ENERGY & ENVIRONMENT AWARDS

Skills for a greener world

EEA Level 3 End-point Assessment for Maintenance and Operations Engineering Technician (Electrical System and Process Control)

# Specification

QAN 610/6007/0
ST0154 V1.4

# Specification for

## EEA Level 3 End-point Assessment for Maintenance and Operations Engineering Technician (Electrical System and Process Control)

**QAN 610/6007/0**

## Updates to this specification

Since the first publication of Energy & Environment Awards Maintenance and Operations Engineering Technician Specification – Electrical System and Process Control, the following updates have been made.

| Version | Date first published | Section updated | Page(s) |
|---|---|---|---|
| v2.0 | August 2025 | Rebranded | All |
| v1.0 | October 2024 | First published | All |

## Section 1: At a Glance EPA Summary

| | |
|---|---|
| Qualification name | EEA Level 3 End-point Assessment for Maintenance and Operations Engineering Technician |
| Ofqual qualification number | 610/6007/0 |
| Standard reference | ST0154 |
| Assessment plan | V1.4 |
| Standard title | Maintenance and Operations Engineering Technician (MOET) |
| Pathway | Electrical System and Process Control |
| Level | 3 |
| Gateway pre-requisites submitted to EUIAS | Apprentice has:<br>• Achieved a minimum Level 2 English and maths<br>• satisfactorily completed the formal training plan<br>• compiled and submitted a portfolio of evidence, which the technical interview will be based on |
| On-programme duration | Typically 36 months |
| Gateway readiness | Apprentice has met all Gateway pre-requisites. Employer completes, signs and submits Gateway Eligibility Form (GER) form to Energy & Environment Awards. See Appendix B MOET Supporting Documents 'Gateway Eligibility Form.' |
| End-point assessment duration | Typically 6 months after the gateway |
| End-point assessment methods and their order | • Knowledge Assessment<br>• Practical Observation<br>• Technical interview (based on portfolio of evidence) |

| | |
|---|---|
| End-point assessment methods and component grading | Knowledge Assessment: Fail; Pass; Merit or Distinction<br>Practical Observation: Fail; Pass; Merit or Distinction<br>Technical Interview: Fail; Pass; Merit or Distinction |
| Overall Grading | Fail; Pass; Merit or Distinction |
| Certification | Energy & Environment Awards request Apprenticeship completion certificates from the ESFA |

## Objective

The purpose of the Maintenance and Operations Engineering Technician (MOET) end-point assessment (EPA) is to confirm that an apprentice is fully capable of doing their job before they receive their apprenticeship certificate. It also helps to demonstrate that what an apprentice has learned can be applied in the real world.

Once the apprentice has completed the MOET end-point assessment requirements successfully and has been certified they could take on the following job role:

- Electrical System and Process Control

## Professional recognition

The apprenticeship standard meets the professional standards of the Engineering Council for registration as Engineering Technician (Eng Tech) by an appropriate Professional Engineering Institution.

## Gateway Readiness

The employer must be satisfied that the apprentice is consistently working at, or above, the level of the occupational standard. Gateway pre-requisites are listed in the summary table above.

## Recognition of prior learning (RPL)

Energy & Environment Awards does not recognise any apprentice prior learning (RPL) or prior achievement (RPA) for the purpose of amending the assessment requirements of any end-point assessments.

Please refer to Energy & Environment Awards RPL and RPA policy at https://energyenvironmentawards.co.uk/policies-and-fees/

In order for ENERGY & ENVIRONMENT AWARDS to award an end-point assessment qualification, the apprentice must successfully complete all required assessment components with Energy & Environment Awards. This means that:

- each of the EPA components must be completed in full with Energy & Environment Awards
- where an apprentice transfers to Energy & Environment Awards from another EPAO they have to undertake the entire EPA with Energy & Environment Awards
- components of the EPA cannot be certificated in isolation
- evidence produced for the portfolio must be related to the time the apprentice is on their apprenticeship programme to demonstrate current practice
- examples used by the apprentice, during the interview, must relate to the time they were on their apprenticeship programme

This does not affect the Gateway requirements which must be met in order for an apprentice to be eligible for end-point assessment.

This does not affect any reasonable adjustments that may be granted.

# Section 2: End-point Assessment Components

## Component 1: Knowledge Assessment

### Overview

The knowledge assessment is paper based. Apprentices have 45 minutes to complete the test. It consists of 30 questions.
The knowledge assessment questions will have four possible answers of which one will be correct.

The Pass mark is 18 correct answers.
The Merit mark is 23 correct answers.
The Distinction mark is 26 correct answers.

Apprentices must take the test in a quiet space, free from distractions and influence, in the presence of an invigilator.

## Knowledge Assessment coverage

The knowledge assessment consists of 4 core knowledge elements.
The table below lists each of the element assessed in the knowledge assessment. Amplification and Guidance can be found in the table below.

| Number of Questions | Knowledge | Amplification and Guidance |
|---|---|---|
| 6 - 8 | **K1:** First principles relating to the operation and maintenance of appropriate plant and equipment | • Purpose of the plant/equipment<br>• Impact of plant/equipment malfunction or failure<br>• Interaction with other process plant/equipment<br>• Normal operating conditions such as temperatures, speeds, pressures, loads, as appropriate |
| 6 - 8 | **K2:** Relevant industry health and safety standards, regulations, and environmental and regulatory requirements | • Control of Substances Hazardous to Health procedures<br>• Working at Height Regulations<br>• Risk assessment procedures<br>• Personal protection equipment<br>• Manual handling and lifting and rigging<br>• Isolation procedures<br>• Site safety signage<br>• Confined space entry<br>• Compliance with site safe systems of work |

| Number of Questions | Knowledge | Amplification and Guidance |
|---|---|---|
| 6 - 8 | **K3:** Maintenance and operational practices, processes and procedures covering a range of plant and equipment | • Selection and use of tools, equipment & materials<br>• Engineering calculations<br>• Testing & inspection activities<br>• Condition monitoring<br>• Fault-finding skills<br>• Use of technical drawings<br>• Root cause analysis |
| 6 - 8 | **K4:** The relevant engineering theories and principles relative to their occupation | **Pathway: Electrical System and Process Control Specialist Role**<br>• Basic electrical theories and principles; current, voltage, resistance, Ohm's Law; SI units<br>• Basic control principles; analogue and digital signals, inputs, outputs, sensors, feedback control<br>• Principles of control systems; supervisory control, data acquisition (SCADA), programmable logic controls (PLCs), distributed control systems (DCS) |

## Knowledge Assessment Roles and Responsibilities

| Role | Responsibility |
|---|---|
| Invigilator | Is typically provided by the employer or training provider.<br>Attend induction training as directed by Energy & Environment Awards. |
| Employer/Training Provider | Ensure that the knowledge assessment is scheduled with Energy & Environment Awards for a date and time which allow the apprentice to be well prepared. |
| Energy & Environment Awards | Arrange for the knowledge assessment to take place, in consultation with the employer/training provider.<br>Mark knowledge assessment answers accurately according to the mark scheme and procedures. |

## Component 2: Practical Observation

### Overview

In a practical observation, an independent assessor observes an apprentice on actual plant and equipment in a realistic work situation. The apprentice must be allowed to synoptically demonstrate the application of the relevant core and specific job role knowledge, skills and behaviours (KSBs) through naturally occurring evidence. The independent assessor will ask questions before or during the observation. To remain as unobtrusive as possible, the independent assessor will ask questions during natural breaks between tasks and after completion of work rather than disrupting the apprentice's flow.

Centres unfamiliar with this standard are strongly recommended to use Energy & Environment Awards Practical Observation Review service to help ensure the practical task is suitable for end-point assessment.

### Step-by-Step Guide

The table below provides a step-by-step guide on how the practical observation will be carried out:

| | |
|---|---|
| Assessors | 1 independent assessor, appointed by Energy & Environment Awards.<br>The independent assessor may or may not be the independent assessor who conducts the technical interview.<br>The exception is for the Nuclear and Power Generation sectors where the assessor may be recruited from the employer. |
| Practical structure | Typically no longer than one day, and the actual time allowed will be based on the comparable time that an industry competent worker would take to achieve successful task(s) completion. For example:<br>• normal duration of 5 – 6 hours per apprentice including time for questioning and must involve working on a complex task; the location and the tasks must be appropriate<br>**Note that the apprentice is only required to demonstrate one of the specific skill requirements, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill.** |

