90 per hour for apprentices aged 16–18 or for those aged 19 or over in their first year. After the first year, apprentices aged 19 or over are paid the national minimum wage, which changes depending on your age: £6.15 if aged 19–20, £7.70 if 21–24 or £8.21 if aged 25 or over.[1] However, many employers pay more than the minimum wage: see the A–Z of organisations from page 58.

What happens afterwards?

Most employers will try to keep you on in a job after your apprenticeship. However, this might not always be possible. If this is the case, you will typically have qualifications and years of work experience that will help you find a job with another employer.

An apprentice could progress to a higher level apprenticeship, a training programme or a university course. But you'll need an employer's cooperation to do so: they may want you to perform the job you've been trained in. If you have managerial ambitions, the quickest way to fulfil them may be through a degree, either through joining a graduate scheme after going to university or by finding an apprenticeship that includes a degree.

Applying for apprenticeships

Deadlines for apprenticeships depend on the employer: for example, some close in January, some in May and others are open all year. There are three ways to apply, you can:

- apply directly to an employer offering apprenticeships (see the A–Z of organisations from page 58)
- apply via a further education college
- apply to a training provider who will then place you with an employer. Training providers can be private businesses, charities or, like CITB, professional bodies.

The application process can involve filling in a form, sending in a CV, one or more interviews, an assessment centre and online tests (eg for numeracy). See pages 50–57 for advice on applying.

[1] Figures correct as of April 2019.

Training programmes

Training programmes (also called school leaver programmes) are schemes run by employers that usually involve studying for a qualification while working for the employer. You typically apply by contacting an employer directly. These are similar to apprenticeships, but they do not have to meet specific criteria set by the government.

The names 'training programme' and 'apprenticeship' may be used interchangeably. For example, an employer's training programme may include an apprenticeship. The most important thing is to look at the skills, qualifications and pay an employer is offering, rather than the name of the scheme.

The pros and cons

You can earn, learn and work at the same time, and you won't have any student debt.

A job is not guaranteed at the end of an apprenticeship.

Balancing the demands of work and study can be hard.

Graduates may start with a higher salary and more responsibility than a more experienced apprentice.

You could go on to take higher qualifications after your apprenticeship.

You study the qualifications your employer wants you to – you don't choose.

Thinking about university?

Going to university is a popular choice and an established way for academically-minded people to accelerate their careers. But, with tuition fees to consider, you need to know which course and university are right for you and how to make the most of your time at university.

The qualifications explained

Universities offer undergraduate and postgraduate qualifications that can be studied full time, part time or online. Most undergraduate degrees are bachelor degrees, usually taken after A levels.

On graduating, construction and property students typically become bachelors of science (BSc). Engineering students can become either bachelors of engineering (BEng) or masters in engineering (MEng) – this is technically an undergraduate qualification, but is equivalent to a postgraduate masters degree. Postgraduate qualifications are taken after bachelor qualifications.

There are shorter undergraduate courses that offer recognised, but lesser, qualifications: higher national certificates (HNCs), higher national diplomas (HNDs) and foundation degrees. They are offered by further education colleges in addition to universities. You can progress to a bachelor degree from these courses; sometimes students take them if they have insufficient UCAS points for a bachelor course.

The courses on offer

There are many undergraduate subjects available – browse courses at **targetcareers.co.uk** and **ucas.com**. You can study either one subject in depth (single honours) or study two (joint or combined honours).

The vast majority of courses in construction, engineering and property include the opportunity to take a 'placement' year (where you spend a year working for an employer).

What to expect

Around 25–40% of your time will be spent in lectures, seminars and tutorials, but the rest of your time will be spent doing independent study: check out **unistats.ac.uk** for the ratios of specific courses. You'll be assessed through exams, presentations, extended essays and/or research projects. You'll also be encouraged to apply for work experience with employers during the holidays and/or a placement year.

Construction, engineering and property courses are more practical than other degrees, but they are still theory based. Engineering students, for example, learn a lot of maths. If you prefer a more practical approach, perhaps investigate apprenticeships or training programmes.

Choosing a course and university

Consider:

- the reputation of the university for the subject
- whether the course is accredited by relevant professional bodies
- whether tutors/lecturers are involved in cutting-edge research or have worked in industry
- the range of modules and projects
- the relationships the department and careers service have with employers
- facilities, including laboratories, computer-aided design software, access to journals and case study materials
- other general factors, such as the social life on offer, whether it's a campus or city university and your gut feeling!

Don't just rely on university prospectuses and websites to find these things out: go along to open days and ask course leaders and students.

Funding university

If you are a UK national, you will pay a maximum of £9,250 a year for tuition fees. You'll also need to factor in living expenses. You can get loans to cover the costs of tuition and living (maintenance) costs – the student finance calculator on **gov.uk** tells you how much you could get. You pay back your loan in instalments after graduating and only when you earn over £25,000 in England and Wales or £18,330 in Scotland and Northern Ireland. There are other ways to fund your studies. Check out the sections below.

Employer sponsorship

Many employers will pay for your studies in return for you working for them during holidays and after graduation. Some employers will offer this before you start university; many more will offer this to second-years who have completed a work placement with them. See the A–Z of organisations starting from page 58 to see who offers sponsorship.

Bursaries and scholarships

There are a number of bursaries and scholarships available – which you don't need to pay back – but you'll need to search for them. Look at the websites of individual universities and professional institutions (see page 38 for institutions' websites).

After your degree

Unless you've been sponsored by an employer, university does not guarantee you a job. You'll need to apply for graduate-level jobs. If you graduate in July and want to start work in October, you should apply in the first term of your final year.

Sponsored degrees

If you want to get a degree while earning money, a sponsored degree or degree apprenticeship may be for you. You will likely work full time for an employer and attend university in week- or month-long 'blocks', so you may not experience 'typical student life'. Your tuition fees will be paid for by an employer, but you may be required to study a particular course or at a particular university.

The pros and cons

- **The median salary of a graduate aged 21–30 is £5,000 higher than for a non-graduate the same age.[1]**
- **It can be expensive and you may end up with student debt, but it can be paid for via sponsorship or bursaries.**
- **A job isn't guaranteed after university, but you'll have a dedicated careers team to help you find one.**
- **Joining a graduate scheme can be a quicker way into management than an apprenticeship.**
- **It may enable you to study for a higher level professional qualification while on the job, leading to higher status and salaries. This isn't always the case for apprentices.**
- **A degree is a passport into many careers, not just the subject you are studying – great if you change your career plans.**

[1] According to the Department for Education's *Graduate Labour Market Statistics: 2017* report.

Qualification	Typical length (full time)
HNC (level 4)	One year
HND (level 5)	Two years
Foundation degree (level 5)	Two years
BSc, BEng (level 6)	Three years + optional one-year placement
MEng (level 7)	Four years + optional one-year placement

Five steps to the right career

Follow the steps below to help you think about which job is right for you.

STEP ONE:

Make a list

Make a list of your school/college subjects and extracurricular activities. You could create your list by drawing a mind map on a huge piece of paper or you can use an app. Then follow steps two and three to help you write down the things you like about each subject or activity and the different skills you need to take part in them.

STEP TWO:

Work out what you enjoy

For each activity or subject, think about what you enjoy – and what you don't enjoy. If you're studying physics, do you like conducting experiments but dislike memorising formulas? Or, if you're studying history, do you like going on field trips but dislike writing essays? If you play football, do you like working in a team but wish you could be indoors? Or, if you play a musical instrument, do you like learning new pieces but dislike practising scales? Considering your likes and dislikes will help you find a job that you love.

STEP THREE:

Identify your skills

Now think about what skills you've needed for each of your subjects and activities. For example, if you play rugby, you will have turned up on time for the match and for training (time management), been a team player (teamwork) and talked through game plans with your team (communication). If you're not sure what skills you've used, ask your teachers, family, friends and coaches for their suggestions.

General skills, such as communication, time management and teamwork, are needed for every construction, engineering or property job, but some jobs require specific skills and qualities. For example, architects need to be able to draw and scaffolders can't be afraid of heights.

STEP FOUR:

Decide what's most important

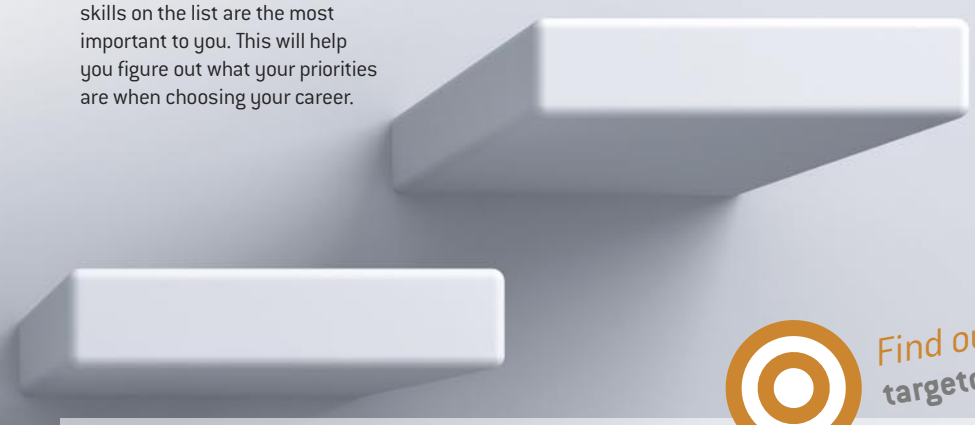
Think about which of your likes and skills on the list are the most important to you. This will help you figure out what your priorities are when choosing your career.

STEP FIVE:

Use our career-matching tool

Now you've completed your list and thought about your priorities, use our career-matching tool opposite to start your search for the right job. It will direct you to overviews of job roles that you might enjoy and be good at.

Moving forward, when you are reading up on potential jobs, refer back to your list and think about whether the job is a match for your skills and interests.



Find out more at targetcareers.co.uk

If you like...

designing...

Consider:

If you like getting...

the best deal...

Consider:

If you like...

interpreting rules...

Consider:

If you like...

being in charge...

All jobs can lead to management, but if you want to start off as a manager, consider:

If you want to be...

out and about all day...

Consider:

If you want a...

green career...

Roles where you'll have a particular focus on minimising our environmental impact include:

If you want to...

work with your hands...

Consider:

Keep your list to hand

Don't just complete this list and forget you ever made it. When you are ready to apply to university or for apprenticeships, you'll need to be prepared with evidence of your skills and interests. Your list will help you jog your memory .

How the construction industry works

Different organisations work together to build a project. Here's how...

1 It starts with the client

...who decides something should be built. They might be a property development company, a local authority, a central government department, a private business or an individual.

The client decides what they want to build, the timeframe in which it should be built and how much it should cost.

2 The client then hires consultants

...who will advise them on matters relating to the design, cost and any regulations. The client could employ several consultancies or one consultancy to advise on everything. Either way, one consultant organisation will often oversee the project on behalf of the client.

Consultant organisations include:

- architecture practices
- cost consultancy (quantity surveying) employers
- civil, structural, mechanical and electrical engineering employers.

Consultants then look after the design phase of the project – they design the structure and work out how much that design will cost to build. Once this has been established, they decide which construction contractor should do the construction work. Contractors have to 'bid' for the work – put forward case for why they are the best company to carry out the work and state their price.

1 The traditional process

The flowchart above shows the typical process of how a construction project gets built, but some larger firms offer a design-and-build service where they take on the typical work of a consultant and a contractor. Large projects can take years to get from the initial idea to being fully completed.

2 Working for a consultancy

If you work at a consultancy, your work will be on the design phase. Civil engineers make sure that the technical details on plans will work and quantity surveyors price up how much the design would cost. As a consultant:

- You work in an office...
- ...you sometimes get to visit sites and *occasionally* you could be 'seconded' (sent) to work on a site.
- You work office hours (typically 8.30 am to 6.00 pm) but may have to work longer hours close to a deadline.
- You usually work on a number of projects at the same time.
- As you work on a project in its early stages, it may be years before you see the finished project in operation.

Find out more at
targetcareers.co.uk

3 Contractors carry out the construction work...

Once the contractor has won the work, construction begins on site. They ensure the project is built to the agreed quality, budget and timeframe. They take instructions about the design from the design consultancy and run any design-related problems past them.

...but may get subcontractors to help

If there is work involved in the project that needs specialist skills or knowledge, the contractor might offer the work to specialist organisations that have more expertise in specific areas. Typical tasks that might be given to subcontractors include:

- reinforced concrete works
- structural steelwork
- work on the foundations
- plumbing and electrical work.

Subcontractors tend to be smaller, local employers. They work in similar conditions to contractors.

3 Working for a contractor

Job roles with contractors include site managers, civil engineers, quantity surveyors, and trades or crafts people. As one of these:

- You work on site (or from a temporary office on site) in all weathers.
- Depending on the project, you might need to work shifts or overnight.
- Working hours are longer out on site (typically 7.30 am to 6.00 pm) and you may need to work longer hours if things get behind schedule.
- You typically work on one project at a time.
- You get to see things being built before your very eyes.

What else do you need to know?

A project could be a 'new build', a renovation or a refurbishment. It can cover anything in the built environment around us, for example:

- houses, office blocks, warehouses, factories and hospitals
- train stations and airports
- roads, railways, bridges and tunnels
- piers, dams and coastal defences
- nuclear power plants and other generators of energy.

Relocation, relocation, relocation... or commute

Don't be surprised if you have to relocate for the job or face a long commute. This is more likely if you work for a contractor, as you'll be expected to go to where the projects are. If you work for a national employer, the project can be anywhere across the country but smaller employers are more likely to work in a particular region. Consultants are also more likely to stay in their local area, but may need to travel to visit sites.

If you work for an international employer, you might get to work abroad – although you may need to get a few years' experience under your belt first. If this is the case, the company usually pays for your accommodation.

Know your markets

Larger construction companies specialise in particular 'markets' or sectors – for example, they might offer civil and structural engineering services for healthcare projects. Some work in a range of sectors while other companies provide expertise in just one or two areas. Many construction professionals specialise in a particular type of project over time.

Wates

BUILD SOMETHING AMAZING **YOUR CAREER**

Start your career at an award winning employer where training, on-the-job qualifications and progression are built from the ground up.

Apply now at
wates.co.uk/earlycareers

Above all, it's about people

Architects, architectural technologists and technicians

Architects design buildings that are safe, attractive and as environmentally friendly as possible. They stay involved throughout the construction process, adapting their plans if the budget, environmental factors or client's wishes change. They are assisted by architectural technologists and technicians.

Architectural technologists ensure that the technical aspects of a design work and comply with regulations. They work in a similar role to civil engineers in that way. Architectural technologists may also be hired to oversee a project from start to finish. Technicians help prepare drawings, compile technical information such as surveys, and help put together proposals and contracts.

Most architects, technologists and technicians work in architectural practices; many experienced architects and technologists set up their own. There are a few vacancies with large construction employers and in the public sector.

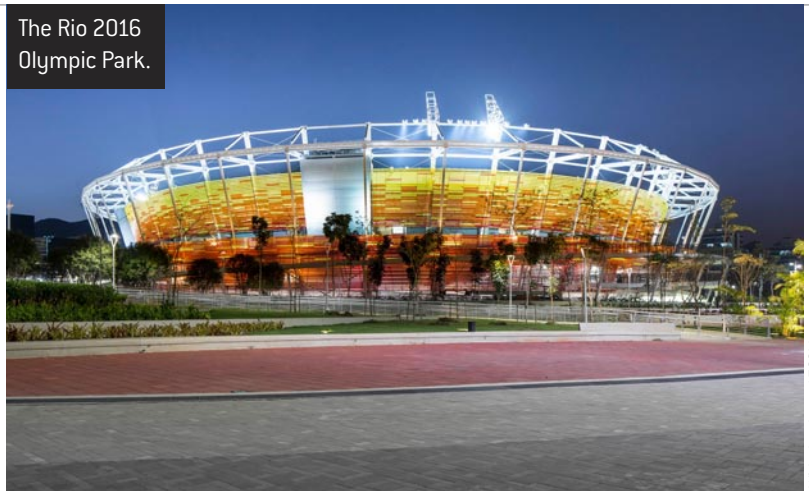
Routes in

Most architects go to university. It takes seven years in total and includes an undergraduate degree approved by the Royal Institute of British Architects (know as 'part 1'), your part 2 qualification – usually an MArch degree – and two years of work placements. Useful A level subjects include art/graphic design, geography, maths and physics. Many universities want a combination of arts and sciences.

You can do an architectural assistant or architect degree apprenticeship but, as these routes were only introduced in July 2018, there aren't too many on offer. You'll need A levels to do the architectural assistant apprenticeship. You'll work towards your part 1 qualification, so you'll need to commit to further study to then become an architect. The architect degree apprenticeship involves working towards a part 2 qualification, so you need to have completed the part 1 qualification (either as a university student or as an apprentice) before you can apply.

Most architectural technologists have studied a three-year degree approved by the Chartered Institute of Architectural Technologists (CIAT). Most architectural technologist courses do not request specific subjects at A level (or equivalent), although the CIAT recommends you choose science, technology and/or construction subjects.

Technicians have typically studied an HND/HNC before applying for a job, but there are a few apprenticeships available. With further study, they can become technologists.



The Rio 2016 Olympic Park.

With thanks to AECOM

A good choice if...

- **You are good at freehand drawing.**
- **You are creative.**
- **You can get your head around maths.**
- **You can get to grips with detailed information on building regulations.**

Building services engineer

Building services engineers see that a building has more than walls and a roof. They are responsible for the electrical, mechanical, utility and telecoms systems in new building. In short, they take a new building from being an empty shell to being a comfortable living space that meets health and safety regulations.

Depending on the type of employer you work for, you could be responsible for designing systems, implementing systems on site or maintaining and repairing systems in an up-and-running building. You could work on designing, implementing and maintaining: air conditioning, elevators, telecoms systems, electricity supplies and lighting, water supplies and heating.

Routes in

You can become a building services engineer through an apprenticeship or a degree. If you have GCSEs (or equivalent), you can choose to complete an advanced apprenticeship, become an engineering technician and work your way up to become a chartered engineer, the highest qualified type of engineer (see page 27). Apprenticeships may specialise in a specific area, such as design or heating and ventilation.

