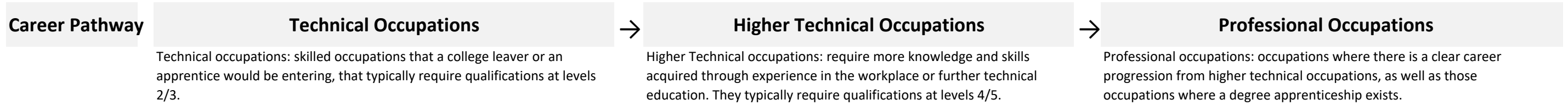


# Occupational Map: Engineering and Manufacturing

This is one of 15 occupational maps that group together occupations that require similar knowledge skills and behaviours. Career pathways and occupational clusters have been used to provide further grouping of occupations, with the pathways indicating options for likely career progression. Every apprenticeship standard has been captured, as well as other skilled occupations where there is a substantial requirement for technical knowledge and practical skills. This is currently the largest occupational map and is split into three pathways: Engineering Design, Development and Control; Engineering, Manufacturing and Process; and Maintenance, Installation and Repair. The Manufacturing Operative, Print and Packaging Operative/Technician and Manufacturing/Process Maintenance Operative/Technician clusters have been identified as suitable for learning via apprenticeships only, so Government does not intend to launch T levels for these.

**Occupations in green:** Standard approved for delivery  
**Occupations in amber:** Standard published  
**Occupations in red:** Standard in development  
**Occupations in black:** Standard awaiting development  
**The number shown in brackets ( ) is the level of the apprenticeship (if known)**



[Click here for more information on the occupations listed in this map](#)

Career Pathway	Technical Occupations	Higher Technical Occupations	Professional Occupations
Engineering Design, Development and Control	<b>Cluster: Design and Development Technician</b> <i>Design and develop parts of product and/or process technologies.</i>	<b>Cluster: Design and Development Technical Manager</b> <i>Design and develop whole product and/or process technologies using a specific discipline or technology or application expertise.</i>	<b>Cluster: Design and Development Engineer</b> <i>Design and develop a range of products and/or process technologies using discipline and applications specific expertise.</i>
	<b>Engineering Design &amp; Draughtsperson (3):</b> - Control & Instrumentation - Electrical - Mechanical - Piping - Structural <b>Marine Engineer (3)</b> <b>New Furniture Product Developer (3)</b> <b>Process Development Technician</b>	<b>Applications Engineer</b> <b>Product Development Manager</b> <b>Senior CAD Engineer</b> <b>Technical Coordinator</b> <b>Technical Dyer &amp; Colourist (4)</b>	<b>Aerospace Engineer (degree) (6)</b> <b>Aerospace Software Development Engineer (degree) (6)</b> <b>Chemical Engineer</b> <b>Electronic Systems Principal Engineer (7)</b> <b>Embedded Electronic Design &amp; Development Engineer (degree) (6)</b> <b>Light Water Reactor (LWR) Scientist &amp; Engineer (7)</b> <b>Materials Science &amp; Technology Professional (6)</b> <b>Mechanical Engineer</b> <b>Medical Device/Medical Engineer</b> <b>Postgraduate Engineer (7)</b> <b>Power &amp; Propulsion Engineer (7)</b> <b>Power Engineer (degree) (7):</b> - Control & Instrumentation - Electrical - Mechanical - Power Transmission & Distribution <b>Product Design &amp; Development Engineer (degree) (6)</b> <b>Simulation &amp; Modelling Engineer</b> <b>Systems Engineer (Masters) (7)</b>
	<b>Cluster: Quality Improvement and Project Control Technician</b> <i>Maintain and improve product and process integrity and quality, production and process efficiency, and the overall health and safety of the working environment.</i>	<b>Cluster: Quality Improvement and Project Control Manager</b> <i>Maintain and improve the integrity and quality of complex products and processes, improve whole production and process technologies, and the overall health and safety of the working environment.</i>	<b>Cluster: Quality Improvement, Health &amp; Safety Professional</b> <i>Direct and manage overall product and process integrity and quality, and the health and safety of a whole workplace.</i>
	<b>Engineering Technician (3):</b>	<b>Electrical Power Networks Engineer (4):</b>	<b>Compliance Director</b>

