

## Metal Fabricator

### Level 3 Apprenticeship Standard (ST0607)

### Specification



This guide describes the different types of End-Point Assessment tests, the test rules and who should be involved. Preparing for End-Point Assessment and working with SIAS are also covered.

SIAS is the science industry assessment service. It is part of the Cogent Skills Group. For further information about apprenticeship standards and Trailblazers please contact [info@siasuk.com](mailto:info@siasuk.com).

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### Qualification Objective

The aim of this qualification is to ensure that the apprentice is occupationally competent against the knowledge, skills and behaviours outlined in the assessment plan for this standard.

This occupation is found in the advanced manufacturing engineering and engineering construction sectors.

The broad purpose of the occupation is to carry out metal fabrication work using things such as rolled steel joists, columns, channels, steel plate and metal sheet etc.

Work includes manufacturing bridges, oil rigs, ships, petrochemical installations, cranes, platforms, aircraft, automotive and machinery parts, sheet metal enclosures, equipment supports, and anything that can be fabricated out of metal. Fabricators can work alone or in teams, in factories or on operational sites. Fabricators use a large range of metals including steel, aluminium and titanium at a range of thicknesses from 0.5mm up to over 20mm. The size and weight of the fabrications can range from components that can easily be picked up by hand, to massive structures that require several cranes to manipulate.

In their daily work, an employee in this occupation interacts with planners, supervisors, inspectors, designers, welders, pipefitters, fitters, machinists, riggers, steel erectors, stores personnel, painters and many others involved in manufacturing, production, maintenance, and repair.

An employee in this occupation will be responsible for the quality and accuracy of their own work whilst ensuring it conforms to a relevant specification such as an engineering drawing or an international standard. Fabricators are also responsible for the health, safety and environmental (HS&E) protection of themselves and others around them.

### Prior Learning and Qualifications

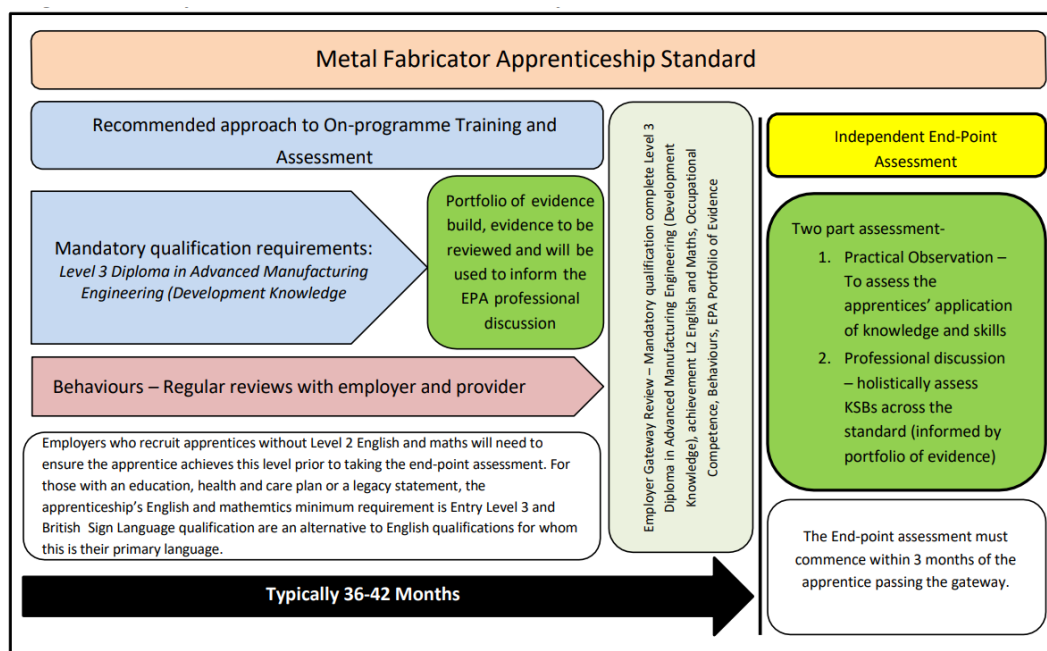
Individual employers will set the recruitment and selection criteria for their Apprenticeships. In order to optimise success, candidates will typically have 4 GCSEs at Grade C/4 or equivalent, including Mathematics, English and a Science.