The quickest way to become a chartered engineer is through an MEng degree or a BEng with a postgraduate qualification. This can be in building services engineering or a related subject (such as mechanical engineering or electrical engineering) that is accredited by a relevant professional body such as the Chartered Institution of Building Services Engineers, the Institution of Mechanical Engineers or the Institution of Engineering and Technology. You may be able to get a MEng or BEng through a degree apprenticeship.

Maths, physics, chemistry and IT are good A level (or equivalent) subject choices.

A good choice if...

- **You want to be at the forefront of technological development – building services engineers work with the most up-to-date 'building services intelligence' technology.**
- **You like getting into the nitty gritty of design or making designs work in the real world.**

Civil, structural and geotechnical engineers

Civil and structural engineers design, build and maintain the constructed world around us: bridges, tunnels, roads, railways, dams, pipelines, buildings, power plants, offshore wind facilities and so on. They ensure the technical detail in architects' plans will work in practice. They often specialise in a type of project, such as highways. Structural engineers have particular responsibility for ensuring that the structure (inner-framework) of the project holds up, even in bad weather.

Consultants vs contractors

If you work for a construction or engineering consultant – who designs and plans projects – you will be working on the technical aspects of designs, using computer-aided design packages. If you work for a construction or engineering contractor – who builds the project – you'll make sure that the design is implemented properly. If you work for a public sector organisation or utilities supplier, you'll help to investigate the need for public services, such as roads, and maintain them. See page 27 for more information on how to start your engineering career.

Building foundations

If structural engineering takes your fancy, consider geotechnical engineering too. Geotechnical engineers are responsible for structures' foundations, assessing data from the field, finding ways to ensure

foundations or slopes are stable, designing foundations and overseeing work on a construction site.

Your options

There are some structural engineering degrees but it's more common to study civil engineering or civil and structural engineering. Most geotechnical engineering degrees are at postgraduate level. Most apprenticeships are in the field of civil engineering but you may cover structural or geotechnical engineering too. Useful A levels (or equivalent) are maths, physics, geography, ICT, languages, art and design.

A good choice if...

- **You can draw basic sketches – you don't have to be an artist.**
- **You like knowing the technical details of how things work (for jobs with consultancies).**
- **You'd like to work on site instead of in an office (for jobs with contractors).**
- **You want to be able to say 'I helped build that!'**

An artist's impression of Cherrybrook Station, part of the new Sydney Metro.

With thanks to Turner & Townsend

Landscape architects

Landscape architects aim to improve the quality of the environment by designing and managing the open spaces around us. They combine artistic skills with knowledge of human activity and the natural environment to design public areas in towns, cities and the countryside. They use computer-aided design packages to model and experiment with designs; visit, survey and analyse sites that could be developed; draw up plans for how the space will be developed in the longer term; help to protect and conserve the environment; deal with clients; and work alongside other construction professionals.

Landscape architects tend to work for specialist landscape architectural practices, environmental consultancies, transport planners and large engineering consultancies. There are also a few vacancies in the public sector.

Do you need a degree?

To become a landscape architect, you need to study a degree approved by the Landscape Institute. This is usually a three-year undergraduate degree plus a one-year postgraduate diploma in landscape architecture. But if you complete an undergraduate degree in a subject such as art, geography or horticulture you can do a postgraduate 'conversion' masters lasting up to two years. Most universities do not specify A level (or equivalent) requirements but the Landscape Institute suggests that the following subjects would be good choices: art, design, graphics, chemistry, physics, biology, geography, English, technology, ICT or history. Some universities may ask you to have art to at least GCSE level. The Landscape Institute is currently looking to develop landscape apprenticeships.

A good choice if...

- **You are creative.**
- **You are good at art and biology.**
- **You like the outdoors.**
- **You want to help protect the environment.**

Quantity surveyors

Quantity surveyors (QSs) are also known as cost consultants, commercial managers, cost managers or cost engineers. But whatever you're called, your role is to help a construction project to make a profit. You'll keep a close eye on how much everything costs (the materials, the time taken and the workers' salaries) and make payments.

If you work for a construction or QS consultancy – which looks after the 'design' stage of the project – you'll be based in an office. You'll spend most of your time working out how much different designs cost. If you work for a contractor – which builds the project – you'll be based in an office on a construction site. You might help to choose which materials to buy, be out on site checking completed work, track the materials used or pay subcontractors for their work.

Do you need a degree?

Employers will want you to gain an undergraduate or postgraduate degree that has been approved by the Royal Institution of Chartered Surveyors or the Chartered Institute of Building. But some will hire you onto an apprenticeship or trainee scheme with GCSEs and/or A levels (or equivalents). They'll then pay for you to study an HND or bachelors qualification while working for them.

A good choice if...

- **You're good at maths.**
- **You're good at figuring out the best buy or deal.**
- **You like keeping track of systems and pay attention to detail.**
- **You like people.**

Site managers

Construction site managers ensure things get done on a construction site. They make sure that the building work is finished on time, within budget and to a high standard. They organise schedules of work, manage workers and deal with issues such as health and safety, logistics and the effects of the building work on members of the public. On larger and more complicated projects, an experienced site manager will have a number of assistant managers, each looking after one part of the project (or package), such as the foundations.

Working hours

Site managers typically work for construction contractors and are based on site. As with any job role on site, you may have to work night and weekend shifts, and hours can be long: a 40-hour week is normal and you will probably have to work overtime as deadlines approach.

Routes in

You can start out as an assistant manager if you have studied a construction or project management degree approved by the Chartered Institute of Building, or another closely related subject such as civil engineering. A few employers might hire you with a different degree and sponsor you through a postgraduate course.

The quickest way to get into management via an apprenticeship route is to complete a higher or degree apprenticeship, for which you'll either need A levels (or equivalent), an advanced apprenticeship in something like construction site supervision or experience in the industry.

A good choice if...

- **You like to take charge.**
- **You can make decisions quickly.**
- **You like solving problems.**
- **You are organised.**
- **You don't want to work in an office – and you don't mind being out in all weathers.**

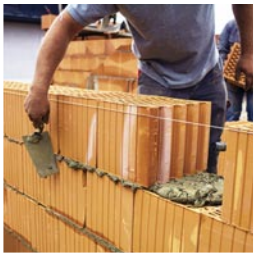
An aerial view of the Tottenham Court Road station upgrade.

With thanks to Go Construct and CITB

The crafts and trades

For those who prefer working with their hands to book learning.

If you choose a career in one of the traditional construction crafts or skilled trades, you can go straight from sitting your GCSEs to working on site. You can complete an intermediate or advanced apprenticeship. Alternatively, you can take a vocational qualification at college and then find an entry-level job. You could find work with large construction employers, smaller specialist employers or within the public sector. Many experienced trades and crafts people work for themselves. Here are some of the main crafts or trades open to you.



Brickwork

Brickwork is probably the most well-known and popular construction craft. It includes bricklaying as well as stonemasonry, and you can choose to specialise in one or both of these areas. As a bricklayer, you'll work as part of a 'brickwork gang' to trim bricks and shape natural stone, lay bricks, apply mortar and check the courses are straight. There could be several gangs on site, depending on the size of the project.

Stonemasonry is a traditional yet increasingly uncommon skill, but it's essential to our heritage and great if you like history. Stonemasons – who create and restore stonework on buildings and other structures – might specialise in curving, laying or fixing.

Carpentry and joinery

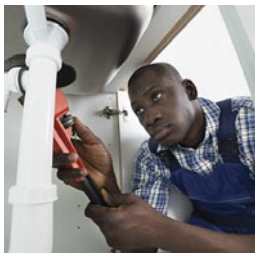
Carpenters and joiners work together to prepare and install the wooden parts of buildings, from floorboards and roof trusses to windows and doors. Typically, a joiner uses drawings to prepare the materials and a carpenter installs them and does any structural work – but the two roles overlap and sometimes one person will do both. Joinery can be split into two areas: site (floors, doors and roofs) and bench (counters, kitchens and staircases). You can also specialise in building temporary supports, which are used to hold setting concrete in shape. This is called formwork or shuttering.

Demolition

You need to be at least 18 to work in demolition, although you typically only need GCSEs (or equivalent). You'll usually start off as a demolition operative and there'll be lots of power tools to use and crane-based work to do. So, it's essential you have a head for heights and an awareness of health and safety. You'll spend your days blowing up or pulling down disused or unattractive buildings, as well as clearing the site and removing debris, rubbish and hazardous waste. You might specialise in preparing the site for demolition (for example, putting up rails and laying dustsheets), removing fittings and dismantling roofs, or cutting steel frameworks and removing fragile roofs.

Electrical work

Electricians (sometimes known as electrical technicians) install and repair the electrical systems around us. You might find yourself specialising in installation or maintenance, or in a particular area such as highways maintenance and street lighting or solar panels. You may work in a team or on your own. You'll need to be a logical thinker and problem solver. You need a level 3 electrical or electrotechnical qualification to be an electrician. You can do this through an apprenticeship. Be aware that you may need to take extra on-the-job qualifications to ensure you are able to carry out tasks such as PAT testing (portable appliance testing).

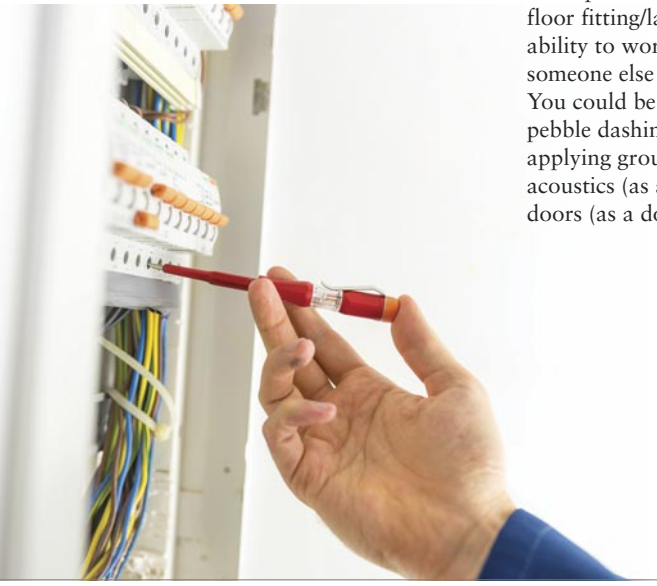


Painting and decorating

You will paint and decorate in a range of environments, from redecorating the homes of the rich and famous to applying finishing paint touches to structures such as bridges. You could choose to specialise in a particular technique such as restoration. Be prepared to wear a protective mask or climb a ladder in order to carry out a job.

Plumbing

Plumbers do more than you might think. They design and fix sanitation systems and leaky pipes, work on heating and air-conditioning systems, fit bathrooms, install dishwashers and more. But they might also work on a construction site or on tasks such as planning where pipes need to go. Plumbers can sometimes work unsociable hours if asked to deal with an emergency.



Scaffolding and steeplejacking

As a scaffolder, you will put up and take down temporary scaffolding using a series of metal tubes (standards), horizontal poles (ledgers) and wooden working platforms (battens). You'll need a head for heights, good hand-eye coordination and to be resilient to extreme weather.

Steeplejacks use a variety of systems – scaffolding, harnesses, belay rope fall-arrest systems, bosun's chairs and abseil equipment – to carry out general maintenance work and repairs at great heights. As a steeplejack, you will work across the main areas of construction, doing tasks such as repairing masonry and fitting aircraft warning lights on tall structures.

Wall and floor covering

There are four main careers within this craft: plastering, dry lining, tiling and floor fitting/laying. Accuracy and the ability to work from drawings that someone else has done are core skills. You could be doing anything from pebble dashing (as a plasterer) or applying grout (as a tiler) to improving acoustics (as a dry liner) or re-hanging doors (as a door fitter).

Becoming a card carrier

Many construction employers want their site workers to gain a Construction Skills Certification Scheme (CSCS) card, which proves that you are trained and qualified to do your job properly. You'll need to demonstrate that you have obtained the appropriate qualification for your job and pass an appropriate Construction Industry Training Board health, safety and environment test.

A good choice if...

- **You are physically fit.**
- **You don't mind interacting with customers if required.**
- **You are practical and like working with your hands.**
- **You don't want to work in an office – and don't mind being out in all weathers.**
- **Keeping up to date with building and health and safety regulations wouldn't bother you.**

The engineering industries

Engineers specialise in different industries. Find out more about them and discover which interests you the most.

* Always check individual employers' requirements.

Aerospace

WHAT IT IS: flying things... helicopters, fighter jets, unmanned vehicles, commercial planes, satellites, space stations, rockets etc.

FACTORS AFFECTING THE INDUSTRY: world events and conflicts, high levels of regulation, environmental concerns, cost and availability of materials, searches for new fuels.

ENGINEERS TYPICALLY NEEDED: aerospace/aeronautical, chemical, electrical, electronics, environmental, manufacturing, mechanical, software.*

Automotive

WHAT IT IS: all things relating to motor vehicles, from mainstream and premium/sports car manufacturers to bus and coach manufacturers. There are also lots of other companies involved in putting vehicles together.

FACTORS AFFECTING THE INDUSTRY: the increasing reliance on electronics and software, the need to reduce carbon emissions.

ENGINEERS TYPICALLY NEEDED: aerospace, automotive, chemical, electrical, electronics, environmental, manufacturing, mechanical, software.*

Chemicals

WHAT IT IS: the backbone of industry... oil companies, manufacturers, pharmaceuticals, water treatment companies and more – those who use and produce chemicals that create products and make factories and other industrial sites work.

FACTORS AFFECTING THE INDUSTRY: the price of oil, world events and conflicts, environmental concerns.

ENGINEERS TYPICALLY NEEDED: chemical, civil/structural, electrical, environmental, manufacturing, mechanical.*

Defence

WHAT IT IS: equipment, support and services for the armed forces and national security, whether that is the latest weaponry, military vehicles or cyber security. Engineers often work at the cutting edge of technology.

FACTORS AFFECTING THE INDUSTRY: the needs of military personnel, military strategy, costs/budgets, the need to deliver products/projects quickly.

ENGINEERS TYPICALLY NEEDED: aerospace, automotive, chemical, civil/structural, electrical, electronics, environmental, manufacturing, mechanical, software.*

Electronics

WHAT IT IS: smartphones, medical scanners, TVs, games consoles, washing machines, radios, unmanned vehicles… the creation of anything that includes electronic systems.

FACTORS AFFECTING THE INDUSTRY: the emphasis on safety, trends in technology (eg 'the Internet of Things' and wireless charging), the changing behaviour/expectations of consumers.

ENGINEERS TYPICALLY NEEDED: electrical, electronics, software.*

Energy and power

WHAT IT IS: finding energy sources and generating power… oil, gas, tidal, wind, solar, nuclear etc. The industry is divided into generating, transmitting/distributing, metering and sales. Oil and gas generation is divided into 'upstream' (exploring and producing) and 'downstream' (refining ready for use).

FACTORS AFFECTING THE INDUSTRY: accessing dwindling supplies and harnessing newer sources, environmental concerns, world events and conflicts.

ENGINEERS TYPICALLY NEEDED: aerospace, automotive, chemical, civil/structural, electrical, electronics, environmental, manufacturing, mechanical, software.*

Fast-moving consumer goods (FMCG)

WHAT IT IS: the manufacturing of goods that fly off the production line only to fly off shop shelves just as quickly. These tend to be everyday products: food, cleaning products, cosmetics etc. Thousands of goods can be produced every minute.

FACTORS AFFECTING THE INDUSTRY: the need to minimise cost and wastage, needing to keep production moving, environmental concerns.

ENGINEERS TYPICALLY NEEDED: aerospace, automotive, chemical, civil/structural, electrical, electronics, environmental, manufacturing, mechanical, software.*

Marine

WHAT IT IS: ships and other sea-faring vessels or equipment – eg equipment aimed at off-shore and sub-sea exploration.

FACTORS AFFECTING THE INDUSTRY: designing for a wet, windy, salty and unstable environment, demands for global shipping and energy, the need to improve efficiency, environmental concerns.

ENGINEERS TYPICALLY NEEDED: chemical, civil/structural, electrical, electronics, environmental, manufacturing, mechanical, software.*

Find out more at targetcareers.co.uk

Pharmaceuticals

WHAT IT IS: researching, developing and manufacturing medications and related products in tablet, liquid or vaccination form. Engineers work alongside chemists and pharmacists.

FACTORS AFFECTING THE INDUSTRY: the need to get a product ready to sell in a short amount of time, counterfeit products, developments in world health.

ENGINEERS TYPICALLY NEEDED: chemical, civil/structural, electrical, electronics, environmental, manufacturing, mechanical, software.*

Rail

WHAT IT IS: anything to do with the railway… tracks, bridges, drainage, power systems, train control systems etc.

FACTORS AFFECTING THE INDUSTRY: designing and constructing a railway to meet future needs, costs, environmental concerns, moving from a 'find and fix' approach to 'predict and prevent'.

ENGINEERS TYPICALLY NEEDED: civil/structural, electrical, electronics, environmental, mechanical, software.*

Telecoms

WHAT IT IS: allowing people to communicate, whether through conversation or sending data through the cloud. There are vendors and carriers (vendors, eg Ericsson, sell the hardware and software; carriers, eg BT, use them in their network).

FACTORS AFFECTING THE INDUSTRY: the need to keep up with technological and consumer trends, the need to deliver a reliable service.

ENGINEERS TYPICALLY NEEDED: electronics, software.*

Utilities

WHAT IT IS: delivering energy/power, water, sewage treatment and telecoms to the public.

FACTORS AFFECTING THE INDUSTRY: environmental concerns, the expectations of consumers, the need to upgrade existing systems, networks and industrial sites, the decisions of regulatory bodies.

ENGINEERS TYPICALLY NEEDED: chemical, civil/structural, electrical, electronics, environmental, mechanical, software.* ◎

* Always check individual employers' requirements.

And not forgetting...

The construction industry employs civil, structural, mechanical and electrical engineers among others. See pages 16–23 for more on the construction industry.

There are also some engineering jobs in working with raw materials and metals, eg developing coated steel.

The engineering job roles

Engineers are essentially problem solvers: designing, building and fixing many of the items we use every day. Their day-to-day work, however, can be completely different, depending on the discipline and industry they work in. Some roles get you out and about more than others and some roles involve more technical report writing than others, for example. Over the next few pages, we introduce you to the main engineering disciplines to help you find the best role for you.

