
Level 3 End-Point Assessment for Gas Network Craftsperson – Electrical and Instrumentation



EPA Specification Section 5.2 – The Practical Task

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Contacts

This specification has been designed to provide all the advice and guidance you need to prepare yourself and your apprentices for end-point assessment. However, if you have any further questions please contact the EUIAS Help Desk using one of the following:

Help Desk email: enquiries@euias.co.uk

Help Desk telephone: 0121 713 8310

Introduction

Apprentices will complete a practical task during which they will also be asked questions by the technical expert to confirm their understanding of the rationale for actions taken and choices made during the task(s). The content of this practical task will relate to the specific role they are working towards. The duration of this activity will typically be no longer than 9 hours +/- 10%, this can be split across a maximum of three days. The actual time allowed will be based on the comparable time that an industry competent worker would take to achieve successful task(s) completion. The EUIAS will provide the performance criteria and the recording documents for the tasks. Through consultation with the employer and training provider, the EUIAS will ensure sufficient complexity to allow the apprentice to demonstrate the required knowledge, skills and behaviours (KSB) in an integrated way, which will test:

- Core skills (CS1; CS2; CS3; CS4; CS5; CS6; CS7; CS8; CS9; CS10; CS11; CS13)
- Core behaviours (CB1; CB3; CB4; CB5; CB6; CB8)
- Selected role specific skills for electrical and instrumentation craftsperson (NMCEi1; NMCEi2; NMCEi4; NMCEi5; NMCEi9; NMCEi12; NMCEi15)

See Section 4 for the references to the standard.

Note that the apprentice is only required to demonstrate the electrical and instrumentation craftsperson specific knowledge, skills and behaviours requirements, and the task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the knowledge, skills and behaviours in an integrated way.

The task(s) will be supervised and managed by an employer technical expert approved by EUIAS, and this technical expert **must not** be the independent assessor who conducts the technical interview.

As part of the practical task the technical expert will write a factual account of the practical task verifying whether the task was completed appropriately. The apprentice will be asked questions, with follow up questions as appropriate, to confirm their understanding of the rationale for actions taken and the choices made to complete the tasks.

This practical task provides the opportunity for the apprentice to synoptically demonstrate core and specific knowledge, skills and behaviours as detailed in Section 4, on actual plant and equipment in a workplace or a simulated environment that reflect the real working environment appropriate to the task(s) and risk involved, with the exception of not necessarily being connected to a live gas network. This provides the opportunity to apply and integrate their learning and to safely perform maintenance and operational activities.

Preparing for the Practical Task

The practical task will be set by the EUIAS working alongside the employer, taking account of workplace consideration in discussions with the apprentice's employer. Practical task may have a number of elements, but all task(s) must be of equal size and complexity for each option. EUIAS will work with the employer to approve or provide recommendations to ensure the following and are all fit for purpose:

- Practical task and brief(s)
- Workplace and or the simulated environment reflect the real working environment and are appropriate for the practical task
- Identify risk(s) involved, with the exception of not necessarily being connected to a live gas network

The EUIAS have provided example practical tasks in Section 7 'Supporting Documents and Guidance' of this Specification to assist the employer technical expert. The practical task and brief(s) **must** be designed to enable demonstration of the core KSBs and the electrical and instrumentation apprentice's knowledge and skills in an integrated way. The area where the practical task is taking place must be designed to ensure the employer technical expert has full sight of the apprentice at all times during the practical task.

The practical task will be administered by the employer technical expert, they will be trained by EUIAS and are accountable to EUIAS.

The employer technical expert:

- must not have been involved in the learning or training of the apprentice and cannot guide the apprentice in any way
- will provide written instructions and brief the apprentice at the beginning of the task in line with EUIAS guidance
- is not allowed to discuss the task with the apprentice before, during or after the practical task
- will question the apprentice to ascertain the depth and breadth of their underpinning knowledge
- will write a factual account of the practical task using EUIAS documentation as per EUIAS guidelines, verifying whether the task was completed appropriately
- will **not grade** the practical task (grading will take place by an independent assessor during technical interview part 1)

- will supervise the apprentice during the practical task on a one-to-one basis to maintain quality and rigour. The area where the practical task is taking place must be designed to ensure the employer technical expert has full sight of the apprentice at all times during the practical task
- will require an invigilator on the day because there may be breaks during the practical task to allow the apprentice to move from one location to another and breaks in line with working time regulations which **must at all times** be supervised by an invigilator

Apprentices should be prepared for the practical task with the opportunity to carry out large scale complex tasks under assessment conditions. They should be questioned either before or during the practice task, as outlined in Section 6 'Practice Assessments and Guidance'.

The EUIAS Service Delivery team will get in touch with the agreed point of contact at the employer or training provider to schedule the practical task as required. This task requires sufficient notice to take account of the availability of the apprentice, the employer technical expert, and the venue staff for the duration of the task(s).

The apprentice to employer technical expert ratio **must** be one-to-one for the entire duration of the practical task and **under no circumstances must this exceed 1:1**. The apprentice **must not** be left alone. There may be breaks during the practical task to allow the apprentice to move from one location to another and breaks in line with working time regulations which **must** all be supervised by an invigilator on a one-to-one basis.