### Overview

The End-Point Assessment (EPA) will be completed after a minimum of 12 months training has taken place and at a time that accommodates work scheduling and cost-effective planning of resources. The EPA must commence within 3 months from confirmation that the apprentice has met the gateway requirements.

The performance of the apprentice within the EPA will determine the apprenticeship grade of fail, pass, or distinction.

The final apprenticeship EPA decision will be made by SIAS; successful achievement of the EPA will lead to formal certification of the apprenticeship and demonstrate that the apprentice is a competent Metal Fabricator.



### Competence Evaluation

During the apprenticeship, regular evaluation of the competence of the apprentice against the apprenticeship standard will help to ensure that they achieve full occupational competence by the end of their training, and they are ready for EPA. Confirmation from the employer that the apprentice is fully competent is needed before EPA can take place.

As competence evaluation is an in-programme activity, the process that is used for this has not been mandated. It is for the employer supported by their training provider to decide how they wish to do this. To help with this SIAS has produced the SIAS Competence Tracker.

### Gateway Requirements

Before going forward for the EPA, the employer must be satisfied that the apprentice has:

- Satisfactorily completed training covering the skills, knowledge and behaviours as described in the standard.
- Achieved the mandatory qualification – Level 3 Diploma in Advanced Manufacturing Engineering (Development Knowledge).
- Achieved English and mathematics at level 2. For those with an education, health and care plan or a legacy statement, the apprenticeship’s 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.
- Sufficient evidence in the form of a portfolio of evidence to allow the apprentice to consistently demonstrate knowledge, skills and behaviours as described in the standard. Guidance on what should be included in the portfolio of evidence can be found within the professional discussion section.

Once the apprentice has successfully completed appropriate on programme training and assessment, the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to SIAS, the judgement on whether the apprentice is deemed occupationally competent and ready for the EPA will be made by their employer. The employer will take this

decision on the basis of the knowledge, skills and behaviours attained by the apprentice and taking into consideration the apprentices' work experience, the views from the training provider where applicable and the apprentice, to inform this decision.

### **Assessment Methods**

The EPA consists of 2 discrete assessment methods:

1. Practical Observation
2. Professional Discussion

#### **Assessment Method 1: Practical Observation**

The purpose to the practical observation is to assess the knowledge, skills and behaviours in a practical way that closely relates to the apprentice's daily duties and responsibilities. The practical observation will be carried out in the workplace; or at an approved SIAS centre; simulation is allowed in exceptional circumstances (for example, where for cost, workplace availability, or health and safety reasons it is not appropriate to use the apprentices' workplace).

The practical observation will be carried out by an end-point assessor, approved by SIAS; observations must be conducted in a realistic work situation under normal conditions. During the process the apprentice will be expected to demonstrate to the end-point assessor the application of the core knowledge, skills and behaviours of the specific job. Apprentices will be observed and will be assessed against the KSBs as identified within the assessment plan.

Typically, this will include adherence to standardised work, use of equipment, tooling etc. This will be covered with two tasks that captures the combination of skills; shaping to specifications (drawing); manual and machine profiling/shaping techniques; mechanical and thermal jointing techniques; hot/cold manipulation of metal.

The practical observation will span 6 hours (+10% at the end-point assessor's discretion) to provide appropriate coverage of the KSBs assigned to the observation.

At the end of the observation the end-point assessor will ask a minimum of 10 open questions to assess the related underpinning knowledge and assess the skills that did not naturally occur during the observation. They may ask follow-up questions where clarification is required.

Questioning must be completed within the total time allowed for the observation. KSBs observed and answers to questions must be documented by the end-point assessor.

Apprentices must be provided with both written and verbal instructions on the tasks they must complete including timescales prior to the start of the observation. Observations must be carried out over an assessment time period of 6 hours (+10% at the end-point assessor's discretion). There may be breaks during the observation to allow the apprentice to move from one location to another.

This assessment method must include direct observation of:

- Working safely, efficiently, and effectively at all times ensuring that all appropriate legislation, regulation, and environmental compliance has been adhered to in-line with company policies, procedures, and practice.
- Identification and use of appropriate documentation e.g. job instructions, drawings, quality control documentation.
- Fabrication activities in-line with the correct processes, procedures, and equipment.
- Cutting and forming of metal for the production of fabricated parts.
- Assembly of metal products to required specification and quality requirements.
- Joining of materials using approved welding procedures and quality requirements (where appropriate).