| | |
|---|---|
| | Apprentices are assessed to confirm that they can apply their knowledge of plant and systems to safely perform maintenance and operational activities with minimum supervision.<br>• 1 apprentice may be assessed at one time<br>The practical observation will be:<br>• managed and marked by an independent assessor<br>• marked out of 100 marks, the score will provide points towards the final grade<br>The independent assessor will ask standardised open 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.<br><br>There may be breaks during the practical observation to allow the apprentice to move from one location to another and for meal/comfort breaks.<br><br>During these breaks, the clock will be stopped and then restarted to ensure that the assessment duration is not reduced. |
| Where will the assessment take place? | The practical observation must be conducted:<br>• in the apprentice's normal place of work in a suitable area provided the apprentice can work unhindered and without gaining advantage from others<br>OR<br>• in a simulated environment that reflects the real working environment and realistic work situation |
| What are the tasks that will be covered? | The assessment task must allow the apprentice to undertake the activities. For further details refer to 'Knowledge, Skills and Behaviours (KSBs) Coverage' below.<br><br>The practical observation must also allow the apprentice to demonstrate the behaviours listed in the next section. |
| Who sets the task(s)? | Employer or training provider set the task based on the guidance provided in this Specification. Centres unfamiliar with the MOET standard should use Energy & Environment Awards Practical Observation Review Service to review proposed practical tasks before end-point assessment takes place. The task must be sufficiently complex to allow the apprentices to demonstrate the widest range of knowledge, skills and behaviours against the mandatory elements of the MOET EPA Standard. |

| | |
|---|---|
| | A “complex” activity is defined as one that is completed in a number of individual stages in order to complete the activity. As an example, these stages could be broken down into the sequence listed above.<br><br>Details of the mandatory elements are in this Section of the Specification: ‘Knowledge, Skills and Behaviours (KSBs) Coverage.’<br>Energy & Environment Awards will work with the employer and/or training provider to review the practical briefs/job task sheets which are based on the tasks described above. See Appendix D MOET Supporting Documents ‘Level 3 Maintenance and Operations Engineering Technician Practical Observation and Planning Form.’<br>The apprentice will be provided with both written and verbal instructions by the independent assessor on the tasks. |
| What resources can the apprentice use? | Equipment and resources needed for the observation must be:<br>• provided by the employer or training provider<br>• a suitable premises<br>• the plant, machinery, equipment and PPE required for the job<br>• in good and safe working condition<br>Relevant work instructions/manuals must be available in hard copy or electronically. |
| How many questions will the apprentice be asked? | The independent assessor:<br><br>• will ask standardised open questions to assess the related underpinning knowledge. There are no stipulated number of questions that will be asked<br>• may ask follow-up questions in order to seek clarification |
| What will the questions focus on? | Underpinning knowledge and/or skills and behaviours where an opportunity to observe them has not occurred. |
| Grading | Fail, Pass, Merit or Distinction. |

## Practical Observation: Knowledge, Skills and Behaviours (KSBs) coverage

The practical observation covers:

| Practical Observation Elements: Core Skills | Amplification and Guidance (where required) |
|---|---|
| **S1** Comply with industry health, safety and environmental working practices and regulations | • Roles and responsibilities in relation to the HSE Regulations<br>• Site safety systems, including communicating with others<br>• Site safety signage<br>• Risk assessment procedures<br>• Correct use of personal protection equipment |
| **S2** Communicate with and provide information to stakeholders in line with personal role and responsibilities | • Team members<br>• Colleagues at handover<br>• Line managers<br>• Internal and external safety personnel |
| **S3** Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities | |
| **S4** Assess and test the performance and condition of plant and equipment | |
| **Core Skills: Assessed in Practical Observation and Technical Interview**<br>**S5** Locate, and rectify faults on plant and equipment | • Systematic and effective approaches to fault finding<br>• Isolation/overrides/inhibits<br>• Use of historical operational data |

| Practical Observation Elements: Core Skills | Amplification and Guidance (where required) |
|---|---|
| **S6** Read, understand and interpret information and work in compliance with technical specifications and supporting documentation | • Company procedures for the control of work<br>• Operating specifications and maintenance records |
| **S7** Inspect and maintain appropriate plant and equipment to meet operational requirements | • Operational requirements laid out in company policies and procedures |
| **S8** Communicate, handover and confirm that the appropriate engineering process has been completed to specification | • Verbal handovers<br>• Handover documentation |

| Practical Observation Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control (ES&PC) Role Specialist Skills<br>Note that the apprentice is only required to demonstrate one of the specific skill requirements, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill | |
| **EP1** Position, assemble, install and dismantle integrated electrical apparatus, systems and process control equipment | • Positioning could include the fitting of new or replacement complex ES&PC devices including but is not limited to process control sensors, transmitters, switches, regulators, control valves etc.<br>  ○ These activities are completed in logical and progressive stages<br>• Assembling activities are commonly part of the positioning work and could involve but are not limited to the assembly of associated |

| Practical Observation Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control (ES&PC) Role Specialist Skills<br>Note that the apprentice is only required to demonstrate one of the specific skill requirements, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill | |
| | process control equipment such as PLC controllers, SCADA units, sensors<br>• Installation activities could include but is not limited to the installation of associated process control equipment such as PLC controllers, SCADA units, sensors<br>• Dismantle activities could involve the isolation of equipment followed by the removal of devices or complex components that interact with other parts of the device |
| **EP2** Carry out planned, unplanned and preventative maintenance procedures on integrated plant and equipment | • Planned maintenance is commonly described as work that is facilitated as part of the company maintenance philosophy. Typical work could include function tests, inspections, condition monitoring etc.<br>• This work is normally carried out when the equipment is offline or in planned shutdown periods<br>• Unplanned maintenance is commonly described as work that is commonly the result of a breakdown of equipment and/or systems<br>• Preventative maintenance is commonly described as work that is carried out on a predetermined period to reduce the risk of breakdown or failure. It can involve the inspection, repair, |

| Practical Observation Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control (ES&PC) Role Specialist Skills<br>Note that the apprentice is only required to demonstrate one of the specific skill requirements, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill | |
| | replenishment, replacement of components, cleaning and adjustments |
| **EP3** Replace, repair and/or remove components within integrated plant and equipment and ensure its return to operational condition | |
| **EP4** Diagnose and determine the cause of faults within integrated plant and equipment | Fault-finding techniques including but not limited to:<br>• Visual<br>• Compliance<br>• Condition monitoring<br>• Historical data<br>• Third party input<br>• Root cause analysis<br>• Function tests<br>• Measurement |
| **EP5** Calibrate and configure integrated electrical apparatus, systems and process control equipment | |

| Practical Observation Elements: Behaviours | Amplification and Guidance |
|---|---|
| **B1 Health and Safety**<br>Follows health and safety policies and procedures and be prepared to challenge unsafe behaviour using appropriate techniques to ensure the protection of people and property when working alone and/or with appropriate supervision | Appropriate techniques<br>• Following site and company procedures |
| **B2 Quality focused**<br>Ensures that work achieves quality standard both occupationally and personally | |
| **B3 Working with others**<br>Has the ability to work well with people from different disciplines, backgrounds and expertise to accomplish an activity safely and on time | |
| **B4 Interpersonal skills**<br>Gets along well with others and takes into account their needs and concerns | |
| **B6 Sustainability and ethical behaviour**<br>Behaves ethically and undertakes work in a way that contributes to sustainable development | • Honesty<br>• Fairness<br>• Respecting the rights of individuals |
| **B7 Risk awareness**<br>Demonstrates high concentration, the desire to reduce risks, ability to be compliant and awareness of change, through regular monitoring and checking of information | Regular monitoring and checking of information<br>• Noticeboards<br>• Supervisor briefings<br>• Intranet<br>• Briefing sessions |

## Practical Observation Roles and Responsibilities

| Role | Responsibility |
|---|---|
| Independent Assessor | Provide written and verbal instructions for the practical observation.<br><br>Record and report assessment outcome decisions for each apprentice, following instructions and using assessment recording documentation provided by Energy & Environment Awards. |
| Employer/Training Provider | The training provider must liaise effectively with the employer to ensure the apprentice is prepared for the practical observation.<br><br>Provide the venue for the practical observation which must be suitably equipped to allow the apprentice to attempt all aspects of the practical observation.<br><br>Provide all necessary tools and equipment for the apprentice.<br><br>Ensure the apprentice has access to the resources used on a daily basis.<br><br>Use Energy & Environment Awards Practical Observation Review Service to review fitness for purpose of the assessment task |
| Energy & Environment Awards | Arrange for the practical observation to take place, in consultation with the employer/training provider and independent assessor. |

## Component 3: Technical Interview (based on the portfolio of evidence)

### Overview

The Technical Interview focuses on the KSBs listed below. Apprentices may draw on their portfolio of evidence to support them.

The portfolio must be submitted to Energy & Environment Awards 14 days before the technical interview takes place.