The invigilator **must**:

- be independent of the apprentice, the employer and training provider(s); there must be no conflict of interest
- ensure the apprentice is not left unsupervised
- ensure they only supervise one apprentice
- not discuss the practical task or work being carried out by the apprentice with the apprentice

The apprentices should be made aware that the **practical task will not be graded by the technical expert**, but that it will be graded a distinction, pass or fail during the technical interview part 1 (practical task) by the independent assessor. The apprentice should be made aware that the practical task has been designed to enable demonstration of core KSBs and the electrical and instrumentation specific knowledge and skills in an integrated way.

The EUIAS Service Delivery team will work with the employer or training provider to schedule the practical task.

Demonstration of core KSBs including the electrical and instrumentation specific knowledge and skills in an integrated way during the Practical Task

The practical task **must** be designed to demonstrate the core KSBs including electrical and instrumentation specific knowledge and skills criteria as described in the following pages.

Practical Task

The **apprentice must demonstrate** core KSBs and the electrical and instrumentation specific knowledge and skills in an integrated way. The practical task is supervised by the employer technical expert approved by the EUIAS.

The following tables explain the criteria that the apprentice **must** demonstrate:

Core Skills	CS1	CS2	CS3	CS4	CS5	CS6	CS7	CS8	CS9	CS10	CS11	CS13
Demonstrate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Core Behaviours	CB1	CB3	CB4	CB5	CB6	CB8
Demonstrate	✓	✓	✓	✓	✓	✓

Role Specific Skills	NMCEi1	NMCEi2	NMCEi4	NMCEi5	NMCEi9	NMCEi12	NMCEi15
Demonstrate	✓	✓	✓	✓	✓	✓	✓

The practical task must be successfully completed.

Practical Task Criteria

The apprentice must be able to demonstrate the following core KSBs and the electrical and instrumentation specific knowledge and skills in an integrated way:

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
<p>CS1: Undertake and document risk assessments in accordance with company procedures</p>	<ul style="list-style-type: none"> • Undertake a site-specific risk assessment appropriate to the site and task • Identify and implement appropriate control measures
<p>CS2: Comply with workplace health, safety & environmental practices and regulations, maintaining a safe and secure working environment</p>	<ul style="list-style-type: none"> • Comply with health and safety measures specified for the site • Apply safe working practices in accordance with the risk assessment and Permit to Work requirements
<p>CS3: Follow engineering instructions and company procedures to complete tasks safely and on-time</p>	<ul style="list-style-type: none"> • Undertake tasks in compliance with procedures
<p>CS4: Undertake inspection and examination of network assets in order to maintain the safe and compliant operation of the network to ensure the integrity, safety and security of supply</p>	<ul style="list-style-type: none"> • Demonstrate understanding of the impact of components on safety and security of supply • Undertake visual inspection of equipment and components • Use equipment to check the function and operation of components • Examples of assets may include electrical equipment, telemetry equipment, control systems, sensing equipment, metering, actuators

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
<p>CS5: Maintain and/or install gas engineering assets, components and associated equipment</p>	<ul style="list-style-type: none"> • Take action to check or confirm the performance of components • Correctly select and use tools and equipment appropriate for the task • Install new or replacement equipment of components appropriate for the task • Check or confirm the performance of new components • Assets may include electrical equipment, telemetry equipment, control systems, sensing equipment, metering
<p>CS6: Install, test, purge and commission gas network assets</p>	<ul style="list-style-type: none"> • Identify tools, equipment and materials required for the task • Apply a safe and logical approach to the installation of assets • Confirm the newly installed assets are working correctly • Examples of assets and equipment may include gas quality equipment, meters, orifice plates, gauges, sensors, switches, solenoids, transducers, telemetry, actuators
<p>CS7: Operate powered tools, such as drills, angle rinders, brush cutters and shot blasting equipment as required for network maintenance operations</p>	<ul style="list-style-type: none"> • Identify power tools appropriate for the task • Ensure site rules and conditions are suitable for the use of power tools • Apply pre-use checks to ensure equipment is safe and fit for purpose

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
	<ul style="list-style-type: none"> • Use equipment in accordance with instructions • Examples of tools and equipment may include hand tools, hot work tools, meters, gauges, battery operated tools, electrical tools
<p>CS8: Use approved gas detection equipment to ensure safe environment</p>	<ul style="list-style-type: none"> • Use equipment to detect for the presence of escaping gas before undertaking work • Examples of gas detection equipment may include: Gascoseeker, Gassurveyor, personal atmosphere monitor, sensors
<p>CS9: Use Personal Protective Equipment (PPE) and safety equipment in accordance with manufacturer's instructions and employer policy</p>	<ul style="list-style-type: none"> • Select, wear and use personal protective equipment appropriate to the site and task • Examples of PPE may include protection for: head, hearing, eyes, body, hands, feet • Examples of PPE may include protection from dust, heat, fire • Examples of PPE may include personal atmosphere monitor
<p>CS10: Obtain and analyse asset condition and performance information to facilitate decision making</p>	<ul style="list-style-type: none"> • Use information supplied by others to confirm performance • Use test equipment to identify the performance of systems and components • Use available to make decisions on the actions required • Examples of performance information may include inputs, outputs, telemetered data, • Examples of conditions may include tolerances,

