

End-point assessment plan for: Engineering fitter apprenticeship standard

Standard reference number	Level of this EPA plan	Integrated
ST0432	3	No

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Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the engineering fitter apprenticeship standard. It is for end-point assessment organisations (EPAOs) who need to know how EPA for this apprenticeship must operate. It will also be of interest to engineering fitter apprentices, their employers and training providers.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must work with the training provider to select an approved EPAO from the apprenticeship providers and assessment register (APAR).

Full time apprentices will typically spend 42 months on-programme working towards the occupational standard. All apprentices must spend a minimum of 12 months on-programme. Apprentices must complete the required amount of off-the-job training specified by the apprenticeship funding rules.

The EPA should only start once the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO. The employer must be satisfied that the apprentice is consistently working at or above the level set out in the occupational standard. Apprentices must have demonstrated competence to operate safely in a fitting environment and achieved the Level 3 Advanced Manufacturing Engineering Diploma. The employer must have agreed a project activity with the apprentice's EPAO; it should be relevant to the apprentice's workplace. In addition, apprentices without English and mathematics at level 2 must achieve English and mathematics qualifications in line with the apprenticeship funding rules.

The EPA period will typically be within 4 months after the apprentice has met the EPA gateway requirements.

The EPA consists of three distinct assessment methods:

- project: report including evidence and questioning
- multiple choice test
- professional discussion with a portfolio of evidence

Performance in the EPA will determine the apprenticeship grade of:

- fail
- pass
- distinction

The individual assessment methods will have the following grades.

Assessment method 1 – project: report including evidence and questioning:

- fail
- pass
- distinction

Assessment method 2 – multiple-choice test:

- fail
- pass

Assessment method 3 – professional discussion with a portfolio of evidence:

- fail
- pass
- distinction

EPA summary table

<p>On-programme (typically 42 months)</p>	<p>Training to develop the engineering fitter occupation standard's knowledge, skills and behaviours.</p> <p>Working towards competence to operate safely in a fitting environment.</p> <p>Complete training towards English and mathematics qualifications in line with the apprenticeship funding rules.</p> <p>Working towards Level 3 Advanced Manufacturing Engineering Diploma.</p> <p>Compiling a portfolio of evidence.</p>
<p>End-point assessment gateway</p>	<p>Employer satisfied apprentice is consistently working at, or above, the level of the occupational standard.</p> <p>Apprentice can demonstrate competence to operate safely in a fitting environment.</p> <p>Apprentice achieved Level 3 Advanced Manufacturing Engineering Diploma as outlined in the occupational standard.</p> <p>Submission of completed portfolio of evidence authenticated by employer.</p> <p>Project activity agreed by employer with EPAO; it should be relevant to the apprentice's workplace.</p> <p>Achieved English and mathematics qualification in line with the apprenticeship funding rules.</p>
<p>End-point assessment (typically four months)</p>	<p>Assessment method 1: project – report including evidence and questioning, graded fail, pass or distinction.</p> <p>Assessment Method 2: multiple-choice test, graded fail or pass.</p> <p>Assessment Method 3: professional discussion, graded fail, pass or distinction.</p> <p>End-point assessment graded: fail, pass, or distinction.</p>

Length of end-point assessment period

All EPA assessment methods will be completed within an EPA period typically lasting 4 months after the apprentice has met the EPA gateway requirements.

Order of assessment methods

The assessment methods can be delivered in any order. The result of one assessment method does not need to be known before taking the others.

Gateway

The EPA must only start once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, that means they have achieved occupational competence. In making this decision, the employer may take advice from the apprentice's training provider(s), but the decision must ultimately be made solely by the employer.

In addition to the employer's confirmation that the apprentice is working at or above the level in the occupational standard, the following gateway requirements must be met prior to the apprentice starting the EPA:

- achieved English and mathematics qualification in line with the apprenticeship funding rules
- demonstrated competence to operate safely in a fitting environment
- achieved Level 3 Advanced Manufacturing Engineering Diploma
- submission of completed portfolio of evidence authenticated by employer
- employer agreed project activity agreed with the EPAO, it should be relevant to the apprentice's workplace

The project should allow the opportunity to cover the KSBs assigned to this method of assessment and the following should be discussed and agreed at the gateway as a minimum:

1. Background
2. Outline of the issue or opportunity
3. Justification for the project
4. Consideration of legislation, regulation, industry and organisational policies, procedures and requirements
5. Proposed plan for implementation
6. Measures of success

Assessment methods

Apprentices must complete:

- **Assessment method 1 – project: report including evidence, and questioning**
- **Assessment method 2 – multiple-choice test**
- **Assessment method 3 – professional discussion with a portfolio of evidence**

Assessment method 1 – project: report including evidence, and questioning

The purpose of the project is to assess the apprentice's knowledge, skills and behaviours in a way that closely relates to their day-to-day responsibilities. Apprentices must conduct a project based on an engineering fitter activity undertaken during their EPA period, relevant to their workplace and under the supervision of a technical expert from their employer. Following the activity, the apprentice must compile a report. The report must contain evidence from the completed activity as annexes. The independent assessor will question the apprentices about the content of the report and evidence. The independent assessor must assess the report and evidence and questioning components holistically to determine the grade for this assessment method.