### Step-by-Step Guide

The table below provides a step-by-step guide on how the technical interview based on the portfolio of evidence will be carried out:

| | |
|---|---|
| Assessors | 1 independent assessor approved by Energy & Environment Awards. |
| Technical Interview (based on the portfolio) structure | **Types of questions:**<br>• The assessor will ask a set of questions to explore the apprentice's level of knowledge, skills and behaviours for completing activities in each scenario<br>• Standardised open questions will be asked based on the contents of the evidence in the portfolio<br>• Additional follow up questions are allowed, to seek clarification.<br>**Locations:** Employer's premises or a suitable venue for example a training provider's premises.<br>**Time:** Typically last 2 hours and a maximum of two and a half hours.<br>**The Technical Interview will be:**<br>• conducted by 1 independent assessor<br>• face to face or remote, as agreed<br>• recorded in writing using the technical interview record template provided by Energy & Environment Awards<br>• video recorded using relevant technology such as Microsoft Teams or an audio recording device<br>• conducted under examination conditions<br><br>The apprentice will have access to their portfolio of evidence throughout the technical interview. |

| | |
|---|---|
| | **Portfolio:**<br>• The apprentice's Manager/Mentor will typically support the development of the evidence portfolio in accordance with company policy and procedures<br>• See 'Portfolio of Evidence Requirements' guidance below on the content of evidence<br>• The portfolio must contain sufficient evidence to in relation to each element of the standard covered by the technical interview. Typically, this will be contained in small number of job write-ups produced towards the end of the training periods<br>• Although questioning will cover ALL the elements of the standard (listed below in this section of the Specification), they will prioritise areas according to what they see in the portfolio<br>**Marks allocated:** The technical interview will be marked out of 100, the score will provide points towards the final grade. |
| What topics will be covered? | The technical interview will focus on each knowledge and skills listed in the grading criteria in Section 3, and each question will relate to one of the following scenarios:<br>• **Scenario 1** - Position, assemble, install and dismantle plant and equipment including calibration and configuration<br>• **Scenario 2** - Carry out planned, unplanned and preventative maintenance procedures including calibration and configuration<br>• **Scenario 3** - Diagnose and determine the cause of faults and Replace, repair and/or remove components and ensure it is returned to operational condition<br>For further details refer to 'Knowledge, Skills and Behaviours (KSBs) Coverage' below. |
| When will the portfolio of evidence be referred to? | **The portfolio of evidence**:<br>• will be reviewed by the independent assessor before the technical interview |

| | |
|---|---|
| | • can be referred to by the apprentice to illustrate their answers<br><br>**Note:** the portfolio of evidence is not directly assessed. |
| Grading | Fail, Pass, Merit or Distinction |

## Portfolio of Evidence Requirements

The requirements are as follows:

| |
|---|
| **Portfolio Mapping Document**<br>The apprentice must map their portfolio of evidence to the KSBs as this evidence will be used by the independent assessor to assess the apprentice during the technical interview. The portfolio mapping document must be clearly referenced and included at the front of the portfolio.<br><br>For further guidance on mapping refer to:<br>• Section 5 Practice Guidance on portfolio of evidence and apprentice mapping<br>• Appendix G, MOET Supporting Documents, 'Portfolio Mapping Document.' |
| **How will the training provider submit the apprentice's portfolio to Energy & Environment Awards?**<br><br>As part of the pre-requisite gateway requirements the apprentice must have compiled and submitted a portfolio of evidence that includes a portfolio mapping document (placed at the front of the portfolio), which the technical interview will be based on. |

## Technical Interview: Knowledge, Skills and Behaviours (KSBs) coverage

The Technical Interview based on portfolio of evidence covers:

| Technical Interview Elements:<br>Core Knowledge | Amplification and guidance (where required) |
|---|---|
| **K1** First principles relating to the operation and maintenance of appropriate plant and equipment | • Purpose of the plant/equipment<br>• Impact of plant/equipment malfunction or failure<br>• Interaction with other process plant/equipment<br>• Normal operating conditions such as temperatures, speeds, pressures, loads, as appropriate |
| **K2** Relevant industry health and safety standards, regulations, and environmental and regulatory requirements | • Control of Substances Hazardous to Health procedures<br>• Working at Height Regulations<br>• Risk assessment procedures<br>• Personal protection equipment<br>• Manual handling and lifting and rigging<br>• Isolation procedures<br>• Site safety signage<br>• Confined space entry<br>• Compliance with site safe systems of work |
| **K3** Maintenance and operational practices, processes and procedures covering a range of plant and equipment | • Selection and use of tools, equipment and materials<br>• Engineering calculations |

| Technical Interview Elements: Core Knowledge | Amplification and guidance (where required) |
|---|---|
| | • Testing & inspection activities<br>• Condition monitoring<br>• Fault-finding skills<br>• Use of technical drawings<br>• Root cause analysis |
| **K4** The relevant engineering theories and principles relative to their occupation | **Pathway: Electrical System and Process Control Specialist Role**<br>• Basic electrical theories and principles; current, voltage, resistance, Ohm's Law; SI units<br>• Basic control principles; analogue and digital signals, inputs, outputs, sensors, feedback control<br>• Principles of control systems; supervisory control, data acquisition<br>• (SCADA), programmable logic controls (PLCs), distributed control systems (DCS) |

| Technical Interview Elements: Core Skills | Amplification and Guidance (where required) |
|---|---|
| **S5** Locate, and rectify faults on plant and equipment | • Systematic and effective approaches to fault finding<br>• Isolation/overrides/inhibits<br>• Use of historical operational data |
| **S6** Read, understand and interpret information and work in compliance with | • Company procedures for the control of work<br>• Operating specifications and maintenance records |

| Technical Interview Elements: Core Skills | Amplification and Guidance (where required) |
|---|---|
| technical specifications and supporting documentation | |
| **S7** Inspect and maintain appropriate plant and equipment to meet operational requirements | |
| **S8** Communicate, handover and confirm that the appropriate engineering process has been completed to specification | • Verbal handovers<br>• Handover documentation |

| Technical Interview Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | |
| **EP1** Position, assemble, install and dismantle integrated electrical equipment apparatus, systems and process control equipment | • Positioning could include the fitting of new or replacement complex ES&PC devices including but is not limited to process control sensors, transmitters, switches, regulators, control valves etc.<br>  ○ These activities are completed in logical and progressive stages<br>• Assembling activities are commonly part of the positioning work and could involve but are not limited to the assembly of associated process control equipment such as PLC controllers, SCADA units, sensors |

| Technical Interview Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | |
| | • Installation activities could include but is not limited to the installation of associated process control equipment such as PLC controllers, SCADA units, sensors<br>• Dismantle activities could involve the isolation of equipment followed by the removal of devices or complex components that interact with other parts of the device |
| **EP2** Carry out planned, unplanned and preventative maintenance procedures on integrated plant and equipment | • Planned maintenance is commonly described as work that is facilitated as part of the company maintenance philosophy. Typical work could include function tests, inspections, condition monitoring etc. This work is normally carried out when the equipment is offline or in planned shutdown periods<br>• Unplanned maintenance is commonly described as work that is commonly the result of a breakdown of equipment and/or systems<br>• Preventative maintenance is commonly described as work that is carried out on a predetermined period to reduce the risk of breakdown or failure. It can involve the inspection, repair, replenishment, replacement of components, cleaning and adjustments |
| **EP3** Replace, repair and/or remove components within integrated plant and | |

| Technical Interview Elements: Skills | Amplification and Guidance (where required) |
|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | |
| equipment and ensure its return to operational condition | |
| **EP4** Diagnose and determine the cause of faults within integrated plant and equipment | Fault-finding techniques including but not limited to:<br>• Visual<br>• Compliance<br>• Condition monitoring<br>• Historical data<br>• Third party input<br>• Root cause analysis<br>• Function tests<br>• Measurement |
| **EP5** Calibrate and configure integrated electrical apparatus, systems and process control equipment | |

| Elements: Core Behaviours | Amplification and Guidance |
|---|---|
| **B5** Critical reasoning – uses resources, techniques and obtained facts to develop sound solutions while recognising and defining problems | |

## Technical Interview Roles and Responsibilities

| Role | Responsibility |
|---|---|
| Independent Assessor | Record and report assessment outcome decisions for each apprentice, following instructions and using assessment recording documentation provided by Energy & Environment Awards. |
| Employer | (Optional) Selects an appropriately qualified employee or suitable representative to attend the technical interview to ensure accuracy and veracity of the apprentice's statements and to clarify any issues where requested by the independent assessor. |
| Employer/Training Provider | The technical interview must be scheduled with Energy & Environment Awards for a date and time which allow the apprentice to be well prepared.<br><br>Ensure the apprentice has access to their portfolio before and on the day of the technical interview. |
| Energy & Environment Awards | Arrange for the technical interview to take place, in consultation with the employer/training provider and independent assessor. |

# Section 3: Grading and Grading Criteria

## Component 1: Knowledge Assessment

The following grade boundaries apply to the knowledge assessment:

| Grade | Minimum mark | Maximum mark |
|---|---|---|
| Fail | 0 | 17 |
| Pass | 18 | 22 |
| Merit | 23 | 25 |
| Distinction | 26 | 30 |

## Component 2: Practical Observation

To achieve a Pass for the Practical Observation, a Pass is required in ALL relevant elements, including all skills from the specialist pathway.
Achieving a Pass gains 60 marks. All Pass marks must be achieved before Merit or Distinction marks are counted.

