ECITB TECHNICAL TEST CATALOGUE

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Introduction

In the constantly developing world of engineering construction, Technical Tests from the ECITB are the easiest way to ensure the critical skills of the industry's craftspeople and technicians match the demands of today. The flexibility of Technical Tests makes them a useful and adaptable tool in both commercial and practical terms.

Knowledge Only Tests

The candidate will take an online test consisting of 35 multiple-choice questions per discipline to assess their theoretical knowledge of the technical discipline. The candidate will answer the 35 randomly generated questions from a large pool of knowledge questions. The candidate must achieve an 80% pass mark, the equivalent of 28 correct answers to achieve a pass in the knowledge only test. Achieving less than 80% will result in a test referral. ECITB has knowledge only tests in the disciplines listed below:

Knowledge Tests

KT APML	Appointed Person Moving Loads
KT EI	Electrical Installation
KT EM	Electrical Maintenance
KT ICA-B	Industrial Brush Application
KT INDC01	Industrial Cleaning
KT ICA-S	Industrial Spray Application
KT ICA-P	Industrial Surface Preparation
KT IC	Instruments and Controls
KT MEM	Manufacturing Electrical Maintenance
KT MMM	Manufacturing Mechanical Maintenance
KT MM	Mechanical Maintenance
KT OPO	Offshore Production Operations
KT ONPO	Onshore Production Operations
KT PF	Pipefitting
KT PL	Plating
KT RIG	Rigging
KT SC	Scaffolding
KT TI	Thermal Insulation

Technical Test

Technical Tests are the most flexible, economical, and instant way to assess and validate the ability of individual employees or prospective recruits to perform the skill-based tasks that the industry needs. A Technical Test ensures a craftsperson or technician has the skill, ability, and job knowledge relevant to the work they are required to carry out. Each Technical Test examines a very specific aspect of an engineering construction discipline. The Technical Tests are comprised of two elements: the knowledge testing element, and the practical skills testing element. The format of the Technical Tests is explained below.

Knowledge Test

The candidate will take an online test consisting of a number of multiple-choice questions per Technical Test to assess theoretical knowledge of the technical area. The candidate will answer questions randomly selected questions from a larger question pool. The candidate must achieve an 80% to pass and move on to the practical test. Achieving a result of less than 80% will result in a test referral, and the candidate will have to retake the knowledge test.

Practical Test

The candidate will undertake a highly specified practical assessment consisting of candidate instructions in various stages under continuous observation by an examiner. All parts of the practical test must be completed to the required standard; the candidate will be briefed on the practical test and should understand exactly what is expected of them. All test criteria must be met to achieve a pass. Any test criterion not achieved to the specified standard will result in a test referral. The following pages indicate the Technical Tests available, their codes, and a brief description of the test.

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Appointed Person Moving Loads

TAP01 Plan a Rigging Operation v4

The candidate has to generate a lift plan, risk assessment and toolbox talk necessary to support a complex rigging operation in accordance with recognised industry regulations and procedures.

Electrical Installation

TIE01 Install Emergency Lighting Circuits v2

The candidate has to successfully install a lighting circuit to include Maintained and Non-maintained Emergency light fittings. On completion the candidate is to test and function check. All work to comply with the relevant specification.

TIE02 Transformer and Chokes v2

The candidate has to successfully install and gland a 25mm PVC SWA Cable to a Step Up Transformer in line with details on the Electrical Hook Up Drawing and to wiring Regulations. The test will include the insulation and resistance test of the installed cable

TIE03 Alarm Systems v1

The candidate has to successfully install a fire alarm circuit to include a sounder, break glass units and two zones of detection, on completion the candidate is to test and function check the fire alarm circuit. All test activity to comply with the wiring regulations.

TIE04 Install electrical distribution final circuits v3

The candidate must demonstrate that they can safely and accurately install two circuits (3Ø and 1Ø) into an existing three-phase distribution board.

TIE05 Installing Battery and UPS Systems v4

The candidate has to successfully install to specification the UPS system to provide battery back up in the event of power failure on a nominated 16amp Radial Circuit or 32amp ring main circuit, the candidate will test and function check the installation in accordance with the wiring regulations.

TIE06 Circuit Protective Devices v1

The candidate has to successfully install circuit protective devices to a three Phase distribution board, each circuit protective device is to be appropriate for the circuit it is protecting. The distribution board shall contain various circuits for differing loads including three phase and single phase circuits. The Candidate is to ensure all the test activity to comply with the wiring regulations.

TIE07 Generators v1

The candidate has to successfully install and terminate a manual Double Pole Break - Before - Make changeover switch between a standby generator and the mains supply it is to feed. The switch is to be installed as per the manufacturer's specifications, the candidate is to configure the generator supply to a Neutral - Earth configuration

TIE08 Installing AC electrical motors v4

The candidate must demonstrate that they can safely and accurately isolate the supply and install suitable cable from a local control station to a three-phase motor, with appropriate wiring, control cables, and supplementary earthing, carry out basic dead tests, and record the results and any remedial suggestions.

TIE09 DC Electrical Motors v1

The candidate has to successfully cable terminate and test a Dc shunt motor in line with the details on the electrical wiring diagram, all test activity is to comply with the wiring regulations.

TIE10 Install Lighting Equipment v3

The candidate has to successfully install a two way and intermediate lighting circuit, test and function check the lighting circuit. All test activity to comply with the wiring regulations.

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TIE11 HV and Air conditioning systems v1

The candidate has to successfully install a thermostatic controller to a heating and ventilation air conditioning system. On completion the candidate is to test and function check. All test activity to comply with the wiring regulations.

TIE12 HV Equipment v1

The candidate has to successfully gland and terminate a 3.3kv cable into an appropriate enclosure, the cable must be correctly phased and a cold shrink cable termination kit is to be used. All test activity is to comply with the wiring regulations.

TIE15 Installing support systems v4

The candidate must demonstrate that they can safely and accurately construct and install a cable support consisting of tray and channel components to specification. The examination requires the candidate to fabricate and install a minimum of one channel bracket and fabricate a bend and set in the cable tray.