The employer must ensure the apprentice has sufficient time and the necessary resources, within their EPA period, to plan and undertake the project activity, compile the report and evidence; and to undertake the questioning.

Project activity

The apprentice's employer must agree the project activity with their apprentice's EPAO, and the project activity should take typically 4 weeks to complete; it should be relevant to the apprentice's workplace. It must enable demonstration of the KSBs in an integrated way and requires:

- complying with legislative and company health, safety and environmental processes
- use of risk assessment process, procedures and documentation
- interpretation of the project brief
- planning and preparing to produce the component or assembly
- selection of the correct tools for the process to be performed
- the production of a component or part of a component using different techniques and equipment
- adhering to quality criteria to ensure component or assembly meets specification
- handover of completed component or assembly

For example, a project could be based on:

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- the assembly of a section of plant, equipment or tooling such as conveyors, machinery, portable tooling, turbine etc
- fitting of a gearbox, conveyors, pumps, motor, heaters etc
- installation of sensors, switches, motors, pumps, machines etc
- producing component parts such as keys, pipework, wiring looms, mating parts etc
- dismantling or refurbishment of motors, pumps, gearboxes, conveyors, rigs, cranes, machinery, packaging equipment etc

The activity may take place in the employer's premises or their clients as appropriate. The EPAO is responsible for ensuring the EPA environment is representative of the apprentice's workplace and can facilitate the EPA. The apprentice should be familiar with the tools and equipment required to undertake the activity and normal working conditions must apply.

The apprentice must conduct the activity under the supervision of a technical expert from the apprentice's employer. The technical expert must provide the apprentice with the project activity specification and any work instructions in writing and verbally prior to the activity starting, following the EPAO guidelines. Apart from this verbal briefing, the technical expert must not discuss the activity or provide guidance to the apprentice during the activity. After completion of the activity the technical expert must provide a factual account to the EPAO within 10 working days, using the EPAO's documentation, confirming:

- exactly what the apprentice did and how they did it (presented in steps)
- whether the task was completed in full or part
- whether the task was completed to the required specification or work instructions in full or part
- that the apprentice completed the task unaided

Report including evidence component

Apprentices must produce a report detailing how the project was completed, the activity including equipment and resources required, problems that were encountered and how they were overcome, checking, fault rectification and handover procedures. As a minimum, the report should include:

1. Background
2. Project brief detailing targets
3. Project plan
4. Implementation – how targets were achieved
5. Risk analysis
6. Challenges faced
7. Project outcomes
8. Annexes

The report must be 2000 words with a 10% tolerance above or below, excluding annexes.

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Evidence relating to the project activity must be referenced in the report and included as annexes. Evidence could include:

- project or work plan
- working notes
- work records
- video clips (maximum 15 minutes in total)
- annotated photographs of completed work or work in progress
- diagrams
- job write up
- calculations
- fault diagnosis records
- data reports
- build specifications
- quality or compliance records

This list is not exhaustive and other evidence sources are permissible. However, self-reflective accounts and witness testimonies are not valid evidence sources. There must be 8-10 pieces of evidence – the focus must be on quality not quantity. Within the annexes there must be a mapping of the annex evidence against the KSBs being assessed by this assessment method and a statement from the technical expert confirming that the report and evidence is the apprentice's own work and authenticating the project outcomes. It is expected that each piece of evidence will cover multiple KSBs.

The project report, including evidence in annexes must be submitted to the EPAO within two weeks of the apprentice completing the project activity.

In certain circumstances, depending on the nature of the business or department where the apprentice is employed, the evidence or documentation may not be allowed to leave the premises and in certain cases the information in the evidence may be required to be redacted for confidentiality reasons. Should the evidence not be allowed to leave the premises the assessor must review the project report at the employer's premises within 2 weeks of the task being completed. The EPAO and their independent assessors may also be required to sign a confidentiality or non-disclosure agreement with the apprentice's employer.

The apprentice's independent assessor must review the report and annexes ahead of the questioning component.

Questioning component

Apprentices must have two weeks' notice of the date for the questioning.

The independent assessor must conduct the questioning component on a one-to-one basis with the apprentice.

They must be conducted under controlled conditions, that is a in a quiet room free from distractions and influence. It is expected that EPAOs will use the apprentice's employers or training provider's premises for the questioning component to minimise costs however, other

venues may be sourced if necessary. They may be completed remotely using video conferencing facilities. EPAOs must ensure appropriate methods to prevent misrepresentation, for example 360-degree camera function with the independent assessor where the questioning is completed remotely. The EPAO must verify the suitability of the venue and the identity of the person taking the test.

