



Our region Your future



Our region is home to a huge variety of businesses and organisations, which means you have a lot of choice when it comes to your career path.

So how do you know where to begin?

There are certain areas of industry where the North East performs strongly, and which we believe are likely to grow in the future, based on what we know at the moment.

In the North East, the sectors that we expect to grow in the future are:



Digital



**Advanced
manufacturing**



**Health and
life sciences**



Energy

This pack, and the film that goes with it, will hopefully help you to understand more about what happens in these sectors, the different types of careers that you could go into, and the skills you need to get started.



Watch our film at northeastambition.co.uk/resources

It was researched and co-produced by pupils from Norham High School, North Shields.



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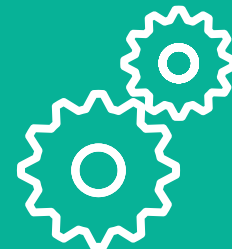


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Working in...

Advanced Manufacturing

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In the spotlight



Stevie Jane McLaughlin is a Continuous Improvement Engineer at Tharsus.

Why did you choose a career in this sector?

As a kid, I spent a lot of my time asking questions! I understood why things existed, but I wanted to know how. I never stop asking why and how. I think that's why I became an engineer because it allows me to have that attitude.

Tell us about your career journey

I started out with Siemens. I was fascinated by the fact that the first steam turbine powered vessel was built on the Siemens site (The Turbinia). I remember seeing it in the Discovery Museum in Newcastle when I was younger, and it filled me with pride knowing I was walking in the footsteps of the engineers who designed and built it.

I moved to GE Oil and Gas as a Project Technician and then to BEL Valves as an Aftermarket Service Technician which included a lot of overseas travel. In 2018 I completed a degree in Leadership and Management with Northumbria University and was offered my role with Tharsus.

What's the best part of your role, now?

Throughout my career, I have had to make difficult decisions and step outside my comfort zone. I've worked away from home for months on end, I've done late nights, early mornings. Now I get to wake up with my family every morning, come to a job I love, leave feeling satisfied and go home to my family. Hard work and determination have seen me get here and I would urge anyone to persevere and believe in themselves!

What is advanced manufacturing?

Here in the North East, large numbers of businesses are using new technologies to make products including medicines, machinery, vehicles and parts for vehicles such as cars and trains.

Together, these businesses make up our advanced manufacturing sector.

The car manufacturing industry alone provides careers for more than 30,000 people in our region and half a million vehicles are made here every year, with many being exported around the world.

Well-known businesses like Nissan, Caterpillar, Komatsu and GSK are based here, and money is being invested into research and new technologies in this sector.

What kinds of careers exist in the advanced manufacturing sector?

There are lots of careers in advanced manufacturing. You can be anything from a researcher in a laboratory to working with electronics in a car plant. There are also opportunities in supporting roles, such as finance, project management, human resources and administration.

Here are some careers you might not have heard of and can explore in advanced manufacturing:



Analytical chemist – involved with developing drugs, analysing compounds and interpreting data



Fabricator – works as part of a team assembling new vehicles

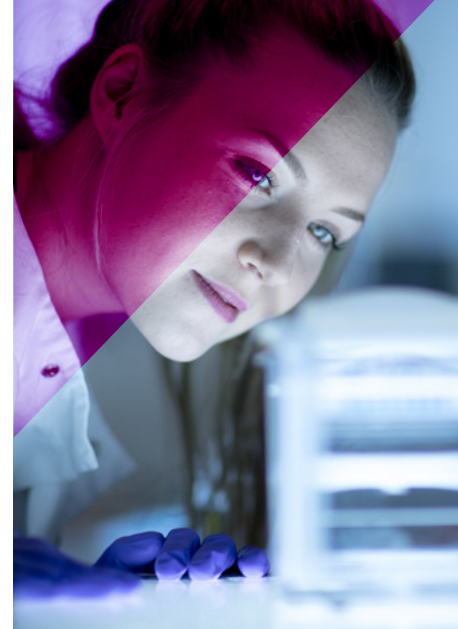


Procurement manager – responsible for sourcing materials and parts for manufacturing



Task – careers inspiration

- Visit careersatnissan.co.uk and research some of the jobs and salaries that are currently available. Pick the one that inspires you the most, what skills would you need?



What skills do you need to work in advanced manufacturing?

It really depends on the career path you're interested in.