TIE16 Installing cables in an intrinsically safe system v2

The candidate must demonstrate that they can safely and accurately prepare cables for glanding, terminate and install cables.

TIE17 Install, gland and terminate power cables v1

The candidate must demonstrate that they can safely and accurately dress, gland and terminate cables into the specified component and tray, complying with site requirements and documentation.

TIE17Ex Install, gland and terminate power cables v1

The candidate must demonstrate that they can safely and accurately select, dress, gland and terminate cables into the specified (Ex) component and tray complying with site requirements and documentation.

Electrical Maintenance

TEM01 Protection Methods v2

The Candidate is required to carry out a visual check, continuity and polarity check on a test circuit with pre-set faults. All work to comply with the local regulations All test activity to comply with the wiring regulations.

TEM03 Testing portable equipment v5

The candidate must demonstrate that they can safely and accurately carry out inspection and testing of three items of class 1 or class 2 portable electrical equipment. In compliance with PAT manufacturer's instructions and recognised industry practices.

TEM04 Electrical Distribution Circuits v1

The candidate has to successfully carry inspection and testing of a three phase distribution board, insulation resistance tests on the feeder cable and all sub circuits are to be carried out and the results recorded. All testing is to be carried out strictly in accordance with wiring regulations and all work to comply with the Electricity at Work regulations 1989.

TEM05 Inspection, testing and maintenance of battery and UPS systems v3

The candidate must demonstrate that they can safely and accurately visually check UPS (Uninterrupted power supply) equipment for defects and operate UPS maintenance bypass function in both directions. The candidate will demonstrate how to isolate the UPS equipment from all sources of supply to access the UPS internal components. The candidate will carry out a visual inspection of the battery and will take voltage readings of each cell and compare to manufacturers' recommendations.

TEM06 Inspection, testing and maintenance of industrial switchgear v3

The candidate must demonstrate that they can safely and accurately carry out inspection and maintenance activities on industrial circuit protective equipment.

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TEM09 DC Electric Motors v1

The candidate has to successfully carry inspection and maintenance of a DC electric motor carrying out inspection of the brushes and brush holders and condition and lubrication of the drive end and commutator end bearings, the candidate is also to report on the condition of the motor bearings and test the insulation resistance of the windings. All testing is to be carried out strictly in accordance with wiring regulations and all work to comply with the Electricity at Work regulations 1989.

TEM10 Hazardous area inspection of electrical and instrumentation equipment v3

The candidate must demonstrate that they can safely and accurately carry out a hazardous area electrical inspection on a minimum of four pieces of certified equipment; carry out a visual, close, and detailed inspection; and ensure safe isolation with appropriate documentation.

TEM11 HVAC Equipment v1

The candidate has to successfully carry out the inspection and testing of an air conditioning fan carrying out insulation resistance tests on the fan motor and continuity and earth leakage tests on the heating elements and heater bank. All test activity to comply with the Electricity at Work regulations 1989 and the wiring regulations.

TEM12 HV Equipment v1

The candidate has to successfully carry out the inspection and maintenance of 3.3KV Vacuum breaker fan carrying out insulation resistance tests on the control wiring and inspecting all parts of the isolator to ensure they function smoothly operated manually. All test activity to comply with the Electricity at Work regulations 1989 and the wiring regulations.

TEM13 Maintaining Motor Starters v1

The candidate has to successfully carry out a fault diagnosis on an AC motor starter that is preventing the motor from starting, the candidate must diagnose the fault, take corrective action and start the motor. The candidate will then be required to remove, install and function check an overload device and add an additional start stop device and function check. All work is to comply with the relevant specification.

TEM14 Periodic inspection of a 3-phase system v1

The candidate must demonstrate that they can safely and accurately carry out a periodic inspection of a piece of 3-phase plant in an industrial environment, including visual inspection of the equipment, recording results and faults.

Industrial Drone Operations

TTIDO01 (Multi Rotor Sub 20 Kgs) – Plan an Industrial Drone Operation v1

The candidate has to successfully complete the pre-flight actions for a hypothetical scenario based industrial drone operation (using appropriately selected resources) followed by preparing for and undertaking a series of platform specific flight manoeuvres in a designated flight test area, safely and in accordance with the appropriate industry and site specific regulations and procedures.

TTIDO02 (Fixed Wing Sub 20 Kgs) – Plan an Industrial Drone Operation v1

The candidate has to successfully complete the pre-flight actions for a hypothetical scenario based industrial drone operation (using appropriately selected resources) followed by preparing for and undertaking a series of platform specific flight manoeuvres in a designated flight test area, safely and in accordance with the appropriate industry and site specific regulations and procedures.

Instrumentation and Controls

TMI01 Pressure measurement and control systems v4

The candidate must demonstrate that they can safely and accurately range check a pressure gauge, change settings on a pressure switch, recalibrate a SMART pressure transmitter and record Instrument Test Records (ITRs).

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TMI02 Level measurement control systems v3

The candidate must demonstrate that they can safely and accurately re-range a displacement type level transmitter by a 20% increase or decrease of its current settings. Calculate the range required to measure the level in a tank or vessel using the hydro-static head formula and apply the range values to a SMART level transmitter.

TMI03 Flow Measurement Systems v1

The candidate has to successfully install and commission an Ultra-Sonic Flow Meter to an operational condition. The test will include the installation, alignment and function check of transducers and hook up to a flow transmitter. The Examiner will check for compliance at the conclusion on the commissioning.

TMI04 Temperature measurement and control systems v5

The candidate must demonstrate that they can safely and accurately commission a temperature detector (RTD or thermocouple), and a SMART temperature transmitter including a range change by a 20% increase or decrease of its current settings, recalibration and full loop check from heat source to transmitter output.

TMI05 Fire & Gas Detection Systems v1

The candidate has to successfully commission an Open Path Gas Detector and carry out a function check on completion. The Gas Detector will be installed but not aligned or operational. At the completion of the test the candidate must have commissioned the gas detector to a state of full operation.

TMI06 Process System Control Valve Assembly v3

The candidate has to successfully overhaul a typical process control value and set up for operational conditions. The candidate will have to demonstrate they can work safely whilst overhauling the valve using appropriate methods and techniques.

