

CAREERS ACTIVITIES LINKED TO KEY INDUSTRY SECTORS

ENGINEERING CAREERS ACTIVITY (KS4)

Whether you know exactly what job you want to do and how to get there, or whether you aren't sure just yet, researching the job roles within different industry sectors will help you to expand your knowledge and help you understand the learning pathways, skills and qualifications which potential employers may be looking for from young people entering their industry sector.

During this activity you will be able to explore these different job roles, begin to look in more detail at specific job roles and then use labour market information to understand what type of employers you could end up working for.

As part of this series of careers activities you will be given the opportunity to explore the many careers that may be open to you should you wish to take up a role within the Engineering industry sector.

SECTION 1 WHAT IS ENGINEERING?

Let's start by understanding exactly what is meant by ENGINEERING. [Watch this short video developed by the University of Newcastle in Australia.](#)

You should be able to watch this video on your mobile phone or on your computer.

Can you list below 10 different types of Engineers and the products they have helped build / invent?

Please don't focus just on the engineers featured within the video try and research some more by exploring the internet.

	Type of Engineering	Product
1	<input type="text"/>	<input type="text"/>
2	<input type="text"/>	<input type="text"/>
3	<input type="text"/>	<input type="text"/>
4	<input type="text"/>	<input type="text"/>
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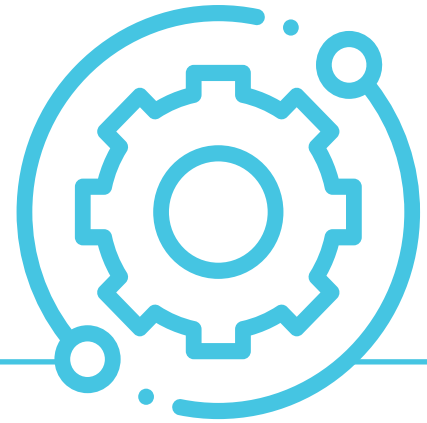


SECTION 2

ROUTES INTO ENGINEERING

Watch this short video to help you understand the 3 x different entry routes you could take to join the ENGINEERING sector.

Lets us explore these routes in more details.



THE TECHNICAL ROUTE

Known as Tech levels or T-levels, these include qualifications such as BTECs and NVQs in engineering, ICT and construction & the built environment.

Vocational courses prepare you for a particular job, industry or sector. They are often very practical and may include coursework assignments related to real-work scenarios, as well as links with employers. Vocational courses are offered at different levels and can lead onto apprenticeships, higher education (university) and employment

Research and answer the following questions about the TECHNICAL route into Engineering.

1. Using the internet can you research and list the local colleges or training providers who offer T'level opportunities in Worcestershire?

2. Can you read the document by following the link below and list 5 x vocational qualifications which might be of interest to you?

3. What do you think are the benefits of choosing the TECHNICAL ROUTE into Engineering?

THE APPRENTICESHIP ROUTE



Apprenticeships allow you to earn money, combining on-the-job training with study. They can open doors to a wide variety of engineering jobs and can be taken at different levels, including intermediate, higher and degree apprenticeships.

You will generally need a minimum of five GCSEs (or equivalent) including English, maths and science or technology subjects, often at grades 9 to 4 (A* to C) due to competition for places.

Research and answer the following questions about the APPRENTICESHIP route into Engineering.

1. Using this [document](#) can you explore and list 5 key facts about engineering apprenticeships?

2. Using the internet can you research and list some companies in Worcestershire that offer Engineering Apprenticeships? Can you also provide details of what they produce?

3. What do you think are the benefits of choosing the APPRENTICESHIP ROUTE into Engineering?

THE UNIVERSITY ROUTE



After completing your A-Levels, T-levels, IB, Highers, BTEC Level 3 or equivalent, you may decide to go on to study engineering at university.

Degree courses (BEng) normally last for 3 or 4 years while Masters courses (MEng) last for 4 or 5 years. Some courses involve a year working in industry or a year abroad. Students can take a 'general engineering' degree or they might decide on a particular type of engineering, for example civil engineering, electronic engineering, design engineering, mechanical engineering or one of the many other types of engineering.

You normally need to have studied maths and physics (or chemistry for chemical and biomedical engineering), or a related vocational course to Level 3, in order to apply to engineering degrees at university

Research and answer the following questions about the **UNIVERSITY route into Engineering.**

1. Using this [document](#) can you explore and list the different Engineering disciplines you could study at University?

2. What are the different degree types you could study if you wish to follow the University route into Engineering?

3. Using the internet can you research and list some local, regional and nationally based universities where you could study Engineering?