The purpose of the questioning is to allow the assessor to question the apprentice in relation to the project activity, report including evidence to check authenticity of the work and assess the apprentice's depth of understanding and those KSBs that are assigned to this component that did not occur naturally during the project activity. Apprentices may refer to their project report and evidence when answering the questions.

Independent assessors must ask apprentices 10 open questions; follow up questions are allowed to seek clarification. Independent assessors must devise the questions based on the review of the project report and evidence. EPAOs must develop a sample question bank to aid independent assessors; however, they may need to tailor these questions based on the evidence presented.

Questioning must last 60 minutes, plus 10% at the independent assessor's discretion.

The questioning should be recorded electronically, subject to the apprentice's agreement; where permission is not given it is permissible for another independent assessor to be present to document evidence presented.

EPAOs must produce the following materials to support this assessment method:

- technical expert recording documentation
- guidance for employers to develop and agree the project
- guidance for apprentice to complete the project
- sample question bank of sufficient size to prevent predictability; it must be reviewed regularly (at least once a year) to ensure the questions it contains are fit for purpose

Assessment method 2 – multiple-choice test

The purpose of the multiple-choice test is to assess the apprentice's depth of understanding in the knowledge elements that may not naturally occur during the project and report.

The multiple-choice test will usually be computer based and taken on-line; a paper-based version will be available if required.

It will consist of 30 multiple choice questions. The questions must relate to the underpinning knowledge and must be varied.

Apprentices must choose one correct answer from a choice of four.

A correct response will be assigned one mark.

Any incorrect or missing answers must be assigned zero marks.

Apprentices must get an overall minimum score of 18 to pass the multiple-choice test.

Apprentices must get 5 of the 6 health and safety questions (K11) correct and if they do not the test result will be fail.

In addition to the health and safety questions the apprentice must get 13 marks from the remaining knowledge statements, a minimum of 3 marks for K1; a minimum of 4 marks for K4, a minimum of 3 marks for K6, a minimum of 3 marks for K7.

Six questions must assess knowledge statements K1; Materials used in components or assemblies their use and application considerations.

Six questions must assess the knowledge statements K4: safe use of tools and choosing the right tool knowledge statements K4.

Six questions must assess the knowledge statements K6; techniques for measuring, marking, cutting and drilling materials to the require size.

Six questions must assess knowledge statements K7; and require apprentices to conduct calculations or analyse diagrams.

Six questions must relate to the knowledge statements K11: the health and safety.

Apprentices must have a maximum of 60 minutes to complete the multiple-choice test (unless the EPAO accepts special arrangements for that apprentice based, for example, on an official education or health plan).

The multiple-choice test is closed book, for example the apprentice cannot refer to reference books or materials but will be allowed the use of a calculator to conduct any calculations.

Apprentices must take the multiple-choice test in a suitably controlled environment, that is a quiet space, free of distractions and influence, and must be taken in the presence of an invigilator who is the responsibility of the EPAO. Multiple choice tests may be taken in person or remotely. There must be no more than 15 apprentices to a single invigilator if in person: or one-to-five if remote. EPAOs must ensure appropriate methods to prevent misrepresentation, for example, screen share and 360-degree camera function with an administrator or invigilator where the test is taken remotely.

The EPAO must verify the suitability of the venue for taking the test and the identity of the person taking the test.

It is expected that EPAOs will use the apprentice's employers or training provider's premises for the knowledge test to minimise costs however, other venues may be sourced if necessary. The EPAO must verify the suitability of the venue and the identity of the person taking the test.

The test will usually be taken online and be automatically marked, unless specific assessment needs have been identified, requiring alternative methods to be used, such as a paper-based test.

EPAOs will produce the following materials to support this method:

- 'question banks' of sufficient size to prevent predictability; they must be reviewed regularly (and at least once a year) to ensure the questions they contain, are fit for purpose. It is recommended that this be done in consultation with representative employers to gain the necessary occupational expertise in this sector. EPAOs should maintain the security of their questions when consulting employers
- marking guides

Assessment Method 3 – Professional Discussion

The purpose of the professional discussion is to determine the extent to which the apprentice understands the requirements of their role as defined by the standard and to explore them through discussion.

The professional discussion (supported by a portfolio of evidence) shall be a face-to-face or virtual session involving the apprentice and the end-point assessor. The portfolio will be used as a source of evidence by which apprentices can exemplify their responses to questions asked by the assessor. Modern communication software applications may be used but it is the responsibility of the EPAO to ensure the application and the infrastructures are fit for purpose so as not to disadvantage the apprentice whilst assuring quality and standardisation are not compromised.

The apprentice will achieve a grade for this component of the end-point assessment that will contribute towards the overall apprenticeship grading award.

Behaviours and knowledge mapped in Annex A shall be assessed using this professional discussion (supported by a portfolio of evidence) and the outcome shall be graded as Fail, Pass or Distinction.