TMI07 Pneumatic Process Controllers v1

The candidate has to successfully inspect and overhaul a Spring Return Actuator. The candidate must fit a new set of seals to the actuator and complete the activity with a function check of the refurbished actuator.

TMI08 Reconfiguring Programmable Logic Control Systems v1

The candidate has to successfully apply a new value to a selected alarm point in a live PLC, uploading the new configuration to the online programme and backing up the new programme configuration in line with vendor procedures. The Examiner will provide the candidate with the tag number of the alarm point and value of the new alarm setting.

TMI09 Distributed Control Systems v1

The candidate has to successfully identify and change out an Input/Output Control Card (I/O Card) within an operational Distributed Control System. This requires the temporary flip to the Back Up I/O Card and re-commissioning to Primary Control on completion.

TMI10 Fiscal Metering Systems v1

The candidate has to successfully calibrate a Turbine Flow Meter to a known specification using a suitable test medium. Calibration must be to fiscal standards. The Examiner will check for compliance at the conclusion on the calibration.

TMI11 Protection Methods for Instruments in Hazardous Areas v2

The candidate has to successfully carry out a “Detailed” Ex Inspection of Ex equipment items and provide feedback to the Examiner on their suitability to be used in Zone 1 and 2 Hazardous Areas.

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TMI12 Analysers v1

The candidate has to successfully fit a new Oxygen Measuring Probe into a Nitrogen Generation System and calibrate to the required specification. On completion the Candidate must check the operation of the nitrogen generation system to ensure it functions correctly in line with the Operational Procedures.

TMI14 Flow measurement and control systems v3

The candidate must demonstrate that they can safely and accurately commission an orifice-plate differential pressure flow SMART transmitter to a specified range. Including commissioning of the transmitter manifold assembly and calibration check of the SMART flow transmitter.

TMI15 Range Calculation and Commissioning of Level Measurement Systems v1

The candidate has to successfully reconfigure, calibrate and function check a differential pressure type level transmitter. The candidate will have to demonstrate they can work safely throughout the work scope and complete the appropriate documentation to the required standard.

TMI16 Maintain Process System Control Valve Assemblies v2

The candidate has to successfully overhaul a typical process control value and set up for operational conditions. The candidate will have to demonstrate they can work safely whilst overhauling the valve using appropriate methods and techniques.

TMI17 Maintain, calibrate and commission a process control valve v3

The candidate must demonstrate that they can safely and accurately remove a process control valve positioner and actuator from a valve assembly, replace valve stem gland packing, reassemble and body pressure test the valve to 20 bar(g). On completion you will be required to set up and stroke test the reassembled valve assembly to operate open/closed on a 4 – 20 mA control signal and complete an Instrument Test Record (ITR).

Machining

TMMC01 Preparing and Using Lathes for Turning Operations v1

The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from given drawings to turn components to the required diameters and lengths within stated tolerances to include the components having parallel, stepped and tapered profiles, drilling and reaming operations and cutting threads using machine taps and split button dies.

TMMC02 Preparing and Using Universal Milling Machines v1

The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from given drawings to mill components to the required size within stated tolerances to include horizontal, vertical and angular faces and slots.

TMMC04 Preparing and Using Surface Grinders v1

The candidate has to select and apply correct methods of work holding, set up a selection of grinding wheels and required speeds and feeds and work from given drawings to set, operate and produce components to the required size within stated tolerances.

TMMC05 Preparing and using Radial Arm Drills v1

The candidate has to select and apply correct methods of work holding, set up a selection of drills / tools, set required speeds and feeds and work from given drawings to set, operate and produce components to the required size within stated tolerances.

TMMC06 Preparing and Using Lathes for Advanced Turning Operations v1

The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from given drawings to turn components to the required diameters and lengths within stated tolerances to include having internal grooving & boring, parting, eccentric diameters and producing threads by single point & multi-start.

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TMMC07 Preparing and Using Universal Milling Machines for Advanced Milling Operations v1
The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from given drawings to mill components to the required size within stated tolerances to include shoulder, face, profile, slot, holes & cavities and gear milling.

TMMC08 Preparing and Using Horizontal Boring Machines Level 3 v1
The candidate has to select and apply appropriate methods of workholding, tooling, speeds and feeds to set up and produce component features to given drawings and stated tolerances.

TMMC09 Preparing and Using Surface and Cylindrical Grinding Machines Level 3 v1
The candidate has to select and apply appropriate methods of workholding and tooling, to set up and produce ground component features to given drawings and stated tolerances.

TMMC10 Producing components using CNC Turning Machines v1
The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from given drawings to produce CNC turn components to the required diameters and lengths within stated tolerances to include the components having parallel, stepped and tapered profiles, drilling and reaming operations and cutting threads.

TMMC11 Producing components using CNC Milling Machines v1
The candidate has to select and apply correct methods of work holding, set up a selection of cutting tools and required speeds and feeds and work from drawings to CNC mill components to the required size within stated tolerances to include horizontal, vertical and angular faces and slots.

Mechanical Fitting

TMF01 Precision Measurement v5
The candidate must demonstrate that they can safely and accurately measure a range of test components with micrometers, verniers and DTIs and record the results.

TMF02 Marking Out for Mechanical Fitters v1
The candidate has to successfully set out and mark low carbon steel plate using marking out and measuring equipment for the fabrication of a pipe saddle as per the specified drawings and within set tolerances.

TMF03 Making and Fitting Mechanical Components v4
The candidate has to successfully make a mechanical component using a lathe, appropriate tools and equipment as per the specified drawing and within set tolerances.

TMF04 Assembling Mechanical Components v4
The candidate has to successfully assemble and fit a mechanical valve to pipework using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMF05 Preparing for Installation v1
The candidate has to successfully prepare for the installation of a centrifugal pump (including marking out for the positioning of the pump and the necessary fixings/bolts) as per the specified drawings and within set tolerances.

TMF06 Positioning Plant and Equipment v1
The candidate has to successfully move and position safely a motor and pump using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMF07 Aligning, levelling, and setting plant equipment v4
The candidate must demonstrate that they can safely and accurately check and rectify the horizontal and vertical shaft alignment of rotating equipment.

