



ENERGY &
ENVIRONMENT
AWARDS

Skills for a greener world

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

Supporting Documents

QAN 610/6007/0

ST0154 AP02 V1.0 V1.1 V1.2 V1.3

Supporting Documents for

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

- QAN 610/6007/0 V1.0 – V1.3

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Updates to the supporting documents

Since the first publication of Energy & Environment Awards Maintenance and Operations Engineering Technician Supporting Documents Control and Instrumentation, the following updates have been made.

Version	Date first published	Section updated	Page(s)
v5.0	April 2026	Appendix F: Practice Technical Interview Template	63
v4.0	August 2025	Rebranded	All
v3.0	2023	Appendix C: Sample Answer Sheet	26
		Appendix G: Replaced (Assessor Use Only) with (Apprentice Input)	85 - 88
		Footer for V2.0 below stated V3.0 this has been removed. This version is v3.0	All
v2.0	2023	New template and rebranded	All
v1.0	2020	First published	All

Appendix A: Glossary

Amplification – provides more detail on how individual knowledge, skills or behaviours statements should be interpreted. Where the KSB statements, themselves are deemed self-explanatory, no amplification is provided. Assessment may include questions on anything identified in the amplification

Behaviours (as part of KSBs) – specific mindsets, attitudes or approaches identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Elements – are the knowledge, skills and behaviours and what is needed to competently undertake the duties required for an occupational standard

Gateway - the stage of the apprenticeship where the apprentice, employer and training provider determine whether the apprentice is ready to undertake end-point assessment

Guidance – is only provided where it is required to support interpretation of the KSB statements

Knowledge (as part of KSBs) – specific information, technical detail, and 'know-how' identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Pathways – a specialist route within an apprenticeship standard that builds on the occupational competence for a new entrant to the occupation

Skills (as part of KSBs) – the practical application of knowledge identified as part of the apprenticeship standard that must be evidenced during end-point assessment

Standard – An occupational standard is a description of an occupation. It contains occupational profile, and describes KSBs needed for someone to be competent in the occupation's duties. Occupational standards are developed by employers for occupations that meet the Institute for Apprenticeships and Technical Education current occupation criteria

Topic - is a collection of elements grouped into a theme e.g. Health and Safety

Appendix B: Gateway Eligibility Form

(Standard Version: ST0154 V1.0 – V1.3; Assessment Plan Version:
ST0154/V1.0/AP02 – V1.3)

Apprentice's name:	Apprentice's job title:
Name of Employer:	Name of Training provider:
Employer representatives present:	Training provider representatives present:
Apprenticeship start date:	Apprenticeship on-programme end date:
Gateway meeting date:	
Has the apprentice taken any part of the end-point assessment for this apprenticeship standard with any other End Point Assessment Organisation?	Y / N
If "Yes" please give details:	

Apprentice's details

Eligibility requirements:

The apprentice must confirm their achievement of the following:

Note: For apprentices aged 19+, if maths and/or English have been attempted but not achieved evidence of the attempt should be submitted.

Eligibility requirement	Achieved by the apprentice? Y/N	Evidence (Scans of certificates MUST be included)
Achieved Level 2 English		
Achieved Level 2 Maths		
Satisfactory completion of the formal training plan agreed with apprentice by the employer		
Compiled and submitted a portfolio of evidence, on which the technical interview will be based on		

Gateway Eligibility Declaration

The apprentice, the employer and the training provider must sign this form to confirm that they understand and agree to the following:

1. The apprentice has completed the required on-programme elements of the apprenticeship and is ready for end-point assessment with Energy & Environment Awards.
2. The apprentice will only submit their own work as part of end-point assessment.
3. All parties agree that end-point assessment evidence may be recorded and stored by Energy & Environment Awards for quality assurance purposes.
4. The apprentice has been on-programme for a minimum duration of 365 days.
5. The apprentice has achieved English and maths Level 2 as detailed in this document.
6. The apprentice satisfactorily completed a formal training plan agreed by the employer.
7. The apprentice has produced compiled and submitted a portfolio of evidence, on which the technical interview will be based on.
8. The apprentice, if successful, gives permission for Energy & Environment

Awards to request the apprenticeship. certificate from the ESFA who issue the certificate on behalf of the Secretary of State.

9. The apprentice has been directed to Energy & Environment Awards Appeals Policy and Complaints Policy.
10. The employer/training provider has given Energy & Environment Awards at least three months' notice of requesting this EPA for this apprentice.
11. If the Gateway Eligibility Report is not completed in full, meeting all requirements, and submitted to Energy & Environment Awards, the end-point assessment cannot take place.

Signed on behalf of the employer (print name):	Signature:	Date:
Signed on behalf of the training provider (print name):	Signature:	Date:
Apprentice's name (print):	Signature:	Date:

Energy & Environment Awards use only:	
Energy & Environment Awards Sign off:	
Comments/actions:	

Appendix C: Practice Knowledge Assessments: Control and Instrumentation

Level: 3

Maintenance and Operations Engineering Technician

Pathway: Control and Instrumentation

Paper Code: Practice Paper

This examination consists of 30 multiple-choice questions.

The Pass mark is 18 correct answers.

The Merit mark is 23 correct answers.

A mark of 26 or more is a Distinction.

The duration of this examination is 45 minutes.

You must use a **pencil** to complete the answer sheet - pens must NOT be used.

When completed, please leave the examination answer sheet and question paper on the desk.

For this paper the use of a scientific calculator (non-programmable) is permitted.

For each question, fill in ONE answer ONLY.

If you make a mistake, ensure you erase it thoroughly.

You must mark your choice of answer by shading in ONE answer circle only. Please mark each choice like this:

MARKING INSTRUCTIONS	
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input checked="" type="radio"/>	ANSWER COMPLETED CORRECTLY
Examples of how NOT to mark your examination sheet. These will not be recorded	
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/>	DO NOT partially shade the answer circle.
<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> C <input checked="" type="radio"/>	DO NOT use ticks or crosses.
<input type="radio"/> A <input type="radio"/> B <input type="radio"/> C <input type="radio"/>	DO NOT use circles.
<input type="radio"/> A <input type="radio"/> B <input checked="" type="radio"/> <input checked="" type="radio"/>	DO NOT shade over more than one circle.

This paper must be returned to Energy & Environment Awards with the apprentice answer sheets.

You may use this page for rough work. This page must not be removed.

