

Aimhigher Sussex

January 2011

www.aimhighersussex.org

Science, Technology, Maths, Engineering and Built Environment

Information for those interested in careers in
science, technology, engineering and maths or
the built environment.



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STEM & Built Environment

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Whether you're in the first few years of secondary school or coming to the end of your school or college years, you will already have or soon be making decisions about your future. This leaflet is for those interested in careers in science, technology, engineering and maths (STEM subjects) or the built environment and will give you an idea of opportunities in these areas and advice about what to do next.

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STEM & Built Environment

The overview

Want to be involved in protecting the environment? Want to help advance technology? Like the idea of being an architect? If the answer is yes to any of these then it's likely you are interested in working in STEM or the built environment.

Breakthroughs in science and technology have given the world everything from medicines that save millions of lives to the explosion of access to information that is the internet. Every day new discoveries are being made to support life on this planet (and perhaps in the future even on others). The people that will make the difference will be those that study STEM and built environment related subjects. Are you one of them?

Scientists save the world!!

The world is becoming overpopulated, there are more demands on energy sources and food production and there are serious problems as a result of climate change. So who is going to help address these issues? The STEM students of today, that's who.

Technology solves tomorrow's problems!

Technology is moving forward at the speed of light and studying STEM subjects means you can shape the future of that technology be it mobile phones or satellites in space.

So what's attracting you to working in the STEM and the built environment industries? And how much do you know?

For example, do you know the answers to these questions;

How much do you think you'll earn?

What kind of places might you work and who with?

What kind of hours might you have to put in?

How hard is it to get a job and are you the kind of person that suits this kind of work?

These are all important questions to answer! Think about what's important to you.

For starters did you know?

- STEM subjects are vital to the UK's development but many companies are having trouble recruiting staff because fewer people are studying STEM subjects at university. This also means STEM graduates gain employment far more easily as there are more opportunities.
- There are huge skill shortages in engineering particularly at the higher level.
- STEM qualifications are valued highly by employers in all sorts of careers not just STEM industries.
- Many new jobs created in the 21st century will be in the STEM industries
- 700,000 extra people in the UK with STEM qualifications are needed by 2014 in order to meet with demand.
- There is a national shortage of STEM teachers and you can receive a grant to study.
- Maths, Physics, Chemistry and engineering graduates can earn much more over their career compared with non-graduates and those who study humanities or arts at university.
- Some STEM jobs are international so will involve travelling or living in another country.
- The work you do may have a direct impact on shaping, solving and securing the best future for our planet and everything within and around it.
- You need to be practical, analytical and logical in your thinking but also creative, thoughtful and imaginative.

*Source: The National Guidance Research Forum (www.guidance-research.org) and www.futuremorph.org.

STEM & Built Environment

Where can subjects take you?

The STEM and built environment industries are huge and developing rapidly. There are many different areas of work and a variety of jobs within them. There is also a lots of overlap in jobs so you can take your skills to different industries. For example an engineer may work in the built environment or in industrial employment.

One point to remember is unlike some industries working in STEM and the built environment often requires further studying as you need to make sure you have the right knowledge. It is also much harder to come back to STEM subjects once you leave them as you need to build knowledge over time. But you will benefit from having an exciting and rewarding career! Over the next few pages we will look at some of the opportunities and give you an idea of what kind of work is available, what they might entail and how to start in different career paths.

Science

Think all scientists wear white coats and spend all day tied to a microscope in a laboratory? Although lumped together under the 'science' heading the sciences are very different and studying them individually gives you different skills, knowledge and can lead to a vast amount of career paths. You may end up in research (both towards solving specific problems or the kind of research cosmologists may do where they consider how to explain the origins of the universe), developing ideas, analysis and investigation and manufacture of new products. You may also be involved in teaching, sales or working in the media (for example communicating your findings to the public).