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TMF08 Installing Drive Systems v1

The candidate has to successfully fit bearings, keys, pulleys, gear wheels and couplings to shafts to install drive systems using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMF09 Repairing Faults and Adjusting Mechanical Plant and Equipment v2

The candidate has to successfully remove and dismantle, repair and re-installation of an identified defective coupling using appropriate tools and equipment in accordance with set tolerances.

TMF10 Diagnosing Faults and Adjusting Live Mechanical Plant and Equipment v1

The candidate has to successfully produce a safe and logical fault diagnosis procedure which could be followed to locate a fault on an identified item of engineering construction equipment/machinery using appropriate tools and equipment in accordance with set tolerances.

TMF11 Preparing and Assembling Small Bore Pipework v1

The candidate has to successfully use the appropriate tools and equipment to prepare, fabricate and assemble metallic and non-metallic pipework components using compression fittings and cemented joints to specified drawings and within set tolerances.

TMF16 Removing and Installing Mechanical Components

To ensure a candidate has the skills, knowledge and ability to accurately remove and reinstall mechanical components.

Mechanical Joint Integrity (MJI)

ECITB/STEP change in safety MJI model

Unsuccessful TMJI candidates must wait a minimum period of 4 weeks between the unsuccessful test session and the next test session to allow for a period of training to address any skills or knowledge gaps.

TMJI10 Dismantling, Assembling and Hand Torquing Flanged Joints v3

The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and secure a flanged pipework joint as per the specified drawing and within set tolerances.

TMJI11 Dismantling, Assembling and Hand Torquing Clamp Connectors v2

The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect clamp connector components and report faults, prepare, assemble and secure a clamp connector joint as per the specified drawing and within set tolerances.

TMJI18 Dismantle, Assemble and Tensioning Bolted Connections (Hydraulic Tensioning) v2

The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tension a bolted connection using hydraulic tensioning equipment as per the specified drawing and within set tolerances.

TMJI19 Dismantle, Assemble and Hydraulically Torque Flanged Joints v2

The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tighten a bolted connection using hydraulic torque equipment as per the specified drawing and within set tolerances.

TMJI20 Dismantling, Assembling and Hydraulically Torquing Clamp Connector Joints v2

The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect clamp connector components and report faults, prepare, assemble and tighten clamp connector joint using hydraulic torque equipment to a specified drawing and within set tolerances.

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TMJI21D (dry) Dismantle, Assemble and Tension Bolted Connections (Hydraulic Tensioning) Sub Sea Connections v2
The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tighten a bolted connection using subsea hydraulic torque equipment as per the specified drawing and within set tolerances.

TMJI21W (wet) Dismantle, Assemble and Tension Bolted Connections (Hydraulic Tensioning) Sub Sea Connections v2
The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tighten a bolted connection using subsea hydraulic torque equipment as per the specified drawing and within set tolerances in a controlled submerged environment.

TMJI22D (dry) Dismantle, Assemble and Hydraulically Torque Flanged Joints Sub Sea v2
The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tension a bolted connection using subsea hydraulic tensioning equipment as per the specified drawing and within set tolerances.

TMJI22W (wet) Dismantle, Assemble and Hydraulically Torque Flanged Joints Sub Sea v2
The candidate has to successfully use the appropriate tools and equipment to dismantle, inspect flanges and report faults, prepare, assemble and tension a bolted connection using subsea hydraulic tensioning equipment as per the specified drawing and within set tolerances in a controlled submerged environment.

TWTMJI33 Torque and tension wind turbine bolted connections
The candidate has to successfully use the appropriate tools, equipment and techniques to prepare, assemble, torque and tension bolt connections using wind industry specific equipment to set tolerances.

Mechanical Maintenance

TMM01 Maintaining hydraulic systems v2
The candidate must demonstrate that they can safely and accurately disassemble, clean, inspect and repair a hydraulic gear pump as per manufacturers specification.

TMM02 Maintaining pneumatic systems v2
The candidate must demonstrate that they can safely and accurately disassemble, clean, inspect and repair a double acting pneumatic cylinder as per manufacturer's specification.

TMM03 Compressed Air Systems v1
The candidate has to successfully diagnose a fault on a compressed air system, identify and remove the defective component, repair, replace and test operation as per the specified drawings and within set tolerances.

TMM04 Maintaining Shafts, Bearings and Seals v1
The candidate has to successfully remove the rotating assembly from the test pump to dismantle all shaft components and complete shaft maintenance checks and record data on record sheet provided, prior to replacing all bearing and seal components and replacing the rotating assembly in the test pump.

TMM05 Maintaining pumps v2
The candidate must demonstrate that they can safely and accurately strip down, check dimensions, replace seals, and rebuild a centrifugal pump.

TMM06 Maintaining Geared Mechanisms v1
The candidate has to successfully disassemble the gear mechanism from a gearbox, replace the worm wheel and all relevant gaskets, measure / set gear tooth contact alignment on completion.

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TMM07 Maintaining Mechanical Actuating Mechanisms v1

The candidate has to successfully disassemble the ratchet and pawl mechanism, inspect all parts, replace the ratchet, reassemble all components, and adjust to operational requirements on completion. Then successfully disassemble a valve actuator, replace the spring, reassemble and test on completion.

TMM08 Maintaining Belt and Chain Drives v1

The candidate has to successfully remove a belt and pulley from the belt drive test rig, replace the belt and pulley, align and tension drive system. Then successfully remove a chain and sprocket from the chain drive test rig, replace the chain and pulley, align and tension drive system.

TMM09 Maintaining Shafts and Couplings v1

The candidate has to successfully remove a coupling from the test rig assembly, inspect the coupling, and shaft, replace the coupling and align the pump and motor test rig assembly on completion using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMM10 Maintaining Clutches v1

The candidate has to successfully disassemble a clutch, inspect all components, replace all wear parts and reassemble on completion using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMM11 Maintaining Brake Systems v1

The candidate has to successfully disassemble a brake system, inspect all components, replace all wear parts and reassemble on completion using appropriate tools and equipment as per the specified drawings and within set tolerances.