End-point assessors may observe up to a maximum of 3 apprentices at any one time, to allow for cost effective use of resources while maintaining quality and rigour.

SIAS will supply an observation specification sheet for the job role being assessed and a scorecard which will be used by the end-point assessor to identify and record the elements of the standard and grade for the practical observation and give examples of open question types. SIAS will utilise a bank of observation tasks, each including questions relating to underpinning KSBs and ensuring sufficient variation; observation tasks and the respective questions will be reviewed at annually to ensure that they are fit-for-purpose and reduce predictability. The practical observation will be graded either pass or fail. To achieve a pass for the practical observation the apprentice must achieve all of the pass criteria that is laid out in the assessment plan (see below).

### Practical Observation Grading Descriptors

KSBs	Pass – Apprentices must achieve all Pass criteria
Complying with health & safety and environmental legislation, regulations, and organisational requirements  K1 K6 K9 K24 S1 S2 S3 S5	<p><b>P1</b> Explains the potential effect of not using current approved processes, procedures, and documentation.</p> <p><b>P2</b> Applies the appropriate processes and procedures and uses the relevant documentation. Provides manual handling documentation.</p> <p><b>P3</b> Demonstrates and identifies, assesses and controls risk within work environment e.g. completes risk assessment documentation.</p> <p><b>P4</b> Demonstrates how to select and use appropriate processes, procedures, tools, equipment, and materials to carry out the engineering operations e.g obtain specifications, engineering drawings.</p> <p><b>P5</b> Works effectively e.g using manual and machine profiling/shaping techniques; mechanical and thermal jointing techniques; hot/cold manipulation of metal.</p>
Documentation interpretation and use	<p><b>P6</b> Demonstrates the identification and adherence to the correct work instructions as part of their work commitments and shows</p>

KSBs	Pass – Apprentices must achieve all Pass criteria
S10 S14	<p>an understanding of any operating rules in place within the instruction.</p> <p><b>P7</b> Demonstrates the cutting and forming of metal for the production of fabricated products.</p>
<p>Assembly</p> <p>K11 K19 K20 S12 S13 S17 S9</p>	<p><b>P8</b> Select the appropriate tools for the tasks, demonstrate correct use of the techniques and operate equipment appropriately when fabricating products.</p> <p><b>P9</b> Uses consumables appropriately.</p> <p><b>P10</b> Work efficiently to complete the tasks to specification and quality requirements.</p> <p><b>P11</b> Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location.</p>

Fail – An apprentice will fail where they do not demonstrate all the pass descriptors.

### Practical Observation Knowledge, Skills and Behaviours

Ref	Grading descriptor
<b>Knowledge</b>	
<b>K1</b>	The importance of complying with statutory, quality, organisational and health and safety regulations.
<b>K6</b>	The importance of only using current approved processes, procedures, documentation, and the potential implications if they are not adhered to.
<b>K9</b>	The correct methods of moving and handling materials.
<b>K11</b>	The tools and techniques available for cutting, shaping, assembling, and finishing materials.
<b>K19</b>	Equipment associated with manual or mechanised joining techniques including maintaining equipment in a reliable and safe condition.
<b>K20</b>	Consumables used in manual or mechanised joining.
<b>K24</b>	How to interpret relevant engineering data and documentation.
<b>Skills</b>	
<b>S1</b>	Work safely at all times, comply with health & safety legislation, regulations, and organisational requirements.
<b>S2</b>	Comply with environmental legislation, regulations and organisational requirements.
<b>S3</b>	Obtain, check, and use the appropriate documentation (such as job instructions, drawings, quality control documentation).
<b>S5</b>	Undertake the work activity using the correct processes, procedures, and equipment
<b>S9</b>	Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location.
<b>S10</b>	Identify and follow correct metal work instructions, specifications, drawing etc.
<b>S12</b>	Cut and form metal for the production of fabricated products.



