

OCR Level 2 Cambridge National Certificate in Engineering Design



Career Options

This course could lead to entry into any engineering or design based professions, or practical based apprenticeships.

Subject Content

This course covers a range of practical and theory based engineering topics. You will begin with practical wood working skills in the workshop and develop these skills through a series of practical based activities. This will include the safe use of tools and machinery, making a range of wooden joints culminating in a project that incorporates these new skills. The skills also cover engineering drawing and CAD (Computer Aided Design) skills that are essential for the coursework.

Alongside these tasks you will learn the theory knowledge to prepare you for the written exam. The theory elements are all about engineering in industry. You will look at the design cycle and how products are designed and made. This covers every stage in detail from the sourcing of raw materials and why they are chosen based on their properties/availability and environmental impact. It goes on to the manufacturing elements looking at a range of machines and processes and finally what happens when you discard a product and the impact it would have on the environment, and how to reduce this impact.

This course covers a wide range of technical and engineering knowledge and has close links to science and geography topics. Along with the practical skills you will look at environmental issues when designing, new/smart materials and their properties, forces and a wide range of other areas that would be perfect for someone wanting to progress to a career in engineering.

Assessment Information

The course is split into 3 units. One exam and two pieces of coursework.

Exam

The exam (R038) is worth 40% of your final grade and is sat in June of year 11. The exam is 1 hour and 15 minutes.

Coursework

The other 2 units are coursework based where you will research, design and make a product which will give you the final 60% of your overall mark. The coursework task changes each year and is released in June.

1. The first unit (R039) is design based and you will have to design a series of products using a range of drawing techniques such as isometric, 2 point perspective, orthographic as well as computer based drawing and 3D modelling used in industry.
2. The second unit (R040) is based on producing a prototype.

Course Structure

- **Year 10** will be split into 3 elements, learning the theory knowledge for the exam, alongside practical skills, whilst also starting the first unit of coursework.
- **Year 11** will cover the second unit of coursework where you will put the practical knowledge from year 10 into use, as well as prepping for the exam in June.

Why Study...?

This is a great course to lead onto a wide range of career areas such as Engineers, Computer Games Developers, Tradesmen, Fashion Designers, Graphic Designs and Teachers. This course has a high percentage of controlled assessment (60%) which means a lot of your final grade comes from work completed in the lesson. According to the labour market, engineering is one of the most needed jobs in the future. Engineering currently generates £27 billion per year for the UK economy.

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