

# End-point assessment plan for Lean manufacturing operative apprenticeship standard

Apprenticeship standard reference number	Apprenticeship standard level	Integrated
ST0420	2	No

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## Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the lean manufacturing operative 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 lean manufacturing operative apprentices, their employers and training providers.

Full time apprentices will typically spend 12 months on-programme working towards the occupational standard, with a minimum of 20% off-the-job training.

The EPA should only start once all of 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 complete the approved qualification mandated in the lean manufacturing occupational standard: Level 2 Diploma in Manufacturing (Knowledge and Skills). For level 2 apprenticeships, apprentices without English and mathematics at level 2 must achieve level 1 English and mathematics and take the tests for level 2 prior to taking their EPA.<sup>1</sup>

The EPA must be completed within a typical period of 12 weeks after the apprentice has met the EPA gateway requirements.

EPA must be conducted by an organisation approved to offer services against this apprenticeship standard, as selected by the employer, from the Education & Skills Funding Agency's Register of End-point assessment Organisations (RoEPAO).

The EPA consists of two distinct assessment methods.

The individual assessment methods will have the following grades:

### **Assessment method 1:** Observation with question & answers

- fail
- pass

### **Assessment method 2:** Professional discussion

- fail
- pass
- distinction

Performance in the EPA will determine the overall apprenticeship standard grade of:

- fail
- pass
- distinction

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<sup>1</sup>For those with an education, health and care plan or a legacy statement the apprenticeships English and mathematics minimum requirement is Entry Level 3 and British Sign Language qualification are an alternative to English qualifications for whom this is their primary language

## EPA summary table

<b>On-programme</b> (typically 12 months)	<p>Training to develop the lean manufacturing occupation standard's knowledge, skills and behaviours.</p> <p>Working towards English and mathematics level 1 and 2, if required.</p> <p>Working towards Level 2 Diploma in Manufacturing (Knowledge and Skills).</p> <p>Compile a portfolio of evidence.</p>
<b>End-point Assessment Gateway</b>	<p>Employer is satisfied the apprentice is consistently working at, or above, the level of the occupational standard.</p> <p>Achieved English and mathematics at level 1 and taken the tests for level 2.</p> <p>Achieved Level 2 Diploma in Manufacturing (Knowledge and Skills).</p> <p>Apprentices must submit a portfolio of evidence.</p>
<b>End Point Assessment</b> (must be completed within 12 weeks)	<p>Assessment method 1: Observation with question &amp; Answer, with the following grades:</p> <ul style="list-style-type: none"> <li>• fail</li> <li>• pass</li> </ul> <p>Assessment method 2: Professional discussion, with the following grades:</p> <ul style="list-style-type: none"> <li>• fail</li> <li>• pass</li> <li>• distinction</li> </ul> <p>Overall apprenticeship graded</p> <ul style="list-style-type: none"> <li>• fail</li> <li>• pass</li> <li>• distinction</li> </ul>

## Length of end-point assessment period

All the EPA assessment methods must be completed within a typical period of 12 weeks 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 other.

## EPA 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 are deemed to 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:

- apprentices without English and mathematics at level 2 must achieve level 1 English and mathematics and take the tests for level 2 prior to taking their EPA. British sign language qualifications are an alternative to English qualifications for apprentices where this is their primary language
- apprentices must complete the following approved qualification as mandated in the standard: level 2 diploma in manufacturing (knowledge and skills). For professional discussion, the apprentice will be required to submit a portfolio of evidence

Portfolio of evidence requirements:

- apprentices must compile a portfolio of evidence during the on-programme period of the apprenticeship
- The Portfolio will typically include 5 pieces of evidence - it must contain sufficient evidence to demonstrate the KSBs that are mapped to the professional discussion. Evidence must be mapped against the KSBs
- evidence may be used to demonstrate more than one KSB; a qualitative as opposed to quantitative approach is required
- evidence sources may include:
  - workplace documentation/records, for example job cards/job sheets, equipment check/maintenance/service records, parts order records,
  - annotated photographs
  - video clips (maximum duration in total 10-minutes)
  - continued professional development records

This is not a definitive list; other evidence sources are allowable

- it should not include any methods of self-assessment
- any employer contributions should focus on direct observation of evidence (for example witness statements) of competence rather than opinions
- the evidence provided must be valid and attributable to the apprentice; the portfolio of evidence must contain a statement from the employer confirming this
- the portfolio of evidence must be submitted to the EPAO at the gateway point

# Assessment methods

## Assessment method 1: Observation with question & answer

### Overview

This assessment method has one component.

Apprentices must be observed by an independent assessor completing work in their normal workplace; or at an approved EPAO centre;

The EPAO will arrange for the observation to take place, in consultation with the employer.

One independent assessor may observe up to a maximum of one apprentice at any one time, to allow for quality and rigour.

The rationale for this assessment method is:

- this is a practical role, best demonstrated through observation
- observation allows the assessment of work tasks in the apprentice's normal place of work, using tools and equipment with which they are familiar, which is likely to enable the apprentice to perform at their best
- questioning component enables the checking of underpinning knowledge

### Delivery

The observation should take 2 hours. The Assessor should observe sufficient production cycles to be able to accurately assess the competence of the Apprentice. The observation may be split into discrete sections held over a maximum of one working day. The length of a working day is typically considered to be 7.5 hours. The assessor has the discretion to increase the time of the observation by up to 10% to allow the apprentice to complete a task.