Question 1	
On what type of installation would a technician fit this design of washer?	
Possible answers	
a)	High corrosion
b)	High temperature
c)	High vibration
d)	High pressure



Question 2	
When checking the pressure of a system the maintenance schedule stipulates that the system pressure should be 10 bar with a tolerance of +/- 0.05 bar, what are the minimum and maximum acceptable pressures?	
Possible answers	
a)	9.95 to 10.05 bar
b)	9.5 to 10.5 bar
c)	9.05 to 10.5 bar
d)	9.005 to 10.005 bar

Question 3	
Complete the following statement: Safety critical equipment should be maintained	
Possible answers	
a)	every twelve months
b)	more frequently than non-safety critical equipment
c)	less frequently than non-safety critical equipment
d)	at the same period as safety non-critical equipment

Question 4

Which statement best describes what is meant by the terminology “specification”?

Possible answers

a)	The capacity to endure continuous force
b)	The standard when measured against another object of similar design
c)	Detailed description of the design and materials of an object
d)	The specified point beyond which certification is invalid

Question 5

What type of maintenance is applied when something stops working?

Possible answers

a)	Planned
b)	Preventative
c)	Corrective
d)	Shutdown

Question 6

What do the initials IP followed by 2 numbers refer to when seen on a piece of equipment?

Possible answers

a)	Internal pressure
b)	Integrity protection
c)	Ingress protection
d)	Increased pressure

Question 7

Which of the following is commonly classed as safety critical?

Possible answers

a)	Control valve
b)	Fuse
c)	Steam trap
d)	Drain valve

Question 8

What does the coloured tag on a piece of rigging equipment mean?

Possible answers

a)	Certification period
b)	Safe working load
c)	Maximum working load
d)	Safe to use

Question 9

When seen on site, what does a green safety sign signify?

Possible answers

a)	Mandatory
b)	Prohibited
c)	Information
d)	Warning

Question 10

What document should be fixed to a scaffold before a technician uses it?

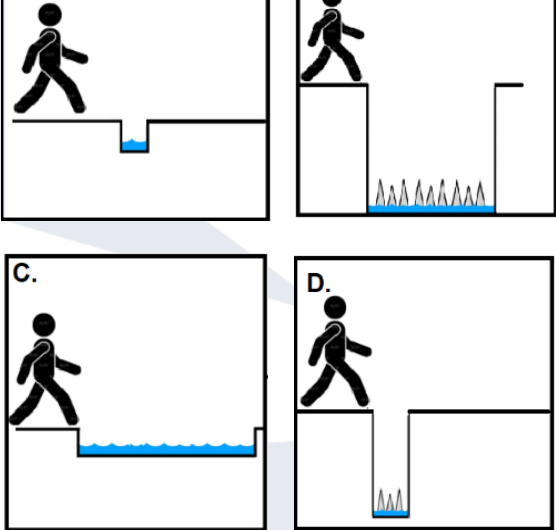
Possible answers

a)	Risk assessment
b)	Safety certificate
c)	Approved Scafftag
d)	Permit to work

Question 11

Looking at the image provided and taking into consideration risk, which task would a technician say is low probability and low in impact?

Possible answers

a)	A	
b)	B	
c)	C	
d)	D	

Question 12

When personal protection equipment is identified on the work control document, which of the following statements is correct?

Possible answers

a)	PPE is recommended
b)	PPE is available
c)	PPE is good practice
d)	PPE is mandatory

Question 13

In accordance with HSE regulations, how would a technician know if a substance was regarded as hazardous?

Possible answers

a)	The container will be coloured red
b)	It will be contained in a glass receptacle
c)	It will have a label identifying the hazard
d)	It will give off a strong odour

Question 14

According to the Confined Space Regulations 1997, which of the following locations is not regarded as a confined space?

Possible answers

a)	Storage tank
b)	Termination cabinet
c)	Floor void
d)	Pipe trench

Question 15

In accordance with HSE guidelines, isolations can only be applied by:

Possible answers

a)	competent people
b)	training and authorised people
c)	skilled people
d)	experienced people

Question 16

Which manual handling statement is true?

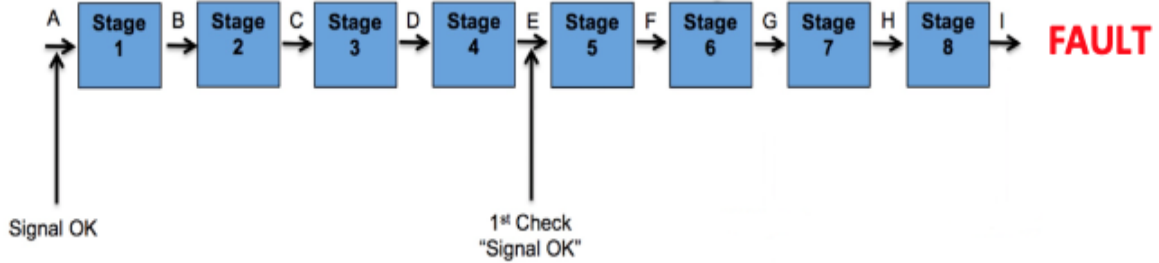
Possible answers

a)	Correct manual handling prevents all accidents
b)	Correct manual handling prevents damage to equipment
c)	Correct manual handling reduces the risk of human injury
d)	Correct manual handling should only be applied in the workplace

[Turn to the next page for question 17]

Question 17

Using the half split principle and referring to image below, at which position should a technician make the next check when fault finding?


Possible answers

a)	Point C
b)	Point F
c)	Point G
d)	Point I


Question 18

What regulation provides guidance on the use of handheld tools?


Possible answers

a)	PUWER
b)	COMAR
c)	LOLER
d)	COSHH

Question 19	
What is being measured in this image?	
Possible answers	
a)	Temperature
b)	Vibration
c)	Pressure
d)	Speed



Question 20	
When seen on a British Standard Piping and Instrumentation drawing, what does this signal represent?	
Possible answers	
a)	Electrical signal
b)	Pneumatic signal
c)	Hydraulic signal
d)	Instrument signal



[Turn to the next page for question 21]

Question 21

What type of maintenance can be applied to check the long-term performance of equipment to identify problems before they occur?

Possible answers

a)	Preventative
b)	Risk based
c)	Condition based
d)	Corrective

Question 22

Assume a signal range of 4-20 mA. A pressure transmitter with a range of 0-200 mbar is showing a feedback signal of 16mA.

Assuming that the transmitter is calibrated correctly what is the actual line pressure?

Possible answers

a)	100 mbar
b)	120 mbar
c)	150 mbar
d)	160 mbar

[Turn to the next page for question 23]

Question 23

Complete the sentence.

A _____ measurers a change in process conditions.

Possible answers

a)	Sensor
b)	Microprocessor
c)	PLC
d)	Convertor

Question 24

What is the most common output range of a pneumatic transmitter?