<b>S13</b>	Produce and assemble metal products to required specification and quality requirements.
<b>S14</b>	Identify and follow correct joining instructions, specifications, drawing etc.
<b>S17</b>	Weld joints in accordance with approved welding procedures and quality requirements

### Assessment Method 2: Professional Discussion

The purpose of the professional discussion is to enable the apprentice to showcase to the end-point assessor how they have carried out the role of a Metal Fabricator, integrating the knowledge, skills and behaviours expected and for the review panel to be assured the apprentice has achieved the requirements of the standard.

To help ensure that the professional discussion is practicable and cost-effective, it can be carried out at the employer’s site, an assessment centre approved by SIAS or via video link. If a video link is used, then appropriate measures must be in place to prevent misrepresentation and ensure SIAS is satisfied that the responses given are those of the candidate e.g. use of a 360 degree camera to allow the assessor to look around the room during the interview.

#### Portfolio of evidence requirements:

The portfolio of evidence will be submitted to the apprentice’s employer for review during the employer gateway review. Once the portfolio has been reviewed and accepted as being fit for purpose by the employer, then it will be submitted to the end-point assessor appointed by SIAS who must have at least 14 days to review the portfolio prior to the professional discussion.

The portfolio submitted will contain evidence setting out examples of work they have undertaken. The portfolio of evidence will be used to inform the professional discussion through which the apprentice will demonstrate competence of the broad range of knowledge, skills and behaviours set out in the standard.

The employer will be required to confirm that the portfolio of evidence provides an accurate representation of work carried out by the apprentice and is not embellished. The portfolio will not be assessed as part of the EPA but will be used to determine the questions for use during the graded professional discussion, so that the end-point assessor can probe further into the apprentice’s depth of understanding. The portfolio of evidence will be reviewed by an end-point assessor, approved by SIAS.

The portfolio of evidence should include samples of work carried out by the apprentice. Demonstration of work carried out over a period of time and must include evidence of work carried out within the last three months of the on-programme period, and will include a minimum of 2 and no more than 3 activities carried out by the apprentice that demonstrates the knowledge, skills and behaviours of the standard. Where practicable this should include photographs, images, diagrams, together with on-the-job observations and witness evidence/testimony. This should also include situations that have been difficult or challenging, outlining how these have been overcome e.g. equipment breakdown which has resulted in a change in working practice while still adhering to company procedures.

Any employer contributions must focus on direct observation of evidence (e.g. reviews/witness statements) of competence rather than opinions.

The portfolio cannot include any methods of self-assessment or self-appraisal. It is expected that each piece of evidence will provide evidence for multiple KSBs and this evidence should be mapped to the KSBs assigned to the professional discussion.

**The professional discussion will consist of:**

Using criteria set out in the assessment plan, the end-point assessor must ask the apprentice a minimum of 10 open questions based on the KSBs assigned to this assessment component.

Prior to the professional discussion, the end-point assessor must have reviewed the apprentice's portfolio and prepared 10 questions on a template developed by SIAS; follow-up questions are allowed to seek clarification.

The professional discussion must be completed during a 40-minute period (+2 minutes at the end-point assessor's discretion).

Questions must seek to assess KSBs and can be informed by information within the portfolio of evidence, assessing performance against the pass and distinction criteria and enable the review panel to explore areas they consider warrants further investigation in order to assure themselves that the apprentice has the competence to work as Metal Fabricator.

The apprentice will have access to and may refer to their portfolio of evidence during the professional discussion if required. SIAS will produce sample questions or a question template as a guide for end-point assessors.

The purpose of the professional discussion is to:

- Demonstrate the apprentice can apply the broad range of knowledge, skills, and behaviours in the standard.
- Clarify any questions the end-point 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 review panel to draw a conclusion on the holistic EPA and the final grade to be awarded on the aggregated achievement of the individual assessments using the grading descriptors specified in the assessment plan.

The end-point assessor must be qualified to a minimum of level 3 within the metal fabrication discipline and have up to date knowledge and understanding of the engineering sector and be qualified in assessment practice. During the allocation of end-point assessors, SIAS will decide if the end-point assessor has the relevant skill set within the metal fabrication discipline being assessed.