TMM12 Maintaining Valves v2

The candidate has to successfully disassemble a mechanical isolation valve, inspect, re-assemble, repack and carry out a leak test.

TMM13 Maintaining Diesel Engines v1

The candidate has to successfully - remove/replace cylinder head assembly, torque and set tappets. Remove 1 piston assembly, replace piston rings and reassemble into cylinder block, torque big end bearings on completion. Remove the engine timing belt, replace and set timing on completion.

TMM14 Heating, Ventilation and Air Conditioning Systems v1

The candidate has to successfully complete a maintenance routine of the Air Handling Unit and Air Conditioning Unit within the test Heating, Ventilation and Air Conditioning system, removing, inspecting, cleaning and replacing components and testing operation of the system on completion.

TMM15 Diagnosing Mechanical Faults in Explosive Atmospheres v3

The candidate is required to carry out a “Detailed” Inspection of mechanical equipment and provide written feedback on their suitability in a Zone 1 Hazardous Area.

TMM16 Removing and Installing Mechanical Valves v1

The candidate has to successfully remove and reinstall mechanical valves. The candidate must demonstrate they can work safely whilst completing the removal and installation of mechanical valves.

TMM17 Charge Accumulator Systems v4

The candidate has to successfully isolate and check the pre charge pressure of an accumulator bank. Part of the test will be to re-pressurise any accumulator that does not meet the required specification using the appropriate equipment, materials and tools to recharge any non-compliant accumulator.

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Moving Loads

TML03 Moving Loads v4

The candidate has to successfully select equipment/lifting appliance and lifting accessories to sling, lift and move an unequally weighted load through a restricted access to an identified location in accordance with appropriate industry regulations/procedures.

Non-Destructive Testing (NDT)

It is expected that the NDT technician will have previously held, or is working towards the accreditation of a level 2 certificate prior to undertaking these Technical Tests.

TNDTS01 Magnetic Particle v1

The candidate has to successfully examine and report on 3 Welds using the Magnetic Particle method of examination. The Candidate will be provided with a Magnetic Particle Inspection Procedure in accordance with BS EN 9934-1.

TNDTS02 Liquid Penetrant v1

The candidate has to successfully examine and report on 3 Welds using the Liquid Penetrant method of examination. The Candidate will be provided with a Liquid Penetrant Inspection Procedure in accordance with BS EN 571.

TNDTS03 Eddy Current v1

The candidate has to successfully inspect and report on 3 Welds using the Eddy Current method of inspection. The Candidate will be provided with an Eddy Current Inspection Procedure in accordance with BS EN 12718 or equivalent.

TNDTS04 Ultrasonic v1

The candidate has to successfully examine and report on 2 Welds using the Ultrasonic method of examination. The Candidate will be provided with an Ultrasonic Inspection Procedure in accordance with BS EN 1714 and BS EN 1330 or equivalent

TNDTS05 Visual Inspection v1

The candidate has to successfully examine and report on 3 Welds using a Visual Inspection method of examination. The Candidate will be provided with a Visual Inspection Procedure in accordance with BS EN 970: 1997 Non-Destructive Examination of Fusion Welds or equivalent.

TNDTS06 Determine NDT Requirements v1

The candidate has to successfully report most appropriate method of inspection to be applied to the 4 completed Welded Joints to establish compliance in line with Inspection Procedures and Specification.

Pipefitting

TPF01 Setting Out Pipework and Marking Out v1

The candidate has to successfully set out and mark pipework configurations using marking out and measuring equipment for the fabrication of a mitre bend, produce a template for marking out a lateral branch and mark out branch and header pipes as per the drawing.

TPF02 Developing Patterns for Pipework v1

The candidate has to successfully develop an accurate template pattern for a pipework configuration using marking out and measuring equipment as per the specified drawing and within set tolerances.

TPF03 Preparing Pipe Ends using Portable Edge Preparation Machines v1

The candidate has to successfully use portable preparation machines to prepare pipe ends for welding, chambering the pipe end to a specified angle and within set dimensions.

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TPF04 Pipe Bending v2

The candidate must demonstrate that they can safely and accurately offset bend ferrous pipe using hand or powered hydraulic bending machines and suitable hand tools to specification within set tolerances.

TPF05 Hot work preparation of welded pipework v3

The candidate must demonstrate that they can safely and accurately interpret information from an isometric drawing and produce a full scale wire representation. Then fabricate and secure pipework for welding as per specification drawing using cutting and grinding techniques.

TPF06 Preparing and Assembling Non Metalling Pipework v1

The candidate has to successfully use the appropriate tools and equipment to prepare, fabricate and assemble non-metallic pipework components using compression or cemented joints and socket welded fittings to specified drawings and within set tolerances.

TPF07 Preparing and Bonding GRP Pipework v1

The candidate has to successfully use the appropriate tools and equipment to prepare, fabricate, assemble and bond Glass Reinforced Plastic Pipework as per the specified drawing and within set tolerances.

TPF08 Fabricating and installing pipework supports v2

The candidate must demonstrate that they can safely and accurately fabricate and install pipework supports using bolting and clamping systems including bending techniques.

TPF09 Installing Pipework Systems v2

The candidate has to successfully use the appropriate tools and equipment to prepare, assemble and install pipework systems and components to the specified drawing and within set tolerances.

TPF10 Hydrostatic pressure testing of pipework systems v3

The candidate must demonstrate that they can safely and accurately prepare and hydrostatically test pipework systems, and then drain the systems.

TPF11 Interpret drawing information from assemble threaded pipework v2

The candidate must demonstrate that they can safely and accurately interpret information from an isometric drawing and produce a full scale wire representation. Produce, assemble and secure threaded pipework joints using threaded joints, flanges, and fittings from specifications.

TPF12 Preparing and Assembling Small Bore Non-Ferrous Pipework v1

The candidate has to successfully use the appropriate tools and equipment to fabricate and assemble copper and plastic pipe sections to specified drawings and within set tolerances.

Plating

TPL01 Marking out plate and structural steelwork from drawings v4

The candidate must demonstrate that they can safely and accurately measure and mark out a castellated beam and a plate from drawings.