In advance of the observation, apprentices must be provided with information on the format of the observation, including timescales.

Each apprentice will be assessed against the core KSBs relevant to this assessment method and those relating to their chosen option

The following activities **MUST** be observed during the observation:

#### **For ALL apprentices:**

- using safe working practices
- reading and interpreting instructions
- tooling changeover/process & equipment clean down/equipment maintenance e.g. TPM (Total Productive Maintenance)
- completing relevant records
- setting up and running of equipment in accordance with company specification and standards

#### **Plus the observation requirements for the apprentice's chosen option:**

### **Option 1: Production/assembly (must include an observation of a production or assembly process)**

- checking of components for damage and that they are in a useable condition
- correct positioning alignment and securing of the components
- securing of the components in position using the specified fastening device/method
- obtaining and following the correct job instructions/standard operating procedures production assembly specifications in accordance with time constraints and the roles and responsibilities identified for the production assembly activity
- producing components which comply with the specification and quality requirements
- carrying out quality checks on component parts and completed assemblies and deal with quality concerns and defects in line with their responsibilities

### **Option 2: Inspection/quality assurance**

- obtaining and following the correct job instructions, inspection/quality procedures and product specifications in accordance with time constraints and the roles and responsibilities identified for the inspection/quality assurance activity
- collecting production samples at the required frequency in accordance with inspection specification and operating procedures
- accurately interpreting the data/results gained from the inspection and testing procedures being used
- recording and reporting inspection findings to the relevant person

### **Option 3: Logistics/material handling**

- safely moving materials to the correct location using the relevant equipment
- obtaining and following the correct job instructions, specification details and specific transfer/handling procedures in accordance with time constraints and the roles and responsibilities identified for the logistics/material handling activity
- moving materials using the appropriate procedures, ensuring the materials are correct, safely loaded and secure
- checking materials selected to be moved are in line with job requirements
- carrying out quality checks on materials that are to be moved and dealing with quality concerns and damage in line with their responsibilities
- returning equipment to its correct location on completion of the activities and leaving it in a safe and useable condition

### **Option 4: Production processing/finishing**

- performing one processing/finishing operation method e.g. hand processing, manually operated machine processing, fully automated machine processing, combined processing
- obtaining and following the correct job instruction, processing/finishing procedures and equipment operating procedures in accordance with time constraints and the roles and responsibilities identified for the processing/finishing activity
- performing the processing/finishing operation according to instructions and safe operating procedures
- monitoring and controlling the processing/finishing operation

- carrying out quality checks on component parts and completed assemblies and dealing with quality concerns and defects in line with their responsibility
- producing processed/finished products which comply with the processing/finishing specification

The observation should be conducted in the following way, to take account of the occupational context in which the apprentice operates:

- there may be breaks during the observation to allow the apprentice to move from one location to another as required
- the independent assessor must ask all knowledge questions at the end of the observation so as to avoid distracting the apprentice during their required task.
- the observation may be made up of a number of tasks but should include an end to end process
- apprentices must be briefed by the assessor prior to the observation commencing

Questions will be asked after the observation is complete. The independent assessor will ask up to five questions. They may ask follow up questions where clarification is required. Those KSBs that did not occur naturally during the observation may be assessed via questioning although this is expected to be a minimal number of KSBs'. Any additional questioning is to be included in the total 2 hours permitted for the observation.

KSBs observed, and answers to questions, must be documented by the independent assessor.

The independent assessor will make all grading decisions.

### Other relevant information

During the process the apprentice will be expected to demonstrate to the assessor the application of specific job-related knowledge, skills and behaviours as outlined in the occupational standard and mapped to this assessment method.

### Support material

EPAOs will produce the following material to support this assessment method:

- outline of the assessment method's requirement
- marking materials
- supply an observation specification sheet and a scorecard which will be used by the independent assessor to identify and record the elements of the occupational standard and grade for the practical observation. The observation sheets and scorecards must be reviewed regularly (at least once a year) to ensure they remain fit for purpose
- the purpose of the questioning is to assess further the apprentice's depth and breadth of understanding of those KSBs that have been observed. It is expected that the assessor will ask questions pertinent to the observation (although the EPAO must produce a question bank for the assessor to use as a guide)

### Venue

It is expected that apprentices will be assessed at their workplace to ensure they are able to demonstrate competence in the real work environment. It is expected that apprentices will be assessed at their workplace to ensure they are able to demonstrate competence in the

real work environment. Where this is not possible (for example due to workplace availability or health and safety reasons), the EPAO is responsible for ensuring that the apprentice is assessed under normal conditions, in a familiar environment, which is representative of the apprentice's workplace. The External Quality Assurance provider is responsible for determining the impact of an alternative location on the validity and comparability of end-point assessments.

## Assessment method 2: Professional discussion

### Overview

This assessment method has one component.

This assessment will take the form of a professional discussion, which must be appropriately structured to draw out the best of the apprentice's competence and excellence and cover the KSBs relevant to this assessment method.

It will involve the questions that will focus on the knowledge, skills and behaviours relevant to this assessment method which will take into account the supporting evidence in the portfolio.