Chemistry

Chemistry is all about understanding what things are made of and how they interact be it the food on your plate to evidence at a crime scene. The skills and knowledge you gain studying chemistry are essential for many science and other careers. For example did you know that if you want to study medicine at university then it is essential to take chemistry at A-Level or equivalent? To find out more visit www.rsc.org go to the 'education and

professional development' tab and click on information for school students.

Chemistry is also necessary for many science based careers, chemical engineering, pharmacy and medical subjects.

Physics

Do the mysteries of the universe keep you awake at night or perhaps you find yourself taking apart the family camera? If you have an enquiring mind and are fascinated by how and why things work you are probably interested in physics.

Physics is all about explaining the matter that makes up the world. It seeks to explain how the world works from a tiny atom to electricity to the colour of the sky to whether life can exist on other planets.

Studying physics provides you with vital skills such as comprehending complex concepts, ability to find suitable answers to problems, as well as analytical, mathematical and IT skills.

Those that study physics might find themselves working in anything from games programming to astronomy and from transport to law. Many go into finance careers. One thing to keep in mind if you decide to take physics further is you will also need to have mathematical ability as many equations and concepts you need to master rely on these skills. Physics is necessary for most physical science courses, engineering and technology and it also supports other science based careers. Consider whether you want to study a particular aspect of a subject for example are you interested in the more theoretical or practical aspect of physics. For example does medical, nanotechnology or astrophysics inspire you? Visit www.physics.org and click on the 'careers' tab to get an idea of the range of possibilities and to help you answer these questions.

Biology

From studying life in the oceans to protecting the environment to discovering new cures; biologist's work has a direct impact on the quality of everyday life. Visit the website www.societyofbiology.org click on 'careers' and then 'careers paths' to explore the range of careers directly related to biology such as biochemistry, experimental biology, nutrition, pharmaceuticals and ecology.

You also need biology to study biological sciences and also for some health professions.

Engineering and Technology

While you may have studied a technology subject at school it is less likely you will have come across engineering. The two areas are very closely linked as many engineering roles and activities depend on new technologies. Engineering itself is less one specific career than a skill that allows you to do a vast range of jobs. Engineers might work in anything from communications, power generating, robotics and artificial intelligence, electronics, healthcare, software to nanotechnology.

There are also many branches of engineering from mechanical to environmental to electrical and depending on the specialism you can work in many different areas from building ships to MP3 players. Wherever you are employed it is likely though you be using your skills to develop ideas and products. Engineering is about making things work but also about how things look and if this interests you areas such as product design which bridge art and engineering might suit. You can find out more about product design in the creative and media version of this pamphlet and at www.designcouncil.org.uk. Visit the websites www.engineuity.org.uk and www.tomorrowsengineers.org.uk (see the careers tab), www.theiet.org and www.youngeng.org to find out more about the possibilities and routes in to engineering.

Most people will have studied information technology at school and it's impossible to escape using technology in your day to day life from the alarm

clock that wakes you to the mobile you chat to your friends on to the computer games consoles you play in the evening. It takes many different skills and roles to create all these products and they include job titles such as multimedia producers, software engineers to computer games developers. Visit www.bigambition.co.uk and www.e-skills.com/careers for more information. You might also like to read the Creative and Media version of this pamphlet which has further information on computing related work.

Built Environment

The built environment may not be so familiar to you because it is not a subject you study at school. Take a walk through the streets where you live. Everything man made is part of the built environment and careful thought, planning, design and construction has gone into making the best it can be for those that use it. Public and work spaces, housing and transport are all key elements to a society that works well and working in the built environment means you can be a part of this. From architects to green space managers to urban designers and town planners working in the built environment means you have to consider important issues such as sustainability, public health and inclusion.