- Aerospace & Aviation
- Maritime Defence
- Sector Wide Advanced Manufacturing & Engineering

**Non-Destructive Testing (NDT) Operator (2)**  
**Non-Destructive Testing Engineering Technician (3)**  
**Nuclear Health Physics Monitor (2)**  
**Project Controls Technician (3)**

- Asset Management Engineer
- Control Engineer
- Design Engineer
- Electrical Project Engineer
- Operational Delivery Engineer
- Planning Engineer

**Safety Engineer**  
**Supplier Assurance Manager**  
**Quality Manager**

**Lean Manufacturing (6/7)**  
**Marine Surveyor (degree) (6)**  
**Non-Destructive Testing Engineer (degree) (6)**  
**Risk & Safety Management Professional (degree) (7)**

**Engineering, Manufacturing and Process**

**Cluster: Fabrication and Welding Operative/Technician**  
*Make products and plant by cutting, forming, jointing and shaping of materials.*

**Fenestration Fabricator (2)**  
**Metal Fabricator (3)**  
**Welding (2)**  
**Welding (3)**

**Cluster: Fabrication and Welding Technologist**  
*Detail to be added.*

**Fabrication Technologist**  
**Welding Technologist**

**Cluster: Manufacturing and Process Operative/Technician**  
*Assemble and construct complex engineering products.*

**Advanced Furniture CNC Technician (3)**  
**Advanced Upholsterer (3)**  
**Boat Builder (3)**  
**Composites Technician (3)**  
**Electrical Maintenance**  
**Engineering Fitter (3)**  
**Furniture Design Technician (3)**  
**Furniture Manufacturer (2):**

- Bed Manufacturer
- Fitted Furniture Installer
- Foam Converter & Upholstery Cushion Interior Manufacturer
- Furniture CNC Specialist
- Furniture Finisher
- Furniture Restorer
- General Furniture Manufacturer
- Modern Furniture Service Repairer
- Modern Upholsterer
- Wood Machinist

**Heritage Engineering Technician (3):**

- Aviation Technicians
- Coach-building & Trim Technicians
- Marine Technicians
- Steam (Boiler-smith) Technicians
- Steam (Mechanical Overhaul) Technicians
- Vehicle Mechanical Technicians

**Wood Product Manufacturing Operative (2)**

**Cluster: Manufacturing Engineer**  
*Introduce complex technologies into the manufacturing environment and improve manufacturing technologies.*

**Manufacturing Engineer (degree) (6)**  
**Manufacturing Manager (degree) (6)**  
**Ordnance, Munitions & Explosives (OME) Professional (degree) (6)**

**Cluster: Plant Operative/Technician**

*Operate plant and equipment for a part/sub process.*

**Mineral & Construction Product Sampling & Testing Operations (2)**

**Mineral Processing General Site Operative (2)**

**Mineral Processing Mobile & Static Plant Operator (2)**

**Mineral Processing Weighbridge Operator (2)**

**Nuclear Operative (2):**

- Nuclear Decommissioning Operative
- Nuclear Process Operative

**Cluster: Manufacturing, Plant and Process Technologist**

*Develop and improve technology of the manufacturing plant and equipment for a whole process.*

**Advanced Dairy Technologist (5)**

**Brewer (4)**

**Engineering Services Manager**

**Fashion & Textiles Product Technologist (4)**

**Food & Drink Engineer (5)**

**Mineral Products Technician (5):**

- Asphalt & Pavements
- Cement & Cementitious Products
- Clays (Heavy & White)
- Concrete (Readymix & Precast/Prestressed)
- Mineral Extraction

**Nuclear Technician (5)**

**Nuclear Welding Inspection Technician (NWIT) (4)**

**Process Development Technician**

**Process Leader (4)**

**Technical Service Manager**

**Textile Technical Specialist (4)**

**Cluster: Plant and Process Engineer**

*Develop and improve the operation and development of whole manufacturing processes and systems and enable them to operate safely and efficiently.*

**Nuclear Scientist & Nuclear Engineer (degree) (6)**

**Materials Process Engineer (7)**

**Process Automation Engineer (degree) (7)**

**Science Industry Process/Plant Engineer (degree) (6)**

**Cluster: Food and Science Manufacturing Operative/Technician**

*Operate semi-automated and automated plant and equipment to equipment to manufacture food and chemical products.*