The rationale for this assessment method is:

- it allows for assessment of KSBs that may not naturally occur during the observation
- it makes use of naturally occurring evidence collated in the portfolio to support the KSBs mapped to this assessment method

### Delivery

The independent assessor will conduct and assess the professional discussion.

The professional discussion must last for 40 minutes. The independent assessor has the discretion to increase the time of the professional discussion by up to 10% to allow the apprentice to complete their last answer. Further time may be granted for apprentices with appropriate needs in line with the EPAOs Reasonable Adjustment Policy.

During this method, the independent assessor must ask a minimum of 10 questions and should combine questions from the EPAO's question bank and those generated by themselves

The professional discussion will be conducted as set out here:

- prior to the professional discussion the independent assessor must have reviewed the apprentice's portfolio of evidence and tailored/devised questions. The EPAO will be required to produce sample questions or a question template as a guide for independent assessors
- the apprentice and assessor may refer to the portfolio of evidence during the professional discussion if required

The purpose of the professional discussion is to:

- demonstrate the apprentice can apply the broad range of knowledge, skills and behaviours in the occupational standard that are assigned to this assessment method
- clarify any questions the independent assessor has from their review of the portfolio of evidence submitted
- explore aspects of the apprentice's work, including how it was carried out, in more detail
- enable the independent assessor to draw a conclusion from a professional discussion for the grade to be awarded

The professional discussion may be observed by a technical expert who will play the following role:

- provide technical support, advice and guidance such as confirming company policies, procedures, processes, providing context on technical information or on emerging technologies

Any information provided by the employers' technical expert must only be at the request of the independent assessor. The independent assessor has the final say over the assessment and grade awarded. The employer technical expert must not provide evidence on behalf of the apprentice or influence the apprentice in any way. The technical expert must not amplify or clarify points made by the apprentice.

The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the professional discussion.

The independent assessor will make all grading decisions.

### Other relevant information

EPAOs must ensure that apprentices have a different set of questions in the case of re-sits/re-takes.

Independent assessors must be developed and trained by the EPAO in the conduct of professional discussion and in reaching consistent judgments.

### Support material

EPAOs will produce the following material to support this assessment method:

- outline of the assessment method's requirements
- marking materials
- a structured specification and question bank must be developed by EPAOs

The 'question bank' must be of sufficient size to prevent predictability and review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The specifications, including questions relating to the underpinning knowledge, skills and behaviours, must be varied yet allow assessment of the relevant KSBs.

### Venue

EPA can be delivered in a suitable venue selected by the EPAO (for example, employer or training provider's premises)

The professional discussion should take place in a quiet room, free from distractions and influence.

Video conferencing can be used to conduct the professional discussion, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in any way.

## Weighting of assessment methods

In order to pass the apprenticeship, both assessment methods must be achieved.

Both assessment methods are equally weighted. The professional discussion determines whether a distinction grade is awarded.

## Grading

### Assessment method 1: observation

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

Area of the Standard to be tested	Name of grade	Grade descriptor
<b>Core Knowledge, Skills and Behaviours</b>		
Complying with health & safety and environmental legislation, regulations  K4, K8, K9, S1, S4, S9	Pass	<p><b>The Apprentice:</b>            Demonstrates working in a safe manner, following health and safety procedures and does not compromise the safety of self and others e.g. correct use of Control Of Substances Hazardous to Health (COSHH) and Personal Protective Equipment (PPE) procedures.</p> <p>Carries out tasks in accordance with standard operating procedures, explains the potential implications to health and safety of not following the manufacturing SOPs throughout the observation.</p> <p>Carries out tasks in a logical order following the requirements of the organisation.</p> <p>Describes the benefits of workplace organisation and its impact on Safety.</p> <p>Demonstrates how to identify, assess and control health and safety risks within the work environment e.g. check sheets, risk assessments.</p> <p>Demonstrates environmental awareness by following company policies and procedures e.g. ISO 14001, 4R's.</p> <p>Prepares, handles, transfers and stores materials safely using relevant equipment e.g. flammable materials.</p>

Documentation interpretation and their use S3, S5	Pass	<p><b>The Apprentice:</b> Identifies and demonstrates where to obtain and follow the necessary job instructions, operating procedures and specifications that are used, and how to interpret them.</p> <p>Selects and uses appropriate tools, equipment and materials to carry out the manufacturing operation.</p> <p>Demonstrates how to accurately complete check sheets, monitor process and equipment data efficiently and legibly using the correct terminology.</p> <p>Follows the specified sequence and procedure at all times.</p> <p>Identifies the correct methods of handling and storing the samples.</p> <p>Demonstrates how to interpret the data/results gained from the process.</p> <p>Maintains lean manufacturing principles continuously to meet customer demands e.g. Just In Time (JIT).</p>
Lean Manufacturing B2 B6 B10	Pass	<p><b>The Apprentice:</b> Demonstrates a professional approach to work colleagues with regard to equality and diversity within the workplace.</p> <p>Maintains quality of work under pressure eg. When problems occur.</p> <p>Follows instructions and guidance demonstrating attention to detail eg Following SOP's.</p>
<b>Option 1: Production/assembly</b>		
K10, K11, K13 S10, S11, S12, S13, S14, S15	Pass	<p><b>The Apprentice:</b> Demonstrates correctly positioning, aligning and securing the components in position using the specified fastening device/method.</p> <p>Applies the relevant component checks to ensure they are free from damage and that they are in a usable condition.</p> <p>Describes how to carry out quality checks on component parts and completed assemblies and deals with quality concerns and defects in line with their responsibility e.g. boundary samples specifications.</p>