The professional discussion will be supported by a mandatory portfolio of evidence completed on programme. The portfolio itself will not be assessed but will be used by the assessor to prepare the questioning for the professional discussion and by the apprentice to exemplify their responses to the questions.

Key facts:

1 to 1 discussion with end-point assessor

The professional discussion will assess the knowledge, skills and behaviours as specified in Annex A.

The professional discussion shall be supported by a portfolio of evidence.

The portfolio of evidence shall be uploaded at the gateway submission.

The professional discussion shall last 60 minutes, and the assessor will have the discretion to increase the time of the discussion by up to 10% to allow the apprentice to complete this method of the EPA.

The apprentice may choose to end the assessment method early. The apprentice must be confident they have demonstrated competence against the assessment requirements for the assessment method. The independent assessor or EPAO must ensure the apprentice is fully

aware of all assessment requirements. The independent assessor or EPAO cannot suggest or choose to end the assessment methods early, unless in an emergency. The EPAO is responsible for ensuring the apprentice understands the implications of ending an assessment early if they choose to do so. The independent assessor may suggest the assessment continues. The independent assessor must document the apprentice's request to end the assessment early.

The professional discussion shall be carried out by an independent end-point assessor appointed by the EPAO.

The discussion shall take place in an environment which is free from interruptions.

Prior to the assessment the apprentice shall be given suitable notice, not less than 5 working days, to provide preparation time (for example to make travel arrangements if necessary).

Independent assessors must ask apprentices 8 questions, from a question bank prepared by the end-point assessment organisation, covering underpinning knowledge and behaviours as specified in Annex A. Supplementary questions are allowed to seek clarification. Questioning is expected to accommodate the type of engineering fitting that the apprentice does and the environment in which they work.

EPAOs must produce a bank of sample questions for end-point assessors. The question bank must be of sufficient size to prevent predictability and be reviewed regularly (at least once a year) to ensure the questions are fit-for-purpose.

The end-point assessor must:

Plan the professional discussion (supported by the portfolio of evidence) prior to it taking place and ensure that it is relevant to the standard.

Ensure that the apprentice understands the process, the possible outcomes and how it is graded.

Ensure they take steps to put the apprentice at ease.

Ensure the apprentice has the grading criteria and relevant documentation to hand before commencing the professional discussion (supported by a portfolio of evidence).

Complete the relevant documentation prepared by the end-point assessment organisation, taking notes of what is said.

Ensure that the outcome of assessment is notified to the end-point assessment organisation within the timescale set by them.

Ensure any special needs highlighted by the employer and training provider are taken into consideration in line with the Reasonable Adjustments policy.

Portfolio of Evidence requirements

On commencement of the apprenticeship, the apprentice must begin to retain a portfolio of evidence which must be finalised before passing through the gateway.

A completed portfolio of evidence is a compulsory EPA gateway requirement that supports the EPA Professional Discussion component.

Employers or training providers are free to devise their own version of the portfolio of evidence, but the portfolio of evidence must contain the following information:

- the name of the apprentice
- details of the apprentice's workplace
- evidence to support the knowledge, skills and behaviours of the apprenticeship standard that are mapped to the Professional Discussion assessment method. Each of these knowledge skills and behaviour statements must be evidenced three times (evidence can be provided through a range of sources, for example work reviews, department feedback) and mapped to the relevant KSBs. Each piece of evidence will cover multiple KSBs
- confirmation from the employer that the tasks evidenced in the portfolio were completed to the required standard of the organisation
- document the off-the-job training that has taken place during the on-programme phase, with the required amount of off-the-job training in line with the apprenticeship funding rules.
- copy of English and mathematics certificates

The apprentice's employer must sign-off the portfolio of evidence, thereby confirming the demonstration of competence against the knowledge, skills and behaviours (KSBs) assigned to this assessment component and authenticating its contents.

The apprentice must submit their portfolio of evidence to their EPAO when applying for the EPA. An independent assessor will check qualification outcomes and review the portfolio to glean personalised information that will assist the Professional Discussion component of the EPA.

Grading

Assessment method 1 – Project: report including evidence, and questioning

The apprentice will fail the assessment method if they do not meet the pass criteria.

Area of Standard to be tested	Name of grade	Grade descriptor
Documentation - Interpretation and use K9, K10, S1, S10	Distinction	NA
	Pass	<p>The apprentice:</p> <p>Reads, correctly interprets and understands the documentation related to the project and know how to use them. For example, completes the required tasks in line with the documentation requirements.</p> <p>Demonstrates the knowledge to correctly complete the component or assembly documentation, e.g. documentation is completed in full, legible and accurate at the right time during work activity.</p> <p>Demonstrates an understanding of the reasons why the documents need to be completed.</p> <p>Demonstrates an understanding of quality standards for components or assembly and how they have ensured they are met and have been measured; for example, how they have applied ISO9001 in the workplace.</p>