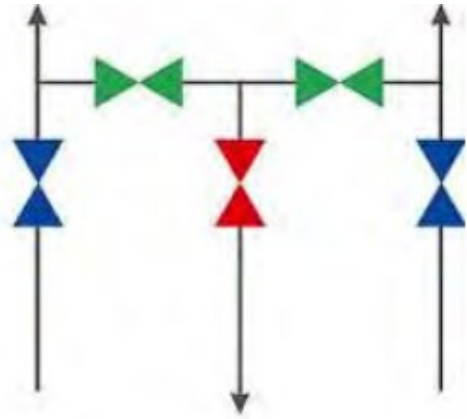
Possible answers

a)	0 to 1.9 bar
b)	0.2 to 1.0 bar
c)	0 to 15 bar
d)	2 to 20 bar

[Turn to the next page for question 25]

Question 25

On this differential pressure manifold, what is the purpose of the red handle valve?


Possible answers


a)	Isolating pressure to transmitter
b)	Isolating mains pressure
c)	Venting pressure
d)	Equalising pressure

[Turn to the next page for question 26]

Question 26

What does the third wire on a 3 wire Resistance Temperature Device do?


Possible answers

a)	Compensates field wire resistance	
b)	It acts as a spare sensor wire	
c)	It is the power supply wire	
d)	Increases lifespan of device	

Question 27

What effect would a loose connection have on a 3 wire Resistance Temperature Device temperature loop?

Possible answers

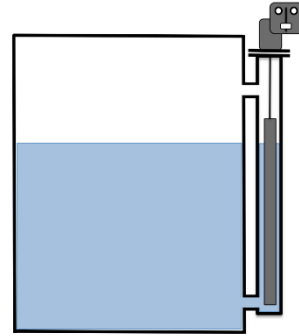
a)	Fluctuating signal	
b)	Low reading	
c)	Static signal	
d)	No effect	

Question 28

What principle of level measurement is depicted in this image?

Possible answers

- | | |
|----|------------------------|
| a) | Capacitance Probe (RF) |
| b) | Displacement |
| c) | Ultrasonic |
| d) | Differential pressure |



Question 29

A Manometer consists of a:

Possible answers

- | | |
|----|--|
| a) | "U" shaped tube, open to atmosphere on one side and open to the fluid to be measured on the other side |
| b) | Metal tube open to atmosphere that extends as pressure builds up |
| c) | A vertical tube, filled with mercury and open to the atmosphere |
| d) | A series of bourdon tubes connected in series within the pressure gauge |

[Turn to the next page for question 30]

Question 30

What type of sensing device is used on this flow installation?



Possible answers

a)	RF probe
b)	Orifice plate
c)	Venturi tube
d)	Turbine meter

End of Questions

Practice Knowledge Assessment

Control and Instrumentation - Answer scheme

Question	Answer
1	C
2	A
3	B
4	C
5	C
6	C
7	B
8	A
9	C
10	C
11	A
12	D
13	C
14	B
15	B

Question	Answer
16	C
17	C
18	A
19	B
20	B
21	C
22	C
23	A
24	B
25	C
26	A
27	C
28	B
29	A
30	B

SAMPLE ANSWER SHEET

Candidate ID	Attempt
Last Name	
First Name	
Exam Date	Paper
Centre Name	
Centre Number	

MARKING INSTRUCTIONS

Answers should be completed using a HB pencil.

ANSWER COMPLETED CORRECTLY

Examples of how NOT to mark your examination sheet. **These will not be recorded**

DO NOT partially shade the answer circle.

DO NOT use ticks or crosses.

DO NOT use circles.

DO NOT shade over more than one circle.

1 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	21 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
2 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	22 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
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4 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	24 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
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6 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	26 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
7 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	27 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
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19 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		
20 <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>		

Appendix D - Practical Observation and Planning Form

The practical observation must be designed to meet the requirements of the Maintenance and Operations Engineering Technician standard.

- The apprentice will complete a practical observation during which they will be asked questions by the assessor to confirm their understanding of the rationale for actions taken and choices made during the practical observation
- The content of this practical observation will relate to the specific role they are working towards
- The duration of this activity will typically be 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
- The employer/training provider must devise a practical observation task(s) sufficiently complex to allow the apprentice to demonstrate the required knowledge and skills

Note that the apprentice is only required to demonstrate the main specialist specific skill covered, and the observation task must be chosen carefully to ensure that the apprentice has opportunity to cover all aspects of the skill.

The activities will need to be able to provide the evidence identified in the checklist in the form below.

Energy & Environment Awards must review the employer/training provider's practical assessment design. To do this complete the 'Level 3 Practical Observation and Planning Form' and submit to the Service Delivery team, for review 1 month before the start of the end-point assessment.

Level 3 Practical Observation and Planning Form

Employer name and site address	
Training provider (if applicable)	
Standard	Maintenance and Operations Engineering Technician
Pathway	Control and Instrumentation
Level	3
Location of practical	
Contact Details: Employer/training provider representative, email address and contact number overseeing the setup of the practical (documents and site).	
Energy & Environment Awards Date of review:	

•

Description of the proposed complex task(s):
Special requirements (for example: access arrangements/PPE):

Equipment/tools required:	Resources required:

Practical Observation Checklist

This checklist will assist the employer and/or training provider with planning the activity. Please confirm all required elements are covered:

Core Skills	Covered on activity
S1 Comply with industry health, safety and environmental working practices and regulations	<input type="checkbox"/>
S2 Communicate with and provide information to stakeholders in line with personal role and responsibilities	<input type="checkbox"/>
S3 Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities	<input type="checkbox"/>
S4 Assess and test the performance and condition of plant and equipment	<input type="checkbox"/>
S5 Locate, and rectify faults on plant and equipment	<input type="checkbox"/>
S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation	<input type="checkbox"/>
S7 Inspect and maintain appropriate plant and equipment to meet operational requirements	<input type="checkbox"/>
S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification	<input type="checkbox"/>

Core Behaviours	Covered on activity
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	<input type="checkbox"/>
B2 Quality focused - Ensures that work achieves quality standard both occupationally and personally	<input type="checkbox"/>
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	<input type="checkbox"/>
B4 Interpersonal skills - Gets along well with others and takes into account their needs and concerns	<input type="checkbox"/>

Core Behaviours	Covered on activity
B6 Sustainability and ethical behaviour - Behaves ethically and undertakes work in a way that contributes to sustainable development	<input type="checkbox"/>
B7 Risk awareness - Demonstrates high concentration, the desire to reduce risks, ability to be compliant and awareness of change, through regular monitoring and checking of information	<input type="checkbox"/>

PLUS select the MAIN Specialist Skill covered by the practical	Covered on activity
Pathway: Control and Instrumentation Specialist Skills	
CI1 Position, assemble, install and dismantle plant and equipment to agreed specifications	<input type="checkbox"/>
CI2 Carry out planned, unplanned and preventative maintenance procedures on plant and equipment	<input type="checkbox"/>
CI3 Replace, repair and/or remove components in plant and equipment and ensure its return to operational condition	<input type="checkbox"/>
CI4 Diagnose and determine the cause of faults in electrical plant and equipment	<input type="checkbox"/>
CI5 Calibrate and configure instrument and control systems	<input type="checkbox"/>
Estimated total duration of practical (must be a minimum of 4 hours)	

Remember:

- The specific detail of the tasks to be undertaken should be **kept confidential from the apprentices**
- You will require differing tasks where you have more than one apprentice to be assessed

Practical Task: Include relevant photographs to illustrate task(s)

Expand box as required.