		<p>Follows SOP exactly every work cycle, escalating any abnormality or deviation from the standard.</p> <p>Is able to show the assessor the correct location of SOP's for relevant process.</p>
<b>Option 2: Inspection/Quality Assurance</b>		
K15, K16, K17 S16, S17, S18, S19, S20, S21	Pass	<p>Demonstrates their understanding of inspection/quality assurance operations by reciting the part specification being used during observation.</p> <p>Collects production samples at the required frequency in accordance with inspection specification and operating procedures. Prepares, handles, transfers and stores samples safely and correctly in accordance with quality control procedures.</p> <p>Describes how to accurately interpret data/results gained from the inspection and testing procedures being used, recording and reporting inspection findings.</p> <p>Identifies the tools and techniques used for handling and segregation of defective components ensuring the specific safe working practices and environmental regulations are met.</p>
<b>Option 3: Logistics/Material Handling</b>		
K20, K21, K24 S22, S23, S24, S25, S26, S27	Pass	<p>Demonstrates their ability to move materials using the appropriate procedures, ensuring the correct materials are safely loaded and secure.</p> <p>Demonstrates the materials selected to be moved are in line with job requirements. Safely move materials to the correct location using the relevant equipment.</p> <p>Demonstrates the quality checks on materials that are to be moved and deal with quality concerns and damage in line with their responsibility, return equipment to its correct location on completion of the activities and leave in a safe and usable condition.</p> <p>Demonstrates the lifting and handling procedures, and load bearing capacities of the equipment being used.</p>
<b>Option 4: Production processing/finishing</b>		

<p>K26, K27, K29 S28, S29, S30, S31, S32, S33</p>	<p>Pass</p>	<p>Demonstrates their ability to perform the processing/finishing operation according to instructions and safe operating procedures.</p> <p>Performs one processing/finishing operation method e.g. hand processing, manually operated machine processing, fully automated machine processing, combined processing.</p> <p>Demonstrates their ability to monitor and control the processing/finishing operation.</p> <p>Performs quality checks on component parts and completed assemblies and deals with quality concerns and defects in line with their responsibility.</p> <p>Demonstrates their ability to produce processed/finished products which comply with processing specification.</p> <p>Demonstrates how they can work independently and effectively in challenging situations.</p>
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## Assessment method 2: Professional discussion

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

Area of the Standard to be tested	Name of grade	Grade descriptor
<b>Core Knowledge, Skills and Behaviours</b>		
Complying with health & safety and environmental legislation, regulations  K1, K2 K5 S2 B1	Pass	<p><b>The Apprentice:</b></p> <p>Describes employer policy and expectations on punctuality and attendance and how they have met these.</p> <p>Describes the main Health Safety and Environmental considerations for a lean manufacturing operative e.g. COSHH, HASAWA.</p> <p>Describes the specific statutory, quality, environmental compliance procedures/systems, organisational and health and safety regulations relevant to their work activities. e.g. ISO 14001 or other relevant environmental standards.</p> <p>Describes the employer's environmental practices and explains how they have disposed of waste in line with policy by explaining how this was done in accordance with waste streams e.g. sorts recyclable materials from non-recyclable materials re-uses materials where appropriate.</p>
K1, K2	Distinction	<p><b>In addition to meeting the Pass criteria the Apprentice:</b></p> <p>Explains how they have made an improvement to health, safety and environmental processes within their workplace.</p> <p>Explains when they have promoted a culture of safety by acting as a role model, identifying risks and non-compliances, advising others how to make their practice safer.</p> <p>Explains the information available to address safety, quality, cost and environmental data to recognise potential concerns and support countermeasure activity (proactive)</p>
Continuous Improvement K3, K6, K7	Pass	<p><b>All apprentices:</b></p>

<p>S6, S7, S8 B3, B4, B5, B7, B8 B9, B11</p>		<p>Describes Continuous Improvement and how to use the tools and methods of effective problem solving e.g. A3 report, graphs, matrices and escalate concern.</p> <p>Describes how to study and identify ways to improve the safety, quality, cost or process efficiency using lean manufacturing tools e.g. kaizen.</p> <p>Describes roles and responsibilities within the organisation and the flexibility required to deliver products to meet customers costs/delivery targets/requirements e.g. project plan.</p> <p>Explains when they have responded positively to change with open and honest communication e.g. listens to other opinions.</p> <p>Explains what teamwork is and how they support others as well as how they work independently in challenging situations.</p> <p>Explains their individual role and responsibilities within the organisation and the flexibility required to deliver products to meet customers costs/delivery targets/requirements e.g. Just in time (JIT).</p>
<p>K6, K7, K8</p>	<p>Distinction</p>	<p><b>In addition to meeting the pass criteria the Apprentice:</b></p> <p>Describes their use of advanced problem-solving tools and methods of effective problem-solving using data, reports and documents to resolve production related issues e.g. A3 report, graphs, matrices and escalate concerns.</p> <p>Explains why the use of effective problem-solving tools and techniques to identify and resolve problems within the lean manufacturing environment is critical to their role.</p> <p>Explains the consequences of failing to operate problem solving techniques within the limits of their responsibility.</p> <p>Explains the need to escalate problems as appropriate and the consequences of not escalating problems e.g. The 8 steps of problem solving.</p> <p>Explains how they have identified new ideas and contributed to process improvement activities individually or as part of a team e.g. fact-finding and analysis to improve the safety, environment, quality, cost or production process.</p> <p>Describes the appropriate use of different communication skills e.g. oral, written, electronic (PC), information boards or visual displays to effectively share information in</p>