The professional discussion may be a panel consisting of 2 members; an employer representative (if requested to do so by SIAS) and the end-point assessor (acting as Chair) appointed by SIAS, who will make the final decision based on this process. The employer

representative must be occupationally competent and will 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 employer technical expert must only be at the request of the end-point assessor who has the final say over the assessment and grade awarded. The employer technical expert must not provide evidence on behalf of the apprentice. The end-point assessor will review the portfolio of evidence and decide how the professional discussion will be conducted and relevant key questions to ask the apprentice to confirm the broad range of knowledge, skills and behaviours have been achieved. At the end of the professional discussion, the end-point assessor (acting as Chair) will make the final judgement on distinction, pass, or fail for this assessment method.

The professional discussion will be graded fail, pass or distinction. To achieve a pass for the professional discussion the apprentice must achieve all the pass criteria for this assessment; to achieve a distinction the apprentice must achieve all of the pass criteria and the distinction criteria for this assessment.

### Professional Discussion Grading Descriptors

KSBs	Pass Apprentices must achieve all Pass criteria	Distinction Apprentices must achieve all Pass criteria and all Distinction criteria
<p>Complying with health &amp; safety and environmental legislation, regulations, and organisational requirements</p> <p>K1 K4 K5 K7 K8 S1 S4 S6 S7 S8 B1 B2 B3 B4 B5</p>	<p><b>P12</b> Outlines the specific statutory, quality, environmental compliance procedures/systems, organisational and health and safety regulations relevant to their work activities. Giving two examples of typical problems that may arise within their normal work activities/environment e.g. incorrect materials, tooling/equipment, breakdowns, environmental concerns, H&amp;S concerns.</p> <p><b>P13</b> Describes two different diagnostic methods and techniques used to help solve engineering problems e.g. sensory inspection, six point, half-split, input/output, cause and effect, 5 whys, process mapping.</p> <p><b>P14</b> Explains different roles and functions in the organisation and how they interact e.g.</p>	<p><b>D1</b> Challenges other people on H&amp;S compliance and can dynamically assesses/controls risk at all times regardless of environment, proactively assesses/controls risk without the need to be prompted.</p> <p><b>D2</b> Suggests ideas for improvement to company processes or procedures identifying possible solutions example to others by working in a well-organised and competent way when on their own.</p> <p><b>D3</b> Proactively supports others and seeks support and advice and shares learning. Takes action to share information, openly and honestly rather than just responding to requests and checks understanding of others by asking open questions.</p> <p><b>D4</b> Makes suggestions to improve instructions, escalate issues as appropriate and applies the techniques for problem solving.</p>

KSBs	Pass Apprentices must achieve all Pass criteria	Distinction Apprentices must achieve all Pass criteria and all Distinction criteria
	<p>management, quality department, commercial department, material stores/supply, unions, HR/personnel, H&amp;S department.</p> <p><b>P15</b> Explains the potential impact of not reviewing and updating fabrication and general engineering processes and procedures e.g. incorrect products, poor productivity, inefficient work.</p> <p><b>P16</b> Identifies, prepares, assesses, and controls risk within work environment, selects and use appropriate documentation, tools, equipment, and materials to carry out the metal fabrication operations.</p> <p><b>P17</b> Demonstrates the required checks using the correct procedures, processes and/or equipment.</p> <p><b>P18</b> Demonstrates dealing with problems that occur during their work activities within the limits of their responsibility and completing documentation accurately using the correct terminology. Restores the work area on completion of the activity, returning all tools, equipment, and resources to the appropriate location.</p> <p><b>P19</b> Demonstrates understanding of the importance of H&amp;S requirements, assesses/controls risk in current environment. Works on their own when appropriate, knowing who and where to seek help from</p>	<p><b>D5</b> Demonstrates understanding and reflect upon lessons learnt after problem solving activity. Recognises needs and continually seeks learning opportunities and transfers learning, applying it to different situations.</p>