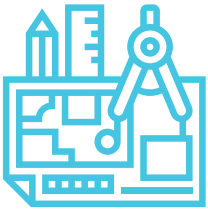
SECTION 2

EXPLORING JOB PROFILES

To help you understand and obtain more information about a variety of these job roles you can begin to explore their "Job Profiles"

A job profile should give you key information about the role including entry routes, qualifications, potential earnings and the tasks the job involves.

Using this link can you explore the following [JOB PROFILES](#) and then answer these questions for each of the job roles?



DESIGN ENGINEER

1. How many hours per week would you expect to work as a DESIGN ENGINEER?

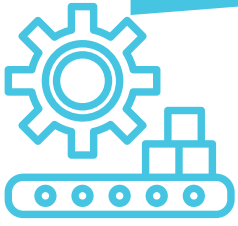
2. Can you name the qualifications which might help you become a DESIGN ENGINEER?

3. What would the starting salary be for a fully qualified DESIGN ENGINEER be?

4. What "Work Experience" could you undertake before looking to become a DESIGN ENGINEER?

5. Can you write a paragraph about the tasks you might be required to undertake as a DESIGN ENGINEER?

[Why not watch this short video about Lee Tabis who is a Senior Design Engineer working for NG Bailey.](#)



MANUFACTURING ENGINEER

1. How many hours per week would you expect to work as a MANUFACTURING ENGINEER?

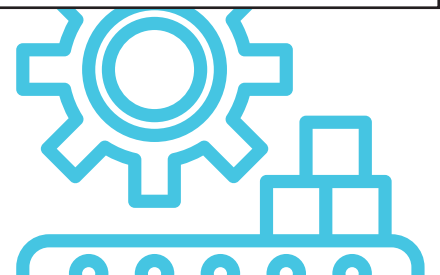
2. Can you name the qualifications which might help you become a MANUFACTURING ENGINEER?

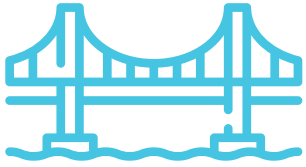
3. What would the starting salary be for a fully qualified MANUFACTURING ENGINEER?

4. Can you write a paragraph about the tasks you might be required to undertake as a MANUFACTURING ENGINEER?

5. Can you list 3 x employers in Worcestershire where you could be employed as a MANUFACTURING ENGINEER?

[Why not watch this short video about Craig Johnstone who is a Manufacturing Engineer working for Rolls-Royce.](#)





STRUCTURAL ENGINEER

1. How many hours per week would you expect to work as a STRUCTURAL ENGINEER?

2. Can you name the qualifications which might help you become a STRUCTURAL ENGINEER?

3. What would the starting salary be for a qualified STRUCTURAL ENGINEER?

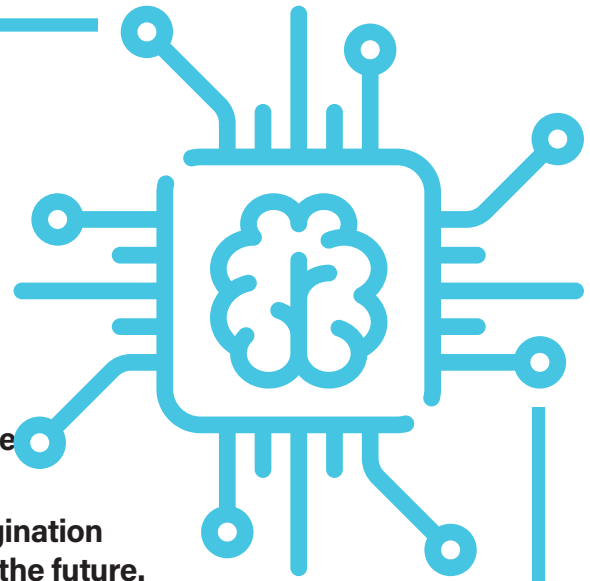
4. Can you write a paragraph about the tasks you might be required to undertake as a STRUCTURAL ENGINEER?

5. Can you list 3 x employers in Worcestershire where you could be employed as a STRUCTURAL ENGINEER?

[Why not watch this short video about Roma Agrawal who is a Structural Engineer working for WSP.](#)



ENGINEERING OUR FUTURE!!!



You should now have a better understanding of Engineering and some of the roles you could choose if you wanted to enter this industry sector.

Your next task will be to look to the future and use your imagination to look at how ENGINEERS could change the way we live in the future.

Can you think of a product which could be developed in the future and how engineers could play a part in the design and production of this product?

In the text box below provide some details of your product idea, what you are setting out to achieve by developing this product and then provide some details of how engineers or engineering played a role in developing this product.

[Why not watch this short video as it might give you some inspiration?](#)