Energy & Environment Awards Office use only

Date received	
Date signed off	

-

Appendix E: Practice Practical Observation Template

This document is for use by the person from the employer/training provider playing the role of the assessor during the practice practical observation. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice.

Full Name of Apprentice	
Location(s) of Practice Practical Observation	
Full Name of Assessor	
Date of Practice Practical Observation	
Start Time	
End Time	
Assessor - Additional comments:	

Please indicate the apprentice's practice practical observation grade (F/P/M/D):	Grade

Please Note:

Pass: Each criteria must be met to achieve a pass.

Merit or Distinction: All Pass criteria must be achieved PLUS a minimum number of merit and distinction as described in Section 3 in this specification.

Fail: The apprentice does not demonstrate the pass criteria.

-

S1 Comply with industry health, safety and environmental working practices and regulations

Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their own health, safety and environmental responsibilities and that of others <input type="checkbox"/> • Comply with the required health, safety and environmental working practices and regulations <input type="checkbox"/> • Conduct a suitable risk assessment and proactively identify workplace hazards <input type="checkbox"/> • Inspect and wear the correct personal protective equipment (PPE) required to carry out the activity <input type="checkbox"/> • Inform other relevant parties of matters affecting them where required <input type="checkbox"/> 		<ul style="list-style-type: none"> • 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 <input type="checkbox"/> • Take a lead role in managing the site safety of self and others <input type="checkbox"/> • Consistently demonstrate compliance with safety requirements and make suggestions to reduce risks <input type="checkbox"/> • Identify poor/bad practice in relation to work activities and address the situation <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate exemplary health, safety and environmental knowledge and performance throughout the activity <input type="checkbox"/> • Identify health, safety and environmental deficiencies and implement appropriate solutions <input type="checkbox"/> • Challenge unsafe behaviour/ practices using appropriate techniques <input type="checkbox"/> • Pre-empt risks prior to task commencement and puts actions in place to prevent them occurring <input type="checkbox"/> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to improve safety standards <input type="checkbox"/> 	

S1 Comply with industry health, safety and environmental working practices and regulations				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> • Comply with and apply safe systems of work and maintain a safe working environment <input type="checkbox"/> • Inspect and use the appropriate tools and equipment <input type="checkbox"/> • Regularly re-assess the site conditions and take action when necessary to maintain site safety <input type="checkbox"/> • Check to ensure the site is left in a safe/secure condition for others <input type="checkbox"/> 				
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

S2 Communicate with and provide information to stakeholders in line with personal role and responsibilities					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Read and correctly interpret a range of technical information provided to plan and conduct the work 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate a detailed knowledge of the range and purpose of the technical information available 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, briefings/meetings, external clients 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Demonstrate a clear understanding of the purpose and use of the technical information provided for the work 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Identify inaccuracies/deficiencies in the technical information provided and resolve/report the situation 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Consult and involve team members and/or other relevant persons to achieve greater understanding and improved performance 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use and refer to the technical information provided to check/confirm the work conducted meets the required company standards/specifications 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Challenge in a professional manner any areas of concern to clarify understanding 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate the ability to build positive relationships and actively address conflict with positive outcomes 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Where necessary, question/clarify any information which is not clearly understood 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Identify/suggest methods of improving the system/use of information 	<input type="checkbox"/>		
<ul style="list-style-type: none"> • Complete any technical or supporting documentation in 	<input type="checkbox"/>				

S3 Prepare work areas to undertake work related activities and reinstate those areas after the completion of the work-related activities

Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<p>worked on in line with company policies/procedures</p> <ul style="list-style-type: none"> • Identify and implement any special precautions required by the work activity or environment, where required <input type="checkbox"/> • Maintain good housekeeping practices and a safe working environment throughout the activity <input type="checkbox"/> • 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 <input type="checkbox"/> • Reinstate the work area to ensure it is left in a safe and secure condition e.g. locks, notices, documentation <input type="checkbox"/> 		<p>work, including measures to deal with contingencies</p> <ul style="list-style-type: none"> • Demonstrate their ability to develop positive professional relationships with individuals to support the work activity <input type="checkbox"/> • Make valid suggestions/recommendations to improve the planning/preparation of the work activity <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken <input type="checkbox"/> 	

S5 Locate, and rectify faults on plant and equipment				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities for the fault location and rectification activity to be undertaken <input type="checkbox"/> • Provide an accurate technical explanation of the company's fault location methods, processes and/or procedures <input type="checkbox"/> • Competently use the correct tools, equipment and methods to locate the rectify the fault/s in a timely manner <input type="checkbox"/> • Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures <input type="checkbox"/> • Complete the required tests/checks to confirm the <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate a detailed understanding of the theory and principles of fault location and rectification operations <input type="checkbox"/> • Demonstrate a detailed understanding of cause and effect of faults and preventative measures <input type="checkbox"/> • Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/> • Make recommendations/ suggestions to improve the location/rectification work activity <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate deeper technical knowledge of fault location and fault prevention e.g. costs, lost time, sustainability of equipment, company reputation <input type="checkbox"/> • Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/> • Identify and take action to report or deal with issues of nonconformity/compliance <input type="checkbox"/> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken <input type="checkbox"/>

S5 Locate, and rectify faults on plant and equipment				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
fault rectification has been successful <ul style="list-style-type: none"> Record the results/outcomes of rectification work in line with company requirements 	<input type="checkbox"/>			
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> Read and correctly interpret a range of technical information provided to plan and conduct the work 	<input type="checkbox"/>	<ul style="list-style-type: none"> Demonstrate a detailed knowledge of the range and purpose of the technical information available 	<input type="checkbox"/>	