KSBs	Pass Apprentices must achieve all Pass criteria	Distinction Apprentices must achieve all Pass criteria and all Distinction criteria
	<p>if needed, manages own time &amp; workload, stays motivated &amp; committed, when facing small challenges, and reflects on how to do things more effectively.</p> <p><b>P20</b> Demonstrates effort to integrate within a team, helps and supports when asked, considers impact of their own actions on other people or activities, contributes positively to team deliverables, and provides encouragement as appropriate to keep the team on track. Communicates openly and honestly, clearly using appropriate methods paying attention to instructions and a has a positive and respectful attitude.</p> <p><b>P21</b> Demonstrates, understands and follows instructions/processes, ensuring attention to detail and follows a logical/right approach to problem solving. Identifies opportunities to improve, but may need prompting for ideas.</p> <p><b>P22</b> Demonstrates knowledge and seeks opportunities to develop, reflecting on skills, behaviours adapt to different situations, environments or technologies and demonstrates a positive attitude to feedback and advice.</p>	
<p>Follow correct metal work instructions, specifications, drawing etc.</p>	<p><b>P23</b> Demonstrate the engineering mathematical and scientific principles, methods and techniques that are used within fabrication. Describes the</p>	<p><b>D6</b> Demonstrates that they consistently carryout fabrication activities and identifies opportunities to improve processes or procedures, identifying potential</p>

KSBs	Pass Apprentices must achieve all Pass criteria	Distinction Apprentices must achieve all Pass criteria and all Distinction criteria
<p>K2 K3 K10 K12 K13 K14 K15 K16 K17 K18 K21 K22 K23 S4 S11 S15 S16</p>	<p>structure, properties, and characteristics of two common materials. Gives details of the process for preparing materials to be marked out they have used while carrying out a metal fabrication work activity.</p> <p><b>P24</b> Explains the importance for making allowances for cutting, notching, bending, rolling, and forming. Gives details of the pattern development process, tooling, and equipment they have used while carrying out a sheet-metal work activity. Identifies the tools and techniques used for cutting and shaping metal giving details of the cutting and forming techniques.</p> <p><b>P25</b> Gives details of the assembly and finishing processes, tooling end equipment they have used, inspection techniques that can be applied to check shape and dimensional accuracy e.g. linear measurement, surface checks, alignment checks, straightness checks, squareness checks, taper measurement, angular measurement.</p> <p><b>P26</b> Explains the factors that could influence the selection of forming process e.g. material properties, end product specification, operating conditions. Gives details of the method they have used in the production of fabricated parts.</p> <p><b>P27</b> Gives details of the metallurgy associated with joining activities they have been</p>	<p>solutions that can overcome problems that may occur.</p> <p><b>D7</b> Demonstrates that they consistently carryout joining activities in a well-organised and competent way with minimum wasted effort or expense and identifies opportunities to improve processes or procedures along with potential solutions and overcomes problems that may occur.</p> <p><b>D8</b> Demonstrates the use of technical language and detail to give an in-depth* explanation of the key elements of the knowledge relating to the to the metal fabrication work activities they have been involved in. In-depth* = explanation includes detail of key aspects of the work they have carried out and answers questions using relevant detail e.g. processes, equipment, materials used and the reason behind their use. Why a specific method was used within the production of a fabricated parts. In-depth* = explanation includes detail of key aspects of the work they have carried out and answers questions using relevant detail e.g. processes, equipment, materials used and the reason behind their use.</p>

KSBs	Pass Apprentices must achieve all Pass criteria	Distinction Apprentices must achieve all Pass criteria and all Distinction criteria
	<p>involved, giving details of the joining procedures and methods of testing they have used during manual or mechanised joining activities. Describes different types of welds and joints and where they could be used and describes the effects of heating and cooling metals.</p> <p><b>P28</b> Demonstrates having followed the correct work instructions, planned, implemented, monitored resource and relevant preparation as part of their work commitments and shows an understanding of any operating rules in place within the instruction, having cut and formed metal for the production of metal products. Provides evidence of setting up, checking, adjusting and use joining and related equipment to assemble metal products to required specification in accordance with approved welding procedures and quality requirements. Completes the relevant documentation for metal fabrication and assembly activity.</p>	

Fail – An apprentice will fail where they do not demonstrate all the pass descriptors.

### Professional Discussion Knowledge, Skills and Behaviours

Ref	Grading descriptor
<b>Knowledge</b>	
<b>K1</b>	The importance of complying with statutory, quality, organisational and health and safety regulations.
<b>K2</b>	General engineering mathematical and scientific principles, methods, techniques, graphical expressions, symbols formulae and calculations.
<b>K3</b>	The structure, properties, and characteristics of common materials.
<b>K4</b>	The typical problems that may arise within their normal work activities/environment.