To find out more about the range of job opportunities in the construction industry go to www.bconstructive.co.uk. For more info about what architects do go to the RIBA website (Royal Institute of British Architects): www.architecture.com. For more info about what a surveyor does go to the RICS website (Royal Institution of Chartered Surveyors): www.rics.org

Many of these roles do require higher education and specific courses or degrees. Consider what you are interested in and research it further as you may need to do specific A-Levels. For example maths and art are wise for architecture. You can see what is recommended at www.cabe.org.uk under the education tab and then the heading careers.

STEM & Built Environment

What kinds of jobs are there?

Maths

Everyone studies maths at school but sometimes it is hard to see how it relates to everyday life. What exactly can you do if you continue studying maths? Well maths is necessary for all sorts of careers both as the main part of what you do and also as one element in a job; it helps us make sense of the world around us. For example maths skills are used in careers in sport, science, entertainment, health, the environment, and business. Visit www.mathscareers.org.uk click on the 'I love maths' tab and go to the career profiles section to get inspired by the range of things you can do.

Maths is often closely linked with other STEM subjects and it may be sensible to include it as a subject you study at school if you are interested in STEM subjects and what they might lead to. It is necessary in order to study physics and engineering and it supports other subjects such as computing, economics and other sciences. It is hard to pick up once you have dropped it so consider it carefully.



So now you have more of an idea how different subjects relate to different careers but you may still wonder what kinds of industries and jobs there are within STEM.

The website www.futuremorph.org has some excellent resources to help you explore the STEM industries. It also separates the different types of careers into six different headings. Below you can find these headings with some job suggestions, which will give you more of an idea of the areas that may interest you.

Living things – vet, food scientist, medical researcher

Environmental science – marine biologist, oceanographer, forester, waste disposal manager

Energy and motion – sports scientist, renewable energy adviser, theme park ride designer

Natural and man-made materials – chemical engineer, firework designer, architect

Earth and space – archaeologist, space probe designer, astronomer

Communication technology – computer programmer, sound technician, camera designer

If you want to find out more about any of these jobs or areas of work visit www.connexions-direct.com/jobs4u.

The other point to keep in mind is that STEM subjects can take you into many other areas not directly related to STEM such as finance, teaching, marketing, law, photography, media and film production, food technology and the list goes on.

What about future jobs?

An exciting aspect to STEM related careers is how fast new thinking, technologies and methods are developed.

A good place to visit to get inspired by the kinds of jobs that may soon be available is at www.sciencesowhat.direct.gov.uk. If you go to the 'future jobs' tab and then to the 'future jobs: what might you be doing?' section there is a list of twenty

jobs likely to exist in the near future due to advances in technology and science.

Some of these emerging STEM related opportunities include:

Biomedical Engineering – This involves designing parts for medical technology such as hip joints and heart by-pass valves.

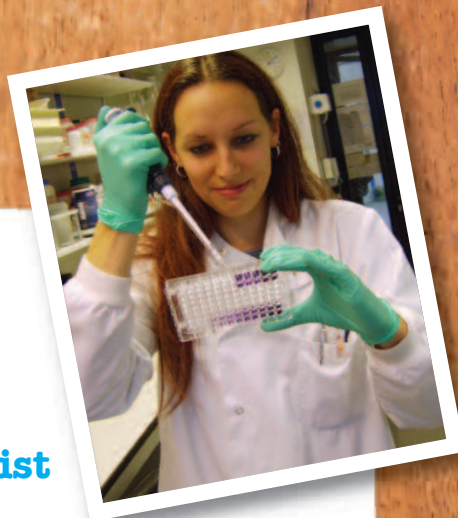
Environmental and Renewable Energy – By 2020 the UK wants renewable sources to provide 15% of the country's energy. Necessary jobs include civil engineers, physicists, power engineers, electrical and electronic engineers.

Nanotechnology – This is the science of things at a molecular and atomic level. In the future this technology could be used to fight disease from within our bodies.

Nuclear – Building new and decommissioning other power stations. Jobs such as nuclear engineers, nuclear physicists, chemists, material scientists and mechanical engineers will be needed.