S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation

Pass Criteria – All to be met	Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> • Demonstrate a clear understanding of the purpose and use of the technical information provided for the work <input type="checkbox"/> • Use and refer to the technical information provided to check/confirm the work conducted meets the required company standards/specifications <input type="checkbox"/> • Where necessary, question/clarify any information which is not clearly understood <input type="checkbox"/> • Complete any technical or supporting documentation in line with company policies/procedures <input type="checkbox"/> 	<ul style="list-style-type: none"> • Identify inaccuracies/deficiencies in the technical information provided and resolve/report the situation <input type="checkbox"/> • Challenge in a professional manner any areas of concern to clarify understanding <input type="checkbox"/> • Identify/suggest methods of improving the system/use of information <input type="checkbox"/> 	

S7 Inspect and maintain appropriate plant and equipment to meet operational requirements				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> Identify and inspect the plant/equipment to be worked on in line with company procedures Correctly use tools, equipment and techniques to achieve the quality standards required by company policies/procedures Demonstrate consistent application of policies and procedures during the work activity Record/report the results of the inspection in line with company procedures 	<input type="checkbox"/> <input type="checkbox"/>	<ul style="list-style-type: none"> relationships with individuals to support the work activity Identify areas for work improvement and implement actions to improve work efficiencies 	<input type="checkbox"/>	
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification

Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities in returning the system/equipment back to operational service <input type="checkbox"/> • Provide an accurate technical explanation of the company's handover procedure <input type="checkbox"/> • Complete the required checks/tests to confirm the equipment meets the company operational requirements for handover <input type="checkbox"/> • Conduct the handover in compliance with all relevant policies and procedures <input type="checkbox"/> • Clearly communicate the details of the handover including any additional <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate a detailed understanding of the factors which can support and influence a smooth handover of equipment <input type="checkbox"/> • Take a pro-active lead in effectively communicating the detail of handover arrangements with stakeholders <input type="checkbox"/> • Demonstrate their ability to develop positive professional relationships with individuals to support handover process <input type="checkbox"/> • Confidently lead the handover process taking charge of the operation and resolving any issues within their role responsibility <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the handover process <input type="checkbox"/> • Consult and involve team members and/or other relevant persons to achieve greater understanding and improved performance <input type="checkbox"/> • Demonstrate the ability to build positive relationships and actively address conflict/resolve problems with positive outcomes <input type="checkbox"/> • Demonstrate their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, <input type="checkbox"/> 	

B1 Health and Safety					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met		
<ul style="list-style-type: none"> 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 	<input type="checkbox"/>				
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

B2 Quality focused				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> Ensures that work achieves quality standard both occupationally and personally 	<input type="checkbox"/>			
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

B3 Working with others				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> Has the ability to work well with people from different disciplines, backgrounds and expertise to accomplish an activity safely and on time 	<input type="checkbox"/>			

B3 Working with others			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

B4 Interpersonal skills			
Pass Criteria – All to be met	Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> Gets along well with others and takes into account their needs and concerns <input type="checkbox"/>			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

B6 Sustainability and ethical behaviour				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> Behaves ethically and undertakes work in a way that contributes to sustainable development 	<input type="checkbox"/>			
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

B7 Risk awareness					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	Distinction Criteria – Minimum two to be met		
<ul style="list-style-type: none"> Demonstrates high concentration, the desire to reduce risks, ability to be compliant and awareness of change, through regular monitoring and checking of information 	<input type="checkbox"/>				
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

Pathway: Control and Instrumentation Role Specialist Skills

CI1 Position, assemble, install and dismantle plant and equipment to agreed specifications, which will include instrumentation and control of temperature, pressure and flow systems to agreed specifications			
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/> • Provide an accurate technical explanation for the purpose of the work activity <input type="checkbox"/> • Demonstrate a clear plan for the work to be undertaken and an understanding of any safety/technical information given <input type="checkbox"/> • Use tools and equipment to competently achieve the quality standards required by the company in a timely manner <input type="checkbox"/> • Conduct the work in compliance with all relevant <input type="checkbox"/> 	<ul style="list-style-type: none"> • Demonstrate a detailed technical knowledge of the methods and processes used to conduct the work <input type="checkbox"/> • Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/> • Make recommendations /suggestions to improve work efficiencies <input type="checkbox"/> • Produce a detailed work plan to support the work delivery including measures to deal with contingencies <input type="checkbox"/> 	<ul style="list-style-type: none"> • Demonstrate deeper technical/commercial knowledge of the equipment/operation e.g. installation costs, technical requirements planning, sustainability of equipment etc <input type="checkbox"/> • Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/> • Identify and take action to report or deal with issues of nonconformity/compliance <input type="checkbox"/> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken <input type="checkbox"/> 	

CI3 Replace, repair and/or remove components in plant and equipment and ensure its return to operational condition					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities in relation to the work to be conducted <input type="checkbox"/> • Provide an accurate technical explanation for the purpose of the maintenance work <input type="checkbox"/> • Demonstrate a clear plan for the work to be undertaken and an understanding of any safety/technical information given <input type="checkbox"/> • Use tools and equipment to competently carry out the removal/replacement of components in a logical sequence and timely manner <input type="checkbox"/> • Conduct the work in compliance with all relevant regulatory requirements and company procedures <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate a detailed understanding of the causes and principles of component degradation <input type="checkbox"/> • Demonstrate a detailed understanding of the limits/restrictions of component replacement or repair e.g. In terms of reliability, certification of instruments/systems etc. <input type="checkbox"/> • Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/> • Make recommendations/suggestions to improve work efficiencies <input type="checkbox"/> • Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate deeper technical/commercial knowledge of the repair/replacement work being undertaken e.g. costs, effect on maintenance periods, equipment sustainability <input type="checkbox"/> • Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/> • Identify and take action to report or deal with issues of nonconformance/compliance <input type="checkbox"/> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken <input type="checkbox"/> 	

CI4 Diagnose and determine the cause of faults in plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities in relation to the fault diagnosis to be conducted 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate a detailed understanding of the theory/principles of relevant diagnostic techniques 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate deeper technical/commercial knowledge of the effect of fault diagnosis and repair e.g. fault analysis, costs, prevention, lost time 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Provide an accurate technical explanation for the purpose and process of the fault's activity 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Able to identify the root cause of the fault and preventative measures 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Identify and implement tangible changes that improve the efficiency of the work being conducted 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Demonstrate a clear plan for the diagnosis to be undertaken and an understanding of any safety/technical information given 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Pro-actively works with others to identify areas for improvement and follows through on agreed implementation 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Identify and take action to report or deal with issues of nonconformity/compliance 	<input type="checkbox"/>
<ul style="list-style-type: none"> • Competently use the correct tools, equipment, technical data and diagnostic techniques to identify, locate and diagnose fault/s in a timely manner 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Make recommendations/suggestions to improve work efficiencies 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Demonstrate the ability to take a lead in accepting additional responsibility and autonomy to achieve/improve the work being undertaken 	<input type="checkbox"/>
		<ul style="list-style-type: none"> • Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies 	<input type="checkbox"/>		