<b>K5</b>	Approved diagnostic methods and techniques used to help solve engineering problems.
<b>K7</b>	The different roles and functions in the organisation and how they interact.
<b>K8</b>	Why it is important to continually review fabrication and general engineering processes and procedures.
<b>K10</b>	Processes for preparing materials to be marked out.
<b>K12</b>	Allowances for cutting, notching, bending, rolling, and forming materials.
<b>K13</b>	Describe pattern development processes, tooling, and equipment.
<b>K14</b>	Describe cutting and forming techniques, tooling, and equipment.
<b>K15</b>	Describe assembly and finishing processes, tooling, and equipment.
<b>K16</b>	Inspection techniques that can be applied to check shape and dimensional accuracy.
<b>K17</b>	Factors influencing selection of forming process.
<b>K18</b>	Principles, procedures, and testing of different joining techniques (mechanised or manual).
<b>K21</b>	Effects of heating and cooling metals.
<b>K22</b>	Metallurgy associated with joining.
<b>K23</b>	Different types of welds and joints.
<b>Skills</b>	
<b>S1</b>	Work safely at all times, comply with health & safety legislation, regulations, and organisational requirements.
<b>S4</b>	Carry out relevant planning and preparation activities before commencing work activity.
<b>S6</b>	Carry out the required checks (such as quality, compliance, or testing) using the correct procedures, processes and/or equipment.
<b>S7</b>	Deal promptly and effectively with problems within the limits of their responsibility using approved diagnostic methods and techniques and report those which cannot be resolved to the appropriate personnel.
<b>S8</b>	Complete any required documentation using the defined recording systems at the appropriate stages of the work activity.
<b>S11</b>	Mark out using appropriate tools and techniques.
<b>S15</b>	Carry out the relevant preparation before starting the joining fabrication activity.
<b>S16</b>	Set up, check, adjust and use joining and related equipment.
<b>Behaviours</b>	
<b>B1</b>	<b>Personal responsibility and resilience</b> – Comply with the health and safety guidance and procedures, be disciplined, and have a responsible approach to risk, work diligently regardless of how much they are being supervised, accept responsibility for managing time and workload and stay motivated and committed when facing challenges.
<b>B2</b>	<b>Work effectively in teams</b> – Integrate with the team, support other people, consider implications of their own actions on other people and the business whilst working effectively to get the task completed.
<b>B3</b>	<b>Effective communication and interpersonal skills</b> – An open and honest communicator, communicates clearly using appropriate methods, listen well to others and have a positive and respectful attitude.



<b>B4</b>	<b>Focus on quality and problem solving</b> – Follow instructions and guidance, demonstrate attention to detail, follow a logical approach to problem solving and seek opportunities to improve quality, speed and efficiency.
<b>B5</b>	<b>Continuous personal development</b> – Reflect on skills, knowledge and behaviours and seek opportunities to develop, adapt to different situations, environments or technologies and have a positive attitude to feedback and advice.

### Final Grade

An end-point assessor must combine the grades of the two assessment methods to determine the EPA grade. To achieve an EPA pass, apprentices must achieve a minimum of a pass in both assessment methods. Due to the importance of the professional discussion, to achieve an EPA distinction, apprentices must achieve a distinction in the professional discussion (with a pass in the practical observation assessment method). See grading combinations in the Grading Criteria table below. Where more than one end-point assessor is involved, the end-point assessor responsible for the assessment method completed last will be responsible for combining the grades.

A fail in one or more of the assessment methods will result in a fail in the EPA. Evidence from the portfolio of evidence will be used to support the professional discussion but will not be assessed.

### Grading Criteria

The apprenticeship will be graded fail, pass, or distinction. The final grade will be determined by collective performance in the two assessments within the end-point assessment.

SIAS will combine the grades from the practical observation test and professional discussion to determine the overall apprenticeship grade in line with the grading criteria below.

Practical Observation	Professional Discussion	Overall Grading
Pass	Fail	Fail
Fail	Pass or Distinction	Fail
Pass	Pass	Pass
Pass	Distinction	Distinction

### Moderation

Assessment organisations will undertake moderation of End-Point Assessor decisions through observations and examination of documentation on a risk sampling basis. Results cannot be confirmed until moderation has been completed.