Area of Standard to be tested	Name of grade	Grade descriptor
Assembly K3, K4, K14, K15, S2, S3, S4, S5, S6, S12	Distinction	<p>In addition to meeting the Pass criteria the apprentice:</p> <p>Demonstrates the knowledge and skills to plan and prepare to complete a task to the required standard with limited supervision.</p> <p>Demonstrates they understand the importance of adhering to the quality criteria and where they have</p>

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		<p>not only complied with internal quality processes and procedures but made suggestions to improve the processes and procedures, to produce components that meet specification, for example have developed processes to improve either internal or supplier performance.</p>
	<p>Pass</p>	<p>The apprentice:</p> <p>Plans and prepares the project appropriately for successful completion, for example, ensures the specified materials, tools and equipment are available for the build and they are in a usable condition.</p> <p>Uses the appropriate manufacturing or assembly processes for the project to be performed. Selects the correct tools for the project and uses them safely e.g. carries out checks, measurements and calibration activities following procedures and processes.</p> <p>Complies with internal quality processes and procedures to ensure component or assembly meets specification and understands methods to be used if problems occur.</p> <p>Uses the correct techniques to accurately and economically produce the component or assembly.</p> <p>Restores the work area on completion of the activity.</p>

Assessment method 2 – multiple choice test

Grade	Marks out of 30	Additional Information
Fail	0 – 17	Does not meet the requirements for a pass
Pass	18 – 30	<p>The following must also be achieved:</p> <ul style="list-style-type: none"> • a minimum of 3 marks for K1 • a minimum of 4 marks for K4 • a minimum of 3 marks for K6 • a minimum of 3 marks for K7 • a minimum of 5 marks for K11

Assessment method 3 – Professional Discussion

The apprentice will fail the assessment method if they do not meet the pass criteria.

Area of Standard to be tested	Name of grade	Grade descriptor
<p>Health, safety and environmental</p> <p>K11, K12, S13, B1</p>	<p>Distinction</p>	<p>In addition to meeting the Pass criteria the apprentice:</p> <p>Demonstrates an understanding of where to improve health, safety and environmental processes within their workplace including action taken, for example improved the audit of checks for COSHH related equipment with an example of an improvement they have made.</p> <p>Promotes a culture of safety by acting as a role model. Identify risks and non-compliances advising others how to make their practice safer.</p>
	<p>Pass</p>	<p>The apprentice:</p> <p>Identifies the main Health Safety and Environmental considerations for an engineering fitter, for example COSHH, HASAWA.</p> <p>Gives an example of when they have disposed of waste in accordance with waste streams e.g. sorts recyclable materials from non-recyclable materials re-uses materials where appropriate.</p>

Area of Standard to be tested	Name of grade	Grade descriptor
<p>Problem solving and communication</p> <p>K5, K8, K13, K16, S7, S8, S9, S11, B2, B3, B4, B5</p>	<p>Distinction</p>	<p>In addition to meeting the Pass criteria the apprentice:</p> <p>Uses specific continuous improvement techniques and methods from the work area to propose improvements and can demonstrate the impact achieved.</p> <p>Develops proposals to make improvements that have had a positive impact on the team or customer relationships.</p> <p>Explains the fitter's role in the wider business and the reporting channels and has examples of how they have used these channels.</p> <p>Demonstrate they have proactively shared information in a professional manner which includes being open and honest at all times.</p> <p>Tailors their approach to different audiences and can provide examples of communication at a variety of levels or with different audiences for example team members, managers or customers.</p> <p>Explains how engineering data can contribute to continuous improvement.</p>

	Pass	<p>The apprentice:</p> <p>Demonstrates when they have operated as an effective team member and taken responsibility, for example when they have contributed to solving a problem by listening and sharing their ideas in an effective manner, how they ensured deadlines were met, how they identified roles, responsibilities and accountabilities in a task and the importance of fulfilling their part.</p> <p>Provides an example of having dealt with a situation that required resolving to a satisfactory outcome by including at least 2 different styles of communication to resolve the situation, for example face-to-face, telephone, email.</p> <p>Demonstrates when they have used a range of techniques to identify and solve problems with quality outcomes, using data to inform their decisions, and reporting those outcomes or issues.</p> <p>Demonstrates how they respect others.</p> <p>Describes how component or assembly specifications are used when implementing solutions.</p>
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Area of Standard to be tested	Name of grade	Grade descriptor
<p>Wider role and commercial considerations</p> <p>K2, K17, K18, S14, S15, B5, B1</p>	Distinction	<p>In addition to meeting the Pass criteria the apprentice:</p> <p>Explains the likely impact of emerging technology on their role.</p> <p>Explains the implications of not operating within quality, health, safety and environmental policies and how this is balanced against the need for efficiency.</p>

