



Rail Apprenticeship Standards Review: Information Pack

THE REVIEW

IFATE has a consultation running to determine stakeholder views on specific engineering and manufacturing standards. There are a range of standards included in the consultation that will be of interest to rail employers.

The nature of the questionnaire means that it is designed for individual stakeholders to share their views and we would encourage you to do so. NSAR will be holding a workshop on **Tuesday 28th January 2020 commencing at 12:00pm at 11 Carteret Street** to gather the industry response to complement the individual employer views and support our members. NSAR wishes to consult as wide as possible during this consultation to ensure the standards will work for organisations of all sizes. In the meantime, we have produced this pack to help ensure your views are recorded.

This information pack includes:

1. A link to the IFATE Engineering & Manufacturing Consultation Website
2. The survey questions to help you prepare for your submission
3. The Occupational Map: Engineering and Manufacturing to help you complete the survey section related to your views on the content of the map.

Note that you will be asked to submit feedback on multiple standards in the same submission by adding in additional standards and repeating the process.

Our rail standards are listed in the final pathway category on the webpage and clicking on the standard will take you to the webpage showing the standard's content. The consultation questionnaire can be found by scrolling past the lists of standards to the green 'bar'. The questionnaire can be accessed there.

NSAR supported the Transport Service Apprenticeship Employers Group in the development of new Apprenticeship Standards and the group included the following employers:

Arriva, Chiltern Railways, East Midlands Trains*, First Group, GTR, HS1, HS2, Impact Group, Merseytravel, Network Rail, Northern Rail, Nottingham City Transport, South West Trains*, Transport for London and Virgin Trains.

*Both now Railways

MAINTENANCE, INSTALLATION AND REPAIR PATHWAY

A summary of the relevant standards can be found in the links below

- ST0495 - Rail and Rail Systems Engineer
- ST0497 - Rail and Rail Systems Principal Engineer
- ST0496 - Rail and Rail Systems Senior Engineer
- ST0316 - Rail Engineering Advanced Technician
- ST0318 - Rail Engineering Technician
- ST0317 - Rail Engineering Operative

Other standards that may be of interest to rail employers:

- ST0067 - Bus and Coach Engineering Technician
- ST0528 - High Speed Rail and Infrastructure Technician

WHAT NEXT?

IFATE will publish their recommendations in Winter 2020/21 when a timetable will be agreed with Trailblazers, where standards are required to be changed.

To participate or find out more about the consultation click here. Alternatively copy and paste the link below into your browser:

<https://www.instituteforapprenticeships.org/reviews/engineering-and-manufacturing-route-review/>

The consultation for Engineering and Manufacturing closes on **5th February 2020.**

THE SURVEY

You will find the following questions within the IFATE Engineering and Manufacturing Route Review.

Note that questions must all be completed online in a single sitting.

Which of the following most reflects your type of business?

- Employer with apprentices
- Employer without apprentices
- Training Provider
- Assessment Organisation
- External Qualification Assurance Provider
- Professional Body
- Trade Association
- Other

Please indicate which of the following most reflects your size of your business?

- Micro business (< 9 staff)
- Small Business (10-49 staff)
- Medium Business (50-250 staff)
- Large business (>250 staff)

What is the name of your business?

Do you think that there are any occupations that should be added to the Engineering and Manufacturing occupational map?

Please consider the following points when providing your suggestion: Only occupations that meet the Institute's occupation requirements will be considered for inclusion on the Occupational Map.

Do you think there are any occupations on this map which are in the wrong pathway or cluster?

- Yes
- No

Please provide a rationale for your suggestion after considering the following points: Which other occupations share similar knowledge and skills? What level do you consider the occupation to be? Which pathway and cluster do you think the occupation is most aligned to?

Do you think there are any occupations (not currently in development) which are not suitable to be developed into an apprenticeship or T Level?

This section seeks your views on specific occupational standards. Please select the standard you would like to provide feedback on. You can comment on more than one standard and will be given the opportunity to do so at the end of this section.

For Engineering and Manufacturing there are 59 standards under review. Please select your pathway and standard

- Engineering Design and Development Pathway
- Engineering Manufacturing and Control Pathway
- Maintenance Installation and Repair Pathway

Select the feedback that you would like to provide feedback on.

Do you think this occupation is still recognised by employers?

- Yes
- No
- Don't know

Do you think this occupation is still in demand from employers?

- Yes
- No
- Don't know

Do you think the title of the occupation reflects the content of the standard?

- Yes
- No
- Don't know

Do you think the standard includes all the knowledge, skills and behaviours an apprentice needs to learn to be competent in this occupation?

- Yes
- No
- Don't know

Do you think that the occupational profile accurately describes the occupation?