Levels of expertise

Across the engineering profession the amount of responsibility you get depends on your level of education and experience. You can get into engineering via an apprenticeship, school leaver programme or an engineering degree (usually either a three-year BEng or a four-year MEng course). The Engineering Council regulates the profession and has identified three levels of professional engineering:

- engineering technician
- incorporated engineer
- chartered engineer.

Chartership is the most senior level at which engineers are recognised as able to take the lead on projects and develop new solutions. They tend to receive the highest salaries. Even as an experienced technician, you could find that a less-experienced, just-chartered graduate will outrank you.

Getting qualified

You only qualify for each of these levels *after* you have undergone a training programme, usually an apprenticeship or graduate training programme. When you are starting out, you are eligible to train towards:

- technician level if you have GCSEs, A levels, an HNC/HND or BTEC/NVQ level 3 (or equivalents)
- incorporated level if you are qualified to a BEng degree level
- chartered level if you have an MEng degree or a BEng plus a masters degree.

Depending on its level and content, an apprenticeship can lead to either technician or incorporated status – from there you can work towards chartership. But you will need your employer's approval and support to do so: you either need to gain an appropriate level of workplace experience or get your employer to pay for you to study the appropriate academic qualification while you work for them.

The quickest way to become chartered is to do an MEng – there are a few degree apprenticeships that result in an MEng.

What subjects do you need?

If you want to get on a degree course, you'll need to take maths and, usually, physics at A level (or equivalent). Other useful subjects at GCSE and A level include further maths, computing, chemistry, and DT.

A good choice if...

- **You are good at maths, physics and IT.**
- **You like solving problems and puzzles.**
- **You always want to know how something works.**
- **You like working in a team.**

Find out more at **targetcareers.co.uk**

Aerospace engineers

Aerospace engineers research, design, build and repair any type of aircraft: from satellites to weapon systems. The work is often focused around improving flight safety, fuel efficiency, speed and weight, as well as reducing system costs. Engineers have to take into account environmental impacts and client needs.

Depending on your level of experience, you might:

- build engines and components
- create designs
- work out why something isn't working
- put together engines and other equipment
- repair aircraft
- measure and improve the performance of an aircraft and its components
- investigate accidents
- consult technical or regulatory requirements.

Most jobs can be found in large international companies, which tend to either build aircraft or engines but not both. There are also some jobs with specialist contractors, which focus on building particular components, or in the military or public sector. You might work from offices or from aircraft workshops, production hangars or aeronautical laboratories.

Routes in

Apprentices typically work as machinists, fitters, modellers or engineering technicians. Graduates might work as engineers in a particular area, such as maintenance, mechanical, electrical, or systems design. There are aerospace engineering degree courses, but employers usually accept other engineering disciplines, such as mechanical, electrical or software.

A good choice if...

- **You think it's cool to make things fly.**
- **You are happy to work on military equipment. Much of the UK's aerospace work is found in the defence industry.**
- **You are fascinated by space!**

Engineers will have worked on this car interior for Tesla.

Automotive engineers and motor vehicle technicians

Automotive engineers design, assemble and improve the performance of motor vehicles, from family estate cars or multi-purpose vehicles to Formula 1 cars or MotoGP bikes. Motor vehicle technicians repair and service them. Automotive engineering is closely related to mechanical, electronic and electrical engineering.

Automotive engineers tend to specialise in a particular stage of the process. Broadly speaking, there are three stages:

- designing and improving vehicles, components or processes
- research and product development (finding new ways to overcome problems or limitations)
- manufacturing or production (planning manufacturing processes and ensuring that the vehicles are produced according to the design).

You might use computer-aided design software; test whether engines would work in different conditions, such as high temperatures; find and negotiate the cost of parts; agree budgets for creating the vehicle; or evaluate manufacturing processes. You'll work alongside others, including environmental and manufacturing engineers, and members of the finance department.

Automotive engineers tend to work for large car manufacturers or for automotive suppliers (those who manufacture parts) – as such there are fewer automotive vacancies than in some disciplines. Motor vehicle technicians tend to find work with car manufacturers and garages.

Your options

Vehicle technician apprenticeships are available, usually at intermediate or advanced level, and you can specialise in light or heavy vehicles. Large automotive companies also run some advanced, higher and degree apprenticeships.

There are automotive engineering degree courses – sometimes with a particular focus on the environment or motorsports – but you can become an automotive engineer with a mechanical or electronic engineering degree, among others.

A good choice if...

- **Meccano and Scalextric sets were your favourite toys.**
- **You are a detail person.**
- **You are creative.**

Chemical and process engineers

Chemical engineers help to transform raw materials into any type of product by applying their knowledge of chemistry. Some chemical engineers are employed in research and product development roles, but most are employed as process engineers. Process engineers can work across many industries: from helping to decommission (dismantle) a nuclear power plant to designing a process for solid/liquid separation in food production. Their role is to ensure that processes relating to chemicals are the best that they can be – designing them, implementing them or controlling them.

Biochemical engineering is an offshoot of chemical engineering and these engineers focus on applying life sciences to products or processes. You might help to create new medicines and vaccines, as well as greener technologies such as biofuels.

Chemical and biochemical engineers typically work for:

- consumer goods, synthetics, plastics, paints and polymer manufacturers
- pharmaceutical companies
- the water treatment industry
- food manufacturers
- oil refining/petrochemical companies.

Routes in

Most apprenticeships are in process engineering or an aspect of manufacturing engineering – they are hardly ever called chemical engineering apprenticeships. At degree level, you can study chemical or biochemical engineering and there are various degrees available combining the two. You might be able to get a graduate chemical or process engineering job with a chemistry degree, but it is more likely that you'd have to complete a postgraduate degree in chemical engineering first. Mechanical engineering graduates can also be hired as process engineers.

To get on to a chemical engineering degree, you will need A levels (or equivalent) in chemistry and maths. Biology, physics or computer science would also be useful choices.

Engineers working on Liverpool Street Station in London.

With thanks to Mott MacDonald

A good choice if...

- **You like chemistry (and biology if you are thinking of biochemistry).**
- **You like following something through step by step.**
- **You get a kick out of improving things.**

Electrical and electronic engineers

Electrical engineers design, test and supervise the manufacture, installation or repair of electrical systems, equipment or products. Electronic engineers do the same work on electronic systems. Both types of engineers get involved with products/projects such as:

- aircraft and spacecraft
- cars and other vehicles
- construction sites and in construction design offices, designing or overseeing the installation of electrical systems in buildings (this job role is sometimes called 'building services engineer')
- defence projects, including new weapons
- products for electronics and consumer goods manufacturers
- projects for the power generation companies.

Spot the difference

The difference between electrical and electronic circuits is that electronic circuits make decisions as well as power things. For example, while an electrical circuit might power a toaster, an electronic circuit will tell a microwave to bleep when the timer runs out.

Electrical components tend to be larger than electronic components, which sometimes can fit on one of your fingertips.

BUT... Many devices use both electrical and electronic circuits – and in some sectors you can apply for the same jobs, whether you have a background in electrical engineering or electronics.

Electrical engineers vs electricians

Electrical engineering technicians install and repair electrical systems and equipment. As such, they carry out similar work to electricians. However, not all electricians take the Engineering Council's 'technician' qualification so cannot call themselves an 'engineering technician'. See page 22 for more about electricians.

Your options

There are lots of electrical and electronic engineering apprenticeships on offer. Most degree courses in this engineering discipline are joint honours courses in electrical and electronic engineering, sometimes with an environmental or energy focus too. There are also a number of joint degrees in mechanical and electrical engineering available.

A good choice if...

- **You enjoyed circuitry work during your science lessons and any electronics work you did during DT.**
- **You want to work on the latest technologies (if you work for a top-of-the-range electronics manufacturer).**

Environmental engineers

Environmental engineers assess the impact that a project will have on the environment or, in fact, whether the environment will have an impact on the project. They then work out ways to lessen that impact and find solutions to any problems.

Environmental engineers can work in a number of different areas, such as:

- on all sorts of construction projects
- on water projects, from the construction of pipelines to water treatment
- in the automotive industry, specialising in reducing carbon emissions, for example
- with companies using chemicals
- on defence projects, for example discovering the effects that different environmental factors might have on missiles and missile systems
- on projects involved with generating and providing power, energy, water and telecommunications
- controlling land erosion
- shipbuilding.

Opportunities available

At present, there are a few specialist environmental engineering apprenticeships and engineering environmental technologies apprenticeships. Some apprenticeships in the industries listed above cover environmental topics alongside more general engineering principles. There tend to be more graduate jobs available than apprenticeships.

Universities tend to offer environmental engineering courses either as a single honours or in combination with another discipline such as civil or chemical. It may also be worth investigating courses in environmental science or environmental management. Geography, biology or chemistry would be good A level (or equivalent) choices, alongside maths and physics.

A good choice if...

- **You care about the environment.**
- **You like the outdoors.**
- **You want to become an expert in a specialist area.**

Manufacturing engineers

Manufacturing engineers basically make the process of making stuff better, whether that stuff is the latest must-have Christmas toy or a superconducting magnet for an MRI scanner. They aim to increase productivity, reduce the costs involved in manufacturing and ensure that products are made to a good quality in the timeframe needed. This might involve:

- evaluating processes
- designing a new piece of equipment
- putting new processes, procedures or equipment in place
- keeping an eye on costs
- buying and/or installing equipment
- responding to breakdowns
- diagnosing faults and solving technical problems
- repairing equipment or arranging for it to be repaired
- managing or giving direction to staff
- communicating with suppliers, customers, and research and development staff
- keeping accurate records
- writing up recommendations.

You might be based in an office, on a factory floor, in a laboratory or all three. If you are on a factory floor, you might need to react quickly to problems and make speedy decisions. Shift and 'on-call' work may be required.

Your options

There are apprenticeships available – including a project controls technician apprenticeship and a manufacturing engineer degree apprenticeship. At degree level, you can do a single honours course in manufacturing engineering or a joint honours course that combines manufacturing engineering with subjects such as product design or production engineering. There are also some courses that focus on an aspect of manufacturing, such as operations and maintenance. But you can become a manufacturing engineer with a degree in physics or mechanical, electrical or electronic engineering, among other subjects.

A good choice if...

- **You like making something better or finding new ways of doing things, but...**
- **You are also good at following a process.**
- **You can think on your feet.**
- **You don't mind writing reports.**

With thanks to Go Construct and CITB

Environmental engineers find ways to lessen a project's impact on the environment.

Mechanical engineers

Mechanical engineers design, build/assemble and test the quality of any kind of machine or mechanical component. They also investigate whether a mechanical device might solve a problem on a project. Therefore, as a mechanical engineer, you could work across a whole range of engineering industries, including aerospace, automotive, defence, construction, manufacturing, medicine, pharmaceuticals and utilities. You might find yourself designing a component for a Boeing 777X engine, installing heating systems in a football stadium, testing a robotic arm for amputees or working out how to make a factory's manufacturing process more efficient.

Mechanical engineering is closely related to electrical and electronic disciplines, as well as automotive and aerospace. You might work in a laboratory, out on a construction site, in an office or in a factory; it depends on which sector you choose to work in.

Your options

The obvious choice at university is a mechanical engineering degree. There are also lots of apprenticeships available at all levels.

Look beyond the job title

Because they can work across a wide range of industries, mechanical engineers are in demand with employers. But the job title might not have the words 'mechanical engineer' in it, as it can be specific to the sector. For example, you might work in a mechanical engineering role but your job title might be aircraft technician (if you work in defence), process engineer (if you work in chemicals) or manufacturing engineer (if you work in manufacturing). Read job and apprenticeship descriptions carefully to make sure you don't overlook some opportunities.

A good choice if...

- **Your favourite toy was a Meccano set.**
- **You like taking things apart and putting them back together again just to see if you can.**
- **You don't mind fiddly work.**

Software engineers

Nowadays software engineering is an IT job. Some have argued that software engineers aren't, in fact, engineers at all as the job has changed so much over the years. However, software engineers can become chartered engineers, according to the Engineering Council, and they can be seen as using engineering principles when designing, developing, testing and evaluating software. The software could be for computers but also other electronic devices, such as cars or smartphones.

Software engineers design and program system-level software: operating systems, database systems, embedded systems and so on. They understand how both software and hardware function. The work can involve talking to clients and colleagues to work out what solution or system is needed, as well as full-on technical work. Software engineers can also be known as application programmers, software architects or system programmers/engineers.

Apprenticeships and university

Software engineers tend to work for IT companies but they can also work for engineering companies in the automotive and defence industries, among others. Lots of apprenticeships are available – often at degree level. At university, there are a number of specialist software engineering degrees available, alongside computer science degrees that contain elements of software engineering. Useful GCSEs and/or A level subjects include computer science/IT, maths, further maths and physics.

A good choice if...

- **You like IT.**
- **You enjoy programming.**
- **You are good at explaining technical things to non-technical people.**

PATHWAYS TO PROPERTY

Discover where a career in property could take you

Join us at Pathways to Property to discover the exciting career opportunities available to you.

Every day you are influenced by the built environment – shops, offices, houses and the surrounding countryside all have an impact on the way you live. Much more than selling houses, a career in property will allow you to shape our cities, preserve our landscapes and examine the sustainability of the buildings we live, work and play in.

Opportunities include:

- Residential Summer School for Year 12
- Work Experience
- Online Course - open to all
- Careers advice and school visits
- E-mentoring
- Financial Support

*All of the above are fully funded to remove any financial barriers to take part.

Learn more at hly.ac/Summer-school-19

Henley Business School
UNIVERSITY OF READING

Where business comes to life

WHICH JOB ROLE?

Property defined

Property is all about making money out of land and real estate – that can mean farmland, a wind farm, a skyrise tower block or luxury apartments.

Making money

The property industry is not just made up of estate agencies. There are many firms that provide all sorts of services to clients (people or organisations who want to gain, lose or invest in property or land). Some of the ways a property firm makes money for its clients are:

- selling, buying, letting or renting real estate
- negotiating the terms of contracts for landlords and/or tenants
- valuing land or property and setting the price for it to be sold or let
- finding ways to increase a property's value or rental income
- conducting building surveys
- overseeing matters relating to planning and land development, eg getting planning permission
- assessing a property's impact on the environment.

Types of property

Property is divided into three types and property professionals usually specialise in one of these:

1. residential: (including housing developments, individual homes, apartment blocks and student accomodation).
2. commercial (any property with a business use, ranging from shops and offices to warehouses and hotels).
3. rural: (property in the countyside, including country estates, farms, land and countryside housing developments).

The employers

Many property professionals work for property or chartered surveying firms. There are also some jobs with house-building companies, in which property professionals value, buy and make decisions about land that could be built on. There are vacancies in the public sector, particularly with regards to valuing land and property and with matters to do with planners. Other organisations that deal with or own large amounts of real estate may also hire property professionals: these organisations include retail chains as well as infrastructure companies such as Network Rail.

Find out more at **targetcareers.co.uk**

Property and construction

Property firms usually don't build or directly oversee construction projects themselves; they leave that to the construction professionals. Instead they are often the clients of construction professionals because they decide whether a project should go ahead (see page 16 for more information on the construction industry's clients).

Building surveyors

Building surveyors provide technical advice to construction and property professionals and property owners. They advise on factors affecting existing buildings, such as building defects, alterations, renovations and extensions, as well as the design and construction of new buildings. They typically:

- conduct building surveys (inspect properties on behalf of would-be buyers). They report on the building's condition, for example if there is damp, and what any repairs would cost.
- record dilapidations (changes) to a building's condition since its last inspection. They then need to arrange repairs with the owner's agreement.
- oversee, design and decide what needs to be done on simpler construction projects that don't require an architect – often small extensions or an office refurbishment.
- advise owners on 'party walls' (walls, floors or ceilings shared between two properties). They help owners alter or repair these and decide which owner pays for what.

Building surveyors usually work for property firms, housing developers or specialist surveying firms. They split their time between an office and their clients' properties.

What qualifications do you need?

Employers usually want you to have an undergraduate or postgraduate degree that has been approved by the Royal Institution of Chartered Surveyors or the Chartered Institute of Building. There are a few apprenticeships available.

Alternatively, you could complete an HND and apply for a building surveying technician job.

A good choice if...

- **You want to get out and about, but return to a dry, warm office.**
- **You get bored doing the same thing all the time.**
- **You like to take charge.**
- **You are interested in the law and how it can be applied practically.**

Estate agents

Estate agents play a key role in the property industry as they manage the buying/renting and selling/leasing of property. They can specialise in a certain market, such as commercial, residential or rural properties.

Property surveyors who specialise in the buying and selling of property do a similar job to estate agents. The differences are that surveyors gain a professional qualification with the Royal Institution of Chartered Surveyors and can specialise in many other areas of property and land.

The job of an estate agent involves elements of marketing, sales and administration. Including:

- working with clients to market real estate in a way that boosts its value
- negotiating the sale and letting of property
- travelling to properties to value them and conduct viewings
- creating reports, promotional information and other written material
- being responsible for the buying and selling of properties and making sure transactions are completed legally.

What do I need to do?

There are no formal requirements to become an estate agent, although employers may want to see experience of working with customers and an interest in the local property market. You can apply for trainee estate agent or sales/lettings negotiator roles at local estate agencies.

You can also choose to do a sales/lettings negotiator or estate agent apprenticeship. The majority of these are level 2 apprenticeships, but there are a few level 3 opportunities. Through these you will work towards a vocational qualification such as an NVQ.

Requirements for these opportunities vary from employer to employer, but usually include GCSEs (or equivalent) and a driving licence. Although not a necessity, an undergraduate degree in a subject such as building surveying, real estate or planning may give you an advantage.

A good choice if...

- **You are skilled at negotiation.**
- **You enjoy travelling.**
- **You can build positive relationships with clients.**
- **You can juggle responsibilities.**

Planners

Planners make decisions about how we use the space around us. They decide how many houses, hospitals, schools and shops we need, for example, and where they go. They balance the needs of the population with the need to protect the environment and historical buildings. They frequently communicate with politicians and members of the public.

The role of a planner varies depending on your employer. If you work in the public sector, you will decide whether construction can go ahead (looking at things such as the size of the planned project, the impact it will have on the environment or whether it will fit in with the surrounding area). If you work for a property or construction company, your job is to try to get planning permission for the project.