TPL02 Developing Patterns for Platework v3

The candidate has to successfully develop an accurate template pattern for a pipework configuration using marking out and measuring equipment as per the specified drawing and within set tolerances.

TPL03 Setting out platework and rolled steel section from drawings v5

The candidate must demonstrate that they can safely and accurately set out platework and rolled steel section. This includes reading and extracting information from engineering drawings and specifications to correctly mark out the set out for a column bracing and end plates.

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TPL04 Making Templates for Structural Steelwork v3

The candidate has to successfully develop and produce accurate wooden (plywood) and sheet metal templates for structural steelwork configurations using marking out and measuring equipment as per the specified drawing and within set tolerances.

TPL05 Forming Plate by Rolling v1

The test requires the candidate to form plate by rolling, safely using the correctly selected resources and equipment in accordance with appropriate industry and site-specific regulations and procedures.

TPL07 Assembling Platework v1

The candidate has to successfully assemble platework including assemblies of square/rectangular form using appropriately selected tools and equipment and metric measuring conventions and within set tolerances.

TPL08 Hot work fabrication and inspection of steelwork v4

The candidate must demonstrate that they can safely and accurately cut, drill, prepare, tack weld and secure a ferrous steel haunch connection from specifications. This includes extracting information from engineering drawings to fabricate, inspect and bolt an angled haunch steelwork connection to a pre-fabricated base plate.

TPL09 Interpret Drawing Information, Mark out and Burn Marine Platework v1

The candidate must be able to read and extract information from engineering drawings and specifications to support fabrication of components using the correct methods and techniques. The candidate must also mark out and burn platework to specifications in the engineering drawing using the correct methods and techniques.

Production Operations

Scaffolding

TSCF02 Basic scaffolder v3

The candidate must demonstrate that they can safely and accurately inspect and identify 5 critical faults and 15 non-critical faults in a scaffold structure.

TSCF03 Advanced scaffolder v3

The candidate must demonstrate that they can safely and accurately inspect and identify 5 critical faults and 15 non-critical faults in a scaffold structure from a design drawing.

Small Bore Tubing (SBT)

ECITB/STEP change in safety SBT model

Unsuccessful TSBT candidates must wait a minimum period of 4 weeks between the unsuccessful test session and the next test session to allow for a period of training to address any skills or knowledge gaps.

TSBT01 Assemble and Install Small Bore Tubing Assemblies – Twin Ferrule v1

The candidate has to successfully use the appropriate tools, equipment and materials to plan, prepare, fabricate, assemble and install a small bore tubing assembly as per the specified drawing and within set tolerances.

TSBT02 Disassemble and reinstall SBT assemblies v2

The candidate has to successfully identify, dismantle, faults and defects on small bore tubing assemblies. Then reinstall small bore tubing assemblies using the appropriate tools, equipment and materials as per the specified drawing and specification sheet within set tolerances.

TSBT03 Assemble and install SBT assemblies – Coned & Threaded v1

The candidate has to successfully use the appropriate tools, equipment and materials to plan, prepare, fabricate, assemble and install a small bore tubing assembly as per the specified drawing and within set tolerances.

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TSBT04 Hydrostatic Pressure Testing of Small Bore Tubing Assemblies

The candidate has to carry out Hydrostatic Pressure Testing of SBT (using appropriately selected resources) safely and in accordance with the appropriate industry and site specific regulations and procedures.

Sprayer Blaster Painter

TICA-A01 Industrial coatings airless spray application v3

The candidate must demonstrate that they can safely and accurately prepare airless spray equipment and apply a two part industrial coating to a specific dry film thickness.

TICA-A02 Industrial coatings brush application v3

The candidate must demonstrate that they can safely and accurately apply an industrial coating to a specific dry film thickness.

TICA-P01 Abrasive blast cleaning (direct pressure) v3

The candidate must demonstrate that they can safely and accurately pre-clean and prepare a mild steel plate to specification in preparation for industrial coating using abrasive blast cleaning equipment, needle gun and bristle blaster.

Steel Erecting

TER02 Rigging and Working with Lifting Equipment v1

The candidate has to successfully select the appropriate resources and complete the safe rigging and lifting/moving of the identified item using tirfors and rollers/skates in accordance with appropriate industry regulations/procedures.

TER03 Erecting Steelwork Structure v1

The candidate has to successfully erect the steelwork structure, selecting the appropriate equipment and resources to safely rig, lift, position, assemble and align structural steelwork components in accordance with appropriate industry and site specific regulations/procedures.

TER04 Erecting Pre-formed Plate v1

The candidate has to successfully erect a stair assembly and the pre-formed plate flooring components to the steelwork structure, selecting the appropriate equipment and resources to safely rig, lift, position, assemble and align pre-formed plate structural steelwork components in accordance with appropriate industry and site specific regulations/procedures.

Supporting Engineering Construction

TSE01 Move Engineering Loads by Manual Operation v1

The candidate has to successfully prepare the work area, equipment and material for a safe movement of the engineering load from a storage area to its final location. Select and use the appropriate resources and equipment to complete the safe movement of the engineering load, through the work area, securing the load for work execution at the final location on completion.

TSE02 Mark out to Required Specification v1

The candidate has to successfully mark out metal plate for fabrication and production of components to a required specification, using the correct measuring and marking equipment, methods and techniques.

TSE03 Read and Extract Information from Engineering Drawings and Specifications v1

The candidate has to successfully read and extract information from engineering drawings and specifications to enable correct preparation of work area and selection of engineering construction equipment and materials to support fabrication and production of components using the correct methods and techniques.

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TSE04 Shape Engineering Components by Material Removal Using Hand Tools v1

The candidate has to successfully mark out and shape engineering components by material removal using hand tools to a required specification, using the correct equipment, methods and techniques.

TSE05 Join Materials by Manually Controlled Welding Process v1

The candidate has to successfully prepare for welding four test pieces. Preparation will include the positioning of the test pieces in line with the Welding Specification. The Candidate will be required to tack weld the two sections of the joint securely in preparation for welding. The test must also cover all the following welding methods: MIG/MAG, MMA, TIG, FCAW

Thermal Insulation

TTI01 Application of insulation and non-metallic cladding to pipework v4

The candidate must demonstrate that they can safely and accurately prepare and apply insulation and cladding to specification on pipework.

