



Level 3 Pathways in Engineering and Manufacturing

Engineering and Manufacturing T Levels

Engineering and Manufacturing T Levels are beneficial for learners for several key reasons:

- **Designed with employers:** T Levels are developed in collaboration with leading employers, ensuring the course content is relevant and prepares learners for real engineering jobs, focusing on the specific technical skills companies are looking for.
- **Specialist engineering options:** depending on the provider, meaning learners can specialise in areas such as design and development, manufacturing and processing, maintenance, installation, and repair, electrical and electronic engineering or control and instrumentation
- **Balanced learning:** T Levels combine classroom learning (80%) with a substantial industry placement (20%), giving learners both theoretical knowledge and real-world experience.
- **Clear progression pathways:** T Levels provide strong routes into employment, higher apprenticeships, or university, offering flexibility depending on a learner's goals.
- **Recognised qualification:** as a level 3 qualification (equivalent to 3 A levels), they carry weight with universities and employers.
- **Workplace readiness:** Through the industry placement, learners complete a 45-day work placement with an engineering company. This provides real-world experience and a chance to apply what has been learnt in the classroom.

In the Engineering and Manufacturing route there are three T Levels which focus on a specific engineering pathway. Each T Level includes a core component (shared technical knowledge), a specialist occupational area, and a 45-day industry placement to develop real-world skills.

T Level in Design and Development for Engineering and Manufacturing

The focus of this T Level is turning concepts into engineered products. Key content includes engineering design principles (e.g. CAD, drawings, modelling), design for manufacture and assembly, systems engineering and control systems, prototyping and testing and evaluating designs against specifications and performance criteria.

This can lead to careers as a Design Engineer, Product Development Technician or CAD Technician amongst others.

T Level in Maintenance, Installation and Repair for Engineering and Manufacturing

The key focus for this T Level is keeping equipment and systems working safely and efficiently. Key content includes maintenance strategies, installation and commissioning of machinery, fault detection and diagnosis, use of diagnostic tools and instruments and mechanical, electrical, and electronic systems.

This T Level could lead to careers as a Maintenance Engineer, Service Technician or Installation Engineer, as well as others in the sector.

T Level in Engineering, Manufacturing, Processing and Control

The focus of this T Level is hands-on production and manufacturing processes. Key content includes manufacturing techniques and processes (e.g. CNC, welding, fabrication), material properties and selection, quality control and assurance, production planning and workflow and health and safety in manufacturing environments.

Typical careers after studying the T Level includes Manufacturing Technician, Process Operative or Production Engineer along with other careers in the Engineering sector.



Myth Busting!

Myth: 'There aren't enough placement opportunities in Engineering and Manufacturing.'

Myth Buster: It's true that quality industry placements are essential to the success of T Levels, and that's why the government, local enterprise partnerships, colleges, and industry bodies are actively investing in partnerships with employers to expand opportunities across the UK. Examples and case studies of industry placements in Engineering and Manufacturing are [available here](#).

T Level providers often work directly with companies to ensure the placements are meaningful and aligned with course content. These placements aren't just "shadowing", they offer real-world tasks, such as using CAD software, assisting with diagnostics, or supporting production lines.

Engineering and Manufacturing sectors are eager to bring in young talent to address the national skills gap. T Level learners often gain hands-on experience with cutting-edge tools and technologies that give them a competitive edge in the job market or in higher education. As demand for skilled workers grows, so do opportunities for placement- particularly in areas like advanced manufacturing, clean energy, aerospace, and automation.



Myth: 'Employers don't know or trust T Levels in Engineering and Manufacturing yet.'

Myth Buster: While T Levels are relatively new, awareness and trust among employers, particularly in Engineering and Manufacturing, has grown. Leading companies such as BAE Systems, Siemens, Rolls-Royce, Network Rail, and Airbus have been directly involved in shaping the content of T Levels through industry panels and curriculum design boards.

T Levels qualifications are designed by employers, for employers, ensuring the curriculum matches the real skills needed in the workforce today. T Level learners graduate with industry-relevant knowledge, including digital literacy, safety procedures and modern manufacturing techniques.

Myth: 'T Levels don't allow flexibility to switch career paths later.'

Myth Busted: T Levels in Engineering and Manufacturing are designed with a broad technical foundation, covering core principles like materials science, engineering maths, mechanical systems, electronics, and computer-aided design (CAD). This means learners gain transferable skills that can open doors to a wide range of industries, not just traditional engineering jobs. For example, a T Level graduate could move into sectors such as:

- Robotics and AI (e.g. maintenance and testing of robotic systems)
- Green technologies (e.g. sustainable engineering, solar and wind systems)
- Automotive innovation (e.g. electric vehicle design and maintenance)
- Product and industrial design (combining creative and technical skills)

In addition, T Levels provide a pathway to higher education, higher apprenticeships, or further specialisation in fields like aerospace, civil engineering, or systems control. The qualification is structured to develop problem-solving, analytical thinking, and project-based learning, all of which are highly adaptable skills. Choosing a T Level doesn't lock a learner into one career, it equips them with the skills to evolve with the industry and explore various roles throughout their working life.





Exploring Alternative pathways in Engineering and Manufacturing

While T Levels offer a strong mix of academic knowledge and real-world experience, alternative pathways can offer a range of options for learners, each designed to support learners with different needs, aspirations, and starting points.



T Level Foundation Year

The T Level Foundation Year provides a high-quality route onto T Levels for learners who would benefit from the additional study time and preparation before they start their T Level. It includes a diagnostic period to identify the learner's development, learning and support needs and help them make an informed choice about their chosen T Level route.



Alternative Academic Qualifications (AAQs)

Learners have the option to pursue Alternative Academic Qualifications (AAQs) in this area. AAQs are available for first teach from 2025.

Designed primarily to support entry into Higher Education, AAQs also provide a strong foundation to continue onto apprenticeships and work. They are academic qualifications that contain space for applied learning, and they provide scope for a variety of assessment methods, further meeting the individual needs of learners.

There are 3 small AAQs available in the Engineering and Manufacturing route. Learners could study a small AAQ in Engineering alongside A levels in subjects such as Maths and Design and Technology, to lead to a career in an Engineering field. Together with enrichment activities, that could include work experience, this would prepare learners for a pathway for study at level 4 and above in Higher Education.

Apprenticeships: Hands-on learning

For learners seeking practical, workplace-based training, apprenticeships offer a valuable alternative. Apprenticeships, from mechanical engineering to working as an electrical engineer, provide practical experience while earning a qualification, aligning with both industry needs and individual career goals.

Reformed Technical Qualifications

Newly reformed technical qualifications are also available to be taught for the first time from 1 August 2025 the Engineering and Manufacturing route. Technical Occupational Entry qualifications deliver competence against an occupational standard and these qualifications aim to support a learner to enter, or to progress within, a role.

There are 5 reformed Technical Qualifications for adults at level 3 in the route for first teach 1 August 2025. At level 3 these include qualifications in electrical engineering, machining, mechanical engineering, mechatronics and metal fabrication.

At level 2 there are 10 reformed Technical Qualifications at level 2 available for 16-19 learners and adults, which range from fabrication and welding to electrical engineering.