Space Technology – There are approximately 19,000 people working in the space technology industries in the UK, including the global telecommunications industry. Satellites continue to be key to aiding navigation for shipping and road transport.

There are also overlaps between different STEM fields for example IT and science produces bioinformatics and computational biology – where you solve biological problems at a molecular level.



Job title: Postdoctoral Research Scientist at the Institute of Cancer Research

What do you do: Science! Work in a lab, working towards treatments and (hopefully!) cures for childhood cancer.

What's the best and worst thing about what you do: Best thing is the excitement of having an experiment work, and also the sense of doing positive in the battle against cancer. Worst thing is probably the hours, and the pay!

University course studied and where: University of Sussex, BSc in Molecular Genetics, PhD in Developmental Genetics.

A-Levels/equivalent: 3 A-levels in Maths, Chemistry, Biology.

Were the subjects you studied relevant to what you do now? Very much so! I use all 3 subjects studied at A-level on a daily basis. These subjects equipped me for my undergraduate degree, and even gave me a bit of a head start over others (i.e. I didn't have to take any basic maths, biology or chemistry in my first year at uni).

How did you decide what you wanted to do? Studying Genetics during my A-level biology course helped me to decide that this was the course I wanted to do at uni. Genetics was, and still is, at the cutting edge of scientific research, and this was where I wanted, and still want to be.

What do you recommend for someone interested in this career? You need to be very determined and have a very keen eye for detail. You also need to be very ambitious and very patient. For any scientific research you need to study at least one science subject at A-level. I would highly recommend getting some lab experience as this will be the biggest deciding factor for a career in research. Universities, Research Institutes and DNA laboratories at certain hospitals will often take voluntary workers.

What would you have done differently if anything? Nothing! It's not been an easy career path, but it's definitely been the right one for me.

What next? I'm quite lucky in that having a PhD means that I have a lot of choice as to what I do next, the skills required to complete a PhD and carry out scientific research also equip you for other career paths. The academic career path would take me to becoming a Team Leader at a Research Institute, but I could also become a lecturer at a university, go work for a pharmaceutical company, work as an editor for a scientific journal, work for the NHS doing both diagnostic work and research, work for the government in either scientific research or policy decision making, or go into something completely different!

Where might you Work?

STEM and built environment work across many different industries such as aerospace and defence, the energy sector, telecommunications and transport. Universities and the NHS, local authorities and the government are also big employers.

TIP.1

How about seeing if your school has a STEM club? These clubs help inspire and educate you on STEM subjects with activities and debate. See www.stemclubs.net for more details.

If you are interested in working in particular areas or a specific job the following websites may help:

www.euskills.co.uk/careers/careers-home

Information on energy and utilities careers.

www.environmentalcareers.org.uk/careers

Information on environmental careers.

www.forensic-science-society.org.uk

Information about forensic science careers.

www.rsc.org/Education/SchoolStudents/profiles/Forensics.asp

Information about chemical sciences careers.

TIP.2

Q. I really enjoy maths but I don't want to work in a bank or as a maths teacher. What else can I do?

A. Sometimes it's hard to see what school subjects can lead to. One thing to do is to think about the skills you learn while studying. For example maths helps improve your analytical and problem solving skills. When you are researching jobs look at jobs that have this element. You may also like to visit the website www.prospects.ac.uk and go to the 'options with your subject' section under the careers advice tab. Here you can look at different subjects and the job options they might lead to.

Having said that, if you have the aptitude and flair for teaching, it can be a hugely rewarding job and you can specialise in maths, sciences, design and many other subjects if you teach at secondary school – there can be even more variety if you teach in a college, university, or in the community. More STEM teachers are required so you may even get a grant. For information on careers in teaching visit the schools' Training and Development Agency website www.tda.gov.uk.

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What qualifications do I need?

So how do I become a.....? Now you have a bit more of an idea about some of the different roles in STEM and built environment industries but you might wonder what you need to study to do them.