Welding

Non-critical welding - Pipe

The candidate must prepare, set up and weld the pipe joint in line with the correct Weld Procedure Specification (WPS) provided. The completed welded joint must then pass visual examination as defined on the Examiner Result Sheet. The material is low carbon steel and the processes and positions are shown below.

TNCMIG07 Non-Critical MIG Welding – 1G Single V Butt Weld (Pipe) v1
TNCMMA07 Non-Critical MMA Welding – 1G Single V Butt Weld (Pipe) v1
TNCTIG07 Non-Critical TIG Welding – 1G Single V Butt Weld (Pipe) v1

Non-critical welding - Plate

The candidate must prepare, set up and weld the plate joint in line with the correct Weld Procedure Specification (WPS) provided. The completed welded joint must then pass visual examination as defined on the Examiner Result Sheet. The material is low carbon steel and the processes and positions are shown below.

TNCMIG01 Non-Critical MIG Plate Welding – 1G Butt (Square Edge) v1
TNCMIG02 Non-Critical MIG Plate Welding – 1G Single V Butt Weld v1
TNCMIG03 Non-Critical MIG Plate Welding – 1F Single-Sided Fillet Weld v1
TNCMIG04 Non-Critical MIG Plate Welding – 2G Butt (Square Edge) v1
TNCMIG05 Non-Critical MIG Plate Welding – 2G Single V Butt Weld v1
TNCMIG06 Non-Critical MIG Plate Welding – 2F Single-Sided Fillet Weld v1
TNCMMA01 Non-Critical MMA Plate Welding – 1G Butt (Square Edge) v1
TNCMMA02 Non-Critical MMA Plate Welding – 1G Single V Butt Weld v1
TNCMMA03 Non-Critical MMA Plate Welding – 1F Single-Sided Fillet Weld v1
TNCMMA04 Non-Critical MMA Plate Welding – 2G Butt (Square Edge) v1
TNCMMA05 Non-Critical MMA Plate Welding – 2G Single V Butt Weld v1
TNCMMA06 Non-Critical MMA Plate Welding – 2F Single-Sided Fillet Weld v1
TNCTIG01 Non-Critical TIG Plate Welding – 1G Butt (Square Edge) v1
TNCTIG02 Non-Critical TIG Plate Welding – 1G Single V Butt Weld v1
TNCTIG03 Non-Critical TIG Plate Welding – 1F Single-Sided Fillet Weld v1
TNCTIG04 Non-Critical TIG Plate Welding – 2G Butt (Square Edge) v1
TNCTIG05 Non-Critical TIG Plate Welding – 2G Single V Butt Weld v1
TNCTIG06 Non-Critical TIG Plate Welding – 2F Single-Sided Fillet Weld v1
TNCTFCAW01 Non-Critical FCAW Thick Plate Welding – 3G Single V Butt Weld v1

Welding for Nuclear New Builds

TNNBNCTIG01 Non-Coded TIG Welding – 5G Single V Butt Weld (2” Pipe Sch 40) (Test 7) v5

The test requires the candidate to prepare, set up and weld TIG pipe butt welds in the 5G (PF) position. The joint design shall be of a single v butt configuration and the material shall be low carbon steel pipe

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of wall thickness 6mm, OD 50mm and 115mm long. The completed welded joint must then pass a visual examination.

TNNBNCMMA01 Non-Coded TIG/MMA Welding – PH (5G) Single V Butt Weld (6" Pipe Sch 40) (Test 14) v1

The test requires the candidate to prepare, set up and complete TIG/MMA butt welds in the 5G (PF) position. The joint design shall be of a single V butt configuration and the material shall be low carbon steel pipe of thickness 7.11mm, OD 150mm and 150mm long. The completed welded joint must then pass a visual examination.

TNNBNCMMA03 Non-Coded MMA Plate Welding – Fillet (Multi Position and Multi Run) (Test 10) v8

The test requires the candidate to prepare, set up and deposit multi run MMA fillet welds in all positions. The joint design shall be of a T-fillet configuration and the material shall be low carbon steel plate and square hollow section. The completed welded joint must then pass a visual examination.

TNNBNCMMA04 Non-Coded MMA Welding – Rebar (Test 20) v1

The test requires the candidate to prepare, set up and deposit MMA stitched lap joint and cross welds in the horizontal/vertical and vertical welding positions. The welds will be on 16mm and 12mm diameter Rebar. The completed welded joints must then pass a visual examination.

TNNBNCMMAFSS03 Non-Coded MMA Plate Welding – Fillet (Multi Position) (Test 3) v1

The test requires the candidate to prepare, set up and deposit MMA fillet welds in all positions. The joint design shall be of a T-fillet configuration and the material shall be stainless steel plate and square hollow section. The completed welded joint must then pass a visual examination.

TNNBNCFCAW01 Non-Coded FCAW Plate Welding – Fillet (Multi Position) (Test 19) v1

The test requires the candidate to prepare, set up and deposit FCAW fillet welds in all positions. The joint design shall be of a T-fillet configuration and the material shall be low carbon steel plate of thickness 10mm and square hollow section 10mm thickness. The completed welded joint must then pass a visual examination.

TNNBNCTIGFFS Non-Coded TIG Plate Welding – Fillet (Multi Position and multi run) (Test 1) v5

The test requires the candidate to prepare, set up and deposit fillet welds in all positions using the TIG welding process. The joint design shall be of a T-fillet configuration and the material shall be stainless steel plate and square hollow section. The completed welded joint must then pass a visual examination.

TNNBNCTIGSS01 Non-Coded TIG Welding – PH (5G) Single V Butt Weld (6" Schedule 40 Pipe) (Test 2) v1

The test requires the candidate to prepare, set up and weld TIG pipe butt welds in the 5G (PF) position. The joint design shall be of a single V butt configuration and the material shall be 304L stainless steel pipe of wall thickness 7.11mm, OD 150mm and 150mm long (x2). The completed welded joint must then pass a visual examination.