		different scenarios. Explains how they have used these communication tools or observed these in use.
<b>Option 1: Production/Assembly</b>		
Documentation interpretation and their use K12, K14,	Pass	<b>The Apprentice:</b> Describes the procedure for positioning, aligning and securing component parts during the assembly operations.  Describes how they resolve current and potential production/assembly problems within the limits of their responsibility e.g. escalates concern to supervisor
<b>Option 2: Inspection/Quality Assurance</b>		
K18, K19	Pass	<b>The Apprentice:</b> Describes the specific safe working practices and environmental regulations that need to be observed and relevant quality standards e.g. ISO 9002.  Describes the procedures for the handling and segregation of defect components.
<b>Option 3: Logistics/Material handling</b>		
K22, K23	Pass	<b>The Apprentice:</b> Describes the procedures for the movement and transferring of materials to the correct location within given timelines.  Describes the tools and equipment used for the material movement operations undertaken and how to check that they are in a safe and usable condition.
<b>Option 4: Production processing/finishing</b>		
K25, K28	Pass	<b>The Apprentice:</b> Describes the tools and equipment used for the processing/finishing operations undertaken and how to check that they are in a safe and usable condition.  Explains the procedure for the recovery or restart of manufacturing due to quality or process concern e.g. reporting process.

## 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/re-take an assessment method – see re-sit/re-take section below.

Both assessment methods must be passed for the EPA to be passed overall.

A fail in one or both of the assessment methods will result in a fail in the EPA.

Apprentices must pass the observation and gain a distinction in the professional discussion to gain an overall EPA distinction.

Independent assessors' decisions must be subject to moderation by the EPAO – see internal quality assurance section below.

Grades from individual assessment methods should be combined in the following way to determine the grade of the EPA as a whole:

Assessment method 1 - Observation	Assessment method 2 – professional discussion	Overall grading
Fail	Any grade	Fail
Any grade	Fail	Fail
Pass	Pass	Pass
Pass	Distinction	Distinction

## 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 either a re-sit or re-take is an appropriate course of action.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit those failed assessment methods only.

Any assessment method re-sit or re-take must be taken within 16 weeks of the fail 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/re-sit relates to the observation, questioning task the apprentice must be presented with a different task, which must cover the same components/activities.

If the re-take/re-sit relates to the professional discussion the apprentice must be questioned on the same subject area but using a different set of question

## Roles and responsibilities

Role	Responsibility
Apprentice	<ul style="list-style-type: none"> <li>• participate in development opportunities to improve their knowledge, skills and behaviours as outlined in the occupational standard</li> <li>• meet all gateway requirements</li> <li>• understand the purpose and importance of EPA and undertake EPA</li> </ul>
Employer	<ul style="list-style-type: none"> <li>• support the apprentice to achieve the KSBs outlined in the occupational standard to their best ability</li> <li>• determines when the apprentice is working at or above the level outlined in the occupational standard and is ready for EPA</li> <li>• select the EPAO</li> <li>• confirm all EPA gateway requirements have been met</li> <li>• confirm arrangements with EPAO for the EPA (who, when, where) in a timely manner</li> <li>• ensure apprentice is well prepared for the EPA</li> </ul>
EPAO	<p>As a minimum EPAOs should:</p> <ul style="list-style-type: none"> <li>• understand the occupational role</li> <li>• appoint independent assessors to assess and grade the EPA</li> <li>• provide training and CPD to the independent assessors they employ to undertake the EPA</li> <li>• provide adequate information, advice and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA</li> <li>• deliver the EPA outlined in this EPA plan in a timely manner</li> <li>• prepare and provide all required material and resources required for delivery of the EPA in-line with best practices</li> <li>• use appropriate assessment recording documentation to ensure a clear and auditable mechanism for providing assessment decision feedback to the apprentice</li> <li>• have no direct connection with the apprentice, their employer or training provider i.e. there must be no conflict of interest</li> <li>• maintain robust internal quality assurance (IQA) procedures and processes, and conducts these on a regular basis</li> <li>• conform to the requirements of the nominated external quality assurance body</li> <li>• organise standardisation events and activities in accordance with this plan's IQA section</li> <li>• organise and conduct moderation of independent assessors' marking in accordance with this plan</li> <li>• have, and operate, an appeals process</li> <li>• arrange for certification with the relevant training provider</li> </ul>
Independent assessor	<p>As a minimum an independent assessor should:</p> <ul style="list-style-type: none"> <li>• understand the occupational standard and EPA plan</li> <li>• deliver the EPA in-line with the EPA plan</li> <li>• comply to the IQA requirements of the EPAO</li> </ul>