It can be hard while you are at school to think about which subjects are best for your future plans. You might ask how you can make decisions now when you're not sure what you want to do. This is why it is a good idea to have a think about and do a bit of research into areas that you think might interest you so that you can make sure you keep as many options open as possible.

If there are particular roles mentioned above that interest you check websites such as www.connexions-direct.com/jobs4u and www.futuremorph.org. They both have lots of information on different job roles and recommended courses.



If you are having trouble thinking about your future and the steps you need to take try working backwards!

For example Jen is 13 and is just starting to consider what subjects she'd like to study at GCSE. She has had some thoughts about her future and likes the idea of something to do with physics and maths. She also enjoys geography and learning about the environment.

Fast forward to the future

Jen enjoys physics, maths and geography. Right now she doesn't know about the career options open to her. By exploring future ideas the decisions she has to make now will become easier.

So Jen should: look through the professions under the headings of physics and maths above and also the industry overviews and future jobs section.

Visit the recommended websites above and see if there are particular jobs that stand out then find out more about them on www.connexions-direct.com/jobs4u

Higher Education

Websites such as www.connexions-direct.com/jobs4u and the recommended ones above will give you an idea of the type of qualifications necessary for the jobs that interest you. After doing this Jen found she liked the look of energy consultant. Energy consultants find energy solutions for the future. When she researched this from the sites above she discovered that most people will take a first degree in a science subject such as environmental science or geology as well as voluntary work overseas. Many people will also take postgraduate subjects if their first degree is not directly relevant. For example they might specialise in geotechnical engineering. The website www.ucas.com has all the higher education courses available in the UK which you can browse through for ideas. Remember every university is different.

School and college options at 16

Jen is 13 so needs to think about GCSEs before her A-Levels and university. One way of checking which subjects are needed for specific university courses is on the www.ucas.com website. Checking the entry requirements of courses that interest you (these are listed in every course's entry profile) will help you choose the right subjects to study at A-Level or equivalent and help you be aware of what grades you need to aim for. For Jen her interests suggest she should take separate sciences as that will keep her A-Level options open, she will need good maths skills so maths at higher level along with continuing with geography. At A-Level a combination of subjects such as maths, physics, geography and perhaps economics (as it will provide an understanding of budgets and project management that consultants deal with) will keep a variety of options open to Jen.

Now!

Jen should continue to explore her interests and options as much as possible and do this regularly as she may develop new interests. However, it seems separate sciences and geography and maths at higher level should keep the options that interest her open.

Where are you now?

Taking your GCSEs options?

If you are under 13/14 then you are probably thinking about or doing GCSEs or their equivalent. It is very important to make sure you gain key skills in maths and English as these will make sure any options you are interested in will stay open.

Think about the subjects you enjoy. Firstly, you need to consider whether you like science and mathematics subjects, because many engineering and technology roles are based on science and mathematics principles. Depending on what kind of job you would like, you will probably need qualifications in these subjects. Qualifications in ICT and design and technology (D&T) are also extremely useful. If your school offers separate sciences at GCSE (physics, chemistry and biology) then it is a very good idea to take all three. It will make it much easier to go to study sciences at A-Level and if you go on to university some degrees do prefer students to have studied all three sciences at GCSE. If it is not an option to do all three sciences at GCSE then do take the core plus additional science. Only taking core science at GCSE may well limit your options if you then decide you want to continue with science after GCSEs.

Also think about what level maths you have. For some STEM related jobs you need to be at a very high level so ideally in the top set of maths at GCSE. You will likely need a good grade at GCSE (either A or possibly a B). If your school offers statistics and additional maths it may be a good idea to take these too as they will be a good introduction to A-Levels. Careers in the built environment differ in their requirements. For example architecture courses often require maths and art at A-Level so it's wise to take art at GCSE as well. Visit www.cabe.org.uk/education/careers and visit the various careers for information on specific jobs and suggested qualifications.