Routes in

To become a fully fledged planner, you need to have either an undergraduate or postgraduate degree approved by the Royal Town Planning Institute (RTPI). Useful A level (or equivalent) choices for a planning degree include business studies, economics, geography, politics, history, art and psychology. If you choose a postgraduate planning degree, good undergraduate subjects include law, geography, politics or environmental sciences.

You can do an apprenticeship in town planning technical support, after which you could become a planning technician. From there you could become a planner by completing a degree or by completing a professional qualification after a number of years' work experience. Your employer may support you to do these. You could also get a job as a planning technician with a vocational qualification such as an HND. The RTPI is currently developing a chartered town planner degree apprenticeship.

A good choice if...

- **You get on with all types of people.**
- **You are comfortable making difficult decisions that not everyone will agree with.**
- **You can interpret and apply rules and regulations.**
- **You are organised.**

Property surveyors

A property surveyor (sometimes known as a general practice surveyor) does a different role to quantity or building surveyors. Their role is to make the most money possible out of a piece of land or property. Clients include the land or property's owners; people or companies looking to rent or buy land or property; or wealthy individuals or investment management groups who want to invest in a property.

Property surveyors are based in an office but spend most of their time out visiting sites. They might:

- value a piece of land or real estate
- sell or let property, marketing it to possible buyers and negotiating to get the highest price possible
- find properties for clients to rent or buy, negotiating to get the lowest price possible
- work out how clients can pay the lowest business rates (taxes) allowed by the law
- manage properties on behalf of clients, overseeing everything from collecting rents to ensuring that the property is kept in a good condition
- help to turn a piece of land from an empty space into a housing estate or office block, for example
- advise clients on where best to invest their money in property.

The London skyline, including the Gherkin.

With thanks to Turner & Townsend

Do you need a degree?

There are a few apprenticeships including a chartered surveyor degree apprenticeship, during which you'll study towards a degree while working, but most opportunities are for graduates. Your degree needs to be approved by the Royal Institution of Chartered Surveyors: most university students study property, real estate, surveying or land management, but some complete a postgraduate course after studying an undergraduate degree in geography or economics, for example.

A good choice if...

- **You don't want to be stuck behind a desk all day.**
- **You are good at getting the best deal or your own way.**
- **You like strategising and planning.**
- **You are good with people.**

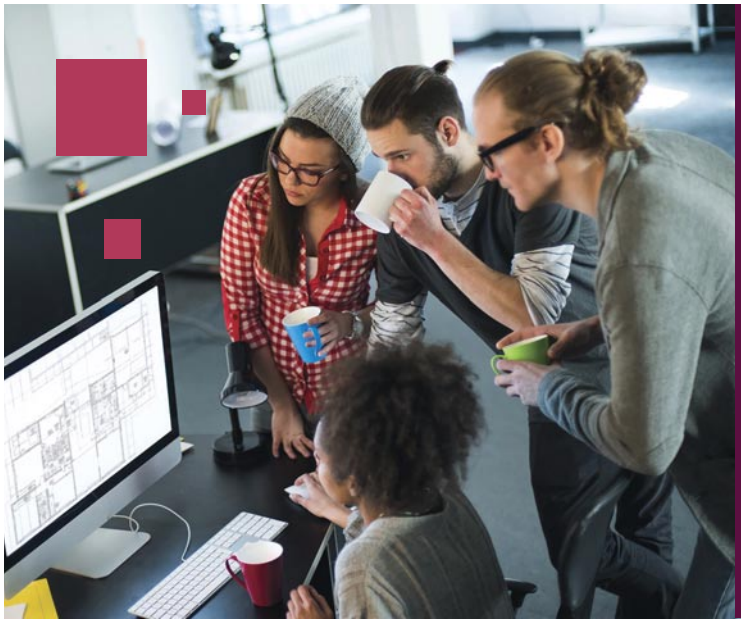
IN CONSTRUCTION, YOU CAN BE PART OF SOMETHING BIG

Construction is just jobs for the boys.

Over 320,000 women choose to work in the UK construction industry. With many ways to start out including paid apprenticeships and traineeships, along with degree entry-level jobs, there is a role for everyone.

In Construction there's a role for everyone

Everywhere you look, you see construction. The built environment is the result of the talented people who work in the industry. With a career in construction, you'll be part of a global industry with loads of exciting and rewarding construction jobs to choose from.



Working in Construction means doing a practical job, working out in the cold.

There is a wide variety of careers in construction which can involve working in a whole range of different locations and workplaces; including a 'live' construction site, an office, a workshop or working from home.

GO CONSTRUCT

Industry led, funded by the CITB levy citb

There are hundreds of careers in construction, so be part of something big:

- Archaeologist
- Architect
- Bricklayer
- Carpenter
- Civil Engineer
- Crane Operator
- Design Manager
- Electrician
- General Construction Operative (Ground Worker)
- Highways Engineer
- Instructor/Assessor/Tutor
- Joiner
- Marketing & PR Coordinator
- Painter & Decorator
- Plant Operator
- Plumber
- Plasterer
- Receptionist
- Scaffolder
- Welding Engineer

Visit the whole range of careers at goconstruct.org and while you're there, take our personality quiz to find out what type of career will suit you!

"To me Nothing can compare to the feeling of waking up and actually being excited to go to work in the morning.

As well as being mentally stimulating it is rewarding, having the opportunity to problem solve and give input that aids the construction process.

Being able to look back at a building/structure in years to come and be proud knowing my work made it happen … that's the Goal."

Kimmy Hibbert | Construction management/Project Planning Apprentice

Study routes to get you started in your career path

There are many routes into construction, find a learning style that suits you:

- if you want to go to college, you can gain an NVQ, moving into higher education to gain an HNC
- alternatively, you can earn while you learn by studying an apprenticeship after you leave school; this can be used to get into university if you wish to carry on with further study
- or you can complete a construction related degree at university such as construction management and work in a specialist field.

Visit goconstruct.org to find out more about careers in one of the UK's most innovative and dynamic industries

GoConstructUK

WHICH JOB ROLE?

Professional qualifications explained

Professional qualifications are qualifications that can be gained while working to prove that you know your stuff. These qualifications are set and awarded by professional institutions (also known as professional bodies). Every profession within construction, engineering and property has an institution that acts as its voice, looks after its needs, gives careers information to students, shares the latest industry data or technological advances, and makes sure that standards are kept high. Have a look at the column on the right for selected institutions.

About professional qualifications

These qualifications are, in theory, optional but they are, in practice, compulsory if you want to progress your career. Because they're recognised by the industry, they help you to prove your skills to employers and to gain promotions. You usually receive a pay rise after completing them and they may make it easier for you to work internationally, too.

To gain some qualifications, you need to be a graduate (or have spent a significant amount of time in the workplace). For others, apprentices can initially gain a lower qualification and then work up to a higher qualification afterwards. If you are going to university, ensure that the degree is accredited (approved) by the relevant institution.

The qualification process usually involves a period of training in the workplace, writing reports on projects you've completed at work and an interview with assessors.

Take advantage now

Professional institutions can help you to find out more about the careers in their fields. Some institutions offer help in finding work experience or arrange open days where students can visit employers. They may also have details of bursaries and sources of funding for university.

Professional bodies directory

Below is a sample of construction, engineering and property professional bodies. It's worth contacting the Engineering Council (www.engc.org.uk) or Construction Industry Training Board (www.citb.co.uk) to see if there are others in your chosen profession.

- Chartered Institute of Architectural Technologists (CIAT) **www.ciat.org.uk**
- Chartered Institute of Building (CIOB) **www.ciob.org**
- Chartered Institute of Plumbing and Heating Engineering (CIPHE) **www.ciphe.org.uk**
- Chartered Institution of Building Services Engineers (CIBSE) **www.cibse.org**
- Chartered Institution of Highways and Transportation (CIHT) **www.ciht.org.uk**
- Chartered Institution of Water and Environmental Management (CIWEM) **www.ciwem.org**
- Institute of Carpenters **www.instituteofcarpenters.com**
- Institute of Marine Engineering, Science and Technology (IMarEST) **www.imarest.org**
- Institution of Civil Engineers (ICE) **www.ice.org.uk**
- Institution of Chemical Engineers (IChemE) **www.icheme.org**
- Institution of Engineering and Technology (IET) **www.theiet.org**
- Institution of Mechanical Engineers (IMechE) **www.imeche.org**
- Institution of Structural Engineers **www.istructe.org**
- Landscape Institute (LI) **www.landscapeinstitute.org**
- Royal Aeronautical Society (RAeS) **www.aerosociety.com**
- Royal Institute of British Architects (RIBA) **www.architecture.com**
- Royal Institution of Chartered Surveyors (RICS) **www.rics.org**
- Royal Town Planning Institute (RTPI) **www.rtpi.org.uk**

Seen a career you like?

There are several things you can do to get a taste for whether or not you'll enjoy a career.

1 Find out more online

- Visit **targetcareers.co.uk** and the websites of relevant professional institutions.
- Check out **targetcareers.co.uk**, **ucas.com** and university websites if you're considering uni.
- Search for any careers fairs near you – or ask your teachers – so that you can go along and speak to employers in the industry.

2 Get chatty

- Find out whether someone you know is working in the industry or studying the subject at university. This could be a relative, a family friend or a contact recommended by your teacher.
- Draw up a list of questions to ask them. Aim to find out what they do day to day, the skills they use, the best and worst bits of their career, and different ways to get into it.
- Contact them to see whether they would be interested in answering some questions by email.

3 Try it out: get some experience

- If you have work experience or placement weeks coming up at school or college, talk to your teachers, tutors or careers officer about arranging one with an employer in the relevant career area.
- If you're considering uni, you could attend a summer school or taster course.
- Seek out employers that offer work experience during the holidays. See the employer overviews from page 58 onwards to find opportunities. Your school or college will also have a list of local employers.
- For each experience, keep a note of what you did during your time there and what you enjoyed or didn't enjoy.

Find out more at **targetcareers.co.uk**

Career stories

Nine apprentices and university students tell you about their experiences... and whether they're happy with their choices.

My site management degree apprenticeship

TILLY CASEY

JOB Production (site) management trainee
EMPLOYER Wates
PREVIOUS QUALIFICATIONS
10 GCSEs, 3 A levels

On my A level results day, I got into my first-choice university and was offered an apprenticeship at Wates. It was a hard decision as I was the only one from my school not to go to university, but I knew that an apprenticeship would suit me better. I wanted to work, earn money and get a degree.

Life on site

I started my apprenticeship in September 2018. I joined a project working on the head office of a diamond company. We've stripped back the existing concrete structure and now we're extending it outwards and upwards. There are a lot of things going on every day and it's like a puzzle trying to fit all the pieces together, so it helps that I have a good memory!

We work against a programme, which is a huge timetable of work that needs to be completed. I attend progress meetings and every Friday I work out what work has and hasn't been completed and how we can progress the work to the stage we need it at. It can be stressful on site but it's also fun and everyone is really nice and caring.

I like to be on site as much as possible to take it all in and ask questions. Whenever one of the production team is on site, I'll shadow them. All the site managers are doing different things and I want to learn everything. Health and safety is a big part of my role. I must ensure that everyone is working correctly and, the more I learn, the easier it is for me to understand what's right and wrong. I've even become a qualified first aider and a fire marshall.

I go to college for a week every three months. For the first two years of my apprenticeship, I'll be working towards an HNC and, in the following three years, I'll study for a degree in construction management. From there, I can build up my skills and knowledge and hopefully become a construction manager one day. If I'd gone to university, I'd have been uncertain on what to do after finishing my degree, but I know where my career is taking me.

Missing friends and making new ones

I moved from Hull to London for the apprenticeship, which is somewhere I always wanted to move to. I didn't like my first house share but I've moved to a better place now. The hardest thing for me is probably not being in the same place as my friends. They're all at university, we have different lifestyles and it takes a lot of time and money to travel across the country to see them. I've met a lot of new friends through work, though. I'm particularly close to one girl and we're going on holiday to Mykonos.

Advice for apprentices

In an interview, give yourself a minute to think about what you're going to say. It will help you structure your answer and stop you saying 'ah' or 'erm' halfway through. In the workplace, try to be confident – pretend if you need to. If you're confident in what you're saying, people will be more confident listening to you.

ROUTE IN GCSEs ▸ A levels ▸ Degree apprenticeship

My bricklaying apprenticeship

JACK HAMMICK

JOB Apprentice bricklayer
EMPLOYER Barratt London
PREVIOUS QUALIFICATIONS
8 GCSEs, 2 A levels, 2 BTECs

I deferred my university place for a year to work for a youth and education charity. I visited a few of my friends at university and, while it was fun for a weekend, I decided that I wouldn't enjoy being there full time. The idea of being in debt made me anxious and living in messy halls didn't appeal!

My dad is a bricklayer, my brother is a carpenter and a few of my mates became scaffolders and electricians, so I knew I could earn a decent living in construction, and doing an apprenticeship offered me further qualifications and a higher earning potential.

Climbing up the ladder

My interview at Barratt London was with a project director. I was asked questions such as 'Why do you want the apprenticeship?' and 'Why bricklaying?'. I found out the same day that I'd been successful. I was already based in London, so I didn't have to relocate.

I'm on site every day and so far I've worked on four sites. I was based in Catford first, then Surrey Quays. I then moved onto Blackfriars Circus, a tower block in South London. I really enjoyed this project as the brickwork was quite intricate, with glazed bricks and a semi-circular feature – it's gone on to win several brickwork awards. I'm currently on a site in Upton Park.

I completed my intermediate apprenticeship in my first two years and I'm doing my advanced apprenticeship now. I'll end up with an NVQ level 3 and am hoping to progress onto the site manager programme. I'm now shadowing a site manager, which involves overseeing the progression of the work, coordinating the different trades (plumbers, electricians, dryliners, painters and carpenters) and dealing with health and safety issues. I also jump back to the brickwork to keep my skills sharp.

Going to college

I go to the building crafts college in Stratford twice a week. I have half a dozen modules a year, which are assessed through theory exams and practical assessments. I basically have a list of models I need to build to pass the course. One of my favourites was a small panel that involved lots of different brickwork features: plinth bricks, tumbling, oversailing, flaunching, bricks 'on edge' and Victorian basket weave. I've also been on training courses for first aid, manual handling, on-site management, and CAT and Genny (how you detect buried services, such as underground cables and pipework).

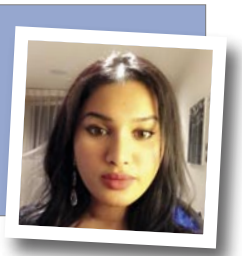
The biggest challenge of my job is probably the winter. Working on the 26th storey of scaffolding in the cold took a bit of getting used to! However, I love that my job is hands-on and bricklayers work in 'gangs', so there's a lot more camaraderie than in some other trades. I'm proud of winning a regional apprentice of the year award and receiving an annual brickwork award from my college. Doing this apprenticeship was definitely right for me. I've got my CSCS card now, which is my ticket to work on any construction site in the country, and I can now move into management.

ROUTE IN GCSEs → BTECs + A levels → Intermediate apprenticeship + advanced apprenticeship

My property surveying degree apprenticeship

SUBA SHANMAGAVEL

JOB Surveying apprentice
EMPLOYER JLL
PREVIOUS QUALIFICATIONS
9 GCSEs, BTEC level 3



None of my family work in property and I didn't have much knowledge of it, but I applied for a job at an estate agent in London. I worked there for just over a year before deciding that I wanted a career change. I researched routes into surveying and found the apprenticeship at JLL. I didn't want to sacrifice earning a wage, so one of the biggest draws for me was getting a degree without going back to full-time education.

Always on the go

The assessment day for my apprenticeship was focused on how I could write and communicate. I think this is because property is all about people and relationships. My best piece of advice would be to get there early so you're not in a rush; I wish I'd arrived five minutes earlier!

I've been on my apprenticeship for nearly five months now. I'm in the agency team and my job is to get space rented. Every morning, I'll check my emails as there's usually a backlog. Agencies representing clients will put out a requirement for a space to rent, such as 12,000 square feet in Mayfair, and I respond with all the options we have. I'm usually out of the office for an hour or two every day to conduct viewings. Most spaces are blank canvases with no desks, carpets or painted walls, so I need to help the client see how they can use the space. It's important to be knowledgeable about the property or you won't be taken seriously, so I always prepare beforehand.

I like how quickly the time goes by and how sociable my job is. My team sits on the same bank of desks, no matter how senior people are, so we can easily tell each other about what's happening. We regularly go out for drinks after work and whenever a new property comes onto the market we host a launch event at breakfast or lunch.

I'll spend up to a year and a half in the agency team and then I'll move to a different team, such as property management, lease advisory or valuations. I'm quite keen to experience the investment side of things.

Studying online

I'm studying online for a degree in real estate management. I'm given one day every week to study and I tend to stay at home so I don't get distracted. I'm given material to read (I can buy the books or use the university's e-library) and there is a weekly webinar. I'm also given tasks to work through, such as a quiz or a video to watch.

Advice for apprentices

Be willing to take on different tasks. Instead of thinking 'Oh no, I can't do this', just ask somebody to run you through it. You should also be a little bit of a sponge. You can absorb a lot of knowledge by listening, asking questions, saying hello to people and growing your network and helping out where you can.

ROUTE IN GCSEs → BTEC → Degree apprenticeship

TARGET careers

FUTURE WISE

Delivered by Inspiring Futures

FUTUREWISE Direct

A career guidance and higher education programme

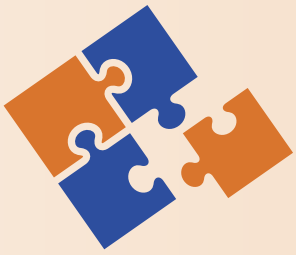
When it comes to career choices, are you feeling a little lost?

FUTUREWISE Direct is a career guidance and planning programme from Inspiring Futures that helps young people from age 15 to 23 to explore their career aspirations and make informed decisions about their future. FUTUREWISE helps students to:

Make decisions on subject choices.

Understand how your strengths, interests and personality fit together.

Consider university options and alternatives to higher education.



Find out more at **targetcareers.co.uk/futurewise**

Part of Group gti

My architecture degree course

SASHA SWANNELL

DEGREE BA architecture
UNIVERSITY Newcastle University
PREVIOUS QUALIFICATIONS
10 GCSEs, 3 A levels

I thought architecture would be a good combination of my A levels: art, physics and maths, so I decided to try it out through some work experience while at school. I spent a week at a local architecture practice and my school put me in touch with a parent who was a practising architect. I applied for work experience at their practice in London, where I spent a week creatively redesigning a train station.

