

Qualification Description

T Level Technical Qualification in Design and Development for Engineering and Manufacturing

T Levels are new qualifications that follow GCSEs and are equivalent to three A Levels. T Levels will combine classroom theory and practical learning, and are made up of the following:

- Technical Qualification: the substantial component of your course.
- Industry placement: of at least 315 hours (approximately 45 days) with an employer to make sure you have authentic experience of the workplace.

The Technical Qualification is the main classroom-based element of the T Level. During your two-year course, you will learn the core knowledge that underpins the sector, and you will also develop occupationally specific skills that will allow you to enter skilled employment within a specific occupation.

This T Level Technical Qualification has been developed in collaboration with employers, so the content meets the needs of industry and prepares you for work. It will provide the knowledge and experience needed to open the door to skilled employment, an apprenticeship or higher-level study.

What is the Engineering Industry?

Engineering and Manufacturing is a hugely important global industry contributing up to a third of the UK's total economic output, with a significant impact on our daily lives such as in the products we consume and use, our transport systems, national infrastructure, from domestic appliances to commercial and healthcare applications. Advances in engineering are used to solve global challenges such as energy use, addressing and adapting to a changing climate and related challenges of population growth in a world of finite resource. All engineered products and systems must be designed by competent engineers, as efficiently as possible with the minimum use of resources, and manufactured by skilled engineers to exact specifications and tolerances in order to function properly and maintained by skilled technicians to ensure optimal service life of systems and components.

Engineers solve problems. Therefore all careers require a good technical understanding of manufacturing processes, material properties and the ability to safely apply practical skills;

whether using tools, machines, hand skills in the workshop environment, or in the use of design and modelling software. Engineers must have excellent communication and team working abilities. To progress in engineering design you must be creative and be able to apply your strong foundation in engineering maths and science, to solve problems and design new products and systems.

Who is this Technical Qualification for?

This Technical Qualification can only be taken as part of a T Level course and is not available as a stand-alone qualification. It is for post-16 students and is ideal if you are intending to progress directly to employment in Engineering, in particular in design- specific roles such as Engineering Design Technician, Design Engineer, or related roles such as Engineering and Manufacturing Support Technician, Marine Engineer, or Aerospace Engineering Technician where design specialisms are also available. This could be achieved by entering directly into employment as an apprentice or via further study of a Higher National Certificate or Degree in Engineering

What does the Technical Qualification cover?

The content is split into a core component common to all three Engineering Technical Qualifications. For Design and Development, there is a choice of one of two occupational specialisms. The specialisms are:

- Electrical and Electronic Engineering
- Mechanical Engineering

The core covers a broad understanding of Engineering principles, you will learn how to solve both mechanical and electrical problems using mathematical techniques, understand relevant scientific concepts and you will gain an understanding of engineering processes, materials, the broader industry, commercial considerations and quality, sustainability, technology and health and safety in the industry.

You will then undertake a short employer-set project where you respond to a brief, propose a design solution, develop and communicate that solution.

In year two the occupational specialisms include skills specific to each aspect of the engineering industry, including:

Electrical and Electronics Engineering

- Analyse and interpret electrical/ electronic engineering systems and specifications
- Evaluate designs, components and process to develop electrical/ electronic solutions
- Propose and design electrical and electronic systems and solutions

- Collaborate to manage, develop, test and quality assure electrical and electronic systems
- Communicate proposals, producing design information and technical specifications

Mechanical Engineering

- Analyse and interpret mechanical engineering systems and specifications
- Evaluate designs, components and process to develop mechanical engineering solutions
- Propose and design mechanical engineering systems and solutions
- Collaborate to manage, develop, test and quality assure mechanical engineering systems
- Communicate proposals, producing design information and technical specifications

What could this Technical Qualification lead to?

Achieving this qualification will provide several progression routes:

Directly into employment:

- A relevant Level 3 apprenticeship: Examples include Engineering Design Technician, Engineering Technician, Engineering and Manufacturing Support Technician, Aerospace Engineering Technician.
- A Degree Apprenticeship in related disciplines including Product Design and Development Engineer, Aerospace Engineer, Embedded Electronic Systems Design and Development Engineer, Robotics Engineer.

Higher level study:

A Higher Technical Qualification (HTQ). Like T Levels, HTQs are developed in consultation with employers. They are qualifications at levels 4 and 5 and prepare you for occupations at these levels. For example the Pearson Higher National Certificate Level 4 in Engineering for England

Degrees:

Some of the common degrees this T Level aids progression onto include

- Engineering
- Design Engineering

- Electrical/ Electronic Engineering
- Mechanical Engineering

Subject to acceptance of the T Level by the individual HE institution. It's essential that you check entry requirements with universities or colleges.

Who supports this Technical Qualification?

TBC

Further Information

Further information about this Technical Qualification can be accessed at:

<https://qualifications.pearson.com/en/qualifications/t-levels.html>

The T Level Technical Qualification in Design and Development for Engineering and Manufacturing will be approved and managed by Skills England. Pearson is currently authorised by Skills England to design and deliver the Technical Qualification from 2027.

For further information on the other components please see the DfE website at:

www.gov.uk/government/publications/introduction-of-t-levels/introduction-of-t-level