To achieve a Merit or Distinction for the Practical Observation, all Pass criteria must be achieved PLUS a minimum of merit and distinction marks as described in the below:

| Relevant Element | Core Skill S1 | Core Skill S2 | Core Skill S3 | Core Skill S4 | Core Skill S5 | Core Skill S6 | Core Skill S7 | Core Skill S8 | All behaviours except B5 | One specialist role skill chosen from those available for each pathway. |
|---|---|---|---|---|---|---|---|---|---|---|
| All Pass criteria must be achieved | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Marks achieved for 2 or more Merit criteria | 3 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | No criteria above Pass | 3 |
| Marks achieved for 2 or more Distinction criteria | 2 | 2 | 2 | 2 | 2 | N/A | 2 | 2 | No criteria above Pass | 2 |

Merit is achieved by achieving all Pass criteria PLUS a further 15 Merit and Distinction marks, in any combination.

Distinction is achieved by achieving all Pass criteria PLUS a further 25 Merit and Distinction marks, in any combination.

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **S1** Comply with industry health, safety and environmental working practices and regulations | • Demonstrate a clear understanding of their own health, safety and environmental responsibilities and that of others<br>• Comply with the required health, safety and environmental working practices and regulations<br>• Conduct a suitable risk assessment and proactively identify workplace hazards<br>• Inspect and wear the correct personal protective equipment (PPE) required to carry out the activity<br>• Inform other relevant parties of matters | • Demonstrate a deeper understanding of the health, safety and environmental implications of the work e.g. potential effect of failure to comply, environmental, social, financial, company impact<br>• Take a lead role in managing the site safety of self and others<br>• Consistently demonstrate compliance with safety requirements and make suggestions to reduce risks<br>• Identify poor / bad practice in relation to work activities and address the situation | • Demonstrate exemplary health, safety and environmental knowledge and performance throughout the activity<br>• Identify health, safety and environmental deficiencies and implement appropriate solutions<br>• Challenge unsafe behaviour / practices using appropriate techniques<br>• Pre-empt risks prior to task commencement and puts actions in place to prevent them occurring<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to improve safety standards |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | affecting them where required<br>• Comply with, apply safe systems of work and maintain a safe working environment<br>• Inspect and use the appropriate tools and equipment<br>• Regularly re-assess the site conditions and take action when necessary to maintain site safety<br>• Check to ensure the site is left in a safe / secure condition for others | | |
| **S2** Communicate with and provide information to stakeholders in line with personal role and responsibilities | • Read and correctly interpret a range of technical information provided to plan and conduct the work | • Demonstrate a detailed knowledge of the range and purpose of the technical information available | • Demonstrate their ability to effectively communicate technical information across a wide range of stakeholders e.g. |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • Demonstrate a clear understanding of the purpose and use of the technical information provided for the work<br>• Use and refer to the technical information provided to check / confirm the work conducted meets the required company standards / specifications<br>• Where necessary, question / clarify any information which is not clearly understood<br>• Complete any technical or supporting documentation in line with company policies / procedures | • Identify inaccuracies / deficiencies in the technical information provided and resolve / report the situation<br>• Challenge in a professional manner any areas of concern to clarify understanding<br>• Identify / suggest methods of improving the system / use of information | colleagues, management, briefings / meetings, external clients<br>• Consult and involve team members and / or other relevant persons to achieve greater understanding and improved performance<br>• Demonstrate the ability to build positive relationships and actively address conflict with positive outcomes |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **S3** Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work related activities | • Demonstrate an understanding of the importance of good preparation and the potential outcomes of poor preparation<br>• Inspect and prepare the work area and equipment to be worked on in line with company policies / procedures<br>• Identify and implement any special precautions required by the work activity or environment, where required<br>• Maintain good housekeeping practices and a safe working environment throughout the activity | • Take a lead role in the preparation of the work area proactively informing others on matters which affect them<br>• Produce a detailed work plan to support the organisation of the work, including measures to deal with contingencies<br>• Demonstrate their ability to develop positive professional relationships with individuals to support the work activity<br>• Make valid suggestions / recommendations to improve the planning / preparation of the work activity | • Demonstrate a deeper understanding of the implications of good and poor work preparation. e.g. In terms of cost, time, value, company reputation etc.<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • Store tools, equipment, materials in a suitable / secure position and dispose of waste products in line with company policies and Health Safety and Environmental regulations<br>• Reinstate the work area to ensure it is left in a safe and secure condition e.g. locks, notices, documentation | | |
| **S4** Assess and test the performance and condition of plant and equipment | • Demonstrate a clear understanding of the company polices / procedures for the assessment and testing of plant and equipment to be worked on | • Demonstrate a detailed technical knowledge of the range of tests available and their specific purpose<br>• Take a pro-active, leading role in the testing activity providing | • Demonstrate a deeper technical understanding of testing procedures and the analysis of results. e.g. testing parameters, performance indicators etc. |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • Demonstrate a clear understanding of the types and purpose of testing procedures for the plant and equipment to be worked on<br>• Assess and test the plant / equipment to be worked on in line with company procedures<br>• Use the correct tools, equipment and techniques to conduct testing in line with company procedures<br>• Accurately interpret the results of the tests conducted<br>• Record / report the results of the testing in | clear guidance on the results obtained<br>• Make recommendations / suggestions to improve testing efficiencies<br>• Demonstrate a detailed technical knowledge of the outcome of testing procedures and the implications of results obtained | • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | line with company procedures | | |
| **S5** Locate, and rectify faults on plant and equipment | • Demonstrate a clear understanding of their role and responsibilities for the fault location and rectification activity to be undertaken<br>• Provide an accurate technical explanation of the company's fault location methods, processes and / or procedures<br>• Competently use the correct tools, equipment and methods to locate the rectify the fault/s in a timely manner<br>• Conduct the work in compliance with all | • Demonstrate a detailed understanding of the theory and principles of fault location and rectification operations<br>• Demonstrate a detailed understanding of cause and effect of faults and preventative measures<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Make recommendations / suggestions to improve the location / rectification work activity | • Demonstrate deeper technical knowledge of fault location and fault prevention e.g. costs, lost time, sustainability of equipment, company reputation<br>• Identify and implement tangible changes that improve the efficiency of the work being conducted<br>• Identify and take action to report or deal with issues of nonconformity / compliance<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | relevant regulatory requirements and company policies and procedures<br>• Complete the required tests / checks to confirm the fault rectification has been successful<br>• Record the results / outcomes of rectification work in line with company requirements | | |
| **S6** Read, understand and interpret information and work in compliance with technical specifications and supporting documentation | • Read and correctly interpret a range of technical information provided to plan and conduct the work<br>• Demonstrate a clear understanding of the purpose and use of the | • Demonstrate a detailed knowledge of the range and purpose of the technical information available<br>• Identify inaccuracies / deficiencies in the technical information provided and resolve / report the situation | |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | technical information provided for the work<br>• Use and refer to the technical information provided to check / confirm the work conducted meets the required company standards / specifications<br>• Where necessary, question / clarify any information which is not clearly understood<br>• Complete any technical or supporting documentation in line with company policies / procedures | • Challenge in a professional manner any areas of concern to clarify understanding<br>• Identify / suggest methods of improving the system / use of information | |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **S7** Inspect and maintain appropriate plant and equipment to meet operational requirements | • Demonstrate a clear understanding of the company polices / procedures for the inspection of plant and equipment to be worked on<br>• Demonstrate a clear understanding of the company polices / procedures in relation to achieving the safe isolation of equipment from relevant sources of energy<br>• Identify and inspect the plant / equipment to be worked on in line with company procedures<br>• Correctly use tools, equipment and | • Demonstrate a detailed technical knowledge of the range of required inspections and maintenance procedures and their specific purpose<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Demonstrate the ability to develop positive professional relationships with individuals to support the work activity<br>• Identify areas for work improvement and implement actions to improve work efficiencies | • Demonstrate a deeper technical understanding of inspection / maintenance operations. e.g. In terms of cost, time, environmental impact, sustainability etc<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the work being undertaken |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | techniques to achieve the quality standards required by company policies / procedures<br>• Demonstrate consistent application of policies and procedures during the work activity<br>• Record / report the results of the inspection in line with company procedures | | |
| **S8** Communicate, handover and confirm that the appropriate engineering process has been completed to specification | • Demonstrate a clear understanding of their role and responsibilities in returning the system / equipment back to operational service<br>• Provide an accurate technical explanation of | • Demonstrate a detailed understanding of the factors which can support and influence a smooth handover of equipment<br>• Take a pro-active lead in effectively communicating the detail of handover | • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve / improve the handover process<br>• Consult and involve team members and / or other relevant persons to achieve |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | the company's handover procedure<br>• Complete the required checks / tests to confirm the equipment meets the company operational requirements for handover<br>• Conduct the handover in compliance with all relevant policies and procedures<br>• Clearly communicate the details of the handover including any additional requirements to the relevant parties<br>• Complete all relevant reporting / recording documentation in line with company procedures | arrangements with stakeholders<br>• Demonstrate their ability to develop positive professional relationships with individuals to support handover process<br>• Confidently lead the handover process taking charge of the operation and resolving any issues within their role responsibility<br>• Adapts the method and style of communications to changing circumstances and need | greater understanding and improved performance<br>• Demonstrate the ability to build positive relationships and actively address conflict / resolve problems with positive outcomes<br>• Demonstrate their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, briefings / meetings, external clients |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • Leave the work area in a safe / secure condition for others | | |
| **B1** Health and Safety | • Follows health and safety policies and procedures and be prepared to challenge unsafe behaviour using appropriate techniques to ensure the protection of people and property when working alone and/or with appropriate supervision | | |
| **B2** Quality focused | • Ensures that work achieves quality standard | | |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | both occupationally and personally | | |
| **B3** Working with others | • Has the ability to work well with people from different disciplines, backgrounds and expertise to accomplish an activity safely and on time | | |
| **B4** Interpersonal skills | • Gets along well with others and takes into account their needs and concerns | | |
| **B6** Sustainability and ethical behaviour | • Behaves ethically and undertakes work in a way that contributes to sustainable development | | |
| **B7** Risk awareness | • Demonstrates high concentration, the desire to reduce risks, ability to | | |