I'm currently in the second year of my bachelors degree at Newcastle University, which is accredited by the Architects Registration Board (ARB) and the Royal Institute of British Architects (RIBA). This is stage one of three on the route to becoming a qualified architect. After graduating, I'll need to get 12 months' work experience, so my plan is to spend at least a year working for an architecture practice (and hopefully I'll spend some time travelling in Europe to learn about other types of architecture) before studying for part two, which is a two-year masters programme.

Life as an architecture student

My degree is creative and focuses a lot on design work. My first year taught me the fundamentals of architecture, such as how to draw architecturally (by hand and through computer software), how to think spatially and the history of architecture. My second-year modules explore more specific design and building techniques, including sustainable construction.

My design work so far includes a market for the university campus, a self-sufficient hut in Kielder Forest and a residential area in Leith, Edinburgh. These all involved trips to the sites to take photos, record videos, sketch ideas and take measurements. It is important for any architect to understand their site before doing any design work. Currently, I'm designing a four-storey residential building for fine artists, which contains a public art gallery.

I usually have four two-hour lectures a week (and the occasional seminar), but I spend most of my time in the studio working on my design projects. The tutors are there talk to me about my work and give their advice on how I can progress. It's up to you how much time you spend in the studio: I like to spend around eight hours a day at university and enjoy evenings and weekends off. I'm assessed through illustrated essays (they include sketches and diagrams) and 'crits' (where I present my work on a wall and talk my tutors through it). At the end of each year, I produce a portfolio (a book of everything I've done that year), which makes up most of my grade.

The social side

I chose to study at Newcastle for several reasons, but mainly because I wanted to live in a new city and become more independent. One of the best things about university is the social life. I joined the water polo club and I'm on the committee for the architecture society. The rest of the time, I'll hang out with my friends – we often go to live music events. My family also love visiting and I go home during the holidays.

ROUTE IN GCSEs ▸ A levels ▸ University

My nuclear engineering degree apprenticeship

GEORGIA GANNON

JOB Nuclear degree apprentice
EMPLOYER Ministry of Defence, DE&S
PREVIOUS QUALIFICATIONS 11 GCSEs, 1 AS level, 2 A levels, 1 BTEC

I've always been interested in engineering. My dad is an electrical engineer and we did a lot of engineering activities together when I was younger. I went to university but I left after two days. I wasn't enjoying it and I thought 'Why am I paying all this money to get no work experience, no salary and no trips?'. I had a gap year and worked in retail to earn some money while looking at what to do next. When I found the nuclear degree apprenticeship at DE&S, I couldn't believe my luck. The nuclear section of my physics A level was by far my favourite, but not a lot of universities offer undergraduate degrees in nuclear engineering.

Study, work and seeing confidential projects

I spent the first year of my apprenticeship at college five days a week. I started my foundation degree with UWE Bristol and completed my level 2 NVQ in performing engineering operations. I had exams on topics such as engineering maths and electrical principles and completed practical work such as milling and welding. Now I'm in my second year, I've started working at the Ministry of Defence (MOD) and I go to UWE once a week to study for my degree in nuclear engineering.

I'm a nuclear apprentice on the electrical side, so I work on submarines and strategic weapons. My apprenticeship is split into six-month placements to get a feel for the different teams within nuclear. I'm currently working on an electrical system that has an issue. I need to come up with some design solutions, whittle the options down to a final design, refine it, get the parts, build it and test it. This is really cool as it's rare to work on a project from start to end – submarines take up to 30 years to complete!

My job involves regular trips to different MOD bases. I've been on three different submarines and I've even seen a new submarine being built. I've been on a group trip to one of the biggest fusion reactors in the world and I've been on courses such as project management and a two-week nuclear introductory course. I'm also going to Washington DC soon to witness the trial of a system I'm working on. I'm so excited. Going on these trips and seeing confidential things that other people can't see is fantastic.

Tips for success

Be prepared for interviews. I did a lot of research online and had more information than they wanted, but I think it helped me stand out. My interviewers even asked me 'How did you know that?'. Don't worry about what other people are doing on the day. I was in a difficult group at my assessment centre: they shot down my ideas and wouldn't listen to me, but I was the only member of that group to get through. Once you've started your apprenticeship, don't doubt yourself and just try your best. Nobody can be annoyed at you for that. Always volunteer for things, such as going to apprentice shows and events. If you show your enthusiasm, you'll go far.

ROUTE IN GCSEs ▸ BTEC + A levels ▸ Degree apprenticeship

My quantity surveying degree apprenticeship

JAMES ANDERTON

JOB Assistant cost manager (quantity surveyor)
EMPLOYER Turner & Townsend
PREVIOUS QUALIFICATIONS
11 GCSEs, 1 AS level, 3 A levels

I kind of fell into my career. Every year, my school threw a careers fair and, almost out of desperation at the lack of a path in my life, I went. I met a representative from the Engineering Development Trust, which runs a programme where school leavers complete a year of work experience with a company before deciding what to do next. They arranged interviews with different companies and I accepted an offer from Turner & Townsend to work in its health and safety department. When the year came to an end, I was very happy to stay.

Turner & Townsend operates a hot-desking system (people don't have a set desk). My move into quantity surveying came about when a senior cost manager sat next to me one day and we got talking. He suggested I pursue an apprenticeship in cost management and he is now my mentor.

From the office to the hockey pitch

My job is to get the best value for money for a client's construction project. I measure the elements of the project (such as floor areas, foundations and wall heights) and make sure we're using the most cost-effective materials and methods to build it. I then provide estimates of the final cost so that my clients know how large their budget needs to be. Construction projects can take a long time and have many different stages of development. I chip in at different stages on different jobs. I'm mostly office-based but I do go out onto sites to complete valuations (evaluating how much a project has cost so far) or to attend large site meetings.

I've worked on several projects, including various jobs for St George's Park (the FA's national football centre), the refurbishment of a school in Wolverhampton and multiple university buildings, including the Sinclair Building at Oxford Brookes University and various projects for the University of Warwick.

My employer sponsors me to go to Nottingham Trent University once a week to study for my degree in quantity surveying and construction commercial management. I need to study in my spare time, especially close to deadlines. If I stay on top of it, it's only an hour or two at the weekend. It's important to 'work smart' so I can limit how much work I do at home. For example, I have a long commute to work, so I create flip cards that I use to revise on the train. This gives me more free time to have a social life and play hockey.

The highlights

The start of my apprenticeship was hard as I knew nothing about quantity surveying but, as time has gone on, receiving positive feedback on the work that I've done is great. I love seeing myself progress and improve. For example, my team on the school in Wolverhampton won the internal Team of the Year award. I've matured a lot and my apprenticeship has given me more motivation. It's also given me a goal: becoming a chartered quantity surveyor and rising up the ranks.

ROUTE IN GCSEs A levels Degree apprenticeship

My civil engineering apprenticeship

RUTH WATSON

JOB Civil engineering apprentice
EMPLOYER Mott MacDonald
PREVIOUS QUALIFICATIONS
11 GCSEs, 1 AS level, 3 A levels

I originally planned to study engineering at university, but a family member became ill during my A levels and I didn't do as well as I had hoped to. I was quite worried at first but after researching options online, I found out about civil engineering apprenticeships. Looking back, an apprenticeship was best for me. I'm a hands-on learner so applying what I'm doing at college straight away at work has been great.

My gap year and applications

I took a gap year after sixth form. I spent six weeks travelling in South East Asia and three months volunteering in South America, so I applied for apprenticeships while I was in Bolivia. My application to Mott MacDonald started with an online application. I answered five or six questions about me, my passions and career goals. I then went to its office to take a maths and English test. The final stage was an interview. I think I stood out because I could show I was passionate about engineering. While at school, I'd attended a Headstart course in chemical engineering and a women in engineering event.

Working and living in Leeds

I moved away from home for my apprenticeship as it is based in Leeds. Luckily, I had friends at university in Leeds, so I moved into a student house with them. The hardest part has been not going home as much as them (they have long holidays), but it's great to be able to socialise with them.

I am in the reservoir team at Mott MacDonald Bentley. I've worked on various reservoir safety projects in North Yorkshire: I'm currently investigating a reservoir that has had issues with its valves and penstocks and how we can make it safe again. My job involves completing calculations, drawing up designs (using 3D modelling), planning and project management. I also meet with clients and site teams and I try to visit the site once a week.

Building up my knowledge

I go to college one day a week from 9.00 am to 7.30 pm for three three-hour lessons. We're taught the content in the first half of each class and spend the second half working on assignments. I try to get all my assignments done at college so I'm free to go to the pub of an evening and do what I want at the weekend.

My employer also provides training: I've been on a course on a drawing software, and I regularly attend sessions on topics such as 3D modelling and corrosion. When I finish my apprenticeship, I'll have a level 5 BTEC in civil engineering and then I'll do a top-up year to get my degree.

I came into the industry with no knowledge of civil engineering, but I've learned so much in a year. Completing my first calculation was an important achievement for me. It took me a week to complete it, but now I feel comfortable doing calculations. I was also recently named the New Civil Engineering Apprentice of the Year!

ROUTE IN GCSEs A levels Higher apprenticeship

Inspiring the next generation

We have exciting opportunities to join our apprenticeship programmes, designed to give you the skills you need to become a qualified cable jointer, electrical fitter or overhead linesperson in the power distribution industry.

Find out more

ukpowernetworkscareers.co.uk

futuretalent@ukpowernetworks.co.uk

2018 200 most popular employers for SCHOOL LEAVERS

THE SUNDAY TIMES 25 BEST BIG COMPANIES TO WORK FOR 2018

NES NATIONAL EQUALITY STANDARD UK Power Networks has been certified

RANKED 16th

INVESTORS IN PEOPLE | Gold

ukpowernetworks.co.uk

UK Power Networks
Delivering your electricity

TARGET careers

FUTURE WISE

2019
Edition 5

Guide to your future

Available online at targetcareers.co.uk

Published by

targetcareers.co.uk

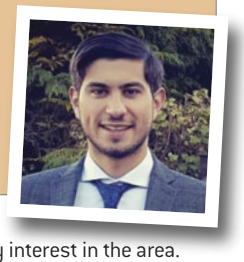
Featuring 200 most popular employers for SCHOOL LEAVERS

Research by UKtrendence RESEARCH

My building services engineering apprenticeship

BRETT WHITEHEAD

JOB Mechanical engineer
EMPLOYER AECOM
PREVIOUS QUALIFICATIONS
10 GCSEs, 1 AS level, 3 A levels



I spent my school work experience week at a construction firm, which confirmed my interest in the area. I started looking into apprenticeships in my final year of A levels as my January exams didn't go as well as planned, but gaining further qualifications was important to me. I searched online for apprenticeships near me and found AECOM's St Albans office.

Building my career

I'm a mechanical engineer and I'm part of the MEP (mechanical, electrical and plumbing) design team. When I first joined the company in 2012 I spent four days a week at work and one day at college. I was assisting with tasks such as using CAD software to produce and update drawings and doing basic calculations, such as thermal modelling and ductwork or pipework sizing. I completed my HNC (the first part of my apprenticeship) in 2014 and went on to study for my BEng degree in building services engineering, which I finished just over a year ago. At the same time as progressing in my studies, I was able to take on additional responsibilities and climb the career ladder. I'm now leading the mechanical design for projects.

During my apprenticeship I worked on venues for the Rio 2016 Olympic and Paralympic Games, the Al Wakrah Stadium for the 2022 FIFA World Cup in Qatar and the Old Bailey in London. The project I'm currently leading is the mechanical design for the refurbishment of the British Embassy in Washington. It's incredible to work on these projects and point them out to my family when they're on the TV. I also get a lot of job satisfaction out of the more practical projects. I've worked on a hospital, which will save thousands of lives. I'm based in the office, but I go out to site every now and then, including a recent trip to Washington. I'm not sure I'd have got this much experience and responsibility by now if I'd gone to university.

Now that I've finished my degree, my focus is on becoming a chartered engineer – hopefully in two years' time. As an engineer, continued professional development (CPD) is important to keep my skills and knowledge up-to-date. For example, my employer runs weekly sessions on new technologies or systems, new regulations or general industry developments.

How to be the best apprentice

Be enthusiastic. You as a person, your passion and your work ethic are more important than technical knowledge at this stage. Dedicate time to your studies. I used to allocate a day at the weekend. During exam time, my employer gave me a day's study leave per exam and I booked some more time off as I wanted to get the top grades. You do have to put your personal life on hold during exam periods but it's no different to A levels or university.

Work to your strengths but appreciate your weaknesses and work on them. Ask questions about the tasks you're given or when you're not sure of something. This is how you learn and become more useful to your team.

ROUTE IN GCSEs + A levels ▸ Higher apprenticeship ▸ Sponsored degree

My electrical fitting apprenticeship

DARBIE HUGHES

JOB Electrical fitting apprentice
EMPLOYER UK Power Networks
PREVIOUS QUALIFICATIONS
11 GCSEs, 1 BTEC level 2,
3 BTECs level 3

I'd always been into IT and science, so I knew I wanted to do something technical; with my A levels it wouldn't have made sense if I suddenly decided to become a dancer! I was sure that I didn't want to spend another three years sat in a classroom, so I decided to look for something more practical than university. My uncle works for UK Power Networks and so I was lucky he was able to sit me down and run me through what his job involved and how the company owned and maintained power cables and substations, which deliver electricity to more than 8 million homes and businesses across the south-east, London and east of England. Electrical fitting wasn't an area that I had been interested in before, but after speaking to him I felt comfortable that UK Power Networks would be a place where I could have a career. I applied for an apprenticeship.

After uploading my CV to an online application form, I had an online video interview, an interview with a group of other candidates and an interview with a panel of recruiters. This was followed by a residential assessment centre, in which we did exercises designed to assess our skills. The whole process was unlike anything I'd done before, but it gave me a chance to meet and bond with the people I'd be spending the apprenticeship with.

Life as an apprentice

Most of the first year of my apprenticeship was spent in training, which involved a lot of travelling to different training centres and staying in hotels. I also attended college in Somerset to work towards my professional qualification in power engineering, which I did in month-long blocks. Balancing studying with training and work was never an issue for me, but it did take a while to get used to spending so long away from home. It was definitely a big, sudden change, but I'm glad I took this risk. I've gained qualifications in areas such as street works, confined spaces and manual handling. My highlight of the apprenticeship so far was when my entire intake found out we had passed our qualifications at the same time. It was a real relief to find that all our effort had paid off.

I'm now in the third year of my apprenticeship. I spend my time out on site being supervised by crafts people, helping to keep electrical substations up and running. I love that I am getting a real taste of what working in fitting is like. When a fault occurs, I'm able to put the theory that I've learned into practice and fix the problem. I'm gaining experience and qualifications and it's a foot in the door at a massive company. I would love to take my ambition as far as I can, and aspire to one day become a fully qualified engineer.

Advice to students

Put yourself out there and talk to people! Hearing first hand from people is the best way to learn about the opportunities open to you. In a new situation, stand out and impress employers by talking to your colleagues and be the most helpful person you can be.

ROUTE IN GCSEs ▸ BTECs ▸ Advanced apprenticeship

APPLYING TO UNI

Brighten up your uni personal statement

Admissions tutors use the UCAS personal statement to decide who to invite to an interview or to make offers to, so use the space wisely. Here's what you need to include in your 4,000 characters.

What admissions tutors want

Admissions tutors want to know the answer to these three questions, which you can use to structure your statement:

- why do you want to study the course?
- what have you done that makes you suitable for the course?
- what else have you done that means you will do well on the course and contribute to the university?

Tutors want to see examples of what has sparked and developed your interest in the subject, and that you have the skills to cope with the demands of the course and university life. They also want you to explain *how* and *why* they have influenced you.

Be yourself

Don't be tempted to copy someone else's statement: UCAS has software to pick up on this and the tutors genuinely want to hear about you.

Think beyond school or college

Universities want to see that your interest in your chosen subject extends to your hobbies and free time. For example, you might enjoy reading industry magazines or websites. Explain how you've learned from these experiences.

Applying for different courses

If you are applying for a number of courses, you should avoid the specifics of individual courses and talk about what interests you about engineering, construction or property as a whole. You can find more tips at **targetcareers.co.uk**.

Find out more at targetcareers.co.uk

Write about...

- What you find interesting about the subject (you don't need to define the subject).
- Anything practical you've done that ties into your course: if you are applying for an automotive engineering course and you've rebuilt engines in your spare time, say so.
- Any industry work experience – but relevant work experience *isn't* essential.
- Anything about your previous subjects that made you feel this course is right for you.
- Any topics you have read about that are relevant to the subject, including articles published by professional bodies, or any discussions you have had with professionals in the industry.
- Specific career goals if you have them (use pages 19–35 to find out more about job roles).
- How any work experience, part-time jobs or extracurricular activities have developed skills that will help you on the course and at university. For example, many construction, engineering and property courses include group assessments so you could write about how your time playing football has developed your teamworking skills.

Your interview blueprint – what to expect

Before deciding to offer you a place, some universities invite you for an interview (sometimes known as a recruitment day or assessment). This is more likely if you are applying for an engineering course and will definitely be the case if you are applying for a course that is sponsored by an employer.

What happens on the day

Many universities invite a number of students on the same day and give them a tour of the faculty and campus, with lots of opportunities to meet current students. You are often also given a group exercise to complete and an individual interview, which can last between 20 minutes and an hour. Your interviewers will be admissions tutors/lecturers but, if the course is employer sponsored, you will also meet and be asked questions by different HR managers to match you to an employer.

The interview days vary in how formal they are, but it's wise to dress smartly. At heart, the interview is just a conversation, so prepare answers to typical questions (see the box on the right) but don't be afraid to ask your own questions to find out more about the subject, the course and what recent graduates do now.

Group and technical exercises

The interviewers want to see how passionate you are about the subject and whether you have the ability to learn while on the course. So they may use group exercises to see how you would discuss topics in class (be friendly, be interested, contribute, but don't talk over others) and may ask you technical questions (don't worry if you go wrong: the lecturers are more interested in your workings and whether you respond to their hints).

Likely interview questions

You might be asked about your reasons for applying, for example:

- Why do you want to study this subject specifically (as opposed to a similar one)?
- Why have you applied to this university in particular?
- Tell us about a construction/ engineering/property news story you've read.
- What do you expect to get out of the course and the university?
- Why did you choose your A levels (or equivalent)?
- What are your interests outside of studying?