TNNBNCTIGMMASS01 Non-Coded TIG/MMA Welding – 5G Single V Butt Weld (6" Pipe Schedule 40) (Test 4) v1

The test requires the candidate to prepare, set up and deposit TIG/MMA welds in the 5G (PF) position. The joint design shall be of a single V butt configuration and the material shall be 304L stainless steel pipe of thickness 7.11mm, OD 150mm and 150mm long (x2). The completed welded joint must then pass a visual examination.

TNNBNCMAG01 Non-Coded MAG Plate Welding – Fillet (Multi Position) v1

The test requires the candidate to prepare, set up and deposit MAG fillet welds in all positions. The joint design shall be of a T-fillet configuration and the material shall be low carbon steel plate of thickness 10mm and square hollow section 10mm thickness. The completed welded joint must then pass a visual examination.

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Welding Pipe Preparation

The candidate has to successfully prepare and set up backed and un-backed butt joints in different pipe materials (below) in the inclined position (pipe axis inclined 45° and fixed) ready for the selected welding process to the welder approval standards specified in BS EN 287. Then store the equipment safely after use.

TTIG01	Prepare and set up Butt Welds in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TTIG02	Prepare and set up Butt Welds in Stainless Steel Pipe, Axis Inclined 45°- Fixed v1
TTIG03	Prepare & setup Butt Welds in Aluminium Alloy Plate v1
TTIG04	Prepare & Set Up Butt Welds in Carbon & Low Alloy Steel Plate v1
TTIG05	Prepare & setup Butt Welds in Nickel and Nickel Alloy Plate v1
TTIG06	TIG06 Prepare and set up Butt Welds in Aluminium Alloy Pipe, Axis Inclined 45°- Fixed v1
TMIG02	Prepare and set up Butt Welds in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TFCAW03	Prepare and set up Butt Welds in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TMMA01	Prepare and set up Butt Welds in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TMMA02	Prepare and set up Butt Welds in Stainless Steel Pipe, Axis Inclined 45°- Fixed v1
TMMA03	Prepare and set up Butt Welds with TIG root in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TMMA05	Prepare and set up Butt Welds with TIG Root in Stainless Steel Pipe, Axis Inclined 45°- Fixed v1

Welding Plate Preparation

The candidate has to successfully prepare and set up backed and un-backed butt joints in different plate materials (below) ready for the selected welding process to the welder approval standards specified in BS EN 287. Then store the equipment safely after use.

TTIG03	Prepare & setup Butt Welds in Aluminium Alloy Plate v1
TTIG04	Prepare & Set Up Butt Welds in Carbon & Low Alloy Steel Plate v1
TTIG05	Prepare & setup Butt Welds in Nickel and Nickel Alloy Plate v1
TMIG01	Prepare & Set Up Butt Welds in Stainless Steel Plate v1
TMIG03	Prepare & Set Up Butt Welds in Nickel & Nickel Alloy Plate v1
TMIG04	Prepare & Set Up Butt Welds in Carbon & Low Alloy Steel Plate v1
TMIG05	Prepare & Set Up Butt Welds in Aluminium & Aluminium Alloy Plate v1
TFCAW01	Prepare & Set Up Butt Welds in Carbon & Low Alloy Steel Plate v1
TFCAW03	Prepare and set up Butt Welds in Carbon and Low Alloy Steel Pipe, Axis Inclined 45°- Fixed v1
TMMA04	Prepare & Set Up Butt Welds in Carbon & Low Alloy Steel Plate v1
TMMA06	Prepare & setup Butt Welds in Nickel and Nickel Alloy Plate v1
TMMA07	Prepare & Set Up Butt Welds in TIG Root Carbon & Low Alloy Steel Plate v1
TMMA08	Prepare & Set Up Butt Welds in Stainless Steel Plate v1
TMMA09	Prepare & Set Up Butt Welds in TIG Root Nickel & Nickel Alloy Plate v1

Working at Height

TWAH01 Working at Height v1

To ensure a candidate has the skills, knowledge and ability to prepare resources for, set up ladders and access at platform at least 2 meters in height, demonstrate the safe use of lanyards and inertia reels and selected fall protection equipment. The candidate must always demonstrate an ability to work safely throughout the test.

TWAHR01 Working at Height Basic Rescue Techniques v1

To ensure a candidate has the skills, knowledge and ability to prepare resources for, set up and rescue a simulated unconscious casualty at height working as a two-man team. The candidate must demonstrate an ability to work safely at all times throughout the test.

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Tests available in other languages

Please refer to the main listing for a description of each test

Portuguese

PTPF02	Developing Patterns for Pipework
PTSE03	Erecting Steelwork Structure
PTPF08	Fabricating and Installing Pipework Supports
PTPF09	Installing Pipework Systems
PTRIG02	Lifting and Slinging Engineering Construction Materials Safely
PTRIG06	Lifting, Cross Hauling, and Installing Vessels in Restricted Access Areas
PTRIG01	Moving Engineering Loads by Manual Operation
PTWMIG07	Non-Critical MIG Pipe Welding - 1G Single V Butt Weld
PTWMIG01	Non-Critical MIG Plate Welding - 1G Butt (Sq edge)
PTWMMA07	Non-Critical MMA Pipe Welding - 1G Single V Butt Weld
PTWMMA03	Non-Critical MMA Plate Welding - 1F Single-Sided Fillet Weld
PTPF04	Pipe Bending
PTPF06	Preparing and Assembling Non-metallic Pipework
PTPF05	Preparing and Assembling Welded Pipework
PTPF03	Preparing Pipe Ends using Portable Edge Preparation Machines
PTRIG04	Rigging and Moving Complex Engineering - Construction Materials Safely
PTRIG05	Rigging, Rotating and Upending Complex Engineering - Construction Materials Safely
PTPF01A	Setting Out Pipework and Marking Out
PTSE01	Slinging

Russian

TIMJI10-R	Dismantle, Assemble and Hand Torque Flanged Joints v3
TIMJI19-R	Dismantle, Assemble and Hydraulically Torque Flanged Joints v2
TIMJI18-R	Dismantle, Assemble and Tension Bolted Connections (Hydraulic Tensioning) v2

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