



# Why study?



# Design and Technology

## How studying GCSE Design and Technology could lead to a job at Sizewell C

### What does Design and Technology have to do with the nuclear industry?

Like all infrastructure projects, a nuclear power station like Sizewell C needs architects, engineers and designers to turn a set of requirements into blueprints and plans that can be manufactured and assembled. Designers use their skills and experience to interpret technical and environmental requirements and solve them with design ideas. They might use their knowledge of materials and components to prototype, test and blueprint the buildings, equipment, furniture and other objects needed to create a welcoming and functional environment.

A GCSE in design and technology introduces would-be designers to the principles they'll need to follow to succeed in design. It also focuses on the increasing use of technology in design and manufacture. Both are valuable skills to have in a variety of trades and other positions at Sizewell C.

### Careers at Sizewell C

A design and technology GCSE might not be a direct requirement for jobs and apprenticeships at Sizewell C, but it will help equip you for many roles. Consider **formwork apprentices**<sup>1</sup>, who use a range of methods to create the forms that shape concrete structures, and **steel fixers**<sup>2</sup> who construct steel reinforcement. Having a grounding in design and technology might help you interpret and visualise existing designs, and learn and progress in either role.

Design skills are also vital for heating, ventilation and air conditioning (**HVAC engineers**), who design and install the ventilation systems that manage temperatures and keep the air fresh in modern buildings. The same is true for **carpenters**, and **metal fabricators**, who manufacture anything from machinery parts or supports, all the way up to ships and bridges! In these roles, you'll check materials, interpret technical drawings and assemble finished products – all supported by the skills you learn in a design and technology GCSE.



### Did you know?

**Concrete is an essential material for building a nuclear power station. Sizewell C's sister station, Hinkley Point C, set a new world record for the longest continuous concrete pour: 9,000 cubic metres, over five whole days!<sup>3</sup>**

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## Career pathways using Design and Technology

- Apprenticeships are a common route into roles like being a carpenter, steel fixer or metal fabricator. Find out more on the government's [Apprenticeships website](#) or have a look for [Sizewell C apprenticeships](#).
- You may need a degree to qualify for other roles, such as geophysicist or reactor operator. While in some cases, having one may improve your employment prospects.
- An internship or industrial placement can help you experience a role or industry. Your college or university should be able to help you find opportunities.
- EDF is working with local schools and colleges, such as [East Coast College \(Lowestoft\)](#), [Suffolk New College](#) and [West Suffolk College](#), so have a look at their websites for pathway courses too.

## Design and Technology skills



A design and technology GCSE is a great opportunity to express your **creativity**, learning how to work from a blank canvas to design bespoke products that meet a specific need. It's also great for developing your **problem-solving** skills, as you investigate challenges, before choosing the right materials and designing products that will solve them.



Designers may sometimes work alone, but they're more likely to be part of a group, where skills like **teamwork** could help them create better solutions, and work more effectively with fabricators and manufacturers to see them realised.

### Useful links

**icanbea...** Career ideas and opportunities in Norfolk and Suffolk

**Young SZC:** Connecting young people to careers and apprenticeships in the region

**BBC Bitesize:** What GCSEs should I take?

**BBC:** Jobs that use design and technology

- <https://www.instituteforapprenticeships.org/apprenticeship-standards/formworker-v1-0>
- <https://www.instituteforapprenticeships.org/apprenticeship-standards/steel-fixer-v1-1>
- <https://www.edfenergy.com/energy/nuclear-new-build-projects/hinkley-point-c/news-views/hinkley-point-c-hits-biggest-milestone-yet>
- [https://nrl.mit.edu/about/faq#:~:text=Around%20the%20reactor%20core%20itself,gamma%20radiation\)%2C%20and%20concrete](https://nrl.mit.edu/about/faq#:~:text=Around%20the%20reactor%20core%20itself,gamma%20radiation)%2C%20and%20concrete)

All information correct at the time of going to print in December 2023.  
Some of the images come from our sister project, Hinkley Point C, in Somerset.

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## Design and Technology in action

Wondering how your design and technology skills might apply in a nuclear power station? Try our quiz below!

1. Look at this diagram showing the main parts of Sizewell C. Which areas do you think it will take design skills to create?



2. Designers learn to choose materials with suitable properties. Can you match these materials to one of their main qualities?

Copper	Absorbency
Fibre (e.g. wool)	Density
Diamond	Electrical conductivity
Lead	Hardness

3. Can you match the same materials to how they might be used in a nuclear power station?

Copper	Not used
Fibre (e.g. wool)	Wiring
Diamond	Radiation shielding
Lead <sup>4</sup>	Sound proofing

4. Concrete is incredibly strong and widely used in construction. What's its biggest weakness though?

- a) It rusts
- b) It burns
- c) It tends to crack under tension (pulling)

5. Rebar (steel rods) are nearly always embedded within concrete. Why?

- a) They reduce the amount of concrete being used, which saves money
- b) They're strong under tension, making the concrete stronger overall
- c) They make it easier to shape the concrete during pouring

Answers:  
Q1. All of them! Q2. Copper - conductivity; Fibre - absorbency; Diamond - hardness; Lead - density. Q3. Copper - wiring; Fibre - sound proofing; Diamond - not used; Lead - radiation shielding  
Q4. c) Q5. b)

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