You might be asked for your thoughts about your future career, for example:

- Do you have any career goals? What are they?
- What roles would this degree qualify you to do?
- What does a [eg quantity surveyor] do? What would you do day to day in the role?
- What skills would you need in order to be a good [eg quantity surveyor]?

If you have applied for an engineering or another maths-based degree, you might also be asked:

- Maths or physics questions (typically from the A level syllabus).
- To apply your knowledge of maths or physics to the outside world – an example question from the University of Oxford requires you to consider the engineering design of a vertical-faced gravity dam wall and discuss the forces acting on the wall.

Preparing your application toolkit

Once you've found the perfect apprenticeship for you, it's time to apply! You will usually need to fill out an application form (see page 55) and/or submit a CV and covering letter (see pages 52–54). If you're successful, you are likely to be invited to an interview or assessment centre (see pages 56–57). But, before you do any of that, you need to assemble your application toolkit.

Employer research

Go to the employer's website and make notes on what the company does, any recent products or projects that interest you, what your job will involve, the training you'll receive and the skills you'll need. You should also read up on industry news, especially any recent news stories that relate to the employer. Think about how you would use any of this information to answer questions such as 'What do you know about us?' or 'Why do you want to work for us?'

Reasons for applying

At any point during the application process, you could be asked questions along the lines of 'Why do you want this apprenticeship?'. You can prepare by coming up with three or four reasons.

Look carefully at the apprenticeship listing and pay attention to the qualifications and training you'll receive and the work you'll be doing. Come up with two or three reasons why this opportunity will help you to reach your career goals and why the structure and content of the apprenticeship is perfect for you. You can also link back to your work experience, volunteering and activities in school/college and outside. What do you enjoy doing and what are you good at? How does this match up with your decision to seek work in that industry?

Evidence of your skills and strengths

You can't just say that you have the skills employers want – you need to give examples. You could draw them from school/college, your family, sports teams, part-time job(s), work experience, the Guides, Scouts or Cadets, other hobbies or community activities. Apprenticeship listings will often list the skills that are especially important but the table opposite shows some of the common skills that employers are looking for and what they involve. Take some time to think of one or two examples of times when you've demonstrated each of these.

You don't typically need technical qualifications (such as a level 2 or 3 NVQ) to get an apprenticeship, but, if you do, be prepared for employers to ask about these. Brush up on your technical skills and get ready to show them off in your applications and during interviews and assessment centres.

A few finishing touches

- There is usually a set word limit for each answer on the application form: be careful not to go over. At the same time, you shouldn't write very short responses that don't give the employer enough to go on.

Find out more at targetcareers.co.uk

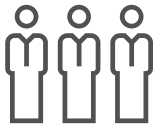
- Make sure you proofread your application – or ask somebody you trust (your parents or your teacher) if they would be happy to. Even when you're applying online, it's still worth printing off a hard copy of your application to check it through. Sometimes you can spot errors on a printed page that are easy to miss on screen.
- At an interview, the employer is likely to ask you about the information you've provided in your application form. So, before you submit your initial application, make sure you keep a copy of it. That way, you can look over it before your interview and refresh your memory on what you wrote.

The skills worth showing off

COMMUNICATION

Can you choose the right form of communication for the situation in hand (eg face to face, phone call, email)? Can you adapt your communication style depending on who you are talking to (eg a friend, a customer, your boss)? Can you adapt your communication style according to what you need to achieve (eg to inspire teammates before a game)? Are you able to talk confidently in front of a group? Can you write a report?

TEAMWORK

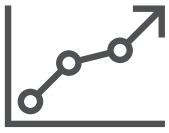


Have you worked successfully in groups? Do you help your teammates out if they are struggling or encourage quiet members to speak up? Do you consider how your actions affect others? Can you create a positive atmosphere?

PLANNING AND ORGANISATION

Do you think ahead and set out action plans? Do you make a 'plan B' in case 'plan A' doesn't work out? Can you prioritise and juggle tasks to meet deadlines? Can you give examples from outside your academic work?

COMMERCIAL AWARENESS



Do you understand how the company you are applying to makes money? Do you know how your job would contribute to that?

SELF-MOTIVATION

Are you able to motivate yourself to do something? Have you set yourself a personal target and then achieved it?

PROBLEM SOLVING

Have you found ways around obstacles? Do you suggest solutions and figure out new ways of doing things? Can you judge when to ask for help?

CUSTOMER SERVICE

Have you had experience of working with clients or customers? Do you know how to communicate professionally? Have you successfully handled angry or troublesome customers?

The foundations of a strong CV

Whether you're thinking of applying for work experience, an entry-level job, an apprenticeship or a training programme, chances are you'll need to put together a CV. This is a standard part of the application process and helps to give employers a clear idea of whether your written communication skills are up to scratch. Your CV needs to be easy to read and understand; it should cover all the necessary information and shouldn't include any spelling and grammar mistakes that will put the recruiter off.

There is no one right way to put together a CV. There are some standard headings that you will find useful and there are some common errors you need to avoid. However, you can adapt the format to suit you and reflect your strengths. A CV is a personal document and everybody's CV is different.

You should also update your CV for each job application and adapt it to show you have the qualities and qualifications the employer is specifically looking for.

Key sections to include

Our example CV will give you ideas and help you get started. It has notes on the level of detail you need to include, how your CV might evolve over time and some optional extras. This is the basic information you need to cover:

- **Personal details and contact information** – this is essential.
- **Education** – again, essential. Our CV uses 'Education and qualifications' as a heading. If you have done a relevant training course you could highlight this by using 'Training' as a separate heading.
- **Employment history and work experience** – another must-have. You could present this as two separate sections.
- **Voluntary work**. You could give this its own separate heading, create a 'Work experience and voluntary work' section, or give details of your voluntary work in your 'Interests' section.
- **Skills**. When you are describing your work experience and voluntary activities, look for ways to highlight skills such as communication and teamworking. If you have specific relevant skills you can draw attention to them by putting them in a section of their own.
- **Strengths and achievements**. You could give these a section of their own, or cover them in the other sections.

What to avoid

- Most importantly of all, don't lie. If you're found out you could lose your job and, even worse, in some cases you might be liable for criminal prosecution.
- Don't waffle. Your CV should be no longer than two pages and at this stage it's more likely to be one page, as in our example. You can use bullet points and you don't have to use full sentences.
- Don't be too fancy or too informal. Describe what you can do in a direct, confident way. Use a professional-looking font such as Times New Roman, Arial, Verdana or Cambria.
- Don't leave in typos. Check your spelling and grammar and get somebody you trust to read your CV and check it again. Employers spend 30 seconds on average scanning a CV, so make sure you don't give them any reasons to reject you based on a silly mistake.

You don't need to say 'Curriculum Vitae' at the start of your CV. Begin with your name.

Include contact details: phone numbers, an address and an email address (make sure this is sensible and sounds professional). You don't need to include your date of birth, your age or a photo.

If you've attended more than one secondary school or college, list the most recent first. You don't need to include your primary school.

If the work experience or job you are applying for specifies that you need specific exam grades, show that you have them. If you haven't achieved much in the way of qualifications and have shown you meet the requirements, you could list the subjects you studied without including your grades and concentrate on highlighting your strengths in other areas.

Employers will be keen to find out about your skills, for example, IT skills, team working, customer service and communication skills. If it's relevant to the role, mention that you have a full clean driving licence (if you have).

Putting any voluntary work you have done on your CV helps to create the impression that you are committed and motivated. Include any fundraising, involvement in teams, positions of responsibility and awards.

Find out more at targetcareers.co.uk

JOHN THORPE

17a Christmas Way, Abingdon, Oxon OX99 2PQ

Email: johnthorpe@inter.net

Tel: 01449 123456 Mobile: 07759 234567

Education and qualifications

2012–present *Abingdon Secondary School*

A levels (predicted): maths (B), physics (C), chemistry (C)
BTEC level 2 diploma in engineering (Merit)
GSCEs: maths (A), physics (A), chemistry (B), biology (C), English literature (C), English language (B), geography (C), IT (B)

Employment and work experience

2018 (two-week placement, August) *Civil Engineers & Building Design, High Street, Abingdon*
Shadowed design team and attended design meetings. Used technical computer programs, including AutoCAD 2018. Helped to compile reports for clients. Performed necessary administrative tasks and gained an understanding of all departments.

2018 (July) *South Oxfordshire Holiday Park, Wallingford*
Helped caretaker with repairs and maintenance, including cleaning and gardening.

2015–present *Customer service assistant, Tesco, Abingdon (part time)*
Working on the checkout and at the customer service desk. Has helped develop my commercial awareness and communication skills.

IT skills

Good working knowledge of AutoCAD 2018, Excel and Word.

Interests

I am a keen footballer and have played in the school team for the last five years. In the year I was captain (2016) we came second in the county league. I have volunteered as a football coach at local primary schools' after-school clubs and have tried and enjoyed many other outdoor activities, including kayaking and climbing.

References available upon request

If you aren't writing a covering letter, you can include a personal statement at the beginning of your CV that describes your strengths and why you are interested in the career. If you do this, keep it brief – ideally two to three lines and not more than 60 words. We've started this CV with education and qualifications instead. Employers will expect to see education and qualifications covered near the top of your CV.

Employers won't expect you to have lots of relevant work experience, but they will be interested in any that you do have. Give some details about what you learned and contributed.

You can provide a brief description of any full-time or part-time jobs you have had, explaining your responsibilities and achievements.

You don't have to include a section on your interests, but this can be a good way to tell employers about your strengths and give them a sense of what you might be like to work with.

You don't have to include this. Employers will assume you have references and will follow them up if you get through to the next stage. You definitely don't need to include contact details for them.

The key to a well-crafted covering letter

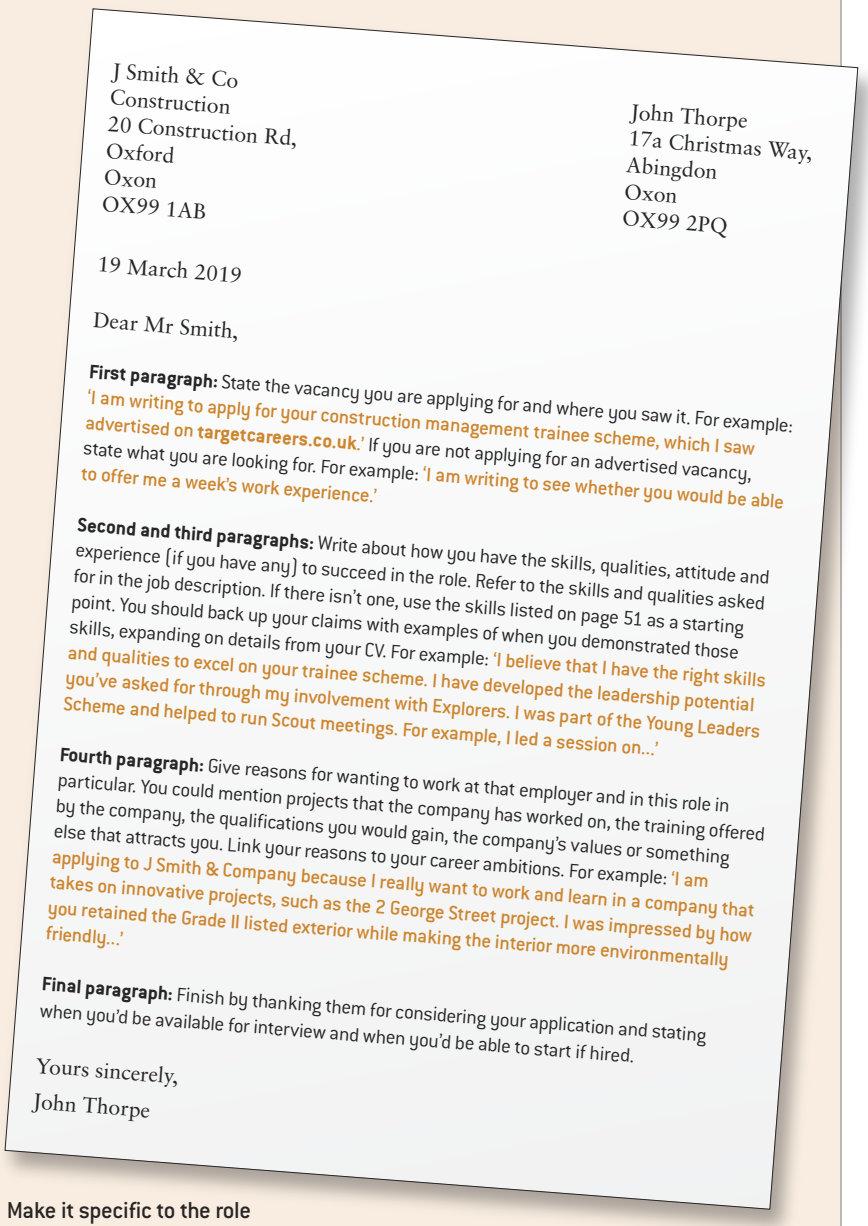
A covering letter is a letter or email that you send in with your CV to explain why you are the right person for the vacancy and why you want to work for that employer in particular. If you are sending your CV via email or through the post (rare nowadays), you must also send in a covering letter. If you are applying for an apprenticeship via an online application form, you might be given the option of uploading a covering letter – if so, do so. It's an opportunity to show employers how much you want the role.

There are two ways to send your covering letter via email and both ways are equally fine unless the employer has specifically asked for one way:

1. Attach both the CV and the covering letter as MS Word documents or PDFs to your email. Make the email a brief message saying that your application for the vacancy (give the relevant details) is attached.
2. Write the whole of the covering letter directly into the email. Attach your CV.

Follow these formatting rules

If you can, address it to a specific person responsible for hiring, eg 'Dear Mr Smith'. If you aren't given a name, address it to 'Dear Sir/Madam'. Sign off the letter with 'Yours sincerely' if it is to a named person and 'Yours faithfully' if to Sir/Madam. Include your home address and the date in the top right corner of the letter if the covering letter is in a separate document. If your covering letter is the text of an email, include your contact details at the end. Your letter shouldn't be longer than one page of A4.



J Smith & Co
Construction
20 Construction Rd,
Oxford
Oxon
OX99 1AB

John Thorpe
17a Christmas Way,
Abingdon
Oxon
OX99 2PQ

19 March 2019

Dear Mr Smith,

First paragraph: State the vacancy you are applying for and where you saw it. For example: 'I am writing to apply for your construction management trainee scheme, which I saw advertised on **targetcareers.co.uk**.' If you are not applying for an advertised vacancy, state what you are looking for. For example: 'I am writing to see whether you would be able to offer me a week's work experience.'

Second and third paragraphs: Write about how you have the skills, qualities, attitude and experience (if you have any) to succeed in the role. Refer to the skills and qualities asked for in the job description. If there isn't one, use the skills listed on page 51 as a starting point. You should back up your claims with examples of when you demonstrated those skills, expanding on details from your CV. For example: 'I believe that I have the right skills and qualities to excel on your trainee scheme. I have developed the leadership potential you've asked for through my involvement with Explorers. I was part of the Young Leaders Scheme and helped to run Scout meetings. For example, I led a session on...'

Fourth paragraph: Give reasons for wanting to work at that employer and in this role in particular. You could mention projects that the company has worked on, the training offered by the company, the qualifications you would gain, the company's values or something else that attracts you. Link your reasons to your career ambitions. For example: 'I am applying to J Smith & Company because I really want to work and learn in a company that takes on innovative projects, such as the 2 George Street project. I was impressed by how you retained the Grade II listed exterior while making the interior more environmentally friendly...'

Final paragraph: Finish by thanking them for considering your application and stating when you'd be available for interview and when you'd be able to start if hired.

Yours sincerely,
John Thorpe

Make it specific to the role

The secret to a covering letter is to make it very specific to the company and the vacancy you are applying to. If you can send in the same covering letter to a different company purely by changing the name of the company it is addressed to, your letter isn't specific enough. The example above should help you to 'tailor' your letter to the role and make recruiters want to interview you.

Get up to speed with application forms

Application forms are usually the first stage in apprenticeship and training programme applications. The format of the form and the questions asked will change depending on the employer and the opportunity. Most forms will firstly ask you to fill in your contact details and information about your education, your personal background and your work experience history. The form may also give you the option of uploading your CV and covering letter.

Take your time to answer application questions. Make sure that there are no simple mistakes in your answers. You may want to type your answer into a word processing app or program. You can then see if your answer meets a word count and print off a copy to check for mistakes. Pay attention to the employer's branding and make sure you've not misspelled the name of a product, for instance. It is also worth saving a copy of your answers so you can refer back to them later in the application process.

Why are you applying?

A common application question will ask you about your motivations for applying and your interest in the employer, the apprenticeship and the career sector. Employers want to see that you have good reasons for applying. Think about hobbies, work experience and school activities.

Talking about what you're good at and what you enjoy will help you explain why you are interested in a certain industry or career path. Refer to specific details of the work or training that the employer is offering and match these to your career ambitions.

Why are you the right choice?

Show employers you've got the skills for the job and back up your statements with evidence. These examples don't have to be from work experience: you can talk about extracurricular activities, school, volunteering, hobbies or things you've done with your family. When talking about times when you've worked in a group, focus on what you did to contribute to the team's success.

Online assessments

Unfortunately, just because you're leaving education, it doesn't mean you've seen the end of assessments. It's likely you'll need to complete at least one online test as part of your applications. These tests tend to be short, but you should always check if there is a time limit or not.

Common tests you may encounter include:

- **Numerical reasoning tests.** These tests will check your basic maths skills, as well as your ability to understand graphs, data and statistics. If maths isn't your strong point, a GCSE maths revision guide can help you prepare.
- **Verbal reasoning tests.** These see whether you can understand complex written information. Can you pick out and interpret information from written statements and arguments?
- **Situational judgement tests and personality questionnaires.** Rather than testing a specific skill, these assessments ask how you would behave in a specific situation and what you would be like to work with. It's always best to answer with an honest response.

You can find out more information about application forms and online assessments at **targetcareers.co.uk**. You may also be able to find practice tests through your school, college or online.