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
	accuracy and inaccuracy
<p>CS11: Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety, security and environmental impact</p>	<ul style="list-style-type: none"> • Select the tools, equipment, materials and consumables appropriate for the task • Demonstrate care for tools, equipment, materials and consumables throughout the task • Demonstrate the correct use of tools, equipment, materials and consumables throughout the task • Take steps to minimise wastage • Examples of resources may include manpower, tools, equipment, materials, consumables
<p>CS13: Accurately record job information, complete job reports and process</p>	<ul style="list-style-type: none"> • Effectively interpret the outputs of test equipment • Maintain appropriate records of tests and outputs, as appropriate for the task • Inform others of results and outputs, as appropriate • Maintain site logs, as appropriate • Examples of information may include inputs, outputs, data, performance data, • Examples of reports may include handwritten reports, computer records, site logs, verbal reports
<p>CB1: Display a self-disciplined, self-motivated approach</p>	<ul style="list-style-type: none"> • Explain why self-discipline and self-motivation are important and give examples of how these have been applied
<p>CB3: Demonstrate and apply a safety first approach</p>	<ul style="list-style-type: none"> • Recognise the risks posed by the site and work to be undertaken

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
	<p>Apply safe working practices appropriate for the site and task</p>
<p>CB4: Accept accountability when undertaking individual and team tasks</p>	<ul style="list-style-type: none"> Describe using examples when accountability has been taken for tasks
<p>CB5: Follows instruction from appropriate supervision, and makes decisions when required</p>	<ul style="list-style-type: none"> Describe the management / reporting structure and who can issue work instructions Give examples of where instruction have been followed
<p>CB6: Quality-focussed and professional in work and in personal standards</p>	<ul style="list-style-type: none"> Explain why it is important to produce quality work Describe with examples of when a professional approach has been employed in a work situation
<p>CB8: Accepts responsibility for work undertaken</p>	<ul style="list-style-type: none"> Give examples of when responsibility has been accepted for a task
<p>NMCEi1: Apply electrical theories and principles and use equipment to carry out diagnostic fault finding procedures</p>	<ul style="list-style-type: none"> Correctly identify electrical theories and principles applicable to the task Appropriately apply electrical and theories applicable to the task Appropriately select and use equipment to diagnose faults on components Examples of theories may relate to current, voltage, resistance, impedance, capacitance, heat
<p>NMCEi2: Inspect, maintain, repair, overhaul test and calibrate instrumentation and control equipment and circuits in accordance with company procedures</p>	<ul style="list-style-type: none"> Identify and correctly apply procedures appropriate for the task Identify and correctly use tools and equipment appropriate for the task

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
	<ul style="list-style-type: none"> • Correctly calibrate instrumentation equipment prior to use • Examples of equipment may include meters, gauges, sensors, telemetry, gas quality equipment, odourisation equipment
<p>NMCEi4: Carry out cable testing across a range of voltages to ensure safety and suitability for use</p>	<ul style="list-style-type: none"> • Demonstrate knowledge of requirements for testing cables and suitable methodologies • Select appropriate equipment for the task • Examples of equipment may include gauges, meters, sensors • Examples of voltages may include: millivoltages, low voltages, high voltages
<p>NMCEi5: Install, maintain and dismantle instruments, controllers, probes, attachments, cabling, meters and display units</p>	<ul style="list-style-type: none"> • Demonstrate safe working practices when installing, maintaining or dismantling equipment • Examples of equipment may include meters, gauges, sensors, orifice plates, actuators, telemetry • Examples of components may include probes, controllers, cables and wiring, displays, casings and cabinets
<p>NMCEi9: Repair, maintain, configure and calibrate field instrumentation, communication devices and associated equipment used in system and process control</p>	<ul style="list-style-type: none"> • Demonstrate safe working practices when working on instrumentation and communication equipment • Demonstrate the calibration of instrumentation equipment • Examples of instrumentation equipment may include meters, gauges, sensors, actuators • Examples of communication equipment may include

Standard	Demonstrate core KSBs, and electrical and instrumentation specific knowledge and skills
	aerials, online connections, telemetry systems, modems
<p>NMCEi12: Carry out isolation procedures to ensure process or system stability and the safety of personnel when carrying out operations</p>	<ul style="list-style-type: none"> • Demonstrate understanding of the need for safe isolation of electrical systems prior to work • Apply procedures to safely isolate electrical systems prior to work
<p>NMCEi15: Apply electrical knowledge and skills to install, maintain and dismantle a wide range of plant, machinery and components</p>	<ul style="list-style-type: none"> • Demonstrate knowledge and understanding of electrical theory appropriate to the task • Apply theory when undertaking work • Examples of plant may include valves, pressure control equipment, metering equipment, condition monitoring equipment, gas quality equipment, odourisation equipment, buildings and housings, site lighting, site security