EPA Specification Maintenance and Operations Engineering Technician – Plant Operations Technician

EPA Specification Section 5.3 – The Technical Interview

- Preparing the evidence portfolio
- Preparing for the Technical Interview
- Criteria and Grading

Contacts

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

Help Desk email: enquiries@euias.co.uk

Help Desk telephone: 0121 713 8310

Introduction

The Technical Interview is the final stage of the end-point assessment. It will last approximately two hours and no longer than two and a half hours. It is based on the contents of the **evidence portfolio** which may be compiled throughout the apprenticeship. The evidence should be sufficient to demonstrate that the apprentice can apply the knowledge, skills and behaviours required, namely:

- All core knowledge CK1, CK2, CK3 and CK4
- Core skills CS5, CS6, CS7 and CS8
- All the Plant Operations technician specific skills PO1, PO2, PO3 and PO4
- Behaviour B5, critical reasoning

(see Section 4 for the references to the standard)

Please note that the portfolio is NOT assessed, but the apprentice can use it to support themselves in answering the interview questions. The interview questions will focus on each of the elements of the standard listed above so it is important that the apprentice is completely familiar with each of them. The portfolio must be submitted to EUIAS at least two weeks prior to the technical interview.

Typically, the portfolio will be based on 3-5 substantial jobs completed towards the end of their training. Prior to the technical interview, the assessor will review the portfolio. Although questioning will cover ALL the elements of the standard listed above, they will prioritise areas according to what they see in the portfolio.

The apprentice can achieve a Pass, a Merit or Distinction. If they do not achieve a pass, they will be failed. The criteria for marking the technical interview are shown below.

Preparing for the Technical Interview

Apprentices should be prepared for the technical interview with 'mock interview' opportunities (see Section 6). This should take place near or at the end of their training programme when they are finalising their portfolio. Apprentices should be guided to index their portfolios, referencing each part of their evidence to the relevant part of the standard. The reference should direct the assessor to the relevant page, and page section within the portfolio.

The interview will focus on each knowledge and skill area as listed in the grading criteria table below, and each question will relate to one of the scenarios listed:

- Scenario 1 – Carry out planned operating procedures on plant and equipment including handover and acceptance of responsibilities
- Scenario 2 – Monitoring the performance of plant and equipment
- Scenario 3 – Respond to contingencies

The assessor will ask you a set of questions to explore your levels of skills, knowledge and behaviours when completing activities in each scenario. You can support your answers with reference to your evidence portfolio.

Guidance for preparing for the Technical Interview is outlined in Section 6 "Guidance – setting up a practice Technical Interview". In particular, apprentices should be made aware of the grading criteria for Pass, Merit and Distinction to enable them to achieve to their full potential.

Grading the Technical Interview

The grading criteria are described in the following pages. All pass criteria must be achieved in order to achieve a Pass.

The criteria for Merit and Distinction carry different weightings depending on which element of the standard they relate to. These weightings are applied using marks, as described in the following table. A minimum of two criteria must be achieved for each element of the standard in order to achieve the available marks.

The Merit and Distinction for the Technical Interview are determined by the total number of marks achieved.

Technical Interview Grading

The Technical Interview is graded by an independent assessor (technical expert) appointed by the EUIAS. The following tables explain the criteria that are applied in order toget a Pass, a Merit and a Distinction.

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

Relevant Element:	Core Knowledge CK1	Core Knowledge CK2	Core Knowledge CK3	Core Knowledge CK4	Core Skill CS5	Core Skill CS6	Core Skill CS7	Core Skill CS8	Behaviour B5	ALL specialist roleskills PO1 – PO4
ALL Pass criteria must be achieved	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

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 the below

Relevant Element:	Core Knowledge CK1	Core Knowledge CK2	Core Knowledge CK3	Core Knowledge CK4	Core Skill CS5	Core Skill CS6	Core Skill CS7	Core Skill CS8	Behaviour B5	ALL specialist role skills PO1 – PO4
ALL Pass criteria must be achieved	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Marks achieved for 2 or more Merit criteria	2	3	1	2	5	1	5	2	None	1 mark for each, maximum 4
Marks achieved for 2 or more Distinction criteria	1	2	1	1	2	None	2	2	None	1 mark for each, maximum 4

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 section contains the detailed grading criteria for Pass, Merit and Distinction, for the Technical Interview.