APPRENTICESHIP APPLICATIONS AND INTERVIEWS

Sparkle at interviews and assessment days

If recruiters like your applications, you might be asked to take part in video or telephone interviews and/or attend face-to-face interviews. You could be interviewed by a member of the HR team and/or senior management. You could be asked about why you want to work for the company and what makes you suitable for the role. If the role is technical, you may also be questioned on some specialist areas of knowledge.

In preparation, brush up on your research into the employer, the industry and the role. Make sure you've looked through any advice available on the employer's website and re-read your application.

Take a look at the following possible interview questions and how to answer them.

Why do you want to work for us?

This question is testing how much you know about the company and your motivation. Use what you have read on the website (don't just parrot) and link it with your own future career goals.

What makes you suitable for the job?

If you've done well in your studies, mention it, but also talk about the soft skills that you have and use examples from your past experiences to back them up. For example, if you say you're determined, you need to give evidence. You might have fought your way through martial arts tournaments out of school for instance. Go back over your own experiences and find examples of skills to impress the employer.

Give an example of a difficult situation you've faced and how you dealt with it.
This doesn't need to be a nuclear standoff that you resolved. Perhaps you've had to look after old or ill relatives or a friend who got into trouble. Break down the situation using the STAR (situation, task, action, result) method and explain to the recruiter all the steps you took.

The open-ended question
You may be asked to speak a little about yourself, about one specific event listed on your CV or even about your last holiday. While the recruiter does want to know more about you, this is more of a test of your communication skills. Speak clearly, confidently and concisely and be ready to provide more details if necessary.

Technical questions
These are rare, but if you have done a related qualification you may be given an example problem related to the work that the company does. For example, if you were going for a trade apprenticeship, you might be shown a blueprint of a particular piece of equipment and asked to explain how it works.

Find out more at **targetcareers.co.uk**

An assessment centre – a longer interview
Think of an assessment centre as a full working day (9.00 am to 5.00 pm) of interviews, tests and other exercises to assess your suitability for a company. As a general rule, it is the larger engineering and construction apprenticeships and school leaver schemes that use assessment centres, such as Balfour Beatty or Laing O'Rourke. Assessment centres bring groups of candidates together and can include some or all of the following.

Aptitude tests
A short exam set to a tight time limit. These are often multiple choice and are designed to test your natural ability with numbers, logic, verbal reasoning or other aptitudes.

Group exercises
These aim to discover how you'll work as part of a team and the business. For example, an employer may ask you to work together to organise a list of pressing issues.

Presentations
You may be asked to prepare a presentation beforehand. You could be given a specific subject to present on or you might have some scope to choose your own topic. Expect to be asked questions at the end.

Social time
Sometimes structured, sometimes not, there is normally an opportunity to talk (although not too informally!) with recruiters, managers and current apprentices at the company.

How to shine on the day

Dress for success.
For interviews, you should always be dressed smartly. You may be invited out to a rural office or a construction site, but you'll still need a smart trouser/skirt suit.

Bring your papers, please.
Your initial application or CV, personal statement (if you have one) and any related coursework could come in handy if you can't remember exact details in the interview.

Think about the little things.
It's safer not to post on social media about the company as they may see it. Your voicemail message should just state your name and request a name and number for the caller. Keep your phone off or on silent during an interview.

Have breakfast and make sure you're hydrated before you go.
You don't want to pass out due to interview nerves. It's OK to ask for a drink of water in your interview.

Prepare your own questions.
You will be asked if you have any, so make the most of this opportunity to find out more about the company or role.

Give yourself time.
Nothing makes a bad impression like turning up late. Practise the journey beforehand if you can.

A–Z of organisations who want to hear from you

Opportunities

Profile page		Intermediate apprenticeships	Advanced apprenticeships	Higher apprenticeships	Technician/foundation training programme	Undergraduate placements/internships	Graduate programme
59	**AECOM**		•	•		•	•
60	**Airbus**	•		•	•	•	•
61	**Atkins**		•	•			
62	**Balfour Beatty**	•	•	•	•	•	•
63	**CITB**	•	•	•			
64	**Laing O'Rourke**	•	•	•	•	•	•
65	**Mace**		•	•		•	•
66	**Ministry of Defence, DE&S**		•				•
67	**Mott MacDonald**		•	•		•	•
68	**Redrow Homes**	•	•	•	•	•	•
69	**Turner & Townsend**			•			
70	**UK Power Networks**		•			•	•
71	**Wates**	•	•	•	•	•	•

Find out more about the employers

AECOM

Business facts

AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, see how we deliver what others can only imagine at aecom.com and @AECOM.

AECOM Apprentices make a real difference to the built and natural environment in which we live, developing and implementing innovative solutions to the world's most complex challenges.

Delivering clean water and energy. Building iconic skyscrapers. Planning new cities. Restoring damaged environments. Connecting people and economies with roads, bridges, tunnels and transit systems. Designing parks where children play. Helping governments maintain stability and security. AECOM connects expertise across services, markets, and geographies to deliver transformative outcomes.

We have Advanced, Higher, and Degree Apprenticeship opportunities across the UK & Ireland. We have opportunities in Building Engineering; Roads, Bridge & Rail Engineering; Quantity Surveying, Building Surveying & Project Management; Water Engineering; and Transport & Development Planning.

Our apprentices will join our 2 year ADVANCE programme. Here you will attend an induction with your piers to provide you with an overview of the AECOM business and the development programme. You will also attend several learning modules covering areas like team building, presenting, client relationships and commercial awareness. Alongside this you will receive on the job technical training within your team, and complete a number of online training modules through AECOM University.

All our apprentices are placed on a levy funded course at college or university. This can be either day or block release, or distance learning. Subject to the different processional institutions we support our apprentices towards, you will be supported towards Engineering Technician status, and/or subsequently Incorporated or Chartered status.

We have Advanced, Higher and Degree Apprenticeship opportunities across the UK and Ireland within Engineering, Quantity Surveying, Project Management, Transport Planning, and Environment.

Job roles

• civil engineer • electrical engineer • mechanical engineer • quantity surveyor • structural engineer • project management • transport planning • development planning

Salary

£13,000–£17,000

Opportunities on offer

• advanced apprenticeships • higher apprenticeships • undergraduate placements/internships • graduate programme

Sponsorship throughout university

• throughout

Work experience offered to

• school students • further education college/sixth form students • university students

Application deadline

We run rolling recruitment

Locations

■ Regions with opportunities

In the 200 most popular employers for school leavers 2018/19

Airbus

Business facts

More about us:

Airbus is an international pioneer in the aerospace industry and a leader in designing, manufacturing and delivering aerospace products, services and solutions to customers on a global scale. We believe that it's not just what we make, but how we make it that counts; promoting responsible, sustainable and inclusive business practices and acting with integrity. Our people work with passion and determination to make the world a more connected, safer and smarter place, on the ground, in the sky and in space.

At Airbus, our people work with passion and determination to build and create amazing products – perhaps an aircraft you may have already have flown on, or the satellites that help keep you connected! So, we're looking for people who have a passion for learning and want to work in an industry that's always looking to the future.

About our Apprenticeships

Apprenticeships are evolving in the UK, and Airbus is proud to be involved in leading this change. Offering opportunities across a range of career paths, whether on the manufacturing shop floor, in business operations or in the design office, all our apprentices benefit from working alongside world-class professionals in an environment where everyone has the same goal: to the be best they can possibly be.

Joining an apprenticeship programme with Airbus is the ideal way to gain valuable qualifications and experience while beginning your career with us. We consider our apprentices to be ideally qualified, with the necessary skills, knowledge and experience to enable them to make an immediate contribution when they enter the workforce.

Our UK programmes last from three to five years and have been carefully designed to give you valuable practical training while you complete your college or university studies. The best part is that we offer opportunities across a range of career paths. There are different entry options for you to choose from depending on your level of educational achievement, abilities and interests.

Our apprenticeships all have one thing in common: they provide a clear route for you to make your career fly at Airbus. And we haven't told you the best part yet: you also get to represent Airbus at a wide variety of events such as air shows, careers events and schools' liaison activities, so you can tell people about what you do.

"I like that my day-to-day work is so varied, one day I could be working on small tools and the next on the full wing jig. Airbus is a really supportive employer and since joining, I have learnt how to apply my knowledge to real life situations. I am constantly learning something new every day, it's really rewarding."

Katherine, Craft Apprentice

Contact details

Email: apprentices@airbus.com

Website: www.jobs.airbus.com

Social media

AirbusCareers or @AirbusCareers.

AirbusCareers or @AirbusCareers.

company/AirbusGroup or Airbus.

WeAreAirbus or We Are Airbus.

Job roles

• Engineering degree apprenticeship • Business apprenticeship • Digital & technology solutions degree apprenticeship • Craft apprenticeship • Technical apprenticeship

Opportunities on offer

• intermediate apprenticeships • higher apprenticeships • technician/foundation training programme • undergraduate placements/ internships • graduate programme

Sponsorship throughout university

• throughout

Work experience offered to

• school students • further education college/sixth form students • university students

Application deadline

Check website

Locations

Regions with opportunities

In the 200 most popular employers for school leavers 2018/19

Atkins

Business facts

SNC-Lavalin's Atkins is a people business. We know that our success is due to the hard work and dedication of our worldwide team of experts.

From our offices in the UK, Europe, the Middle East, North America and Asia Pacific, we seek technical excellence and innovation, with the goal of exceeding the expectations of our clients on each and every project. We are proud to have created a collaborative culture and continuous learning environment in which our people thrive, and we're always looking for talented professionals to join our team.

Atkins is looking for bright thinkers like you. We're one of the world's most respected design, engineering and project management consultancies and our mission is to drive innovation that enhances the lives of people everywhere.

Join the Apprenticeship Scheme at Atkins and you'll be welcomed into a world of opportunity with our engineering careers. You'll benefit from being part of a global company that employs more than 50,000 people across the globe, including 8,500 in the UK. From day one you'll be earning a competitive salary, working on complex projects for major clients. While you're gaining experience learning from industry leaders, you'll also be working towards your professional qualifications.

Our mission is to drive innovation that protects the environment and enhances the lives of people everywhere. As one of the world's leading engineering consultancies, we're already solving tomorrow's energy challenges, developing new technology for Smart Motorways, and through projects like Crossrail, improving life for millions of commuters. On our Apprenticeship Programme, you'll work on projects that make a difference from your first day!

We want to be a truly inclusive employer and that means continuing to improve for the benefit of everyone who is part of the Atkins family. Our diversity and inclusion (D&I) challenge for the next five years will see us build on the great work we've done so far by pursuing improvements for all underrepresented groups and promoting a more inclusive culture for all employees.

"Joining our Apprenticeship Programme will open up a world of possibilities. You'll gain valuable on the job experience, working towards professional qualifications – and earn a competitive salary from day one. I hope you'll be as inspired as we are about our company and the industry we serve. It's an exciting time for us and we'd like you to be a part of our future."

Stacy McCall, apprentice recruitment advisor

Contact details

Atkins Limited, Nova North,
11 Bressenden Place, London, SW1E 5BY

www.atkinsglobal.com

Social media

atkinsglobal
atkinsglobal
AtkinsNextGen
atkins
wsatkinsplc

Job roles

• aerospace engineer • building surveyor • civil engineer • electrical engineer • electronic engineer • environmental engineer/consultant • landscape architect • manufacturing engineer • mechanical engineer • quantity surveyor • software engineer • structural engineer

Salary

Competitive

Opportunities on offer

• degree apprenticeships • advanced apprenticeships • higher apprenticeships

Sponsorship throughout university

• throughout

Work experience offered to

• school students • further education college/sixth form students

Application deadline

Check website

Locations

■ Regions with opportunities

In the 200 most popular employers for school leavers 2018/19

Balfour Beatty

Business facts

Learn at the deep end

Take a deep breath. Because our apprentice programme will throw you right into some of the most complex and challenging work out there. Earning while you're learning, you'll get immediate and meaningful involvement in infrastructure projects that shape daily life. And we'll be there to support you, every step of the way. Your line manager, our development team, ex-apprentices – they'll all be there to help. And you'll join a regional network of apprentices, who'll share the whole experience with you.

Whether you're interested in a business, technical or construction career, you'll have the chance to shape your future at Balfour Beatty.

Your learning and development

Join us, and you'll discover that there's more to construction than you ever expected. You'll experience cutting-edge technology, projects that shape the nation, and a thousand ways to make your mark. You'll get lots of development opportunities too, along with plenty of mentoring and support.

The choice is yours

We have apprenticeships all around the UK, in all kinds of professional fields. Whichever route you pick, you'll get to explore innovative technology, learn from experts, and start building the professional future you want.

Join the next generation of infrastructure experts.

Contact details

5 Churchill Place, Canary Wharf,
London, E14 5HU

020 7216 6800

www.balfourbeatty.com/careers/early-careers

Social media

twitter.com/balfourbeatty
facebook.com/balfourbeatty
youtube.com/balfourbeattyplc
instagram.com/balfourbeatty

Job roles:

- Civil Engineer
- Electrical Engineer
- Electronic Engineer
- Mechanical Engineer
- Quantity Surveyor
- Site Management
- Software Engineer
- Structural Engineer

Salary:

Competitive

Work experience offered to

- School students
- Further education college/sixth form students
- University students

Application deadline

29 April

In the 200 most popular employers for school leavers 2018/19

Locations

■ Regions with opportunities

CITB

Business facts

CITB is the largest provider of construction apprenticeships in Britain, supporting around 15,000 people each year.

Why choose construction?

The construction industry is so much more than large men, digging and operating heavy machinery – whether you enjoy working with your hands, planning and organising, or doing something creative, there is a role for you and you'll get paid while you learn your trade.

There are other benefits too:

- **Loads of variety**
  Every day on a construction project will bring new and interesting challenges, so no two days will be the same and you'll never be bored.
- **You'll get to build the stuff people depend on**
  How many professionals in other industries can point at a new hospital, school or sports stadium and say "I helped to build that"?
- **You'll get to see immediate results**
  Regardless of your role on site, seeing the progress that you've made at the end of every day is one of the most rewarding parts of a job in construction.
- **You'll be part of a team**
  Strong working relationships are formed on construction projects because everyone on the team depends on everyone else to get the job done.

We'll support you

From the day you submit your application form, a dedicated apprenticeship officer will be on hand to co-ordinate your training programme and support you throughout your apprenticeship.

The apprenticeship officer is the link between you, the college (or training provider) and your employer. It's their job to monitor your progress on site and in training through reviews of your progress to make sure you achieve your final goal.

We're great at what we do

We've been rated as an 'outstanding' apprenticeships provider by Ofsted for the second consecutive inspection – this means we're awesome!

Gabriel Lynch (CITB Apprentice of the Year 2018) – "Being able to learn in the classroom and then apply that knowledge in a practical setting seemed like the best of both worlds. My CITB Apprenticeship has enabled me to do that."

Contact details

Website: www.citb.co.uk/bconstructive

England: 0344 994 4010 ffl
myapprenticeship@citb.co.uk

Scotland: 0344 994 8800 ffl
scotland.apprenticeships@citb.co.uk

Wales: 0300 456 5700 ffl
wales.office@citb.co.uk

Job roles

Project Manager
Civil Engineer
Carpenter
Stonemason
Bricklayer
Roofer
Scaffolder
General Construction Operative
Painter and Decorator
Tiler
Plasterer
Plant Mechanic
Plus many more...

Salary

Competitive

Opportunities on offer

Level 1
Level 2
Level 3

Locations

■ Regions with opportunities

Ofsted Outstanding Provider

See the inside front cover, pages 36–37 and the outside back cover for more information

Laing O'Rourke

Business facts

We are Laing O'Rourke. We design, manufacture, engineer and build iconic buildings and complex infrastructure projects used by millions of people every day. It's our mission to be the recognised leader for innovation and excellence in the construction industry. To achieve that, we're changing the way we work, using the very latest digital tools and platforms. And we're always looking to create structures that will help build a better future for everyone.

We are proud to work on some of the most prestigious projects in the UK, from Europe's largest infrastructure programme, Tideway, to Manchester Airport Terminal 2 expansion, Hinkley Point C and Edinburgh St James shopping complex.

Our success depends on our engineering excellence, together with the adoption of new technologies and a sustained investment in talent, especially our early careers programmes for students, graduates and apprentices.

Join us as a School & College Leaver and you'll have the opportunity to work on some amazing projects with some exceptional people. Our five-year School & College Leaver programme combines studying for an accredited higher & degree apprenticeship with on-the-job experience. You'll work alongside experienced professionals on live projects, and attend college/university at the same time. Throughout you'll learn innovative engineering and construction techniques, and get to know colleagues who'll continue to support you throughout your career at LOR.

We also run a two-to-four year Apprenticeship+ programme for people leaving school with at least three GCSEs (preferably A-C/4-9 in Maths, English and Science). There are opportunities around the UK and include roles such as scaffolding, steel fixing, electricians and site operatives.

"Although I'm only in the first year of my programme, I've actually been at Laing O'Rourke for five years. I started off training to be a Heating & Ventilation Apprentice. Then I started to think what's next – I had done some civil engineering at college, so I was really keen to see if I could pursue a career in this area. Luckily Laing O'Rourke said 'yes'. There are six of us from Laing O'Rourke on the programme, and we go to college for two weeks at a time. It's great to get all that time to focus on studies."

Jack, School & College Leaver, Civil Engineering Technician

Contact details

Early Talent Team, Bridge Place, Anchor Boulevard, Crossways, DA2 6SN
Email: earlytalent@laingorourke.com
Contact tel: 01322 296 555
Website: laingorourke.com/careers

Social media

earlytalentLOR
laingorourkeltd
Laing ORourke

Job roles

• civil engineering • building services engineering • quantity surveying • information technology • human resources • business admin • electrical • formwork carpentry/ scaffolding/steel fixing

Salary

£16,500

Opportunities on offer

• School and College Leaver Programme Sponsorship throughout higher & degree apprenticeship

Application deadline

Check our website

How you select

• Application form including CV
• Online tests
• Video interview
• Assessment day (group discussion, presentation, 1 to 1 interview)

Locations

Regions with opportunities

UK wide depending on current projects

In the 200 most popular employers for school leavers 2018/19

Mace

Business facts

More about us

Mace is an international consultancy and construction company, founded on exceptional people, a commitment to service excellence and a deep-rooted entrepreneurial spirit. We have delivered iconic projects such as The Shard, the London 2012 Olympic and Paralympic Games, Heathrow Terminal 5 and Birmingham New Street Station. Internationally we are delivering projects such as the 2019 Pan-American Games and Expo 2020 in Dubai.