Studying STEM subjects will be a big help if you want to work in certain roles in the advanced manufacturing sector.

Strong skills in English and maths and good GCSEs are really important if you want to secure a good, starting role.

Because many of the companies in this sector are global, they're often looking for people with strong foreign language skills.

Advanced manufacturing uses the latest technology, so good digital and IT skills would be really useful, too.

How much do careers in the advanced manufacturing sector pay?

That depends on the job, but some examples of roles and typical salaries you'd expect in the North East, include:

Apprentice - approx. £139 per week

Driver at a car factory - £17,000 per year

Production manager - £24,000 per year

Digital marketing executive, pharmaceutical company - £27,000 per year

Graduate engineer - £29,000 per year



Task – job search

Research and make a list of roles in advanced manufacturing that would be suitable for:

- A school leaver with GCSEs
- A college leaver with a level 2 diploma in engineering
- A graduate with a degree in engineering
- Someone with a post-graduate qualification



What do I need to do if I want to work in advanced manufacturing?

There are lots of ways to get into a career in advanced manufacturing, depending on what you want to do and the way you like to learn and work.

For example, you can apply for an apprenticeship with an advanced manufacturing company - and earn money whilst you train in the role and gain qualifications.

College is a great option if you want to gain a qualification such as a diploma in engineering or manufacturing, as well as hands-on practical training.

You could complete a degree then join a graduate training programme within an organisation.

Or you could gain a degree or further qualifications, then apply for an entry-level role.

These are just a few of the ways into advanced manufacturing careers.

1.8m

It is predicted that the UK will need 1.8 million new engineers by 2025. That's a LOT of engineers!

Lots of these engineers will be needed in advanced manufacturing.

Source: engineeringuk.co.uk





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Working in...

Digital

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In the spotlight



Daniel Patrick Vaughan is a film maker and Creative Director at Digitalfire Ltd, Newcastle.

How did you get into this career?

My first job when I left school was as a sound engineer. Good qualifications will help you get in the door of your chosen career but it's also really helpful if you're passionate about the area you want to work in. Being able to show people what you can do, either through a portfolio or during work experience, also really helps.

Any form of work experience is always a good idea. It shows that you are serious and that you already have an understanding for the work environment.

What is it like working in the digital sector?

There is a lot of competition for work in the digital sector, especially when it comes to creative content. So you do have to work hard. This means enjoying and practising your skills in your own time and building a network that will support you and help you grow.

What is the North East digital sector?

The North East's digital sector describes the businesses in our region that develop and deliver digital products or services. The digital sector in the North East is vibrant and exciting and has been growing rapidly over recent years.

People who work in the digital sector in our region specialise in areas such as games design, cyber security, web development and software development.

The digital sector also covers areas such as data analytics, virtual reality, smart data, cybersecurity, and our colleges and universities offer courses that can help you develop your skills in these areas.

Digital businesses in the North East vary in size from just one or two people, to large companies employing hundreds of people across different locations.

It's a fast-growing sector, with many businesses expanding and taking on new staff.

What kind of careers exist in the digital sector?

Working in a digital role can give you the chance to be creative, to work with new technology and to be at the cutting edge of new ideas and innovations.

Here are some examples of jobs in the digital sector:



Games designer – works as part of a team developing, building and testing new games.



Software developer – builds or maintains computer systems and programs.



Web developer – designs and builds websites and apps



What skills do you need to work in the digital sector?

There are such a wide variety of roles in the digital sector, so the skills you'll need will depend on the career path you choose.

For example, strong IT skills such as in coding and programming are needed if you want to work in web or software development.

Digital design skills would be important if you wanted to work in web design, or roles where you need to use Computer Aided Design (CAD) programmes.

Good project management skills and the ability to be creative and flexible are also really useful in the digital sector.

You don't need to work in the digital sector to need digital skills to do your job.

Most careers now and in the future will ask for good digital skills as part of the role – so that's being able to use IT equipment, online tools, apps, smartphones – and lots of other software.

As time moves on, so will technology, and we'll need to keep our digital skills up to date.

Organisations across all sectors are using technology to improve the way they work – and this is called digital transformation. More digital transformation in the workplace will mean employees will need to use digital skills more regularly in their work.

No matter what sector you work in, you're going to need good digital skills, so ICT-related subjects are a good choice at GCSE.



Task – applying for digital jobs

Search online for jobs in the digital sector in our region.