	<ul style="list-style-type: none"> <li>• be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest</li> <li>• satisfy the criteria outlined in this EPA plan</li> <li>• 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</li> <li>• have the capability to assess the apprentice at this level</li> <li>• attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section)</li> </ul>
Training provider	<p>As a minimum the training provider should:</p> <ul style="list-style-type: none"> <li>• work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the standard and monitor their progress during the on-programme period</li> <li>• advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway</li> <li>• Plays no part in the EPA itself</li> </ul>
Employer Technical expert	<ul style="list-style-type: none"> <li>• may only attend professional discussion</li> <li>• must be occupationally competent</li> <li>• provide technical support, advice and guidance such as confirming company policies, procedures, processes, providing context on technical information or on emerging technologies</li> <li>• any information provided by the employer technical expert must only be at the request of the independent assessor</li> <li>• must not guide the apprentice in any way</li> <li>• must not provide evidence on behalf of the apprentice or influence the apprentice in any way.</li> <li>• must not amplify or clarify points made by the apprentice.</li> </ul>

## 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 occupational areas: in-depth knowledge and understanding of the manufacturing sector, installation and assembly of components and safety
- appoint independent assessors that have recent relevant experience of the occupation/sector at least at the same level as the apprentice, gained in the last two years or significant experience of the occupation/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 2 or above within an appropriate manufacturing discipline
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time.
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time

## External Quality Assurance (EQA)

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

## Value for money

Affordability of the EPA will be aided by using at least some of the following practice:

- the observation activity is conducted in the workplace or employer facilities, contributing towards workplace production adding value for the employer; and negating equipment and material resource costs for the epao
- employer's premises should be used for epa venues where possible reducing costs
- the observation and professional discussion should be carried out on the same day wherever possible in order to minimise cost of delivery

## Professional body recognition

Professional body recognition is not relevant to this occupational apprenticeship.

## Reasonable adjustments

The EPAO must have in place clear and fair arrangements for making reasonable adjustments for this apprenticeship standard. This should include how an apprentice qualifies for reasonable adjustment and what reasonable adjustments will be made. The adjustments must maintain the validity, reliability and integrity of the assessment methods outlined in this assessment plan.

## Mapping of knowledge, skills and behaviours (KSBs)

### Assessment Methods:

OB = Observation

PD = Professional Discussion

### Apprentice optional requirements:

ALL = **All Apprentices to complete** – **Core**

PA = Production/Assembly – **Option 1**

IQA = Inspection/Quality assurance – **Option 2**

LMH = Logistics/Material handling – **Option 3**

PPF = Production processing/finishing – **Option 4**

KSB code	KSB statement Core - All apprentices must complete	Methods mapped against	Apprentice requirements
<b>Knowledge</b>			
<b>K1</b>	Health & Safety: Relevant statutory, organisational and health and safety regulations relating to lean manufacturing operations and safe practices	<b>PD</b>	<b>ALL</b>
<b>K2</b>	Environmental: Compliance procedures/systems in line with regulatory requirements e.g. ISO 14001 or other relevant environmental standards	<b>PD</b>	<b>ALL</b>
<b>K3</b>	Production: Their individual roles and responsibilities within the organisation and the flexibility required to deliver products to meet customers costs/delivery targets/requirements e.g. Just in time (JIT)	<b>PD</b>	<b>ALL</b>
<b>K4</b>	Lean Manufacturing Operations: Manufacturing standard operation procedures (SOPs) adherence and development of lean processes	<b>OB</b>	<b>ALL</b>
<b>K5</b>	Process equipment monitoring, data collection, error proofing and operating procedures e.g. ISO 9002 or other relevant quality standards	<b>PD</b>	<b>ALL</b>
<b>K6</b>	Problem Solving: The tools and methods of effective problem-solving using data, reports and documents to resolve production related issues e.g. A3 report, graphs, matrices and escalate concerns	<b>PD</b>	<b>ALL</b>
<b>K7</b>	Continuous Improvement: How to study and identify ways to improve the safety, quality, cost or process efficiency using lean manufacturing tools e.g. kaizen	<b>PD</b>	<b>ALL</b>
<b>K8</b>	Communication: How to share information using a range of methods within the manufacturing environment e.g. oral, written, electronic, information boards, visual displays	<b>OB</b>	<b>ALL</b>
<b>K9</b>	Workplace Organisation: How to maintain a safe and efficient work site through workplace organisation e.g. 5s and process ownership	<b>OB</b>	<b>ALL</b>