	Pass	<p>The apprentice:</p> <p>Demonstrates the benefits of understanding their role in the wider engineering sector and how other roles contribute to their work output, for example how they have given support to colleagues within another area of the business and how this linked back into their own areas.</p> <p>Describes the main impact in terms of how their direct commercial productivity and efficiency has an impact within the key process, for example impact in the cycle and key times within the business.</p> <p>Demonstrates an understanding of how to operate in line with quality, health, safety and environmental policies and procedures and knowing when to escalate issues, for example, has correctly identified risks and hazards.</p> <p>Demonstrates how they have taken responsibility for personal and professional development, keeping knowledge and skills up to date with emerging technology to perform the role effectively.</p> <p>Demonstrates an understanding of the principles of design and operation for example design for cost, reverse engineering.</p> <p>Demonstrates how they work diligently and independently, managing their own workload to support commercial objectives, even during challenging times.</p>
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Overall grading

Independent assessors must individually grade each assessment method according to the requirements set out in this plan. Restrictions on grading apply where apprentices re-sit or re-take an assessment method – see re-sit and re-take section below.

The assessment methods outlined in this plan are equally weighted. The EPAO must combine the grades of all three assessment methods to determine the overall EPA grade. To achieve an EPA pass, apprentices must achieve a pass or distinction in the project and professional

discussion and a pass in the multiple-choice test. A fail in any assessment method will result in an EPA fail. To achieve an EPA distinction, apprentices must achieve a pass in the multiple-choice test and a distinction in the project and professional discussion. See grading combinations table below.

Independent assessors' decisions must be subject to moderation by the EPAO – see internal quality assurance section below. Decisions must not be confirmed until after moderation.

Assessment Method 1 – project: report including evidence, presentation and questioning	Assessment Method 2 – multiple choice test	Assessment Method 3 - Professional Discussion	Overall grading
Fail	Fail	Fail	Fail
Pass	Fail	Fail	Fail
Fail	Pass	Fail	Fail
Fail	Fail	Pass	Fail
Fail	Pass	Pass	Fail
Pass	Pass	Fail	Fail
Pass	Fail	Pass	Fail
Pass	Pass	Pass	Pass
Distinction	Fail	Fail	Fail
Distinction	Pass	Fail	Fail
Distinction	Fail	Pass	Fail
Distinction	Pass	Pass	Pass
Distinction	Pass	Distinction	Distinction
Fail	Fail	Distinction	Fail
Pass	Fail	Distinction	Fail
Fail	Pass	Distinction	Fail
Pass	Pass	Distinction	Pass

Re-sits and re-takes

Apprentices who fail one or more assessment method will be offered the opportunity to take a re-sit or a re-take. A re-sit does not require further learning, whereas a re-take does.

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that a re-sit or re-take is an appropriate course of action.

An apprentice who fails any of the assessment methods, and therefore the EPA, in the first instance, will be required to re-sit or re-take those failed assessment methods.

Any assessment method re-sit or re-take is typically taken within 4 months of the EPA outcome notification, otherwise the entire EPA must be taken again, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the apprentice or their employer.

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

Where any assessment method has to be re-sat or re-taken, the apprentice will be awarded a maximum EPA grade of pass, unless the EPAO determines there are exceptional circumstances requiring a re-sit or re-take.

If a re-take or re-sit relates to the project, report and questioning task the apprentice must be presented with a different task, which must cover the same components or activities.

If the re-take or re-sit relates to the knowledge test the apprentice will be presented with a new randomized on-line knowledge test.

If the re-take or re-sit relates to the professional discussion the apprentice must be questioned on the same subject area.

Roles and responsibilities

Role	Responsibility
Apprentice	<p>As a minimum, apprentices should:</p> <ul style="list-style-type: none"> • participate and complete the on-programme training to meet the KSBs as outlined in the occupational standard for a minimum of 12 months • complete the required amount of off-the-job training specified by the apprenticeship funding rules and as arranged by the employer and training provider • understand the purpose and importance of EPA • undertake the EPA including meeting all gateway requirements • ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan
Employer	<p>As a minimum, employers should:</p> <ul style="list-style-type: none"> • confirm that the apprentice is working at or above the level set out in the standard prior to entering the gateway • work with the training provider to select the EPAO • arrange and support off-the-job training to be undertaken by the apprentice • confirm arrangements with the EPAO for the EPA (who, when, where) in a timely manner (including providing access to any employer-specific documentation as required, for example company policies) • ensure the apprentice is given sufficient time away from regular duties to prepare for and complete all post-gateway elements of the EPA, and that any required supervision during this time (as stated within this EPA plan) is in place

