

## Implication of the Government's Reforms

The BTEC Diploma is a suite of qualifications of different sizes that are all at the same level (Level 3) as A Levels. BTEC qualifications are not directly affected by the changes under way for all A levels but there are changes that will take place from 2017 in the way the post-16 performance of schools and colleges will be reported. This will have some influence on what schools and colleges offer and how universities perceive different qualifications.

In future the Government will publish post-16 Accountability Measures that show students' progress separately in:

- Level 3 academic programmes (mainly A Levels and AS);
- Level 3 Applied General programmes (applied learning linked to future careers and allowing University progression);
- Level 3 Technical levels (providing technical skills that give entry to Apprenticeships and applied degrees)
- Technical Certificates (qualifications for 16-19 year-olds at Level 2 that meet industry entry requirements).

Specifics for Level 3 Engineering:

**The BTEC Level 3 Diploma suite is included in the Government's Level 3 Technical qualifications. This means that they have been endorsed by employers and are also recognised for university entry in relevant subject areas.**

## What is Engineering?

Engineering is the application of Science, Maths, technology, computing and imagination to make things and solve problems. Almost everything you use in your daily life has been designed, produced and maintained by engineers. The origin is the Latin word **ingenium** meaning cleverness!

The BTEC Diploma comes in three sizes, equivalent to one, two or three A Levels. This allows you to either focus on one area of Engineering or several. Some of the main areas of Engineering are:

- Design and Manufacturing Engineering – using computer aided design (CAD) to develop new products and produce them for example using 3D printing or Computer Aided Manufacturing (CAM)
- Biomedical Engineering – designing and making devices like artificial limbs or heart valves to help people recover from illness.
- Mechanical Engineering – working with metals, wood and other materials to create machines, products and tools.
- Vehicle Engineering – designing, making and maintaining cars, aircraft, trains or ships.
- Electronics and Electrical Engineering – designing, installing and maintaining systems that generate or use the power of electricity.
- Hydraulics and Pneumatics – using technology to harnesses the power of compressed liquid (hydraulics) or gas (pneumatics).



## What GCSEs do I need to study Engineering?

You will normally need 5 GCSEs at A\*-C. You don't need to have studied Engineering at GCSE or equivalent but if you have this will help as will subjects like Design & Technology or Resistant Materials. You need to be confident with Maths (ideally at least a B) as Engineering involves complex calculations in areas like stress, estimation and power. Engineering also applies many aspects of Physics and Chemistry as you need to understand the properties of the materials you are working with. Artistic and design skills are very useful in creating new products or making diagrams and normally mean you are good at being accurate and patient in working with materials.

# BTEC Level 3 Diplomas in Engineering



## What could I do with it afterwards?

You can use BTEC Diplomas to aim for Apprenticeships or progress to university. All universities accept BTEC Diplomas for entrance to degree level study in relevant subject areas. Most treat Diploma Distinctions as equivalent to As & Bs at A Level when making conditional offers. Diplomas will also give entry to Apprenticeships and high quality jobs with training. Almost every organisation you can think of employs Engineers and there is a national shortage of good young Engineers and Technologists.

## What form does the assessment take?

There are written papers on the theoretical aspects of units, combined with project work and assessment of your knowledge and skills in practical tasks. In most cases you practice performing an engineering task and are then observed doing it under test conditions.

## Which size fits your career plans?

### BTEC Subsidiary Diploma

This is equal to **one A Level** and you'd normally combine it with two A Level subjects, such as Biology, Physics, Chemistry or Maths, and possibly with the Extended Project.

### BTEC Extended Diploma

This is equal to **three A Levels** and you could combine it with one A Level (probably Maths) if you are aiming for a top university or the Extended Project.

## Customising the Diploma to maximise your career opportunities

The extended diploma is a 17 Unit qualification that we have custom designed to suit the requirements of leading local and international engineering employers.

You will study mechanical, electronic and mechatronic units (theory and practical) and Computer Aided Design and also have the opportunity to select some specialist units in fields such as Aerospace and Automotive Engineering.

### Compulsory Units (number increases with the size of the Diploma)

- **Health & Safety; Communications & Maths; Engineering Project; Maths for Engineers; Mechanical Principles; and Electrical Principles**

### Optional Units (we will group into clusters that make sense)

- **Subsidiary Diploma** : 2 compulsory and 4 optional units, allowing specialism in a particular aspect of Engineering, for example in Electronics, CNC & CAM or Mechanical Engineering.
- **Extended Diploma** : 6 compulsory (incl. a double-sized project) and 11 optional units meaning that around 60% of your time is spent on the optional aspects. You can either specialise heavily in one aspect of Engineering or use the options to develop strong all-round skills.