<b>Skills</b>			
<b>S1</b>	Health & Safety: Work safely at all times, complying with health and safety legislation, regulations, and other relevant guidelines. Identifying risks within their processes and support/carry out countermeasure activities to improve safe working. Manage tooling, equipment and materials daily in-line with supplier standards e.g. COSHH (Control of Substances Hazardous to Health)	<b>OB</b>	<b>ALL</b>
<b>S2</b>	Environmental: Comply with environmental procedures and systems and contribute to the achievement of specific standards e.g. ISO 14001 or other relevant environmental standards and use the 4R's (Reduce, Re-use, Recycle, Recover) where possible	<b>PD</b>	<b>ALL</b>
<b>S3</b>	Production: Demonstrate their ability to carry out their role effectively, efficiently and flexibly maintaining lean manufacturing principles to meet customer's demands e.g. JIT	<b>OB</b>	<b>ALL</b>
<b>S4</b>	Lean Manufacturing Operations: Demonstrate their skill and knowledge following SOPs and building their versatility across a number of processes and process areas. Select and use appropriate tools, equipment and materials to carry out the manufacturing operation	<b>OB</b>	<b>ALL</b>
<b>S5</b>	Quality Control: Demonstrate appropriate process documentation control. Accurately completing check sheets, monitoring process and equipment data efficiently and legibly using the correct terminology required to meet the quality standard e.g. ISO 9002	<b>OB</b>	<b>ALL</b>
<b>S6</b>	Problem Solving: Demonstrate their ability to identify and resolve problems within the lean manufacturing environment using effective problem-solving tools and techniques. Manage problems that may occur during the manufacturing process within the limits of their responsibility and escalate as appropriate	<b>PD</b>	<b>ALL</b>
<b>S7</b>	Continuous Improvement: Generate ideas and contribute to process improvement activities individually or as part of a team through fact finding and analysis to improve the safety, environment, quality, cost or production process. Identifying and eliminating the 7 wastes (defects, over production, transportation, waiting, inventory, motion and processing)	<b>PD</b>	<b>ALL</b>
<b>S8</b>	Communication: Demonstrate communication skills which include oral, written, electronic (PC), information boards or visual displays to effectively share information	<b>PD</b>	<b>ALL</b>
<b>S9</b>	Workplace Organisation: Maintains and monitors the work site efficiently and effectively at all times using the elements of sifting, sorting, sweeping, spick & span (5's) within the lean manufacturing environment	<b>OB</b>	<b>ALL</b>

<b>Behaviors</b>			
<b>B1</b>	Punctual, reliable and takes responsibility for their own actions	<b>PD</b>	<b>ALL</b>
<b>B2</b>	Show respect for others, having regard for diversity and equality	<b>OB</b>	<b>ALL</b>
<b>B3</b>	Respond positively to change in the working environment	<b>PD</b>	<b>ALL</b>
<b>B4</b>	Integrates within the team and supports others	<b>PD</b>	<b>ALL</b>
<b>B5</b>	Can work independently and effectively in challenging situations	<b>PD</b>	<b>ALL</b>
<b>B6</b>	Maintains quality of work under pressure	<b>OB</b>	<b>ALL</b>
<b>B7</b>	An open and honest communicator	<b>PD</b>	<b>ALL</b>
<b>B8</b>	Listens to other people's opinions	<b>PD</b>	<b>ALL</b>
<b>B9</b>	A positive and respectful attitude	<b>PD</b>	<b>ALL</b>
<b>B10</b>	Follows instructions and guidance and demonstrates attention to detail.	<b>OB</b>	<b>ALL</b>
<b>B11</b>	Seeks opportunities to develop and adapt to different situations, environments or technologies	<b>PD</b>	<b>ALL</b>
<b>KSB code</b>	<b>KSB statement</b> <b>Option 1 - Production/Assembly</b>	<b>Methods mapped against</b>	<b>Apprentice requirements</b>
<b>Knowledge</b>			
<b>K10</b>	The importance of following the specified assembly sequence and procedure at all times	<b>OB</b>	<b>PA</b>
<b>K11</b>	How to check the quality of the assembly, against the required quality standards and what tools and equipment are used	<b>OB</b>	<b>PA</b>
<b>K12</b>	The procedure for positioning, aligning and securing component parts during the assembly operations	<b>PD</b>	<b>PA</b>
<b>K13</b>	Where to obtain the necessary job instructions, operating procedures and assembly specifications that are used, and how to interpret them	<b>OB</b>	<b>PA</b>
<b>K14</b>	How to Identify and resolve current and potential production/assembly problems within the limits of their responsibility	<b>PD</b>	<b>PA</b>
<b>Skills</b>			
<b>S10</b>	Check components for damage and that they are in a usable condition	<b>OB</b>	<b>PA</b>
<b>S11</b>	Correctly position, align and secure the components	<b>OB</b>	<b>PA</b>
<b>S12</b>	Secure the components in position using the specified fastening device/method	<b>OB</b>	<b>PA</b>
<b>S13</b>	Obtain and follow the correct Job instructions/Standard operating procedures production/assembly specifications in accordance with time constraints and the roles and	<b>OB</b>	<b>PA</b>