	<ul style="list-style-type: none"> • identify when the apprentice is ready to enter the gateway • notify the EPAO that the apprentice is ready to enter the gateway • seek agreement of project activity with EPAO
Employer technical expert	<p>As a minimum, the technical expert should:</p> <ul style="list-style-type: none"> • provide supervisory arrangements whilst the apprentice completes the project activity in the workplace • write a factual account of the activity using EPAO documentation as per EPAO guidelines, verifying whether the task was completed appropriately and under what timescales • must not guide the apprentice in any way
EPAO	<p>As a minimum EPAOs should:</p> <ul style="list-style-type: none"> • conform to the requirements of this EPA plan and deliver its requirements in a timely manner • conform to the requirements of the APAR • arrange for the EPA to take place, in consultation with the employer • agree project activity with employer • appoint administrators and markers to administer, mark and assess the EPA. Approve invigilators to carry out invigilation for the EPA • provide training and CPD to the independent assessors they employ to undertake the EPA • have no direct connection with the apprentice, their employer or training provider for example there must be no conflict of interest • have processes in place to conduct internal quality assurance and do this on a regular basis • organise standardisation events and activities in accordance with this plan's IQA section • organise and conduct moderation of independent assessors' marking in accordance with this plan • conform to the requirements of the EQA provider
Independent assessor	<p>As a minimum an independent assessor should:</p>

	<ul style="list-style-type: none"> • be independent of the apprentice, their employer and training provider(s), for example there must be no conflict of interest • have the minimum skills, knowledge and occupational competence as outlined in the IQA section • understand the occupational standard and the requirements of this EPA • have, maintain and be able to evidence up-to-date knowledge and expertise of the subject matter • deliver the end-point assessment in line with the EPA plan • comply with the IQA requirements of the EPAO • attend standardisation events when they begin working for the EPAO, before they conduct an EPA for the first time and a minimum of annually on this apprenticeship standard • assess each assessment method, as determined by the EPA plan, and without extending the EPA unnecessarily • assess against the KSBs assigned to each assessment method, as shown in the mapping of assessment methods and as determined by the EPAO, and without extending the EPA unnecessarily • make all grading decisions • record and report all assessment outcome decisions, for each apprentice, following instructions and using assessment recording documentation provided by the EPAO, in a timely manner • use language in the development and delivery of the EPA that is appropriate to the level of the occupational standard • mark open (constructed) test answers accurately according to the EPAO's mark scheme and procedures
Training provider	As a minimum, training providers should:

	<ul style="list-style-type: none"> • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the knowledge, skills and behaviours as listed in the occupational standard • conduct training covering any knowledge, skill or behaviour requirement agreed as part of the Commitment Statement (often known as the Individual Learning Plan) • monitor the apprentice's progress during any training provider led on-programme learning • advise the employer, upon request, on the apprentice's readiness for EPA • remain independent from delivery of the EPA. Where the training provider is the EPA (for example, a HEI) there must be procedures in place to mitigate against any conflict of interest
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Internal Quality Assurance (IQA)

Internal quality assurance refers to the requirements that EPA organisations must have in place to ensure consistent (reliable) and accurate (valid) assessment decisions. EPA organisations for this EPA must:

- appoint independent assessors who have knowledge of the following areas: engineering fitting techniques, installation and assembly of components, health and safety
- appoint independent assessors who will have recent relevant experience of the occupation or sector or significant experience of the occupation or sector
- the assessor will have the following minimum skills, knowledge and occupational competence:
 - hold or be working towards an independent assessor qualification e.g. A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading
 - hold an engineering qualification at Level 3 or above
 - current experience in the Fitting sector or have evidence of a minimum of 5 days continuing professional development per year related to the fitting sector
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have quality assurance systems and procedures that support fair, reliable and consistent assessment across organisation and over time

- operate induction training and standardisation events for independent assessors when they begin working for the EPAO
- operate induction training and standardisation events for each independent assessor before they deliver an updated assessment method for the first time
- thereafter operate regular standardisation events for independent assessors at a frequency determined by risk, good practice and need and based on sufficient robust auditing activity
- operate moderation of assessment activity and decisions, through examination of documentation and observation of activity, good practice, need and based on sufficient robust auditing activity. EPAOs are therefore expected to have in place clear robust relevant policies and to manage the moderation of their independent assessors dynamically (for example, increase moderation rates above a minimum as necessary as a matter of course)

External quality assurance

External quality assurance arrangements will ensure that EPAOs delivering EPA for this apprenticeship operate consistently and in line with this plan.

External quality assurance for this apprenticeship standard will be undertaken by the Institute for Apprenticeships.

Affordability

Affordability of the EPA will be ensured by using the following practice:

- online testing for the multiple-choice test potentially reduces travel costs
- the project activity is conducted in the workplace, contributing towards workplace production adding value for the employer; and negating equipment and material resource costs for the EPAO
- remote assessment for the project presentation and questioning components is permissible, potentially reducing travel costs
- employer's premises should be used for EPA venues where possible reducing costs

Implementation

It is anticipated that there will be 1500 starts per year.