| Practical Observation Core KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | be compliant and awareness of change, through regular monitoring and checking of information | | |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| **EP1** Position, assemble, install and dismantle integrated electrical apparatus, systems and process control equipment | • Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted<br>• Provide an accurate technical explanation for the purpose of the work activity<br>• Demonstrate a clear plan for the work to be | • Demonstrate a detailed technical knowledge of the methods and processes used to conduct the work<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation | • Demonstrate deeper technical/ commercial knowledge of the equipment/operation e.g. installation costs, technical requirements planning, sustainability of equipment etc<br>• Identify and implement tangible changes that |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | undertaken and an understanding of any safety/technical information given<br>• Use tools and equipment to competently achieve the quality standards required by the company in a timely manner<br>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures<br>• Deal effectively with any issues within their role responsibilities, where necessary<br>• Complete the required checks and tests to | • Make recommendations/suggestions to improve work efficiencies<br>• Produce a detailed work plan to support the work delivery including measures to deal with contingencies | improve the efficiency of the work being conducted<br>• Identify and take action to report or deal with issues of nonconformity/compliance<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | confirm the work meets the accuracy, finish and quality standards required | | |
| **EP2** Carry out planned, unplanned and preventative maintenance procedures on integrated plant and equipment | • Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted<br>• Provide an accurate technical explanation for the purpose of the maintenance work<br>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety/technical information given<br>• Use tools and equipment to competently achieve | • Demonstrate a detailed understanding of the process and principles of preventative maintenance<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Make recommendations<br>• /suggestions to improve work efficiencies<br>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies | • Demonstrate deeper technical/commercial knowledge of the maintenance operation being undertaken e.g. installation costs, technical requirements, planning, corrective/preventative<br>• Identify and implement tangible changes that improve the efficiency of the work being conducted<br>• Identify and take action to report or deal with issues of nonconformity/compliance<br>• Demonstrate the ability to take a lead in accepting |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | the quality standards required by the company in a timely manner<br>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures<br>• Deal effectively with any issues within their role responsibilities, where necessary<br>• Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required | | additional responsibility and autonomy to achieve/improve the work being undertaken |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **EP3** Replace, repair and/or remove components within integrated plant and equipment and ensure its return to operational condition | • Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted<br>• Provide an accurate technical explanation for the purpose of the maintenance work<br>• Demonstrate a clear plan for the work to be undertaken and an understanding of any safety/technical information given<br>• Use tools and equipment to competently carry out the removal/replacement of components in a logical sequence and timely manner | • Demonstrate a detailed understanding of the causes and principles of component degradation<br>• Demonstrate a detailed understanding of the limits/restrictions of component replacement or repair e.g. In terms of reliability, certification of instruments/systems etc.<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Make recommendations /suggestions to improve work efficiencies<br>• Produce a detailed work plan to support the maintenance | • Demonstrate deeper technical/commercial knowledge of the repair/replacement work being undertaken e.g. costs, effect on maintenance periods, equipment sustainability<br>• Identify and implement tangible changes that improve the efficiency of the work being conducted<br>• Identify and take action to report or deal with issues of nonconformance/ compliance<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • Conduct the work in compliance with all relevant regulatory requirements and company procedures<br>• Deal effectively with any issues within their role responsibilities, where necessary<br>• Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required | operation including measures to deal with contingencies | achieve/improve the work being undertaken |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **EP4** Diagnose and determine the cause of faults within integrated plant and equipment | • Demonstrate a clear understanding of their role and responsibilities in relation to the fault diagnosis to be conducted<br>• Provide an accurate technical explanation for the purpose and process of the fault's activity<br>• Demonstrate a clear plan for the diagnosis to be undertaken and an understanding of any safety/technical information given<br>• Competently use the correct tools, equipment, technical data and diagnostic techniques to identify, locate and | • Demonstrate a detailed understanding of the theory/principles of relevant diagnostic techniques<br>• Able to identify the root cause of the fault and preventative measures<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Make recommendations/ suggestions to improve work efficiencies<br>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies | • Demonstrate deeper technical/commercial knowledge of the effect of fault diagnosis and repair e.g. fault analysis, costs, prevention, lost time<br>• Identify and implement tangible changes that improve the efficiency of the work being conducted<br>• Identify and take action to report or deal with issues of nonconformity/compliance<br>• Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | diagnose fault/s in a timely manner<br>• Correctly analyse and interpret the results of the fault-finding techniques conducted<br>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures<br>• Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required | | |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| **EP5** Calibrate and configure integrated electrical apparatus, systems and process control equipment | • Demonstrate a clear understanding of their role and responsibilities for the calibration/configuration activity to be undertaken<br>• Provide an accurate technical explanation for the purpose and process of the calibration work<br>• Demonstrate a clear plan which takes into consideration the effects of calibration on the operation of interacting systems<br>• Competently use the correct tools, equipment, and technical data to calibrate and configure instruments and/or | • Demonstrate a detailed understanding of the theory/principles of system/equipment calibration<br>• Demonstrate a detailed understanding of methods to prevent unplanned shutdown of interacting equipment when conducting calibration<br>• Pro-actively works with others to identify areas for improvement and follows through on agreed implementation<br>• Make recommendations/ suggestions to improve work efficiencies<br>• Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies | • Demonstrate deeper technical knowledge of equipment calibration and configuration e.g. system / equipment parameters, tolerances, settings<br>• Identify and implement tangible changes that improve the efficiency of the work being conducted<br>• Identify and report or deal with issues of non-conformity/compliance<br>• Demonstrate the ability to take a lead in accepting added responsibility and autonomy to achieve/improve the work being undertaken |

| Practical Observation KSBs | Pass criteria **ALL** to be met | Merit criteria Minimum **TWO** to be met | Distinction criteria Minimum **TWO** to be met |
|---|---|---|---|
| | systems in a timely manner<br>• Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures<br>• Complete the required tests/checks to confirm the consistency and accuracy of calibrated instruments/ systems<br>• Record the results/outcomes of calibration work in line with company requirements | | |

## Component 3: Technical Interview based on the portfolio of evidence

To achieve a Pass for the Technical Interview, a Pass is required in ALL relevant elements, including all skills from the specialist pathway.

Achieving a Pass gains 60 marks. All Pass marks must be achieved before Merit or Distinction marks are counted. To achieve a Merit or Distinction for the Technical Interview, all Pass criteria must be achieved PLUS a minimum of merit and distinction marks as described below:

| Relevant Element | Core Knowledge K1 | Core Knowledge K2 | Core Knowledge K3 | Core Knowledge K4 | Core Skill S5 | Core Skill S6 | Core Skill S7 | Core Skill S8 | Behaviour B5 | Pathway Specific Specialist Role Skills |
|---|---|---|---|---|---|---|---|---|---|---|
| All Pass criteria must be achieved | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Marks achieved for 2 or more Merit criteria | 2 | 3 | 1 | 1 | 5 | 1 | 5 | 2 | NONE | 1 mark for each, maximum 5 |
| Marks achieved for 2 or more | 1 | 1 | 1 | 1 | 2 | None | 2 | 2 | None | 1 mark for each, maximum 5 |

| Relevant Element | Core Knowledge K1 | Core Knowledge K2 | Core Knowledge K3 | Core Knowledge K4 | Core Skill S5 | Core Skill S6 | Core Skill S7 | Core Skill S8 | Behaviour B5 | Pathway Specific Specialist Role Skills |
|---|---|---|---|---|---|---|---|---|---|---|
| Distinction criteria | | | | | | | | | | |

Merit is achieved by achieving all Pass criteria PLUS a further 15 Merit and Distinction marks, in any combination.

Distinction is achieved by achieving all Pass criteria PLUS a further 25 Merit and Distinction marks, in any combination.

The following criteria are indicative of the pass, merit and distinction criteria the independent assessor will be looking for when the apprentice carries out the technical interview which will be based on the portfolio of evidence.