Considering college/6th form options?

We have already demonstrated (in the flowchart above) that if you have some ideas about what you might like to do in the future then you can work out what courses you might need to take to get there. One thing to consider is what kind of courses or experience the jobs that interest you require.

For example say you are interested in forensic science you will need to have a science degree and for that you will need at least once science at A-Level (ideally chemistry and biology) and possibly maths.

All FE colleges in Sussex have access to a career website called www.talkingjobs.net currently until November 2012, so ask careers staff for the log in details. Here you have the opportunity to view video interviews of a range of professionals talking about their work and how they got into it. Have a browse through the career areas available at www.futuremorph.org and the subjects available to study at degree level at www.ucas.com. If you start to link them up the necessary subjects to take become clearer. For example those working in space technology may have studied aeronautical and aerospace engineering or maths and a nanotechnologist may have a molecular chemistry or applied physics degree. Depending on their specialism engineers will most likely require maths and possibly physics or chemistry at A-Level, or an equivalent BTEC national diploma demonstrating good grades in the maths modules. They may also need a masters qualification (which you do after a first degree) in order to gain Chartered Engineer (CEng) status.

You might also consider pure science subjects combined with ones such as computer science, psychology, geography, geology, economics, social science, arts and humanities. If you want to study these subjects at a higher education level you may not need specific subjects but do check at www.ucas.com what the university that interests you requires. And some areas require a combination of arts and science such as maths and art for architecture, and history and chemistry for art conservation.

One way of checking which subjects are needed for specific university courses is on the www.ucas.com website. Checking the entry requirements of courses that interest you (these are listed in every course's entry profile) will help you choose the right subjects to study at A-Level or equivalent and help you be aware of what grades you need to aim for.

If you are not keen to go to university you might want to look at other options. Most STEM related jobs will require training of some sort but if you prefer to gain qualifications by working hands on then an apprenticeship may suit you. See www.apprenticeships-in-sussex.com and www.apprenticeships.org.uk for more information.

Remember as well not all roles demand a degree or it is possible to train on the job. For example engineering firms do train within the company although you may have to do some higher education courses in order to proceed.

Q. What about the diploma?

A. At your school they may be offering diplomas in a variety of subjects at both GCSE and A-Level age although it is not clear yet whether they will continue to be offered through the new government. For those interested in STEM and the Built Environment there are some very relevant diplomas – the Engineering, Environmental and Land-based Studies, Information Technology, Manufacturing and Product Design and Construction and the Built Environment diplomas. The diploma helps you prepare for the skills and knowledge that is necessary for certain industries but you need to consider whether you want to specialise early on. Have a look at www.keyroutes.org.uk for further information.

Q. I want to work in science what else can I do apart from medicine?

A. Often when people are talented at maths and the sciences it can be hard to know what other options are available. Hopefully this pamphlet will have inspired you to see there are many jobs that use those skills in all sorts of industries. It may however, be worth exploring the kinds of roles within medicine other than working as a doctor. There are over 300 different careers within the NHS for starters. Have a look at www.nhscareers.nhs.uk for further information.



Job title: Project Leader, Electrical and Electronic Engineering

What do you do: Lead teams of engineers who are developing drive electronics for vacuum pumps.

What's the best and worst thing about what you do? Best thing is developing new and successful product ranges to sell to customers. Worst thing is trying to lead multiple projects at the same time, whilst managing both the workload and timescales.

University course studied: University degree was a Masters in Electrical & Electronic Engineering, MENG at Sussex University (4 year course).

A-Levels/equivalent: A-Levels were Maths, Physics and Chemistry.

Were the subjects you studied relevant to what you do now? My degree has definitely been relevant for my job; maths and physics are essential to my everyday routine.

How did you decide what you wanted to do? I decided from an early age that I wanted to be an engineer because I always had such a fascination to understand how things worked; especially electronics and computers.