Annex A. Mapping of KSBs

MCT = Multiple Choice Question

PQ = Project, report including evidence, and questioning

PD = Professional Discussion

KSB code	KSB statement	Methods mapped against
Knowledge		
K1	Materials used in components or assemblies, for example, mild steel, aluminium, composites, copper etc. Their use and application considerations, for example machinability, hardness, conductivity, cost, availability, compatibility.	MCT
K2	Principles of design and operation, for example, design for cost, minimising waste, productivity (speed), health and safety, reverse engineering.	PD
K3	Manufacturing and assembly processes for example, filing, sawing, scraping, drilling, soldering, bolting, wire cutting, threading etc.	PQ
K4	Safe use of tools and equipment (hand and power tools); right tool for the job, requirements for machinery checks, adjustments, operation and shut down.	MCT and PQ
K5	Component or assembly specifications, for example, electrical loading, load charts, torque settings, tolerances. What they are and how to use them.	PD
K6	Techniques for measuring, marking, cutting and drilling materials to the required size and shape, accurately, safely and economically during manufacturing processes.	MCT
K7	Engineering mathematical and scientific principles; methods, techniques, graphical expressions, symbols, formulae and calculations.	MCT
K8	Engineering data, for example, electrical readings, vibration, speed and calibration. What they are and how to interpret and use.	PD

K9	Component or assembly documentation. For example, bill of materials, standard operating procedures, inspection records, assembly instructions, electrical, pneumatic, hydraulic circuit diagrams. What they are and how to interpret and use.	PQ
K10	Quality standards for components or assembly for example, drawing, calibration of equipment, materials specification. How to ensure they have been met and assured. Application of ISO9001 (Quality Management Standard) in the workplace.	PQ
K11	Health and safety, including Health and Safety at Work Act, personal protective equipment (PPE), manual handling, Control of Substances Hazardous to Health (COSHH), Provision and Use of Work Equipment Regulations (PUWER), Noise at Work Regulations, Electricity at Work regulations, risk assessments; how they must be applied in the workplace.	MCT and PD
K12	Environmental considerations; safe disposal of waste, minimizing waste, re-use and re-cycle, energy efficiency.	PD
K13	Who they need to communicate with and when, and communication techniques - verbal and written.	PD
K14	Planning techniques – resources, tools, equipment, people; time management.	PQ
K15	Component or assembly quality checks for example, checking tolerances, threads, voltages. Types of faults that occur and problem-solving techniques, for example, cause and effect, 5 Whys, flow process analysis etc.	PQ
K16	Improvement techniques, for example, 5S techniques, problem solving techniques, value stream mapping, kaizen, contributing to effective team working, Total Productive Maintenance.	PD
K17	Fitters’ role in wider operation. Limits of autonomy; reporting channels. Other functions that fitters could interact with for example health and safety, quality assurance, business improvement and excellence, their purpose and	PD

	interdependencies. Internal and external customers.	
K18	Commercial considerations including contractual arrangements (for example penalty clauses, targets). How the role contributes to commercial operations.	PD
S1	Reading, interpreting and understanding the component or assembly specification, diagrams, drawings and work instructions.	PQ
S2	Planning component or assembly task – materials, tools and equipment.	PQ
S3	Preparing work area for component or assembly task; sourcing required resources, tools and equipment.	PQ
S4	Carry out relevant planning and preparation activities before commencing work activity and know how to source required resources and interpret detailed drawings, specifications and job instructions.	PQ
S5	Checking tools during and after task completion; identifying and reporting defects.	PQ
S6	Measuring and testing, checking and inspecting component or assembly for example, use of micrometers, verniers, multimeters, voltmeter.	PQ
S7	Problem solving; analysing the issue and fixing the issue where appropriate.	PD
S8	Applying improvement techniques; recommending or implementing solutions where appropriate.	PD
S9	Communicating with colleagues or customers (internal or external).	PD
S10	Completing component or assembly documentation for example job instructions, drawings, quality control documentation.	PQ
S11	Reporting work outcomes or issues.	PD
S12	Restoring the work area on completion of the activity; returning any resources and consumables to the appropriate location and housekeeping.	PQ
S13	Disposing of waste in accordance with waste streams; re-cycling and re-using	PD

	where appropriate.	
S14	Operating within limits of responsibility.	PD
S15	Operating in line with quality, health and safety and environmental policy and procedures; identifying risks and hazards and identifying control measures where applicable.	PD
B1	Takes personal responsibility and is resilient. For example, health and safety-first attitude, disciplined and responsible approach to risk, works diligently regardless of how much they are being supervised, accepts responsibility for managing their own time and workload and stays motivated and committed when facing challenges.	PD
B2	Works effectively in teams. For example, integrates with the team, supports other people, considers implications of their own actions on other people and the business whilst working effectively to get the task completed.	PD
B3	Effective communicator and personable. For example, open and honest communicator; communicates clearly using appropriate methods, listens well to others and have a positive, respectful attitude, adjusts approach to take account of equality and diversity considerations.	PD
B4	Focuses on quality and problem solving. For example, follows instructions and guidance, demonstrates attention to detail, follows a logical approach to problem solving and seeks opportunities to improve quality, speed and efficiency.	PD
B5	Committed to continuous personal development. For example, reflects on skills, knowledge and behaviours and seeks opportunities to develop, adapts to different situations, environments or technologies and has a positive attitude to feedback and advice.	PD