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| **K1** First principles relating to the operation and maintenance of appropriate plant and equipment | • A working knowledge of the principles of operation for the range of plant/equipment they are responsible for<br>• The primary purpose of the range of plant/equipment worked on e.g. what the plant/equipment worked on does<br>• How the plant/equipment interacts within the overall system<br>• The typical characteristics of healthy and unhealthy operation for the range of plant/equipment worked on and how to identify the difference<br>• How they have used their knowledge of plant and equipment operating/maintenance | • A detailed understanding by explaining additional technical detail of the operating principles of the plant/equipment they are responsible for e.g. operating limits, tolerances, restrictions, effects on system<br>• A detailed understanding by explaining additional technical detail of the function/interaction of the plant/equipment within the overall system e.g. synchronisation, effects on system<br>• How they have used their knowledge of plant and equipment operating/maintenance principles to improve or | • An excellent knowledge and thorough understanding of the relevant engineering principles relative to the operation and maintenance of plant and equipment encountered in their job role<br>• Evidence of conducting supporting technical analysis to gain a greater understanding of (a or b) a) the operating principles of plant/ equipment worked on b) the function/effect of the plant/ equipment within the overall system<br>• Conducting technical research into the effects of new technologies on current/future maintenance requirements/methodologies |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | principles to support their work decisions/activities | enhance operational activities | |
| **K2** Relevant industry health and safety standards, regulations, and environmental and regulatory requirements | • A working knowledge of the relevant health, safety and environmental regulations and standards and how they impact the overall operation<br>• A clear understanding of their responsibilities and those of others under the relevant company policies and procedures which apply to the range of work undertaken and describe why they are required<br>• A knowledge of the company process/s and/or procedures for achieving and maintaining safety when working on systems within their work role and how they impact the work e.g. safe | • A detailed understanding of the relevant health, safety and environmental regulations and standards by explaining additional technical detail e.g. how they influence how the work is planned and/or conducted<br>• Conducting reviews of work health, safety and environmental arrangements and their applicability and adapting them for changing circumstances whilst still maintaining safety<br>• How they have readily accepted additional health, safety and environmental | • Excellent and thorough health, safety and environmental knowledge and understanding in relation to the wider impact of relevant industry working practices and regulations for their work activities<br>• How they have taken a leading role in identifying health, safety and environmental deficiencies and then implementing the appropriate solution/s in line with<br>• Company policies/procedures<br>• How they have challenged unsafe behaviour/practices using appropriate techniques |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | systems of work, documentation<br>• A clear understanding of the purpose of conducting risk assessments and the factors which affect the critical reasoning when making risk assessment decisions<br>• A knowledge of the Company procedure/s for reporting safety concerns and emergencies | responsibility/autonomy to maintain/improve work safety standards | |
| **K3** Maintenance and operational practices, processes and procedures covering a range of plant and equipment | • A working knowledge of the maintenance requirements for the range of plant/ equipment worked on within their job role<br>• A working knowledge of the company's operational processes and procedures and how these have | • A detailed knowledge of the company maintenance practices by explaining additional technical detail for maintenance procedures on plant/equipment<br>• A detailed knowledge of the company operational processes and procedures | • An excellent and thorough knowledge and understanding of relevant maintenance and operational practices/procedures for their job role<br>• An ability to analyse and provide valid justification for the company's maintenance procedures and/or operational |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | affected/influenced their maintenance work<br>• Their planning process for conducting maintenance operations and the factors which have influenced their critical reasoning/decision making when planning their work<br>• A working knowledge of the range and type of test procedures which they have used to confirm their work has met with company operational requirements and standards<br>• A knowledge of how their maintenance activities have impacted plant/equipment/others | which affect maintenance operations by explaining additional operational detail<br>• A detailed knowledge of the range of testing procedures and the implications of the results obtained | practices for maintenance work on plant and equipment<br>• A detailed technical/commercial understanding of the effects of conducting maintenance procedures on company plant/equipment e.g. cost, reliability, availability, sustainability |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| **K4** The relevant engineering theories and principles relative to their occupation | • A working knowledge of the range of relevant operational theories and principles which underpin their work<br>• A working knowledge of the basic effect/influence of the relevant operational theories and principles which directly underpin their work activities<br>• The benefits of being able to identify and apply the differing operational theories and principles in relation to their job role e.g. maintenance inspections, fault finding<br>• A working knowledge of how to apply the relevant operational formulae which can be used to support their work activities | • A detailed knowledge of the relevant operational theories and principles which have supported and/or influenced their work activities<br>• How they have used relevant operational theories and principles to support/influence their work decisions/activities<br>• Their inclusion of operational formulae/theories/principles to support their technical explanations in relation to their work activities | • An excellent and thorough knowledge and understanding of the relevant operational theories and principles relative to plant and equipment in their job role<br>• How they have used their understanding of relevant operational theories and principles to make suggestions which have influenced or led to an improved performance<br>• How they have conducted further technical research which is based on relevant operational theories and principles to support the effects of current or future technologies |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| **S5** Locate, and rectify faults on plant and equipment | • A working knowledge of the company policies and procedures for the location of faults on plant and equipment worked on<br>• A clear understanding of the company policies and procedures in relation to achieving the safe isolation of equipment from relevant sources of energy and maintaining safety from the system<br>• How they have used tools/equipment/techniques to inspect and identify faults on plant/equipment and develop sound solutions while recognising and defining problems<br>• How they have used tools/equipment/techniques | • A detailed knowledge of the company processes and procedures by explaining additional technical detail for the fault location methods/procedures conducted on plant/equipment/systems<br>• A detailed understanding of the tools and equipment that can be used to identify and locate faults on plant/equipment/systems<br>• Their ability to take a lead in fault finding/rectification activities and accept additional responsibility/autonomy for the fault work undertaken | • An excellent knowledge/understanding in relation to fault location/rectification procedures within their job role<br>• How they have used a range of methods to locate, and rectify faults on plant and equipment, with a detailed explanation/justification of their chosen methods<br>• How they have used their knowledge of fault location/rectification to improve/influence work outcomes |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | to repair faults and confirm the rectification to the quality standards required by company policies/procedures<br>• How they have recorded/reported the results of fault-finding activities in line with company procedures | | |
| **S6** Read, understand and interpret information and work in compliance with technical specifications and supporting documentation | • A working knowledge of the range of information which can be gained from company policies and procedures which affect their work<br>• A working knowledge of the range and type of technical information/specifications available and how they are used to support work activities | • How they have taken a lead in interpreting/relaying technical information to progress work or support others understanding<br>• How they have questioned/clarified information which was unclear or incorrect<br>• How they have reported/updated | |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | • How they have used company work information and technical specifications to conduct/support their work activities<br>• Describe how they have used company information to record/report the results of work carried out in line with company procedures | information which was not technically correct/accurate | |
| **S7** Inspect and maintain appropriate plant and equipment to meet operational requirements | • How they have planned inspection and maintenance operations and the factors which influenced their critical reasoning/decisions during their planning process<br>• How they have implemented/complied with company operational processes and procedures during their conducted | • Their ability to explain in detail the range of skills, knowledge and behaviours they have used to support their conducted inspection/maintenance operations<br>• How they have pro-actively worked with others to resolve problems during inspection/ maintenance operations which supported | • An excellent knowledge/understanding in relation to inspection/maintenance procedures within their job role<br>• Their ability to explain/justify the Company inspection and maintenance procedures used for a range of plant and equipment |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | inspection and maintenance work<br>• How they have used tools/ techniques/equipment to conduct maintenance inspection and maintenance procedures on a range of plant/equipment to meet Company standards<br>• How they have used test equipment/procedures on plant/equipment to confirm that the work completed met with Company operational requirements<br>• How they have reported/recorded the outcome of their inspection and maintenance operations | work progression/ performance<br>• How they have taken action to report or deal with issues of nonconformity or non-compliance during inspection/ maintenance work operations | • How they have taken a lead in accepting additional responsibility/autonomy to improve the outcome of inspection/maintenance operations |
| **S8** Communicate, handover and confirm that the | • A working knowledge of their role and responsibilities in the handover of the | • How they have taken a pro-active lead in the handover process by effectively | • How they have consulted/ involved team member/other relevant persons to achieve |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| appropriate engineering process has been completed to specification | system/equipment/plant back to operational service<br>• A working knowledge of the company process for the handover of plant/equipment which has been worked on<br>• How they have completed the required checks/tests to confirm the plant/equipment/system worked on meets operational requirements before conducting the handover process<br>• How they have completed the handover of plant/equipment in line with relevant company policies and procedures<br>• How they have confirmed the recipient/s of the handover process fully | communicating the detail of handover arrangements with stakeholders<br>• Their ability to develop positive professional relationships with individuals to support the handover process and resolve any issues within their role responsibility<br>• How they have adapted their communication method / style to better suit the changing circumstances/needs of the work | greater understanding and improved performance<br>• Their ability to actively address conflict/resolve problems with positive outcomes to build positive relationships and<br>• Their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, briefings/meetings, external clients |