**Abattoir Worker (2)**

**Advanced Baker (3)**

**Food & Drink Advanced Process Operator (3)**

**Food & Drink Process Operator (2)**

**Science Manufacturing Process Operative (2)**

**Science Manufacturing Technician (3)**

**Cluster: Manufacturing Operative****APPRENTICESHIP ONLY**

*Routine assembly of manufactured products.*

**Castings, Foundry & Patternmaking Operative (2)**

**Fashion & Textiles Pattern Cutter (3)**

**Footwear Manufacturer (2)**

**Glass Manufacturing Operator (3):**

- Batch & Furnace Operator
- Flat Glass Process Operator
- Hot End Machine Operator

**Glass Processor (2)**

**Gunsmith (3)**

**Lean Manufacturing Operative (2):**

- Inspection/Quality Assurance

- Logistics/Material Handling
  - Production Processing/Finishing
  - Production/Assembly
- Metal Castings, Foundry & Patternmaking Technician (3):**
- Foundry Material & Process Control Technician
  - Foundry Post Casting Technician
  - Foundry Production Technician
  - Inspection and Quality Assurance Technician
  - Metal Casting Furnace & Ladle Technician
  - Methods Development Technician
  - Pattern & Model Making Technician
- Sewing Machinist (2)**
- Textile Care Operative (2):**
- Commercial Laundry
  - Dry/Wet Cleaning
- Textile Manufacturing Operative (2)**

- Cluster: Print and Packaging Operative/Technician**  
**APPRENTICESHIP ONLY** Operate complex manufacture of printed matter and packaged goods.
- Packaging Technician**  
**Papermaker (3)**  
**Print Technician (3):**
- Pre-Press Technician
  - Press Technician
  - Post-Press Technician

- Cluster: Print and Packaging Technologist**  
 Develop and apply new and improve existing technologies for print and packaging manufacturing.
- Packaging Technologist**

- Cluster: Print and Packaging Engineer**
- Packaging Professional (degree) (6)**

**Maintenance Installation and Repair**

- Cluster: Service, Repair and/or Overhaul Operative/Technician**  
 Install, maintain and service plant and equipment.
- Accident Repair Technician (3)**  
**Autocare Technician (2)**  
**Automotive Glazing Technician (3)**  
**Aviation Maintenance Mechanic (Military) (2)**  
**Bus & Coach Engineering Technician (3):**
- Coach Builder
  - Electrical
  - Mechanical
  - Mechelec
- Bicycle Mechanic (2)**  
**Commercial Catering Equipment Technician (3)**  
**Drinks Dispense Technician (3)**  
**Engineering Operative (2):**
- Electrical & Electronic
  - Fabrication

- Cluster: Installation, Service, Repair and/or Overhaul Advanced Technician**  
 Install, maintain and service plant and equipment using application and/or context specific expertise.
- Aircraft Maintenance Certifying Engineer (4)**  
**Automotive Problem Solving Senior Technician**  
**Automation & Controls Engineering Technician (4)**  
**Chief Engineer (Shipping)**  
**High Speed Rail & Infrastructure Technician (4):**
- Civil Engineering
  - Command Control & Communications
  - Operations
  - Power
  - Rolling stock
  - Systems Engineering
  - Track
- Propulsion Technician (4):**
- Engine Build and Process Technician
  - Propulsion Test

- Cluster: Installation and Service Engineer**  
 Build and install plant and equipment using application and/or context specific expertise.
- Electronic Engineer (6)**  
**Marine Technical Superintendent (degree) (7)**  
**Planning & Commissioning Director**  
**Rail & Rail Systems Principal Engineer (degree) (7):**
- Electrical, Mechanical or Building Services
  - Rail Civil Engineering
  - Rail Systems Integration
  - Signalling & Control Systems
  - Telecoms, Networks & Digital
  - Track Engineering
  - Traction & Rolling Stock
- Rail & Rail Systems Senior Engineer (degree) (6):**
- Electrical, Mechanical or Building Services
  - Rail Civil Engineering
  - Rail Systems Integration

- Maintenance
- Materials, Processing & Finishing
- Mechanical Manufacturing
- Technical Support