CI4 Diagnose and determine the cause of faults in plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • Correctly analyse and interpret the results of the fault-finding techniques conducted <input type="checkbox"/> • Conduct the work in compliance with all relevant regulatory requirements and company policies and procedures <input type="checkbox"/> • Complete the required checks and tests to confirm the work meets the accuracy, finish and quality standards required <input type="checkbox"/> 					
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the responses provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

CI5 Calibrate and configure instrument and control systems				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> • Demonstrate a clear understanding of their role and responsibilities for the calibration/configuration activity to be undertaken <input type="checkbox"/> • Provide an accurate technical explanation for the purpose and process of the calibration work <input type="checkbox"/> • Demonstrate a clear plan which takes into consideration the effects of calibration on the operation of interacting systems <input type="checkbox"/> • Competently use the correct tools, equipment and technical data technical data to calibrate and configure instruments and/or systems in a timely manner <input type="checkbox"/> 		<ul style="list-style-type: none"> • Demonstrate a detailed understanding of the theory/principles of system/equipment calibration <input type="checkbox"/> • Demonstrate a detailed understanding of methods to prevent unplanned shutdown of interacting equipment when conducting calibration <input type="checkbox"/> • Pro-actively works with others to identify areas for improvement and follows through on agreed implementation <input type="checkbox"/> • Make recommendations/ suggestions to improve work efficiencies <input type="checkbox"/> • Produce a detailed work plan to support the maintenance operation including measures to deal with contingencies <input type="checkbox"/> 	<ul style="list-style-type: none"> • Demonstrate deeper technical knowledge of equipment calibration and configuration e.g. system / equipment parameters, tolerances, settings <input type="checkbox"/> • Identify and implement tangible changes that improve the efficiency of the work being conducted <input type="checkbox"/> • Identify and take action to report or deal with issues of nonconformity/compliance <input type="checkbox"/> • Demonstrate the ability to take a lead in accepting added responsibility and autonomy to achieve/improve the work being undertaken <input type="checkbox"/> 	

Appendix F: Practice Technical Interview Template

Assessment Conditions – Technical Interview

The technical interview is based on the apprentice’s submitted portfolio of evidence and is designed to test the validity, currency and coverage of the evidence against the knowledge, skills and behaviours of the standard.

During the technical interview, the apprentice may refer to their submitted portfolio of evidence. No other reference materials or resources are permitted.

This document is for use by the employer/provider person playing the role of the assessor during a practice technical interview. It is designed to help replicate the live assessment experience and to enable feedback to be provided to the apprentice.

The practice technical interview must be conducted under examination conditions and recorded. The apprentice must be asked questions.

There are a maximum of **100 marks** for the interview.

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

To achieve a Merit or Distinction for the technical interview, all Pass criteria must be achieved PLUS a minimum number of merit and distinction marks as described in Section 3 in the Specification ‘Grading and Grading Criteria – Component 3: Technical Interview.’

Apprentice Full Name:					
Employer and location:					
Assessor Full Name:					
Date of Interview:		Start time:		Finish time:	

•

K1 First principles relating to the operation and maintenance of appropriate plant and equipment			
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • A working knowledge of the principles of operation for the range of plant/equipment they are responsible for <input type="checkbox"/> • The primary purpose of the range of plant/equipment worked on e.g. what the plant / equipment worked on does <input type="checkbox"/> • How the plant/equipment interacts within the overall system <input type="checkbox"/> • The typical characteristics of healthy and unhealthy operation for the range of plant/equipment worked on and how to identify the difference <input type="checkbox"/> • How they have used their knowledge of plant and equipment operating/maintenance <input type="checkbox"/> 		<ul style="list-style-type: none"> • 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 <input type="checkbox"/> • 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 <input type="checkbox"/> • How they have used their knowledge of plant and equipment operating/maintenance principles to improve or enhance operational activities <input type="checkbox"/> 	<ul style="list-style-type: none"> • 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 <input type="checkbox"/> • 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 <input type="checkbox"/> • Conducting technical research into the effects of new technologies on current/future maintenance requirements/methodologies <input type="checkbox"/>

K2 Relevant industry health and safety standards, regulations, and environmental and regulatory requirements					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<p>procedures which apply to the range of work undertaken and describe why they are required</p> <ul style="list-style-type: none"> • 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 systems of work, documentation <input type="checkbox"/> • A clear understanding of the purpose of conducting risk assessments and the factors which affect the critical reasoning when making risk assessment decisions <input type="checkbox"/> • A knowledge of the Company procedure/s for reporting <input type="checkbox"/> 		<p>arrangements and their applicability and adapting them for changing circumstances whilst still maintaining safety</p> <ul style="list-style-type: none"> • How they have readily accepted additional health, safety and environmental responsibility/autonomy to maintain/improve work safety standards <input type="checkbox"/> 		<p>and environmental deficiencies and then implementing the appropriate solution/s in line with</p> <ul style="list-style-type: none"> • Company policies/procedures <input type="checkbox"/> • How they have challenged unsafe behaviour/practices using appropriate techniques <input type="checkbox"/> 	

K3 Maintenance and operational practices, processes and procedures covering a range of plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria - Minimum two to be met	
<ul style="list-style-type: none"> • Their planning process for conducting maintenance operations and the factors which have influenced their critical reasoning/decision making when planning their work 	<input type="checkbox"/>	<ul style="list-style-type: none"> • operations by explaining additional operational detail 	<input type="checkbox"/>	<ul style="list-style-type: none"> • practices for maintenance work on plant and equipment 	<input type="checkbox"/>
<ul style="list-style-type: none"> • 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 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed knowledge of the range of testing procedures and the implications of the results obtained 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed technical/commercial understanding of the effects of conducting maintenance procedures on 	<input type="checkbox"/>
<ul style="list-style-type: none"> • A knowledge of how their maintenance activities have impacted plant/equipment/others 	<input type="checkbox"/>			<ul style="list-style-type: none"> • Company plant/equipment e.g. cost, reliability, availability, sustainability 	<input type="checkbox"/>

K3 Maintenance and operational practices, processes and procedures covering a range of plant and equipment			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