What are the skills and qualifications would you need to apply for the jobs you find?



£2bn

The digital sector in our region brings more than £2 billion to the economy – wow!



How much do jobs in the digital sector pay?

That depends on the job, but some examples of roles and typical salaries you'd expect in the North East are:

Digital marketing apprentice - £187 per week

Digital content developer - £25,000 per year

CAD Designer - £30,000 per year

Junior web developer - £20,000 per year

Software developer - £25,000 per year

What do I need to do if I want to work in the digital sector?

There are lots of ways of getting into a career in the digital sector, so where you start depends on the kind of role you're looking for and how you like to learn.

Lots of organisations offer apprenticeships in digital areas such as social media marketing or website design.

You could also complete a degree in a subject like computer science or digital design, and then look for a graduate-level role.

Gaining work experience, or experience of putting your digital skills to practical use, could help you get your first role.

These are just some of the ways into digital careers, there are lots of other paths to take.



Task – work experience

Research some job roles in the digital sector.

What kind of work experience does the job description ask for?

Think about and discuss how you'd get that experience.





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Working in...

Energy

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In the spotlight



Ravneet Kaur is an Innovation Manager at the the Offshore Renewable Energy (ORE) Catapult in Northumberland. The Catapult is an innovation and research centre for offshore and renewable energy.

How did you get into this career?

I completed my MBA degree in India before studying for an MSc in International Marketing at Newcastle University, then gained a certification in Renewable Energy, Enterprise and Management.

What does your job involve?

I'm part of a team that looks at how the renewable energy sector will evolve over the next 20 to 30 years, making sure that UK businesses are ahead of the game and helping businesses to enter the renewable energy sector.

My role is diverse as it involves exploring a wide range of technologies including robotics, Artificial Intelligence and Virtual Reality and applying them to the offshore renewable energy sector.

What do you enjoy the most about your job?

I'm pleased to be in a position where I can support UK and North East energy companies to grow and to innovate. It's really exciting for me to be able to help organisations reach their targets and to work in new ways.

What do we mean by the energy sector?

As the world's population grows and our climate changes, renewable and clean energy sources are becoming even more important.

Businesses that develop clean energy solutions like wind and tidal power are all part of the energy sector, alongside the oil and gas industries.

Here in the North East, we've got a strong energy sector. It includes businesses that are working to test sub-sea machinery, build huge wind turbines, and create greener and cleaner ways of powering our cars, homes and workplaces.

Our coastline means that the North East is the ideal place for building and testing wind, wave and tidal technology, and thousands of people work in our universities, colleges and businesses, leading the way in developing new ways of providing energy to people around the world.

What kinds of careers exist in the energy sector?



Design engineer – designs and tests equipment used in energy projects



Hydrographic surveyor – spends time at sea, mapping underwater surfaces and helping to plan wind farms



Innovation manager – looks to the future of the energy sector, researching new technologies



What skills do you need to work in the energy sector?

Studying STEM subjects will be useful if you want a career in the energy sector, especially if you're interested in innovation, research, design or development.

You'll also need strong ICT skills if you're working with advanced technology and software as part of your role.

There are lots of supporting roles in the energy sector too, like project management, marketing and administration, which will require different kinds of qualifications and skills, such as strong English, maths and communications skills.

How much do careers in the energy sector pay?

That depends on the job, but some examples of roles and typical salaries you'd expect in the North East, include:

Electrical engineer in renewable energy - £35,000 per year

Wind turbine service engineer - £27,000 per year

Administrator - £20,000 per year

Solar panel installer/engineer - £32,000 per year

Higher level engineering apprentice - £15,000 per year



Task – what does a wind turbine engineer do?

Research and then describe a typical day in the life of a wind turbine engineer.

What are the top three skills you think you'd need to do that job?



What do I need to do if I want to work in the energy sector?

There are lots of ways of getting into a career in the energy sector, so where you start depends on the kind of role you're looking for and how you like to learn.

Studying STEM subjects at school or college is a great way to start.

You could then complete a degree in a STEM-related subject, which often includes a work placement in the energy sector.

Or you could apply for an apprenticeship within the sector, in areas such as engineering, administration or design.

These are just some of the ways into the energy sector.



Task – which degree should I do?

Our four universities (Durham, Newcastle, Northumbria, Sunderland) offer hundreds of degree programmes that could lead you into a career in the energy sector.