| Technical Interview Core KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| | understand any critical information given<br>• How they have completed the company process for reporting/recording the handover of plant/equipment back into service in line with company procedures | | |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| **EP1** Position, assemble, install and dismantle integrated electrical, systems and process control equipment | • A working knowledge of their responsibilities for the range of work activities within their job role<br>• How they have used company policies/procedures/ specifications to conduct a range of position, assemble, | • A detailed understanding of the range and technical requirements of the plant and equipment worked on<br>• A detailed technical understanding for the range of methods/techniques used for their position, | • An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment worked on<br>• Their ability to explain/justify the company methods/processes/procedures |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | install and dismantle work activities<br>• How they have used tools and equipment to conduct a range of position, assemble, install and dismantle activities in compliance with specifications and regulatory requirements<br>• How they have conducted the required checks/test procedures to confirm the completed work meets company/operational requirements<br>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities | assemble, install and dismantle work activities<br>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems<br>• How they have taken a pro-active lead in organising/controlling their conducted work activities which has led to a successful completion | used for the range of plant and equipment worked on<br>• How they have taken a lead in accepting additional responsibility autonomy to improve the outcome of their position/ assemble/install/ dismantle work activities |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | • How they have reported/recorded the work conducted and returned the work area to a safe condition in line with company procedures | | |
| **EP2** Carry out planned, unplanned and preventative maintenance procedures on integrated plant and equipment | • A working knowledge of their responsibilities for the range of work activities within their job role<br>• How they have used company policies/ procedures/specifications to conduct a range of maintenance procedures work activities<br>• How they have used tools and equipment to conduct a range of maintenance procedures in compliance | • A detailed understanding of the range and technical requirements of the plant and equipment worked on<br>• A detailed technical understanding for the range of methods / techniques used for maintenance work undertaken<br>• A detailed technical understanding for the factors which can affect their critical reasoning when | • An excellent knowledge and understanding in relation to the range and technical maintenance requirements of the plant and equipment worked on<br>• Their ability to explain/justify the company maintenance methods/processes/procedures used for the range of plant and equipment worked on<br>• How they have taken a lead in accepting additional responsibility/autonomy to |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | with all company health, safety and environmental processes, policies and regulatory requirements<br>• How they have conducted the required checks/test procedures to confirm the completed maintenance work meets company requirements<br>• How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities<br>• How they have reported/recorded the work conducted and returned the work area to a safe condition | making decisions to resolve technical problems<br>• How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion | improve the outcome of their maintenance work activities |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | in line with company procedures | | |
| **EP3** Replace, repair and/or remove components within integrated plant and equipment and ensure its return to operational condition<br><br>**AND**<br><br>**EP4** Diagnose and determine the cause of the faults within integrated plant and equipment | • A working knowledge of their responsibilities for the range of replace/repair activities undertaken<br>• How they have used company policies/ procedures/specifications to conduct a range of replace/ repair work procedures<br>• How they have used tools and equipment to conduct a range of replace/repair procedures in compliance with all company health, safety and environmental processes, policies and regulatory requirements | • A detailed understanding of the methods and technical requirements for the range of plant and equipment replaced/ repaired<br>• A detailed technical understanding for the range of causes and effects which lead to plant and equipment being replaced/repaired<br>• A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems | • An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment replaced/repaired<br>• Their ability to explain/justify the company methods/processes/<br>• procedures used for the range of plant and equipment replaced/repaired<br>• How they have taken a lead in accepting additional responsibility/autonomy to improve the outcome of their replace/repair work activities |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | • How they have conducted the required checks/test procedures to confirm the plant/equipment worked on can be returned to operational service<br>• How they have used critical reasoning to identify and resolve technical problems within their control<br>• How they have returned plant/equipment worked on to operational service in line with company procedures | • How they have taken a pro-active lead in organising/ controlling their conducted replace/repair work activities which has led to a successful completion | |
| **EP5** Calibrate and configure integrated electrical apparatus, systems and | • A working knowledge of their responsibilities for the range of diagnostic activities undertaken | • A detailed knowledge of the principles of calibration and/or configuration of plant and equipment<br>• Detailed knowledge of the ways to minimise risk of all | • A deeper and knowledge of equipment parameters, tolerances and operational specifications<br>• How they would identify and implement potential changes to |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| process control equipment | • How they calibrated instruments to a given specification<br>• How they planned calibration activities to minimise operational conditions<br>• How they selected the appropriate tools and equipment for specific calibration and/or configuration activities<br>• A working knowledge of the company procedures and regulatory requirements that must be followed when calibrating and/ or configuring instruments<br>• How they applied a calibration that was both accurate and consistent | planned shutdowns during calibration and/or configuration activities<br>• How they would work with in a team to identify improvements on calibration and/or configuration activities<br>• How they would report any potential improvements associated with calibration and/or configuration activities | improve the efficiency of calibration and/or configuration activities<br>• How they reported or dealt with instruments that failed to meet calibration and/or configuration compliance<br>• How they took an autonomous role during calibration and/or configuration activities |

| Technical Interview KSBs | Pass Criteria **ALL** to be met | Merit Criteria Minimum **TWO** to be met | Distinction Criteria Minimum **TWO** to be met |
|---|---|---|---|
| Pathway: Electrical System and Process Control Role Specialist Skills | | | |
| | • How they recorded the outcomes of calibration and/or configuration activities | | |

## Overall grading

The apprenticeship will be graded distinction, merit, pass or fail. The final grade will be determined by collective performance in the three assessment components.

The overall grade for the MOET standard is based on the grades in individual components as follows:

| Knowledge Assessment Grade | Practical Observation Grade | Technical Interview Grade | Final Grade |
|---|---|---|---|
| Pass, Merit or Distinction | Pass | Pass | Pass |
| Pass, Merit or Distinction | Pass or Merit | Pass | Pass |
| Pass, Merit or Distinction | Pass | Pass or Merit | Pass |
| Pass, Merit or Distinction | Merit | Merit | Merit |
| Pass, Merit or Distinction | Distinction | Merit | Merit |
| Pass, Merit or Distinction | Merit | Distinction | Merit |
| Pass | Distinction | Distinction | Merit |
| Merit or Distinction | Distinction | Distinction | Distinction |

## Section 4: Resits and retakes

Apprentices who fail one or more EPA components can re-sit or re-take the failed component at the employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, but a re-take does. Apprentices should have a supportive action plan to prepare for a re-sit or a re-take.

The employer and Energy & Environment Awards agree the timescale for a re-sit or re-take. Failed EPA components must be re-sat or re-taken within the 6 month end-point assessment period, otherwise the EPA will need to be re-sat or re-taken in full.

Re-sits and re-takes are not offered to apprentices wishing to move from pass to a higher grade.

An apprentice will get a maximum EPA grade of pass for a re-sit or re-take.

Energy & Environment Awards resit and re-take policy can be found at:
https://energyenvironmentawards.co.uk/policies-and-fees/

# Section 5: Practical Guidance

## Maintenance and Operations Engineering Technician Practical Observation and Planning Form

### Purpose

The purpose of the Maintenance and Operations Engineering Technician Practical Observation and Planning Form is to provide support in ensuring that the activity proposed for the apprentice to complete during the Maintenance and Operations Engineering Technician (MOET) Practical Observation Assessment is sufficiently complex to allow the apprentice to demonstrate the widest range of knowledge, skills and behaviours against the mandatory elements of the MOET assessment plan.

### Guidance for setting up a practical observation

A “complex” activity is defined as one that is completed in a number of individual stages in order to complete the activity. As an example, these stages could be broken down into the following sequence:

- Comply with industry health, safety and environmental working practices and regulations
- Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities
- Communicate with and provide information to stakeholders in line with personal role and responsibilities
- Read, understand and interpret information and work in compliance with technical specifications and supporting documentation
- Inspect and maintain appropriate plant and equipment to meet operational requirements
- Locate, and rectify faults on plant and equipment
- Assess and test the performance and condition of plant and equipment
- Communicate, handover and confirm that the appropriate engineering process has been completed to specification

The stages listed above cover the core skills elements of the MOET EPA and reflect real work activities.
Energy & Environment Awards provide an optional Practical task(s) review service to assist with planning for all employers/training providers with apprentices registered

on this standard. To access the service, see Appendix D MOET Supporting Documents 'Level 3 Maintenance and Operations Engineering Technician Practical Observation and Planning Form.'

The purpose of the review service is to provide support in ensuring that the practical task(s), test facilities, necessary plant, equipment, tools and examination conditions are in place to allow the practical task(s) to take place. The review helps ensure the proposed practical task(s) are sufficiently complex to allow the apprentice to demonstrate the required knowledge, skills and behaviours against the relevant elements of the MOET Assessment Plan.

While it is not permitted to brief the apprentice as to the specific task they will be given during the live Practical Observation, it is permitted to set up tasks of similar complexity and duration and ask the apprentice to carry them out under live assessment conditions. To make the practice more realistic, a tutor or supervisor should adopt the role of assessor and use the appropriate grading criteria from Section 3 to 'assess' the apprentice.

Details of the relevant elements are included in Section 2 of the Specification.

Tasks should be designed to allow variation to be introduced, reducing predictability.

Practical Observation must be conducted on actual plant and equipment in a realistic working situation, which will be familiar to the apprentice and therefore allow them to perform at their best.