K4 The relevant engineering theories and principles relative to their occupation					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • A working knowledge of the range of relevant operational theories and principles which underpin their work 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed knowledge of the relevant operational theories and principles which have supported and/or influenced their work activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • An excellent and thorough knowledge and understanding of the relevant operational theories and principles relative to plant and equipment in their job role 	<input type="checkbox"/>
<ul style="list-style-type: none"> • A working knowledge of the basic effect/influence of the relevant operational theories and principles which directly underpin their work activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have used relevant operational theories and principles to support / influence their work decisions/activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have used their understanding of relevant operational theories and principles to make suggestions which have influenced or led to an improved performance 	<input type="checkbox"/>
<ul style="list-style-type: none"> • The benefits of being able to identify and apply the differing operational theories and principles in relation to their job 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Their inclusion of operational formulae/theories/principles to support their technical 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have conducted further technical research which 	<input type="checkbox"/>

K4 The relevant engineering theories and principles relative to their occupation				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
role e.g. maintenance inspections, fault finding <ul style="list-style-type: none"> A working knowledge of how to apply the relevant operational formulae which can be used to support their work activities 	<input type="checkbox"/>	explanations in relation to their work activities		is based on relevant operational theories and principles to support the effects of current or future technologies
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.		Recording timeline.
Questions <i>Develop some open ended questions</i>				Mark awarded.

S5 Locate, and rectify faults on plant and equipment				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> A working knowledge of the company policies and procedures for the location of faults on plant and equipment worked on 	<input type="checkbox"/>	<ul style="list-style-type: none"> A detailed knowledge of the company processes and procedures by explaining additional technical detail for the fault location 	<input type="checkbox"/>	<ul style="list-style-type: none"> An excellent knowledge/understanding in relation to fault location/rectification procedures within their job role

S5 Locate, and rectify faults on plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • 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 	<input type="checkbox"/>	<ul style="list-style-type: none"> • methods/procedures conducted on plant/ equipment/systems 	<input type="checkbox"/>	<ul style="list-style-type: none"> • 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 	<input type="checkbox"/>
<ul style="list-style-type: none"> • How they have used tools/ equipment/techniques to inspect and identify faults on plant/equipment and develop sound solutions while recognising and defining problems 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed understanding of the tools and equipment that can be used to identify and locate faults on plant/equipment/systems 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have used their knowledge of fault location/rectification to improve/influence work outcomes 	<input type="checkbox"/>
<ul style="list-style-type: none"> • How they have used tools/equipment/techniques to repair faults and confirm the rectification to the quality standards required by company policies/procedures 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Their ability to take a lead in fault finding/rectification activities and accept additional responsibility/autonomy for the fault work undertaken 			
	<input type="checkbox"/>				

S5 Locate, and rectify faults on plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> How they have recorded / reported the results of fault-finding activities in line with Company procedures 					
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> A working knowledge of the range of information which can be gained from company policies and procedures which affect their work <input type="checkbox"/> <input type="checkbox"/>		<ul style="list-style-type: none"> How they have taken a lead in interpreting/relaying technical information to progress work or support others understanding <input type="checkbox"/> <input type="checkbox"/>			

S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation				
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met
<ul style="list-style-type: none"> • A working knowledge of the range and type of technical information/specifications available and how they are used to support work activities <input type="checkbox"/> • How they have used company work information and technical specifications to conduct/support their work activities <input type="checkbox"/> • Describe how they have used Company information to record/report the results of work carried out in line with company procedures 		<ul style="list-style-type: none"> • How they have questioned/clarified information which was unclear or incorrect <input type="checkbox"/> • How they have reported/updated information which was not technically correct/accurate 		

S6 Read, understand and interpret information and work in compliance with technical specifications and supporting documentation			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

S7 Inspect and maintain appropriate plant and equipment to meet operational requirements					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> How they have planned inspection and maintenance operations and the factors which influenced their critical reasoning/decisions during their planning process <input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Their ability to explain in detail the range of skills, knowledge and behaviours they have used to support their conducted inspection/maintenance operations <input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> An excellent knowledge/understanding in relation to inspection/maintenance procedures within their job role <input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> How they have implemented/complied with company operational processes and procedures during their conducted inspection and maintenance work <input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> How they have pro-actively worked with others to resolve problems during inspection/maintenance operations which supported <input type="checkbox"/>	<input type="checkbox"/>	<ul style="list-style-type: none"> Their ability to explain/justify the Company inspection and maintenance procedures used for a range of plant and equipment <input type="checkbox"/>	<input type="checkbox"/>
				<ul style="list-style-type: none"> How they have taken a lead in accepting additional <input type="checkbox"/>	<input type="checkbox"/>

S7 Inspect and maintain appropriate plant and equipment to meet operational requirements			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • A working knowledge of their role and responsibilities in the handover of the system/equipment/plant back to operational service 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have taken a pro-active lead in the handover process by effectively communicating the detail of handover arrangements with stakeholders 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have consulted/involved team members/other relevant persons to achieve greater understanding and improved performance 	<input type="checkbox"/>
<ul style="list-style-type: none"> • A working knowledge of the Company process for the handover of plant/equipment which has been worked on 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Their ability to develop positive professional relationships with individuals to support the handover process and resolve any issues within their role responsibility 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Their ability to actively address conflict/ resolve problems with positive outcomes to build positive relationships and 	<input type="checkbox"/>
<ul style="list-style-type: none"> • How they have completed the required checks/tests to confirm the plant/equipment/system 	<input type="checkbox"/>		<input type="checkbox"/>	<ul style="list-style-type: none"> • Their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, 	<input type="checkbox"/>

S8 Communicate, handover and confirm that the appropriate engineering process has been completed to specification			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

Pathway: Control and Instrumentation Role Specialist Skills

CI1 Position, assemble, install and dismantle plant and equipment to agreed specifications					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • A working knowledge of their responsibilities for the range of work activities within their job role 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed understanding of the range and technical requirements of the plant and equipment worked on 	<input type="checkbox"/>	<ul style="list-style-type: none"> • An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment worked on 	<input type="checkbox"/>
<ul style="list-style-type: none"> • How they have used company policies/procedures/specifications to conduct a range of position, assemble, install and dismantle work activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed technical understanding for the range of methods/techniques used for their position, assemble, install and dismantle work activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • Their ability to explain/justify the Company methods /processes/procedures used for the range of plant and equipment worked on 	<input type="checkbox"/>
<ul style="list-style-type: none"> • 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 	<input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have taken a lead in accepting additional responsibility/autonomy to improve the outcome of their position/assemble/install/dismantle work activities 	<input type="checkbox"/>
<ul style="list-style-type: none"> • How they have conducted the required checks/test procedures to confirm the completed work meets company/operational requirements 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they have taken a proactive lead in 			