- Yes
- No
- Don't know

Do you think that the recommended duration is appropriate for a typical apprentice to complete the requirements, and be ready for a final assessment of occupational competence?

- Yes
- No
- Don't know

Please consider the duration of training an apprentice would require to obtain the knowledge, skills and behaviours described in the standard, before they undertake their end-point assessment.

Do you think that the content of the standard is up to date (including using the latest technology and terminology)?

- Yes
- No
- Don't know

Do you think that there are other apprenticeship standards available that you could use to train apprentices in this occupation?

- Yes
- No
- Don't know

Do you know of any difficulties an apprentice has encountered in arranging their end point assessment?

- Yes
- No
- Not appropriate

Are there positions in your organisation that individuals could apply for once they have finished their apprenticeship?

- Yes
- No
- Not appropriate

Would you consider employing someone who had completed this apprenticeship with another employer?

- Yes
- No
- Not appropriate

Do you think that there is enough awareness of this apprenticeship across your sector?

- Yes
- No
- Don't know

Does the end point assessment for this apprenticeship give you assurance that apprentices are fully occupationally competent?

- Yes
- No
- Don't know

Do you have any recommendations for improvements to the end point assessment?

- Yes
- No
- Don't know

Do you think that the apprenticeship standard contains anything that could disadvantage apprentices who share a particular Characteristic (defined in the Equalities Act 2010)?

- Yes
- No
- Don't know

Do you think this standard has the ability to incorporate new technologies as and when they emerge?

- Yes
- No
- Don't know

Do you think this standard has the ability to incorporate new or changed regulatory requirements as and when they emerge?

- Yes
- No
- Don't know

Do you think this standard could be broadened out to apply to a wider range of sectors?

- Yes
- No
- Don't know

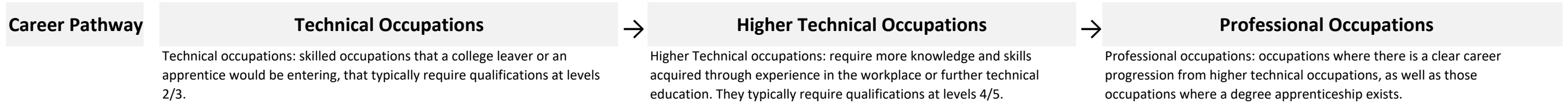
What is the best way to ensure the apprenticeship has currency with employers and professional bodies?

Please share any further views about this apprenticeship

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 and Development; Engineering, Manufacturing, Process and Control; 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](#)

Engineering, Design and Development	<p>Cluster: Design and Development Technician <i>Design and develop parts of product and/or process technologies.</i></p> <p>Engineering Design & Draughtsperson (3):</p> <ul style="list-style-type: none"> - Control & Instrumentation - Electrical - Mechanical - Piping - Structural <p>Fitted Furniture Design Technician (3) New Furniture Product Developer (3) Process Development Technician</p>	<p>Cluster: Design and Development Technical Manager <i>Design and develop whole product and/or process technologies using a specific discipline or technology or application expertise.</i></p> <p>Applications Engineer Engineering Manufacturing Technician (4) Product Development Manager Senior CAD Engineer Space Engineering Technician (4) Technical Coordinator Technical Dyer & Colourist (4)</p>	<p>Cluster: Design and Development Engineer <i>Design and develop a range of products and/or process technologies using discipline and applications specific expertise.</i></p> <p>Aerospace Engineer (degree) (6) Aerospace Software Development Engineer (degree) (6) Chemical Engineer Electronic Systems Principal Engineer (7) Embedded Electronic Design & Development Engineer (degree) (6) Light Water Reactor Scientist & Engineer (7) Materials Science Technologist (6) Mechanical Engineer Medical Device/Medical Engineer Postgraduate Engineer (7) Power & Propulsion Engineer (7) Power Engineer (degree) (7):</p> <ul style="list-style-type: none"> - Control & Instrumentation - Electrical - Mechanical - Power Transmission & Distribution <p>Product Design & Development Engineer (degree) (6) Simulation & Modelling Engineer Systems Engineer (degree) (7) Tool Process Design Engineer (6)</p>
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Engineering, Manufacturing, Process and Control	<p>Cluster: Fabrication and Welding Operative/Technician <i>Manufacture products and plant by cutting, forming, jointing, shaping and testing of materials.</i></p> <p>Fenestration Fabricator (2)</p>	<p>Cluster: Fabrication and Welding Technologist <i>Detail to be added.</i></p> <p>Fabrication Technologist</p>
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General Welder (Arc Processes) (2)
Gunsmith (3)
 Metal Fabricator (3)
 Multi-Positional Welder (Arc Processes) (3)
 Non-Destructive Testing (NDT) Operator (2)
 Non-Destructive Testing Engineering Technician (3)
 Pipe Welder (3)
 Plate Welder (3)