The employer/training provider must ensure:

- in addition to the Core Skill elements the proposed activity must also focus on **ONE** of the pathway specific skills, See Section 2 of the Specification for further details:
    - Pathway – Electrical System and Process Control Technician Specific Skills: Either EP1; EP2; EP3; EP4 or EP5
- the practice task brief should provide instructions for the apprentice to enable the apprentice to:

- Plan the job
- Select the appropriate tools and materials
- Focus on the skills
- Work safely

For example, to focus on Pathway skill EP1:

- the task would reference specific plant or equipment, and instruct the apprentice to dismantle, and install parts, consistent with a realistic working task

- the task must allow opportunity for the apprentice to position and assemble parts, in accordance with EP1

- **note** that the expectation is that task takes several hours, and up to a day, and therefore must be sufficiently complex to match this duration

- the live Practical Observation also includes questioning from the assessor designed to confirm the apprentice's understanding of the rationale for actions taken and choices made to complete the task

To carry out this aspect of the practice practical assessment, it is recommended to prepare some open-ended questions that focus on the rationale for each part of the task. A copy of the template is included in Appendix E MOET Supporting Documents 'Practice Practical Observation Template.'

The tutor or supervisor carrying out the practice assessment should:

- record their assessment of how the apprentice performed and provide feedback to the apprentice with guidance on what to do to improve their performance, taking note of the grading descriptors for pass, merit and distinction in Section 3 – Grading and Grading Criteria of this Specification.

- ensure the plant, equipment and tools are available

- ensure the practical task(s) are developed to allow the independent assessor to observe the apprentice applying their knowledge of plant and systems to safely perform maintenance and operational activities with minimum supervision

### Submitting the form to Energy & Environment Awards

The employer/training provider should complete and submit the 'Level 3 Maintenance and Operations Engineering Technician Practical Observation with Planning Form' to Energy & Environment Awards Service Delivery Team for approval 1 month before the Practical Observation. The form should be accompanied by photographs and/or video(s) of the plant, machinery, equipment areas, including practical tasks/briefs which the apprentice will be working on.

### Energy & Environment Awards Review Process

Once the approval form has been received the review process will be conducted by Energy & Environment Awards. The outcomes will be shared with the employer/training provider no later than 5 working days.

**Please be aware:**

- Practical task/briefs review does not guarantee that the apprentice will pass the practical task
- No health and safety risk assessment has been carried out by Energy & Environment Awards
- Energy & Environment Awards review does not remove any of the training provider obligations to ensure full coverage of the standard, and full compliance with relevant legislation
- Energy & Environment Awards review is based only on information supplied and is not a guarantee that the practical tasks/briefs, selected plant/machinery/equipment on the day of the practical will be sufficient for an EPA practical task
- The information provided in this Level 3 Maintenance and Operations Engineering Technician Practical Observation and Planning Form must not be shared with the apprentice

## Preparing for the Practical Observation

Where possible, the employer/training provider should provide the apprentice with the opportunity to carry out a practice practical observation as close to the real assessment described in Section 2 of the specification (Component 2).

The employer/training provider should prepare a practical task similar to (but not identical to) the tasks being used for the live assessment. A suitable person should be chosen to play the part of the assessor.

A template is provided to help ensure that the activities assessed during the practical observation will give complete coverage of the standard. See Appendix E MOET Supporting Documents 'Practice Practical Observation Template.'

## Preparing for the Technical Interview

A practice technical interview should take place between the apprentice and the person acting the role of an assessor. The apprentice should draw on evidence from their portfolio during the discussion.

## Guidance on Portfolio of Evidence

The portfolio is not assessed. It serves the following purpose:

- Provides the opportunity to demonstrate the core and specific KSBs required across the standard
- The assessor reviews the portfolio before the technical interview to help focus and contextualise their questions
- A carefully prepared mapped portfolio supports the apprentice during the technical interview

### Quality vs Quantity

The apprentice should be supported in selecting and mapping evidence for their portfolio in the mapping document. They must gather evidence on the full range of KSBs required by the standard and be assessed on particular tasks or procedures or items of equipment during their practical observation.

The portfolio must be sufficient to evidence the apprentice can apply the KSBs required in a variety of tasks.

In theory one comprehensive job-write up could cover all the required KSBs. In practice, this is more likely to be in several job write-ups plus a few smaller pieces of evidence targeting specific elements of the standard.

Choose the best pieces of evidence that have been mapped for each KSB covered by the technical interview based on the portfolio. An independent assessor will look for one suitable piece of evidence for each KSB. To be confident of meeting the standard, apprentices should aim to have two pieces of evidence mapped to each KSB. Progress review documents should also be included.

### What to include in the portfolio?

The portfolio of evidence:

- must contain a mapping document where evidence is mapped against the KSBs. A template has been produced to help the apprentices with collecting and mapping their evidence. A copy of the template is included. See Appendix G MOET Supporting Documents 'Portfolio Mapping Document.'
- must contain evidence related to the KSBs that will be assessed by the technical interview based on the portfolio
- will contain quality pieces of evidence
- will be available, during the technical interview, allowing the apprentice to refer to it
- must contain demonstrations of work carried out over a period of time and must include evidence of work carried out within the last three months of the on programme period
- must contain a minimum of 2 and no more than 3 activities carried out by the apprentice that demonstrates the higher order knowledge, skills and behaviours
- where practicable this should include:
    - photographs
    - images
    - diagrams
    - job descriptions and witness evidence/testimony
    - situations that have been difficult and challenging, and how these have been overcome e.g. equipment breakdown which has results in a change in working practice while still adhering to company procedures
    - any employer contributions must focus on direct observation of evidence (e.g. review/witness statements) of competence rather than opinions

The above is not a definitive list. The apprentice can include other relevant evidence sources. The portfolio must not contain any methods of self-assessment.

Evidence must be:

- produced by the apprentice (authentic)
- relevant to the standard (K, S or B) that it is mapped to
- produced during the time the apprentice is carrying out their on-programme training

### What can the apprentice do?

The apprentice should:

- be familiar with the structure of their portfolio
- know the KSBs covered by the technical interview
- know the grading criteria
- ensure there is evidence to cover every KSB in the technical interview
- practise mapping evidence and completing the evidence mapping grid

### The role of the employer/training provider

Employer/training providers are expected to support the apprentice in preparing their portfolio by:

- clarifying responsibility for supporting the apprentice to select and map evidence for the portfolio, including employer coaches/mentors where applicable
- advising on which pieces of evidence to select to ensure that when looked at as a whole, they provide coverage of all the required elements of the standard assessed in the technical interview
- supporting the mapping of evidence and production of a mapping document
- authenticating evidence as valid
- signing off the portfolio
- submitting the portfolio to Energy & Environment Awards as part of Gateway

### What to expect in the practice technical interview?

The practice technical interview will be based on the portfolio which will provide the apprentice with the opportunity to practice discussing their KSBs gained throughout their on-programme and by referring to the evidence from their portfolio using the portfolio mapping document. A suitable person should be chosen to play the part of the assessor.

A practice technical interview based on the portfolio template is provided for use to prepare the appropriate questions to ask and to record the apprentices' performance. See Appendix F MOET Supporting Documents 'Practice Technical Interview Template.'

As part of the practice exercise, apprentices should have access to their portfolio to support their responses.

## Preparing for the Knowledge Assessment

While on-programme, the employer and/or training provider should brief the apprentice on the areas to be assessed by the knowledge assessment, as detailed in Section 2 in this specification. It is good practice to identify the areas within the learning programme where the relevant knowledge is delivered, ensuring that apprentices are aware that elements of these might come up in the test.

The knowledge assessment is aligned to the standard rather than a specific job role that the apprentice may be doing. The questions have been written to reflect the Maintenance and Operations Technician role as a whole and not focussed on specific plant, machinery, or employer-specific processes.

In readiness for end-point assessment, the apprentice should complete a practice knowledge assessment. This should be undertaken in advance of the live knowledge assessment, with enough time to mark the test, and provide feedback to the apprentices. See Appendix C MOET Supporting Documents 'Practice Knowledge Assessments: Control and Instrumentation.'

For maximum effect, ensure the test is taken in exam conditions similar to those that will be experienced in a live test.

## Section 6: Authenticity and security of apprentice work

The apprentices must be advised by their training provider and employer that copying of any work (whether it is from another apprentice or from internal, external documents or source) and presenting it as their own will be deemed as malpractice and will lead to their work being disqualified. Apprentices must not share their work or allow any person to copy their work as this is not allowed and would also be deemed as malpractice.

In signing off the portfolio, training providers and employers must be satisfied that the evidence in the portfolio is:

- **adequate**: evidence must cover all relevant KSBs within the assessment plan. Adequate does not mean a large quantity of evidence. The evidence should focus on quality rather than quantity
- **authentic**: apprentices must be able to confirm and talk about the evidence that they submit with the independent assessor, appointed by Energy & Environment Awards. It is vitally important apprentices only submit evidence relating to them
- **appropriate**: all evidence must be relevant to the KSBs assessed during the technical interview
- **recent and up to date**: all evidence must be linked to KSBs must be recent and current which demonstrate the apprentice's competence. The independent assessors, appointed by Energy & Environment Awards will assess current competencies, and the apprentice must map the evidence to demonstrate the relevant work to the KSB. Apprentices must gather the evidence during their on-programme training