Do some research into what these programmes are and the qualifications you'd need to study on them.





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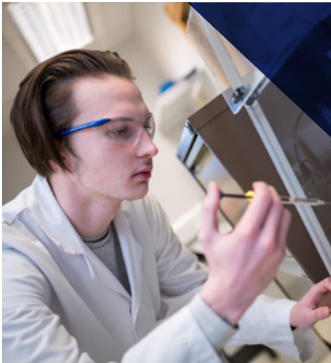
Working in...

Health and life sciences

Delivered by



In the spotlight



Tyler McKeown is an Apprentice Laboratory Scientist at Sterling Pharma Solutions in Northumberland.

Sterling provide ingredients and services to the pharmaceutical industry. Kyle is studying on a degree apprenticeship programme, working towards a degree in Analytical Chemistry while learning on the job.

How did you get into this career?

I've always had an interest in science but I hadn't dreamt I could do a degree in Analytical Chemistry. For me, the opportunity to do a degree course while also learning via an apprenticeship was a great option. I always wanted to earn, to pay for things myself and to grow as a person.

How does it feel to be part of the world of work?

Being part of such a professional company at such a young age is brilliant. I have a head-start in expanding my knowledge compared with a graduate. I started here when I was 17, completing my level 3 apprenticeship and I'm now at level 5, with plans to move on to level 6. I have direct contact with colleagues who have 20 or 30 years of experience and the whole team helps me to succeed. I couldn't ask for better colleagues.

I visit local schools with Sterling to talk to the students about apprenticeships and my family are really proud to see how it's working out for me. My parents are already encouraging my siblings to take a similar route.

What do we mean by health and life sciences?

Health and life sciences is all about understanding and looking after people's health and wellbeing, from tiny babies to the very oldest in our society.

The North East is home to hundreds of organisations carrying out important research, developing new healthcare technologies, and finding new ways of helping everyone to live better as they age.

Organisations in the health and life sciences sector also focus on testing new medical treatments, studying how nutrition and lifestyle affects our health, and developing new technology for hospitals.

The research which is carried out here in the North East is some of the best in the world, with scientists, researchers, businesses and healthcare organisations all working closely together.

What kinds of careers exist in health and life sciences?

If you work in health and life sciences, you might be based in a university, in a large research centre or laboratory, in an office, or in a hospital or other healthcare environment.

These are some examples of careers in the health and life sciences sector:



Biomedical scientist – carries out tests and analyses data to learn more about ageing and diseases



Lab technician – provides support to scientists and researchers in a laboratory



Research and development manager – works on developing new products, services and technologies to be used in the health and life sciences sector



What skills do I need to work in the health and life sciences sector?

The skills you'll need will vary from job to job. STEM skills are important if you want to train in nursing or medicine, or to be involved in research.

Technology also plays a big part in this sector – from using advanced equipment to detect and diagnose illnesses to analysing complex data as part of research - which means digital skills will be especially important.

Good communication skills are also really important, especially if you're in a role that involves caring for people who may be poorly or frail.

How much do careers in the health and life sciences sector pay?

That all depends on the role, but some of the jobs and typical salaries you might expect to find in the North East are:

Pharmacy technician - £15,000 per year

Research assistant - £27,000 per year

Trainee nurse - £17,000 per year

Qualified midwife - £35,000 per year

Lecturer in life sciences - £49,000 per year



Task – discovering life sciences

The International Centre for Life in Newcastle is globally recognised for its work in life sciences.

Visit centreforlife.org.uk and find out who works there and what they do.



What do I need to do if I want to work in the health and life sciences sector

There are so many different and varied roles in health and life sciences – from caring for patients to researching new medicines.

There are also lots of different ways into careers in this sector, depending on what you want to do and the way you like to learn and work.

For example, you could study STEM subjects at GCSE and A-level then apply for a degree apprenticeship in a life sciences subject or apply to train in nursing.

You could complete a science or research-focussed degree and then apply for research assistant roles.

Or you could carry on studying in your specialist area, all the way to PhD (doctor) level and become an expert in your field.

Another option is to apply for an entry level job like an administration assistant and gain some experience of the sector.

These are just some of the ways into a career in health and life sciences.



Task – helping people to live better for longer

Newcastle is home to the National Innovation Centre for Ageing.

Carry out research to find out what this is and what happens there.
What skills do you think you'd need to work there?



For more inspiration, visit:
northeastambition.co.uk

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