Our school leaver opportunities

Our award winning Apprenticeship programmes offer a wide range of opportunities to people who are looking to start a career in the construction industry. Our structured training programme will start you on the path to becoming a professional manager in Construction.

How do we select?

Securing a place on our apprenticeship programme involves an online application followed up by a telephone and group interview. We look for candidates who are passionate about a career in construction and have strong core skills such as organisation and team working.

"Mace are keen for apprentices to progress and they provide a lot of support through one-to-one meetings, portfolio reviews and regular internal training. Mace are sponsoring me through a part-time degree and it's great to be able to use what I am learning about at university in my day job."

Miranda Jones – Apprentice

Contact details

Emerging.Talent@Macegroup.com

Website: www.macegroup.com

Social media

Macegroup
MaceGroup
macegroup
company/mace-group

Job roles

• Building surveyor • Civil engineer • Quantity surveyor • Construction management • Project management • Project controls • Facilities management • Procurement

Salary

Competitive

Opportunities on offer

• advanced apprenticeships • higher apprenticeships • undergraduate placements/internships • graduate programme

Sponsorship throughout university

• for your final year, after completing an industrial placement

Work experience offered to

• further education college/sixth form students • university students

Application deadline

Applications for all programmes open in September – Mace make offers on a rolling basis.

Locations

Regions with opportunities

See the inside back cover for more information

Ministry of Defence, DE&S

Business facts

DE&S is a highly specialised part of the Ministry of Defence responsible for procuring all the equipment and supporting this, to ensure that our UK military customers can carry out their duties effectively. Engineering at DE&S involves finding solutions to complex problems using science, mathematics and technology; and your apprenticeship will develop skills that will prepare you for an engineering management career through a combination of academic study and office based work placements.

We offer 2 types of apprentice schemes

Advanced Apprentice

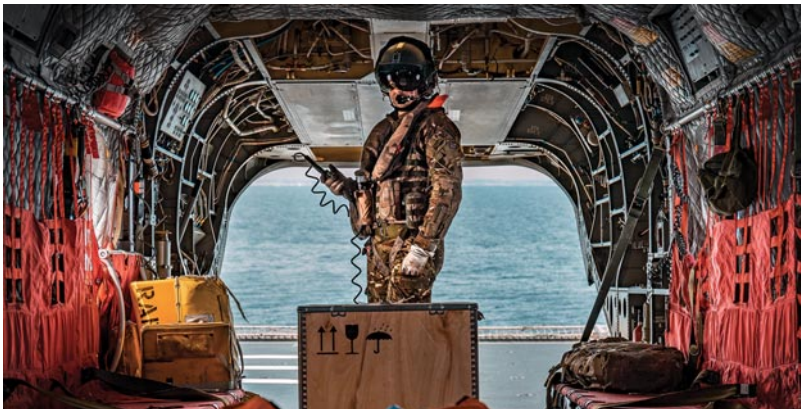
A technical apprenticeship, combined with academic study to achieve the following qualifications National Diploma (ND) in Mechatronics / Electrical / Mechanical Engineering. Higher National Certificate (HNC) in Mechatronics / Marine Engineering. NVQ Level 3 in Engineering Technical Support. A broad range of engineering placements where you will gain awareness of key skills including technical support, systems engineering, contract and project management.

DE&S Engineering Degree Apprentice Schemes

You could develop at our expense with one of our world-class DE&S Degree apprentice schemes... these are amazing opportunities to obtain a Bachelor degree in Engineering; whilst at the same time earning a salary and gaining vocational experience, and achieving Incorporated Engineer (IEng) status with the Ministry of Defence.

We offer degree apprenticeships in the following areas:

- **Nuclear Submarine and Strategic Weapons** This scheme leads to roles supporting the Royal Navy with their fleet of submarines including the current in-service fleet, or the development and build of the next generation submarines.
- **Aero Degree Apprenticeship** This scheme could lead to roles within teams responsible for the acquisition, development and support of the UK's defence fixed wing aircraft which include combat aircraft, tanker and transport planes plus a whole range of unmanned systems.
- **Weapons, Ordnance, Munitions & Explosives** You could be developing skills leading to roles providing battle winning weapons systems for all branches of the Armed Forces through working with project teams at DE&S HQ in Bristol, at Defence Munitions depots or with our manufacturing partners around the country.



We are Defence Equipment & Support.

It's our job to equip and support the UK's armed forces with everything they need to do theirs.

We're recruiting our future engineering managers now.

Contact details

MOD Abbey Wood, Bristol BS34 8JH

Website: des.mod.uk

Social media

DefenceES

DefenceES

company/1217282

Job roles

• aerospace engineer • automotive engineer • chemical engineer • electrical engineer • electronic engineer • environmental engineer/consultant • mechanical engineer • software engineer

Salary

Advanced Apprentice Scheme:
Year 1 £15,144 - Year 3 £19,396

Graduate Scheme: £26,408

Opportunities on offer

- advanced apprenticeships
- degree apprenticeships
- graduate programme

Sponsorship throughout university

- for your penultimate year
- for your final year

Application deadline

Advanced Apprentice Scheme: April 2019
Graduate Scheme: April 2019

Applications for the 2019 entry for Degree Apprentice Scheme is now closed

2020 Scheme will open for applications in Autumn 2019

Locations

Regions with opportunities

Mott MacDonald

Business facts

We're a global engineering, management and development consultancy focused on guiding our clients through many of the planet's most intricate challenges.

Our 16,000-strong network of experts find opportunities in complexity, turning obstacles into elegant, sustainable solutions. By looking at problems from a fresh angle, we aim to add value at every stage, for our clients, our employees and the lives we touch every day.

Our global team is comprised of internationally recognised environmentalists, planners, economists, project finance advisors, cost consultants, business strategists and more. Whatever your career goals are, you can be confident that we will help you meet your ambitions, and beyond.

Being employee-owned allows us to choose the work taken on and focus on the issues that are important. Independent in thought and action, we do what's genuinely right, not what is easy either for our clients or the company.

My role is very active and requires frequent collaboration with engineers from other disciplines. This allows me to learn a lot on other engineering aspects I would have never had known about.

Anne Olubukola Adeniji, graduate process engineer

Contact details

Mott MacDonald House,
8–10 Sydenham Road, Croydon CR0 2EE

Email:
earlycareers.recruitment@mottmac.com

Website: www.mottmac.com/careers/uk-apprentice

Social media

- mottmacgroup
- MottMacLife
- mottmacdonaldgroup
- Mott MacDonald

Job roles

- Civil engineer
- Quantity surveyor
- Transport planner
- Building services engineer
- Business admin [other]

Salary

Starting from £12,500

Opportunities on offer

- Advanced apprenticeships
- Higher apprenticeships
- Undergraduate placements/internships
- Graduate programme

Work experience offered to

- School students
- Further education college/sixth form students
- University students

Application deadline

Check website

TARGET jobs 2019 FINALIST Panel award The apprentice of the year

National Graduate Recruitment AWARDS

Locations

■ Regions with opportunities

In the 200 most popular employers for school leavers 2018/19

Redrow Homes

Business facts

Redrow is a housebuilder with an award-winning reputation. We pride ourselves on creating beautiful homes that people love to live in. And we apply the same level of care and attention to developing our apprentices too.

Provided you're willing to apply yourself, it's an exceptional opportunity. Earning while you learn, you'll gain a nationally recognised qualification and acquire invaluable work experience. You'll also be part of a friendly, supportive team that takes your future seriously. We offer a wide range of apprenticeships, too.

It doesn't matter whether you want to learn a manual trade or work in an office: there could be an exciting future for you here.

Perform well and impress us, and you could find yourself building a successful long-term career with Redrow.

We currently employ over 2,300 staff across England & Wales, including a large trainee base.

- Divisional offices in Lancashire, North Wales, South Wales, Yorkshire, Staffordshire, Northamptonshire, Devon, Kent, London, Essex, Hampshire.
- Redrow has dedicated training centres in London, Tamworth and Warrington offering tailored training courses to all of our staff
- We were named in the 2015 CITB Apprenticeship Awards: Great Britain Large Employer of the Year and were named on the top 100 apprentice employers list in 2017 for the fifth consecutive year.
- We are a proud member of the prestigious 5% Club, a campaign focused on creating momentum behind the recruitment of apprentices and graduates into the UK workforce. By joining the club, we have committed to the aim of ensuring that 5% of our UK workforce are apprentices, graduates or sponsored students on structured programmes within the next five years.

Your career options don't stop after you complete an apprenticeship with Redrow. Perform well and you could earn the opportunity to progress further within the company.

- Our trainee site assistant programme takes the best and brightest and helps develop them into our site managers of the future, including many former trade apprentices.

"I'm pleased I went down the apprenticeship route. I always wanted to be up doing stuff instead of sitting in class & I've gained lots of confidence, met lots of great people and built skills, all while being paid."

Liam Sergeant, Assistant Site Manager & former apprentice Bricklayer with Redrow.

Contact details

Learning & Development Team
Redrow Homes
Redrow House
Kinsall Green
Wilnecote
Tamworth
Staffs
B77 5PX

www.redrowcareers.co.uk

Job roles

• Apprentice Bricklayers • Apprentice Carpenters / Joiners • Apprentice Plumbers • Apprentice Electricians • Apprentice Quantity Surveyors • Apprentice Architects & Civil Engineers • Office Aprentices

Salary

Competitive

Opportunities on offer

• intermediate apprenticeships • advanced apprenticeships • higher apprenticeships • technician/foundation training programme • undergraduate placements/internships • graduate programme

Sponsorship throughout university

• throughout • for your final year

Application deadline

Trade apprentices will be end of June 2019. Office apprentices are recruited on a rolling basis as required.

Locations

■ Regions with opportunities

Turner & Townsend

Business facts

Turner & Townsend is a global construction consultancy, applying technical excellence in their work across the real estate, infrastructure and natural resources sectors.

With 108 offices in 45 countries, we draw on our extensive global and industry experience to manage risk while maximising value and performance during the construction and operation of our clients' assets.

From the beginning of a project through to completion and beyond, we help to deliver the outcomes that matter to our clients, with services covering the full spectrum of consultancy, project delivery and post-project operations.

We currently offer the following apprenticeships:

- Quantity Surveying Level 6
- Project Management Level 6

As an apprentice at Turner & Townsend, you will have the opportunity to study while gaining work experience and completing our internal development programme. Typically you will work full time four days a week and attend university and/or complete apprenticeship activities one day per week.

Our Project Managers deliver project success through effective planning, the right team and rigorous controls. For candidates who are more numerate, our Quantity Surveyors drive our clients' financial interests from start to finish.

Turner & Townsend offer apprentices the opportunity to excel within their profession; through providing the opportunity to work with world class clients on cutting edge projects, and as an apprentice, you will be given all of the support and training you need to help you realise your full potential, enabling you to rise as far as you can, as fast as possible.

"Turner & Townsend has some really good opportunities for young people. They really push us as we are the next generation of the business."

"Turner & Townsend is a great company to start and build your career within the construction industry. I feel supported in my work and with my drive and enthusiasm for this career path, I believe that working here will help me achieve my goals."

Rebecca Watt, Quantity Surveying Level 6 Apprentice

Contact details

www.turnerandtownsend.com

Job roles

- Quantity surveyor
- Project management

Salary

Competitive

Opportunities on offer

- higher apprenticeships
- degree apprenticeships

Sponsorship throughout university

- throughout

Work experience offered to

- university students

Application deadline

April 2019

Locations

■ Regions with opportunities

UK Power Networks

Business facts

Did you boil a kettle to make a coffee this morning? Or charge your iPod? Or turn on the lights while you brushed your teeth? Have you jumped on the Tube recently or jetted off from one of the major airports in the South East? All of these events could not have occurred without UK Power Networks.

UK Power Networks distributes more than a quarter of the UK's electricity through its networks of substations, underground cables and overhead lines making sure the lights stay on across London, the South East and the East of England, regardless of who customers pay their energy bills to. A range of other companies deliver power to the rest of the country.

The UK Power Networks Trailblazer Apprenticeship Programme provides the opportunity for individuals with an interest in pursuing a career in engineering to become fully trained, qualified and competent "craft" persons in an electrical distribution industry in one of the following trades: cable jointing, overhead lines or electrical plant fitting. Our programme is a unique and exciting opportunity to join a highly respected company.

Apprentices will learn all aspects of their chosen craft and apply the knowledge, skills and techniques gained through the Apprenticeship Programme competently, safely and in accordance with Network standards. Apprentices will follow a Trailblazer Apprenticeship Framework which will include a Certificate in Electrical Power Engineering and a competency based qualification in Electrical Power Engineering.

We were the first electricity distributor named in the Sunday Times' 25 Best Big Companies to Work For, and also hold the title of Utility of the Year (2016, 2015 and 2012). We're striving to become an employer of choice, a responsible and respected corporate citizen and sustainably cost efficient. Achieving such objectives means we have embraced a culture based on values of integrity, continuous development, diversity and inclusivity, respect, unity and responsibility.

If you share these values, enjoy working outdoors, want to play a role influencing the energy industry's future and want to join a critical sector at a critical time of change then we believe our unique combination of classroom training, hands-on work and real life experience as well as competitive benefits will get your career with us off to a flying start!

Inspiring the next generation for a brighter future.

Contact details

futuretalent@ukpowernetworks.co.uk
www.ukpowernetworkscareers.co.uk

Social media

UKPNnews

Job roles

- electrical engineer
- electrical craftsperson

Salary

£15,556 per annum for school leaver progamme

Opportunities on offer

- intermediate apprenticeships
- undergraduate placements/internships
- graduate programme

Application deadline

Friday 12 April 2019

Locations

Regions with opportunities

See page 45 for more information

Wates

Business facts

About us

Wates Group is one of the largest privately owned construction, development and property services companies in the UK.

Our school leaver opportunities

Our early careers programmes are designed to provide you with the right knowledge, skills and experience to develop your career.

We offer a wide range of career routes including Production, Quantity Surveying, Building Services, Estimating and Planning, Finance and Business Management.

Higher Apprenticeship

Our Level 4 apprenticeship offers individuals the chance to develop the skills and experience required for a career in Site Supervision, Building Services or Quantity Surveying. This industry recognised programme offers structured development and experience as well as support in achieving a HNC.

Degree Apprenticeships

Our degree-level apprenticeships are a progression pathway for those who have already achieved a level 4 construction apprenticeship or HNC.

They include support with your degree combined with on the job experience.

The programmes are industry recognised and designed to provide you with the experience necessary to become a Quantity Surveyor, Estimator, Planner, Building Services Manager or Site Manager.

How do we select?

The development I have received so far is excellent. My Apprenticeship, placements and various workshops planned by Wates provide me the backbone knowledge I need to progress forward my career"

Hamza El-Mhamdi (Estimating Management Trainee)

Contact details

Wates House, Station Approach
Leatherhead, Surrey KT22 7SW
Contact tel: 020 7061 3435

www.wates.co.uk/careers/early-careers

Social media

twitter.com/WatesGroup

Job roles

• Production (Operations – Site Manager) • Quantity Surveying (Commercial) • Building Services(Mechanical and Electrical Services) • Estimating • Planning • Electrical (Level 3) • Mechanical (Level 3)

Salary

Competitive

Opportunities on offer

• intermediate apprenticeships
• advanced apprenticeships
• higher apprenticeships
• undergraduate placements/internships
• graduate programme

Sponsorship throughout university

• throughout
• for your penultimate year
• for your final year

Work experience offered to

• school students • further education college/sixth form students • university students

Application deadline

Check website

Contractor of the year 2017

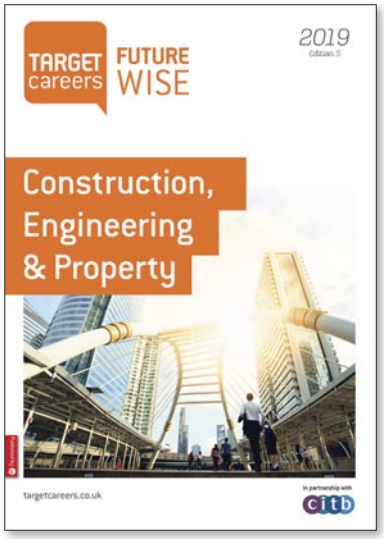
Locations

Regions with opportunities

The Level 3 apprenticeships are available in the North. The remainder are nationwide.

In the 200 most popular employers for school leavers 2018/19

See page 18 for more information



Thank you to our contributors

AECOM	Brett Whitehead	47
Barratt London	Jack Hammick	41
CITB	Stephen Cole	1
JLL	Suba Shanmagavel	41
Ministry of Defence, DE&S	Georgia Gannon	43
Mott MacDonald	Ruth Watson	44
Newcastle University	Sasha Swannell	43
Turner & Townsend	James Anderton	44
UK Power Networks	Darbie Hughes	47
Wates	Tilly Casey	40

Index of organisations who want to hear from you

Key:
IFC = inside front cover, IBC = inside back cover, OBC = outside back cover

Editor Rachael Milsom
Design Thomas Gray
Circulation Patty Shufflebotham
Proofreader Matt Jukes
Advertising Lee Frith, sales product champion; the TARGETcareers FUTUREWISE sales team; the TARGETcareers FUTUREWISE campaign management team
Commercial director Jon Mallott
Sales director Simon Rogers
Production director Jane Anderson
Group chief executive officer Graham Storey

Published by
GTI Media Ltd, The Fountain Building, Howbery Park, Benson Lane, Wallingford, Oxon OX10 8BA UK

Tel +44 (0)1491 826262
www.groupgti.com

Printer Walstead Southernprint
ISBN: 978 1 912625 12 3
ISSN: 2397-8678

GTI would like to thank everyone who has taken the time to contribute to, or find contributors for, TARGETcareers FUTUREWISE *Construction, Engineering & Property*. We would also like to thank all those who supplied advice and photographs.

mace

START A **CAREER** LIKE NO OTHER

Search for apprenticeships at
macegroup.com/careers

GO CONSTRUCT

YOU CAN MAKE IT GO CONSTRUCT

Earn whilst you learn with 100s of different apprenticeships from plastering and flooring, to technical or supervisory roles.

GOCONSTRUCT.ORG/APPRENTICE

POWERED BY:

citb

Construction Industry Training Board