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

Advanced Furniture CNC Technician (3)
Advanced Upholsterer (3)
 - Modern Upholsterer
 - Traditional Upholsterer
Bespoke Furniture Maker (3)
Boat Builder (3)
Composites Technician (3)
Electrical Maintenance
Engineering Fitter (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
Signage Technician (3)
Wood Product Manufacturing Operative (2)

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

Welding Technologist

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)

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

Control/Technical Support Engineer (degree) (6)
Electrical/Electronic Technical Support Engineer (degree) (6)
Manufacturing Engineer (degree) (6)
Manufacturing Manager (degree) (6)
Ordnance, Munitions & Explosives Professional (degree) (6)
 - Breakdown & Disposal Professional
 - Manufacturing & Processing Professional
 - Safety Professional
 - Technical Research & Development Professional
 - Test & Evaluation Professional
Ordnance, Munitions & Explosives Specialist (7)

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.

Materials Process Engineer (7)
 - Brazing
 - Casting
 - Coatings
 - Heat Treatment
 - Surface Treatment
 - Welding
Nuclear Reactor Desk Engineer (6)
Nuclear Scientist & Nuclear Engineer (degree) (6)

- 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)**

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 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)**
- Garment Maker (3)**
- Glass Manufacturing Operator**
- Glass Processor**
- 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: Quality Improvement and Project Control Technician
Maintain and improve product and process integrity and quality, production and process efficiency, and the overall health and safety of the working environment.

Engineering Technician (3):

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

Nuclear Health Physics Monitor (2)
Project Controls Technician (3)
Water Process Operative (2)

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

Packaging Technologist

Cluster: Quality Improvement and Project Control Manager
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.

Electrical Power Networks Engineer (4):

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

Engineer Surveyor (4)

- Electrical
- Mechanical

Metal Recycling Technical Manager (4)
Quality Manager
Safety Engineer
Supplier Assurance Manager

Cluster: Print and Packaging Engineer

Packaging Professional (degree) (6)

Cluster: Quality Improvement, Health & Safety Professional
Direct and manage overall product and process integrity and quality, and the health and safety of a whole workplace.

Compliance Director
Lean Manufacturing (6/7)
Marine Surveyor (degree) (6)
Non-Destructive Testing Engineer (degree) (6)
Risk & Safety Management Professional (degree) (7)
Through Life Engineering Services Specialist (7)

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)
Construction Equipment Maintenance Mechanic (2)

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)
Automation & Controls Engineering Technician (4)
Automotive Problem Solving Senior Technician
Chief Engineer (Shipping)
High Speed Rail & Infrastructure Technician (4):

- Civil Engineering
- Command Control & Communications
- Operations
- Power
- Rolling stock
- Systems Engineering
- Track

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):

Drinks Dispense Technician (3)

Engineering Operative (2):

- Electrical & Electronic
- Fabrication
- Maintenance
- Materials, Processing & Finishing
- Mechanical Manufacturing
- Technical Support

Heavy Vehicle Service & Maintenance Technician (3)

Heritage Engineering Technician (3):

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

Leisure & Entertainment Engineering Technician (3)

Lift & Escalator Electromechanic (3):

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

Lift Truck & Powered Access Engineering Technician (3)

Marine Electrician (3)

Marine Engineer (3)

Maritime Electrical/Mechanical Mechanic (2)

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

Motorcycle Technician (Repair & Maintenance) (3)

Power Support Operative (2)

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)

Stairlift, Platform Lift, Service Lift Electro Mechanic (2)

- Lifting Platform Installation
- Lifting Platform Service & Repair
- Service Lift Installation

Propulsion Technician (4):

- Engine Build and Process Technician
- Propulsion Test

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 Technican
- Rail Systems Advanced Technician
- Signalling Advanced Technician
- Telecoms Advanced Technician
- Track Advanced Technician
- Traction & Rolling Stock Advanced Technician

Road Transport Engineering Manager (4)

Small Vessel Engineer (4)

Vehicle Damage Assessor (4)

- Electrical, Mechanical or Building Services

- Rail Civil Engineering

- Rail Systems Integration

- Signalling & Control Systems

- Telecoms, Networks & Digital

- Track Engineering

- Traction & Rolling Stock

Telecommunications Engineer

- Service Lift Service & Repair
- Stairlift Installation
- Stairlift Service & Repair
- Survival Equipment Fitter (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)
- 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

Utilities Network Operative (level 2)

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

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)

Cluster: Manufacturing/Process Maintenance Engineer

Improve and develop manufacturing and engineering systems.

Food & Drink Advanced Engineer (degree) (6)

- Automation
- Mechanical
- Production

Water Treatment Technician (3)

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