	responsibilities identified for the production/assembly activity		
<b>S14</b>	Produce components which comply with the specification and quality requirements	<b>OB</b>	<b>PA</b>
<b>S15</b>	Carryout quality checks on component parts and completed assemblies and deal with quality concerns and defects in line with their responsibility	<b>OB</b>	<b>PA</b>
<b>KSB code</b>	<b>KSB statement</b> <b>Option 2 - Inspection/Quality assurance</b>	<b>Methods mapped against</b>	<b>Apprentice requirements</b>
<b>Knowledge</b>			
<b>K15</b>	The correct methods of handling and storing the samples	<b>OB</b>	<b>IQA</b>
<b>K16</b>	Where to obtain the necessary job instructions, inspection/quality procedures and product specifications that are used, and how to interpret them	<b>OB</b>	<b>IQA</b>
<b>K17</b>	How to identify which samples, products and materials do not meet the quality requirements	<b>OB</b>	<b>IQA</b>
<b>K18</b>	Procedures for the handling and segregation of defect components	<b>PD</b>	<b>IQA</b>
<b>K19</b>	Specific safe working practices and environmental regulations that need to be observed	<b>PD</b>	<b>IQA</b>
<b>Skills</b>			
<b>S16</b>	Obtain and follow the correct Job instructions, inspection/quality procedures and product specifications in accordance with time constraints and the roles and responsibilities identified for the inspection/quality assurance activity	<b>OB</b>	<b>IQA</b>
<b>S17</b>	Collect production samples at the required frequency in accordance with inspection specification and operating procedures	<b>OB</b>	<b>IQA</b>
<b>S18</b>	Carryout inspection and testing activities using the specified methods and equipment	<b>OB</b>	<b>IQA</b>
<b>S19</b>	Prepare, Handle, transfer and store samples safely and correctly in accordance with quality control procedures	<b>OB</b>	<b>IQA</b>
<b>S20</b>	Accurately interpret the data/results gained from the inspection and testing procedures being used	<b>OB</b>	<b>IQA</b>
<b>S21</b>	Record and report inspection findings to relevant person	<b>OB</b>	<b>IQA</b>
<b>KSB code</b>	<b>KSB statement</b> <b>Option 3 - Logistics/Material handling</b>	<b>Methods mapped against</b>	<b>Apprentice requirements</b>
<b>Knowledge</b>			
<b>K20</b>	The procedures and documentation required to allow the transfer of materials to take place	<b>OB</b>	<b>LMH</b>

<b>K21</b>	Where to obtain the necessary job instructions, specification details and specific transfer/handling procedures that are used, and how to interpret them	<b>OB</b>	<b>LMH</b>
<b>K22</b>	The procedures for the movement and transferring of materials to the correct location within given timelines	<b>PD</b>	<b>LMH</b>
<b>K23</b>	What tools and equipment are used for the material movement operations undertaken and how to check that they are in a safe and usable condition	<b>PD</b>	<b>LMH</b>
<b>K24</b>	The lifting and handling procedures, and load bearing capacities of the equipment being used	<b>OB</b>	<b>LMH</b>
<b>Skills</b>			
<b>S22</b>	Safely move materials to the correct location using the relevant equipment	<b>OB</b>	<b>LMH</b>
<b>S23</b>	Obtain and follow the correct Job instructions, specification details and specific transfer/handling procedures in accordance with time constraints and the roles and responsibilities identified for the logistic/material handling activity	<b>OB</b>	<b>LMH</b>
<b>S24</b>	Move materials using the appropriate procedures, ensuring the materials are correct, safely loaded and secure	<b>OB</b>	<b>LMH</b>
<b>S25</b>	Check materials selected to be moved are in line with job requirements	<b>OB</b>	<b>LMH</b>
<b>S26</b>	Carry out quality checks on materials that are to be moved and deal with quality concerns and damage in line with their responsibility	<b>OB</b>	<b>LMH</b>
<b>S27</b>	Return equipment to its correct location on completion of the activities and leave it in a safe and usable condition	<b>OB</b>	<b>LMH</b>
<b>KSB code</b>	<b>KSB statement</b> <b>Option 4 - Production processing/finishing</b>	<b>Methods mapped against</b>	<b>Apprentice requirements</b>
<b>Knowledge</b>			
<b>K25</b>	What tools and equipment are used for the processing/finishing operations undertaken and how to check that they are in a safe and usable condition	<b>PD</b>	<b>PPF</b>
<b>K26</b>	Where to obtain the necessary job instructions, processing/finishing procedures and equipment operating procedures that are used, and how to interpret them	<b>OB</b>	<b>PPF</b>
<b>K27</b>	Specific safe working practices, processing/finishing procedures and environmental regulations that need to be observed	<b>OB</b>	<b>PPF</b>
<b>K28</b>	The procedure for the recovery or restart of manufacturing due to quality or process concern	<b>PD</b>	<b>PPF</b>
<b>K29</b>	The importance of following the pre-determined sequence of events in the processing/finishing operation and the consequences of not following them	<b>OB</b>	<b>PPF</b>

<b>Skills</b>			
<b>S28</b>	Perform one processing/finishing operation method e.g. hand processing, manually operated machine processing, fully automated machine processing, combined processing	<b>OB</b>	<b>PPF</b>
<b>S29</b>	Obtain and follow the correct Job instructions, processing/finishing procedures and equipment operating procedures in accordance with time constraints and the roles and responsibilities identified for the processing/finishing activity	<b>OB</b>	<b>PPF</b>
<b>S30</b>	Perform the processing/finishing operation according to instructions and safe operating procedures	<b>OB</b>	<b>PPF</b>
<b>S31</b>	Monitor and control the processing/finishing operation	<b>OB</b>	<b>PPF</b>
<b>S32</b>	Carryout quality checks on component parts and completed assemblies and deal with quality concerns and defects in line with their responsibility	<b>OB</b>	<b>PPF</b>
<b>S33</b>	Produce processed/finished products which comply with processing specification	<b>OB</b>	<b>PPF</b>