What do you recommend for someone interested in this career? Someone interested in a career in engineering needs to have a solid maths and science foundation. Even a product / industrial designer would massively benefit with a similar foundation; understanding the products they are designing is invaluable.

What would you have done differently if anything? The only thing I would've done differently is to get some work experience before I finished my degree. It would've been equally beneficial to have gained some experience either before my degree or during it. There are many options available either through a university, a professional organisation or by applying direct yourself.

What next? I'm soon to apply to become a chartered engineer, CENG, and from there I'm hoping to become a Project Manager. Beyond that there are various opportunities available, depending on how high I set my ambitions.

STEM & Built Environment The future

After school or college it can be hard to know what the best next steps will be. For starters if you are keen to stay in education there are around 50,000 courses to choose from in over 300 institutions.

Some of these courses prepare you for a particular job (these are called vocational courses) while others provide a more general education. Many STEM and built environment roles require quite specific courses so it is important to do your research and ensure you are heading in the direction you want.

Make sure that you are aware of the UCAS points you need for courses that interest you as you may need to aim for particular grades in the subjects you are taking (see the UCAS points box for more information). Universities will also require personal statements where you write about why you are suitable for the course you are applying for. They will look for evidence of your interest and dedication to the course and where it may lead in both your academic studies and also evidence from out of school activities such as work and volunteer experience.

The following higher and further education providers are based in Sussex:

University of Brighton www.brighton.ac.uk

University of Chichester www.chiuni.ac.uk

University of Sussex www.sussex.ac.uk

The Open University www.open.ac.uk

Bexhill College www.bexhillcollege.ac.uk

BHASVIC www.bhasvic.ac.uk

Central Sussex College www.centraisussex.ac.uk

Chichester College www.chichester.ac.uk

City College Brighton and Hove www.ccb.ac.uk

The College of Richard Collyer www.collyers.ac.uk

Northbrook College www.northbrook.ac.uk

Plumpton College www.plumpton.ac.uk

Sussex Coast College Hastings
www.sussexcoast.ac.uk

Sussex Downs College www.sussexdowns.ac.uk

Varndean College www.varndean.ac.uk

Worthing College www.worthing.ac.uk

The next steps section on the following page will help you in your decision making.

UCAS points - What on earth are they?

UCAS stands for the Universities and Colleges Admissions Service. The qualifications you study and the grades you achieve in those subjects at school or college are turned into points which allow you to enter higher education. Universities and higher education colleges will ask for a certain number of points and often specific grades in certain subjects in order for you to gain entry to the course of your choice. For more information on your qualifications and UCAS points they could 'earn' visit www.ucas.ac.uk/students/ucas_tariff.

It is worth getting to know the UCAS website at www.ucas.com. Click on the Student section to find out more about UCAS points and have a look at the courses available and the universities that offer them in the course search section. The entry profiles of each course also will tell you what the course will cover, what career opportunities it may lead to and what kind of student it may suit; which will all help you decide if it is right for you. If in doubt contact the university direct.

STEM & Built Environment

Next steps

OK, so now what?

Hopefully this pamphlet will have given you some ideas about the possibilities in STEM and the built environment. But your job is not done yet! In order to discover the most suitable, satisfying and enjoyable path for you as an individual you need to open your eyes to opportunities and try out as many as possible. **Try these next steps and see where they take you!**

Explore possibilities through research

Think about the subjects you are studying now and which ones you enjoy most. Also research any possible ideas you may have for your future to check if there are particular subjects you should consider studying. There is lots more information, advice and guidance out there to help you on your journey. The following websites will start you off:

General Career Research, Tools and Information

www.sciencesowhat.direct.gov.uk/future-jobs

Ideas to get you inspired about future science jobs.

www.cogent-ssc.com

Lots of information on science careers.

www.connexions-direct.com/jobs4u

Great for finding out about different types of jobs, what they are like and qualifications needed. Check the Job Families section for career inspiration.