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CK1 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 areresponsible for • The primary purpose of the rangeof plant / equipment worked on e.g. what the plant / equipment worked on does • How the plant / equipment interacts within the overall system • The typical characteristics of healthy and unhealthy operation for the range of plant/equipment worked on and how to identify thedifference • How they have used their knowledge of plant and equipmentoperating / maintenance principlesto support their work decisions / activities	• A detailed understanding by explaining additional technical detail of the operating principlesof the plant/equipment they are responsible for e.g. operating limits, tolerances, restrictions, effects on system • A detailed understanding by explaining additional technical detail of the function / interactionof the plant / equipment within the overall system e.g. synchronisation, effects on system • How they have used their knowledge of plant and equipmentoperating / maintenance principlesto improve or enhance operationalactivities	• 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 • 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 • Conducting technical research into the effects of new technologies on current / future maintenance requirements/methodologies

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CK2 Relevant industry health and safety standards, regulations, and environmental and regulatory requirements	• A working knowledge of the relevant HS&E regulations and standards and how they impactthe overall operation • 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 theyare required • 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 systemsof work, documentation • A clear understanding of the purpose of conducting risk assessments and the factors which affect the critical reasoningwhen making risk assessment decisions • A knowledge of the Company procedure/s for reporting safety concerns and emergencies	• A detailed understanding of the relevant HS&E regulations and standards by explaining additional technical detail e.g. how they influence how the work is planned and/or conducted • Conducting reviews of work HS&E arrangements and their applicability and adapting them for changing circumstances whilst still maintaining safety • How they have readily accepted additional HS&E responsibility / autonomy to maintain / improve work safety standards	• Excellent and thorough HS&E knowledge and understanding in relation to the wider impact of relevant industry working practicesand regulations for their work activities • How they have taken a leading rolein identifying HS&E deficiencies and then implementing the appropriate solution/s in line with • Company policies / procedures • How they have challenged unsafe behaviour / practices using appropriate techniques

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CK3 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 • A working knowledge of the Company's operational processes and procedures and how these have affected / influenced their maintenance work • Their planning process for conducting maintenance operations and the factors which have influenced their critical reasoning / decision making whenplanning their work • A working knowledge of the rangeand type of test procedures whichthey have used to confirm their work has met with Company operational requirements and standards • A knowledge of how their maintenance activities have impacted plant / equipment / others	• A detailed knowledge of the Company maintenance practices by explaining additional technical detail for maintenance procedureson plant/equipment • A detailed knowledge of the Company operational processes and procedures which affect maintenance operations by explaining additional operational detail • A detailed knowledge of the range of testing procedures and the implications of the results obtained	• An excellent and thorough knowledge and understandingof relevant maintenance and operational practices / proceduresfor their job role • An ability to analyse and provide valid justification for the Company's maintenance procedures and/or operational practices for maintenance work on plant and equipment • A detailed technical / commercial understanding of the effects of conducting maintenance procedures on Company plant / equipment e.g. cost, reliability, availability, sustainability

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CK 4 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 • A working knowledge of the basic effect / influence of the relevant operational theories and principles which directly underpin their work activities • The benefits of being able to identify and apply the differing operational theories and principlesin relation to their job role e.g. maintenance inspections, fault finding • 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 • How they have used relevant operational theories and principlesto support / influence their work decisions / activities • Their inclusion of operational formulae / theories / principlesto 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 • How they have used their understanding of relevant operational theories and principlesto make suggestions which have influenced or led to an improved performance • How they have conducted further technical research which is based on relevant operational theories and principles to supportthe effects of current or future technologies

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CS5 Locate, and rectify faults on plantand equipment	• A working knowledge of the Company policies and proceduresfor the location of faults on plant and equipment worked on • 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 • How they have used tools / equipment / techniques to inspectand identify faults on plant/ equipment and develop sound solutions while recognising and defining problems • How they have used tools / equipment / techniques to repair faults and confirm the rectification to the quality standards required by Company policies / procedures • How they have recorded / reported the results of fault-finding activities in line with Company procedures	• 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 • A detailed understanding of the tools and equipment that can be used to identify and locate faultson plant/equipment/systems • 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 • 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 • How they have used their knowledge of fault location / rectification to improve / influence work outcomes

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CS6 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 • A working knowledge of the rangeand type of technical information / specifications available and how they are used to support work activities • How they have used Company work information and technical specifications to conduct / support their work activities • Describe how they have used Company information to record/ report the results of work carried out in line with Company procedures	• How they have taken a lead in interpreting / relaying technical information to progress work or support others understanding • How they have questioned / clarified information which was unclear or incorrect • How they have reported / updated information which was not technically correct / accurate	NONE

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CS7 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 • How they have implemented / complied with Company operational processes and procedures during their conductedinspection and maintenance work • How they have used tools / techniques / equipment to conduct maintenance inspection and maintenance procedures on a range of plant / equipment to meetCompany standards • How they have used test equipment / procedures on plant / equipment to confirm that the work completed met with Company operational requirements • How they have reported / recordedthe outcome of their inspection and maintenance operations	• Their ability to explain in detail the range of skills, knowledge and behaviours they have used to support their conducted inspection / maintenance operations • How they have pro-actively worked with others to resolve problems during inspection / maintenance operations which supported work progression / performance • How they have taken action to report or deal with issues of non-conformity or non-compliance during inspection / maintenance work operations	• An excellent knowledge / understanding in relation to inspection / maintenance procedures within their job role • Their ability to explain / justifythe Company inspection and maintenance procedures used fora range of plant and equipment • How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of inspection / maintenance operations

