

Purpose Statement

Name of regulated qualification	
QAN: 601/7591/6	Title: Pearson BTEC Level 3 National Foundation Diploma in Engineering (540 GLH)

Overview***The engineering sector***

Engineering is a dynamic sector that offers huge potential for students. Engineering turnover was £1.1 trillion in the year ending March 2012, and it accounts for 24.5 per cent of the turnover of all enterprises in the UK. The UK is regarded as a world leader in engineering sectors including renewable energy, space, low carbon, aerospace, creative industries, utilities, automotive, agri-food and bioscience. Between 2010 and 2020 engineering enterprises are projected to have 2.74 million job openings, including more than 400,000 technician roles (as the predominantly ageing workforce in this area is expected to retire in this period).

Who is this qualification for?

The Pearson BTEC Level 3 National Foundation Diploma in Engineering is intended to be an Applied General qualification for post-16 students who want to continue their education through applied learning and who aim to progress to higher education, and ultimately to employment, possibly in the engineering sector. The qualification is equivalent in size to 1.5 A Levels and aims to provide a coherent introduction to study of the engineering sector. Students need not necessarily have studied engineering previously, but will have successfully completed a Level 2 programme of learning, with GCSEs or vocational qualifications.

What does the qualification cover?

The content of this qualification has been developed in consultation with academics to ensure that it supports progression to higher education. In addition, employers and professional bodies have been involved and consulted in order to confirm that the content is also appropriate and consistent with current practice for students who may choose to enter employment directly in the engineering sector.

Everyone taking this qualification will study four mandatory units:

- Engineering Principles
- Delivery of Engineering Processes Safely as a Team
- Engineering Product Design and Manufacture
- Applied Commercial and Quality Principles in Engineering.

Students choose three optional units to support choices in progression to courses in HE, and to link with relevant occupational areas. They cover content areas such as:

- computer-aided design
- pneumatic and hydraulic systems
- electronic devices and circuits
- computer programming

- 3D printing and rapid prototyping
- programmable logic controllers
- CNC machining
- welding.

In addition, the qualification includes an optional work experience unit so all students can benefit from practical experience of the sector.

What could this qualification lead to?

Will the qualification support progression to further learning, if so, what to?

Students who have completed this qualification in a year may progress to further learning at level 3, for example, a second Foundation Diploma in a complementary sector, or to a larger size BTEC National in the Engineering sector.

In addition to the engineering sector-specific content outlined above, the requirements of the qualification will mean students develop the transferable and higher-order skills that are highly regarded by both HE and employers. For example, when studying the *Applied Commercial and Quality Principles in Engineering* unit, students will develop an understanding of how key business activities and trade considerations affect engineering organisations, and how these can be used to create a competitive advantage. Students will also understand about quality processes, and the techniques and tools used to monitor and improve quality, such as value stream mapping.

The qualification is intended to carry UCAS points and is recognised by HE providers as contributing to meeting admission requirements for many courses, if taken alongside other qualifications as part of a two-year programme of learning, and it combines well with a large number of subjects. It will support entry to HE courses in a very wide range of disciplines, depending on the subjects taken alongside. However, for students wishing to study an aspect of engineering in HE, opportunities include:

- BSc Hons in Electrical Engineering, if taken alongside AS/A Levels in Mathematics and a science subject (e.g. Physics)
- BSc (Hons) in Architectural Engineering, if taken alongside a BTEC National Foundation Diploma in Construction and the Built Environment
- BSc (Hons) in Computer Science, if taken alongside a Pearson BTEC Level 3 National Foundation Diploma in Computing
- BSc (Hons) in Maths or Physics, if taken alongside AS/A levels in Maths and Physics.

Students should always check the entry requirements for degree programmes at specific HE providers.

Will the qualification lead to employment, if so, in which job role and at which level?

The Pearson BTEC Level 3 National Foundation Diploma in Engineering has a primary focus of progression to higher education alongside additional qualifications.

Students can progress to employment on achieving this qualification. However, these are likely to be entry-level roles in the Engineering sector, and they are more likely to be

employed as an Apprentice, where they will complete additional training and qualifications to gain the skills and knowledge required to succeed in the sector as an engineering technician.

If there are larger and/or smaller versions of this qualification, or it is available at different skills levels, why should the student choose this one?

The **Pearson BTEC Level 3 National Foundation Diploma in Engineering** is equivalent in size to 1.5 A Levels and is for students looking for a one-year course of full-time study, or alongside another area of study that contrasts or complements the Foundation Diploma in Engineering over a two-year, full-time study programme, with a view to progressing to a range of HE courses.

The suite also includes the following qualifications.

The **Pearson BTEC Level 3 National Extended Certificate in Engineering** is equivalent in size to 1 A Level. It is for students interested in learning about the sector alongside other fields of study, with a view to progressing to a wide range of HE courses, but not necessarily in engineering.

There are six specialist qualifications in both the **Pearson BTEC Level 3 National Diplomas** and the **Pearson BTEC Level 3 National Extended Diplomas**, which are as follows.

- **Engineering** – aimed at giving students a wider view of the sector, which can include elements of mechanical, electrical and manufacturing engineering.
- **Electrical/Electronic Engineering** – this specialism allows students to focus on specific elements of electrical and electronic engineering which can include electronic devices and circuits and power networks.
- **Mechanical Engineering** – this specialism covers a wide range of mechanical elements, including fluid mechanics, as well as materials and their behaviours.
- **Computer Engineering** – this subject area specialises in how computers work and how they integrate into the wider picture, as well as cyber security and website design and control.
- **Manufacturing Engineering** – for students looking to understand how things are made and the equipment, materials and processes used to create products.
- **Aeronautical Engineering** – focusing on the field of aerospace engineering, students will understand the theory of flight and aerodynamics as well as aircraft maintenance and propulsion systems.

While each of these specialist areas prepares students to continue in this field in either employment or HE, they also allow students to progress to other specialisms in the engineering sector.

The **BTEC National Diploma** is equivalent in size to 2 A Levels and is for students planning to work in the engineering sector. Its size means there is time in a study programme to take an additional complementary qualification to support a specialist progression route.

The **BTEC National Extended Diploma** is equivalent to 3 A Levels and typically makes up the full two-year, 16–19 study programme. It allows students to focus their studies fully on this sector.

For more detail of the other qualifications listed here, and the different progression opportunities they particularly support, please refer to their statements of purpose.

This qualification is supported by the following organisations**Higher education**

The University of Manchester
University of Sheffield
University of Exeter
University of Huddersfield
Kingston University
Southampton Solent University
University of the West of England
Harper Adams University

Professional and trade bodies

The Society of Operations Engineers (SOE)
Royal Aeronautical Society

Employers

Rolls Royce
Liebherr Sunderland Works Ltd
GKN Aerospace
Wilson Tool International LTD