CI1 Position, assemble, install and dismantle plant and equipment to agreed specifications					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities How they have reported/recorded the work conducted and returned the work area to a safe condition in line with company procedures 	<input type="checkbox"/>	organising/controlling their conducted work activities which has led to a successful completion			
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

CI2 Carry out planned, unplanned and preventative maintenance on plant and equipment					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities How they have reported/recorded the work conducted and returned the work area to a safe condition in line with company procedures 	<input type="checkbox"/>	which has led to a successful completion			
Assessor must ask the following standardised questions.		Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.		Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>					

C13 Replace, repair and/or remove components in plant and equipment and ensure its return to operational condition
AND
C14 Diagnose and determine the cause of faults in electrical plant and equipment

Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • A working knowledge of their responsibilities for the range of replace/repair activities • How they have used company policies/ procedures/specifications to conduct a range of replace/repair work procedures • 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 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<ul style="list-style-type: none"> • A detailed understanding of the methods and technical requirements for the range of plant and equipment replaced/ repaired • A detailed technical understanding for the range of causes and effects which lead to plant and equipment being replaced/ repaired • A detailed technical understanding for the factors which can affect their critical reasoning when making decisions to resolve technical problems • How they have taken a pro-active lead in 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<ul style="list-style-type: none"> • An excellent knowledge and understanding in relation to the range and technical requirements of the plant and equipment replaced/ repaired • Their ability to explain/justify the company methods/processes/ procedures used for the range of plant and equipment replaced/ repaired • How they have taken a lead in accepting additional responsibility/autonomy to improve the outcome of their replace/repair work activities 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

CI3 Replace, repair and/or remove components in plant and equipment and ensure its return to operational condition

AND

CI4 Diagnose and determine the cause of faults in electrical plant and equipment

Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> How they have conducted the required checks/test procedures to confirm the plant/equipment worked on can be returned to operational service How they have used critical reasoning to identify and resolve technical problems within their control How they have returned plant/equipment worked on to operational service in line with company procedures 	<input type="checkbox"/>	organising/controlling their conducted replace/repair work activities which has led to a successful completion			

C15 Calibrate and configure instrument and control systems					
Pass Criteria – All to be met		Merit Criteria – Minimum two to be met		Distinction Criteria – Minimum two to be met	
<ul style="list-style-type: none"> • How they selected the appropriate tools and equipment for specific calibration and/or configuration activities • A working knowledge of the company procedures and regulatory requirements that must be followed when calibrating and/ or configuring instruments • How they applied a calibration that was both accurate and consistent • How they recorded the outcomes of calibration and/or configuration activities 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<ul style="list-style-type: none"> • on calibration and/or configuration activities • How they would report any potential improvements associated with calibration and/or configuration activities 	<input type="checkbox"/>	<ul style="list-style-type: none"> • How they took an autonomous role during calibration and/or configuration activities 	

C15 Calibrate and configure instrument and control systems			
Assessor must ask the following standardised questions.	Assessor must record all additional questions asked for clarification and the response provided by the apprentice including examples.	Recording timeline.	Mark awarded.
Questions <i>Develop some open ended questions</i>			

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Appendix G: Portfolio Mapping Document

Introduction

Throughout the on-programme part of the apprenticeship, the apprentice will need to compile a portfolio of evidence to support the requirements of the technical interview which is based on the portfolio. The evidence within the portfolio will need to be mapped by the apprentice to the KSB requirements using the portfolio mapping document below.

The independent assessor will use the portfolio mapping document to review the evidence in the apprentice's portfolio in preparation for the technical interview.

The portfolio mapping document below consists of the core requirements and specialist skills.

Apprentices next steps

1. Complete all the details on the first page and include employer details of where relevant competencies from their experience at work was gained.
2. Ensure each piece of evidence is signed off by their tutor/supervisor/mentor and training provider. The apprentice can use a number of different types of evidence to demonstrate their competence as described in Section 5 of the Specification – 'What to include in the portfolio of evidence'. For further guidance, the apprentice must seek advice from their tutor/supervisor/mentor and training provider.
3. Map evidence to the criteria in the following pages using a referencing system indicating where the evidence for the criteria is located in the portfolio e.g., work based evidence Job 1 (J1) page 5 paragraph 2. This will allow the independent assessor, appointed by Energy & Environment Awards to locate the section or specific piece of evidence being discussed and referred to during the interview.
4. Place the portfolio mapping document at the front of the portfolio of evidence.

The apprentice's training provider must make arrangements for Energy & Environment Awards to have access to the apprentice's portfolio including the portfolio mapping document at Gateway. For those using e-portfolios such as ONEFILE or SMARTASSESSOR the reference used must simply be the file or folder name you used when uploading the evidence to such systems.

Portfolio Mapping Document

This document must be placed at the front of the Portfolio and submitted to Energy & Environment Awards with the Portfolio.

Mapping Sign off on Completion:

Apprentice Full Name (Print)	Apprentice Signature	Training Provider (Company)	Training Provider Full Name of Signatory	Date of Sign Off

Core Knowledge

Ref.	Apprenticeship Standard Criteria	PORTFOLIO REVIEW (Apprentice Input)		
		1	2	3
K1	First principles relating to operation and maintenance of plant and equipment			
K2	Relevant industry health and safety standards, regulations and environmental and regulatory requirements			
K3	Maintenance and operational practices, processes and procedures			
K4	Relevant engineering theories and principles			
Assessor Comments:				

Core Skills

Ref.	Apprenticeship Standard Criteria	PORTFOLIO REVIEW (Apprentice Input)		
		1	2	3
S5	Locate, and rectify faults on plant and equipment			
S6	Read, understand, interpret and work to technical information			
S7	Inspect and maintain plant and equipment			
S8	Communicate, handover and confirm that the appropriate engineering process has been completed			
Assessor Comments:				

Core Behaviours

Ref.	Apprenticeship Standard Criteria	PORTFOLIO REVIEW (Apprentice Input)		
		1	2	3
B5	Critical reasoning			
Assessor Comments:				

Pathway: Control and Instrumentation Specific Skills

Ref.	Apprenticeship Standard Criteria	PORTFOLIO REVIEW (Apprentice Input)		
		1	2	3
CI1	Position, assemble, install and dismantle plant and equipment to agreed specifications			
CI2	Carry out planned, unplanned and preventative maintenance on plant and equipment			
CI3	Replace, repair and/or remove components in plant and equipment and ensure its return to operational condition			
CI4	Diagnose and determine the cause of faults in plant and equipment			
CI5	Calibrate and configure instrument and control systems			
Assessor Comments:				

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