**Lift Truck & Powered Access Engineering Technician (3)**

**Heavy Vehicle Service & Maintenance Technician (3)**

**Leisure & Entertainment Engineering Technician (3)**

**Lift/Escalator Electromechanic (3):**

- Escalator & Moving Walk Installation
- Escalator & Moving Walk Service & Repair
- Lift Installation
- Lift Service & Repair

**Maritime Electrical/Mechanical Mechanic (2)**

**Motor Vehicle Service & Maintenance Technician (Light Vehicle) (3)**

**Motorcycle Technician (Repair & Maintenance) (3)**

**Rail Engineering Operative (2):**

- Electrification
- Overhead Lines
- Rail Systems
- Signalling
- Telecoms
- Track
- Traction & Rolling Stock

**Rail Engineering Technician (3):**

- Electrification
- Overhead Lines
- Rail Systems
- Signalling
- Telecoms
- Track
- Traction & Rolling Stock

**Specialist Tyre Operative (2)**

**Stair Lift, Platform Lift, Service Lift Electro Mechanic (2)**

**Survival Equipment Fitter (Military) (3)**

**Vehicle Damage Mechanical, Electrical & Trim (MET) Technician (3)**

**Vehicle Damage Paint Technician (3)**

**Vehicle Damage Panel Technician (3)**

**Cluster: Manufacturing/Process Maintenance Operative/Technician  
APPRENTICESHIP ONLY**

*Maintain and repair production and process plant and equipment in manufacturing.*

**Food & Drink Maintenance Engineer (3):**

- Mechanical Maintenance
- Multi Skilled Maintenance

**Gas Network Craftsperson (3):**

- Emergency Response
- Network Maintenance (Electrical & Instrumentation)

**Rail & Rail Systems Engineer (5):**

- Electrical, Mechanical or Building Services
- Rail Civil Engineering
- Rail Systems Integration
- Signalling & Control Systems
- Telecoms, Networks & Digital
- Track Engineering
- Traction & Rolling Stock

**Rail Engineering Advanced Technician (4):**

- Electrification Advanced Technician
- Overhead Lines Advanced Technician
- Rail Systems Advanced Technician
- Signalling Advanced Technician
- Telecoms Advanced Technician
- Track Advanced Technician
- Traction & Rolling Stock Advanced Technician

**Road Transport Engineering Manager (4)**

**Vehicle Damage Assessor (4)**

**Cluster: Manufacturing/Process Maintenance Advanced  
Technician**

*Test and commission power generation, transmission and distribution plant to confirm the successful installation and operation of new and refurbished plant and equipment to prescribed specifications.*

**Electrical Power Protection & Plant Commissioning Engineer (4)**

- Signalling & Control Systems
- Telecoms, Networks & Digital
- Track Engineering
- Traction & Rolling Stock

**Telecommunications Engineer**

**Cluster: Manufacturing/Process Maintenance Engineer**

*Improve and develop manufacturing and engineering systems.*

**Control/Technical Support Engineer (degree) (6)**

**Electrical/Electronic Technical Support Engineer (degree) (6)**

**Food & Drink Advanced Engineer (degree) (6)**

- Automation
- Mechanical
- Production

- Network Maintenance (Pressure Management)
- Network Pipelines Maintenance Craftsperson

**Gas Network Team Leader (2):**

- Main Laying
- Service Laying

**Maintenance & Operations Engineering Technician (3):**

- Control & Instrumentation
- Electrical
- Electrical System & Process Control
- Electromechanical
- Mechanical
- Plant Operations
- Wind Turbine

**Power Network Craftsperson (3):**

- Overhead Lines
- Substation Fitting
- Underground Cables

**Science Industry Maintenance Technician (3)**

**Utilities Engineering Technician (3):**

- Electrical
- Instrumentation Control & Automation
- Mechanical

**Water Process Technician (3):**

- Waste Water: Sewerage Network Technician
- Waste Water: Treatment Technician
- Water Distribution: Leakage Technician
- Water Distribution: Network Technician
- Water Treatment: Process Technician

**Water Treatment Technician (3)**

- Equipment Technician
- Legionella Risk Assessor
- Operations Supervisor
- Treatment Technician