

# GCSE Engineering (Mathematical & Mechanical) / BTEC Engineering (Industry & Design)

## What is Engineering?

Engineering is the practical application of maths and science (mainly physics). The course will complement your maths and science lessons and you will get the opportunity to turn the metals and plastics that you learn about in those lessons into mechanical products.

## Should I take Mechanical & Mathematical or Industry & Design Engineering?

That depends on you! If you are a strong mathematician and you would like to study A-level Maths and Physics, with a view to studying Engineering at University, Mechanical and Mathematical is for you. We learn mainly about mechanisms, but also some electronics theory. You will be expected to design and make your own mechanical solution to a real-world problem set by the exam board. Students who are studying the higher tier of mathematics and have a solid grounding in science (physics) perform best at this subject. Most of the practical work will involve the use of CAD (2D Design, Auto desk inventor) and CAM (the laser cutter). The materials we work with are primarily woods, plastics and electrical components.

Design and Industry still involves some maths, but it is not as complex. There is more opportunity to work with industrial engineering tools and machinery such as lathes and milling machines to produce high quality products. The material you will primarily work with is metal. Taking this subject will be a great foundation to apply for an apprenticeship with local engineering companies and get paid whilst you learn. This course is excellent for hands-on practical learners.

## Is Engineering a boy's subject?

Absolutely not! 30% of the course are girls at Durham Johnston. The work place (and the world) thrives on diversity and balance. There is a big discrepancy between the amount of men vs. women in engineering professions, so as a minority, women are highly sought after and valued. You'll be appreciated not only for your skills, but for the insight you can bring to the profession. The future is bright for women in engineering.

## Why should I study Engineering?

### You'll make a difference in the world

Engineers use their problem solving skills to confront many of the world's biggest concerns, so you'll have the opportunity to create new technologies that will improve the way we live. For example, you could be creating new medical devices for patients, devising ways of providing clean water to those who have no access, or even developing more efficient cars and homes in order to help sustain our planet. Essentially, as an engineer, you can help to save lives and the possibilities are endless.

### You get to be creative

Studying and working in engineering gives you the chance to get inventive. You get to design, construct and create effective new products and technologies that solve real life problems in

new and more efficient ways. Plus, you can collaborate with professionals in other industries and sectors to produce impactful, innovative and original work.

### **Engineers are paid well**

Not only does engineering offer the opportunity to have a flourishing and rewarding career, but it will also pay you well. The average salary for an Graduate/Junior Engineer is £30,557\* and this can continue to rise as you gain more experience.

*\*The Engineer Salary Survey 2018*

### **You'll have plenty of career options**

Whether you want to study it at University or get an apprenticeship at 16, Engineering has a pathway for you. As the world continues to rely on technology, an engineering degree equips you with skills that are essential to our way of living. This gives you license to explore a huge range of roles and, because of the problem solving skillset studying Engineering develops, those with Engineering experience are sought after for a wide range of jobs in many different industries.