www.futuremorph.org

Huge amount of information on STEM careers with section for students at different school ages.

www.guidance-research.org

Labout market intelligence (information and statistics) about STEM and built environment industries.

www.nhscareers.nhs.uk/career.shtml

Information about working for the NHS.

www.prospects.ac.uk

Other excellent job search website. Also has a section that helps you think about what different subjects will lead to. Go to Careers Advice – Options With Your Subject.

www.scenta.co.uk

Information about engineering and technology careers including job profiles.

www.scienceandmaths.net

Case studies demonstrating the huge variety of STEM careers.

www.vega.org.uk

Video case studies of different science jobs.

These and the ones suggested throughout this pamphlet are just some of the websites that can help you in your research. There are many more but remember not all information online is correct.

Also there are people that can advise you such as teachers, your school Connexions adviser, school careers adviser, Aimhigher representatives, parents and carers and friends as well as those you meet in work experience. All will have valuable advice to contribute to help you in your decision making process but remember some advice may be more impartial (for example your parents may have a more biased view of your future than a careers adviser).

Sample your ideas with work experience

What does a mechanical engineer really do? It's very difficult to make important decisions about your future without trying out different types of work. One way of seeing if your dream job won't actually turn out to be a nightmare is through work experience. Work experience is valuable for many reasons but perhaps the most important is it gives you the opportunity to see the reality of your dream.

Some other reasons work experience is great:

- It helps you become industry ready. This means when you get your first job you are able to hit the ground running because you already have an understanding of the industry and what's expected of you. Work experience will provide you with your first introduction to your area of interest.
- It helps you meet people in your area of interest. This means you have contacts (people that can help you) and are able to network (communicate and find more people to help you secure more work experience or your first job).

Many of the websites mentioned have links to companies and people working in STEM and the built environment. A great first step and good practise for trying out your networking skills is to get in contact with local companies in your area to see if they will offer you a work experience placement or the very least let you come in and speak to some people working in the area that interests you. This could be anything from research departments in universities to power supply companies, from local councils to private organisations. If you are offered a placement make sure you make the most of it: speak to as many people as possible, offer to help and get involved. If you are seen as someone who listens and wants to be as 'hands on' as possible you are likely to be asked back or at least gain excellent references.

Content created by Miranda Glavin. Please visit **www.careerelevation.co.uk**





**Job title: Industrial Designer
and Mechanical Engineer**

What do you do: Production engineering for radiotherapy particle accelerators used in hospitals to treat cancer.

What's the best and worst thing about what you do? Best thing is working in multidiscipline teams and implementing ideas in production. Worst thing is not enough design work.

University courses studied: Most recently an Industrial design Masters degree (MA), Central Saint Martin's college of art & design (2 years). Before that a degree in Mechanical engineering (BENG), Sussex University (3 years) and Physics 1st year (BSc), University of Bath (1 year).

A-Levels/equivalent: A-Levels in Maths, Physics and Geography.

Were the subjects you studied relevant to what you do now? Yes, engineering and maths all the time, physics occasionally but not enough and no modern physics despite the quantum processes within the machines at work. Design helps with creative thought and presentation technique but I need to gain more experience in the field before I can fully call myself a designer.

How did you decide what you wanted to do? Decided first to study physics at university because it was a pure subject, but it was too abstract for me and I switched to mechanical engineering at a different university. I worked as an R&D development engineer for 6 years and then decided to go to art college to study design. Now I am contracting as an industrial engineer and doing occasional freelance product design.

What do you recommend for someone interested in this career? All work experience is worth doing. Flexibility, confidence, determination.

What would you have done differently if anything? More work during A-levels definitely makes the start of a degree easier, if I had worked harder my life would be easier now!

What next? More design hopefully, I want to combine engineering with design in my next job.

Science, Technology, Maths, Engineering and Built Environment