Core Knowledge			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
CS8 Communicate, handover and confirm that the appropriate engineeringprocess has been completed to specification	• A working knowledge of their role and responsibilities in the handover of the system / equipment / plant back to operational service • A working knowledge of the Company process for the handover of plant / equipment which has been worked on • How they have completed the required checks / tests to confirm the plant / equipment / system worked on meets operational requirements before conducting the handover process • How they have completed the handover of plant / equipmentin line with relevant Company policies and procedures • How they have confirmed the recipient/s of the handover process fully understand any critical information given • How they have completed the Company process for reporting / recording the handover of plant / equipment back into service in line with Company procedures	• How they have taken a pro-active lead in the handover process by effectively communicating the detail of handover arrangements with stakeholders • Their ability to develop positive professional relationships with individuals to support the handover process and resolve any issues within their role responsibility • How they have adapted their communication method / styleto better suit the changing circumstances / needs of the work	• How they have consulted / involved team members / other relevant persons to achieve greater understanding and improved performance • Their ability to actively address conflict / resolve problems with positive outcomes to build positive relationships and • Their ability to effectively communicate technical information across a wide range of stakeholders e.g. colleagues, management, briefings/meetings,external clients

Specialist Pathway Skills: Plant Operations technician – apprentice is assessed on **all** the specialist pathway skills during the Interview			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
PO1 Carry out planned operating procedures on plant and equipment	• A working knowledge of their responsibilities for the range of work activities within their job rolein line with Company policies and procedures • A working knowledge of where to obtain technical information in relation to the planned activities • How they have used tools and equipment to conduct a range of operational activities in compliance with all Company HSE requirements • How they completed the required procedures to confirm the operational conditions meet Company requirements • How they have used critical reasoning to identify and resolve technical problems within their control effectively during their range of work activities • How they reported/recorded the work conducted and returned the work area to a safe condition in linewith Company procedures	• A detailed understanding of the range and technical requirements of the plant and equipment workedon • A detailed technical understandingfor the factors which can affect their critical reasoning when making decisions to resolve technical problems • How they have taken a pro-active lead in organising / controlling their conducted work activities which has led to a successful completion	• An excellent knowledge and understanding in relation to the range and technical operational requirements of the plant and equipment worked on • Their ability to explain / justify the Company operational methods / processes / procedures used for the range of plant and equipment worked on • How they have taken a lead in accepting additional responsibility / autonomy to improve the outcome of their operational work activities •

Specialist Pathway Skills: Plant Operations technician – apprentice is assessed on **all** the specialist pathway skills during the Interview			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
PO2 Monitor the performance of theplant and equipment	• A working knowledge of their responsibilities and for the range of monitoring activities within their jobrole • A working knowledge of where to obtain technical information relating to operating specifications • How they prioritise monitoring the performance of plant/equipment to ensure operating conditions are within specification • How will they ensured that regulatory requirements and company policies are achieved andmaintained • How they responded to non-compliances in operational conditions • How they maintained clear and legible records of operational conditions in line with company procedures	• A detailed knowledge of the levelof monitoring to be applied to specific plant and equipment • How they made recommendationsof improvements to the way's in which process plant and equipment is monitored • How they have identified and responded to operational changes thus preventing potential process shutdowns	• An excellent knowledge of the level of monitoring to be appliedto specific plant and equipment • How they have identified and recommended operational changes that have subsequently been implemented • How their monitoring actions have prevented a shutdown of plant and equipment

Specialist Pathway Skills: Plant Operations technician – apprentice is assessed on **all** the specialist pathway skills during the Interview			
Standard	Pass criteria – all to be met	Merit criteria – two to be met	Distinction criteria – two to be met
PO3 Handover and accept responsibilityfor plant and equipment AND PO4 Respond to contingencies	• A working knowledge of their role and responsibilities and those of others in relation to the handover procedure • How they facilitate the handover taking into account the relevant safety / technical requirements • How they kept other relevant parties informed with informationthat concerns them • How they have conducted the required checks / test proceduresto confirm the plant / equipment worked on can be returned to operational service • How they record and receive information at the point of handover • A working knowledge of their roleand responsibilities in relation to responding to abnormal operational conditions and safetyspecifications • How they would follow emergency response procedures when safety conditions were compromised	• A detailed understanding of the technical principles of the handover process • How they pro-actively worked with others to identify areas for improvement in the handover process repaired • How they produced a detailed work plan to support the handoverprocess including measures to deal with contingencies • A detailed understanding of their role and responsibilities in relationin responding to abnormal operational parameters and safetyspecifications • How they followed emergency response procedures when safety conditions were compromised	• An excellent technical / commercial analysis of the handover process e.g. efficiencies, cost savings, processimprovement • How they identified and implemented tangible changes that improved the efficiency of the handover process • How recommendations they identified to operational procedures were implemented