### Re-takes / re-sits

Apprentices who fail one or more EPA method will be offered the opportunity to take a re-sit/retake. Re-sits/re-takes must not be offered to apprentices wishing to move from pass to distinction. A re-sit does not require further learning, whereas a re-take does.

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

The timescales for a resit/retake of the entire EPA is agreed between the employer and SIAS. A resit is typically taken within 2 months of the EPA outcome notification. The timescale for a retake is dependent on how much re-training is required and is typically taken within 6 months of the EPA outcome notification.

The maximum grade awarded to a re-sit/re-take for the practical observation will be graded pass/fail and a re-sit/re-take of the professional discussion will be graded pass/fail/distinction and combined to determine the EPA grade.

SIAS will ensure that apprentices are observed doing different activities within the practical observation when taking a re-sit/re-take.

If the apprentice is unsuccessful, their employer will decide when the apprentice should re-apply for the EPA once additional training has taken place.

For the practical observation, if only one of the two tasks resulted in a fail, then only the failed task needs to be resat/retaken.

### Certification

The outcomes from the End-Point Assessment will be reviewed and a grade conferred by SIAS in accordance with SIAS QA procedures, which are available from SIAS. SIAS will notify the employer of the outcome of each of the assessments.

SIAS will apply for the apprentice’s certificate, which will be sent by ESFA. The certificate confirms that the apprentice has passed the End-Point Assessment, has demonstrated full competency across the standard and is job-ready.

### Assessment Specification

The assessment specification can be found in the published assessment plan for the standard. Details of which elements of the apprenticeship standard will be tested by each test are given in the Mapping knowledge, skills, and behaviours section of this guide.

### Mapping of knowledge, skills, and behaviours

Key:	
Practical Observation	<b>O</b>
Professional discussion	<b>PD</b>

Ref	KSB to be assessed	Assessment Method
<b>Knowledge</b>		
<b>K1</b>	The importance of complying with statutory, quality, organisational and health and safety regulations.	<b>O/PD</b>

Ref	KSB to be assessed	Assessment Method
K2	General engineering mathematical and scientific principles, methods, techniques, graphical expressions, symbols formulae and calculations.	PD
K3	The structure, properties, and characteristics of common materials	PD
K4	The typical problems that may arise within their normal work activities/environment.	PD
K5	Approved diagnostic methods and techniques used to help solve engineering problems.	PD
K6	The importance of only using current approved processes, procedures, documentation, and the potential implications if they are not adhered to.	O
K7	The different roles and functions in the organisation and how they interact.	PD
K8	Why it is important to continually review fabrication and general engineering processes and procedures.	PD
K9	The correct methods of moving and handling materials.	O
K10	Processes for preparing materials to be marked out	PD
K11	The tools and techniques available for cutting, shaping, assembling, and finishing materials.	O
K12	Allowances for cutting, notching, bending, rolling, and forming materials.	PD
K13	Describe pattern development processes, tooling, and equipment.	PD
K14	Describe cutting and forming techniques, tooling, and equipment.	PD
K15	Describe assembly and finishing processes, tooling, and equipment.	PD
K16	Inspection techniques that can be applied to check shape and dimensional accuracy.	PD
K17	Factors influencing selection of forming process.	PD
K18	Principles, procedures, and testing of different joining techniques (mechanised or manual).	PD
K19	Equipment associated with manual or mechanised joining techniques including maintaining equipment in a reliable and safe condition.	O
K20	Consumables used in manual or mechanised joining.	O
K21	Effects of heating and cooling metals.	PD
K22	Metallurgy associated with joining.	PD
K23	Different types of welds and joints.	PD
K24	How to interpret relevant engineering data and documentation.	O

Ref	KSB to be assessed	Assessment Method
<b>Skills</b>		
<b>S1</b>	Work safely at all times, comply with health & safety legislation, regulations, and organisational requirements.	<b>O/PD</b>
<b>S2</b>	Comply with environmental legislation, regulations, and organisational requirements.	<b>O</b>
<b>S3</b>	Obtain, check, and use the appropriate documentation (such as job instructions, drawings, quality control documentation).	<b>O</b>
<b>S4</b>	Carry out relevant planning and preparation activities before commencing work activity.	<b>PD</b>
<b>S5</b>	Undertake the work activity using the correct processes, procedures, and equipment.	<b>O</b>
<b>S6</b>	Carry out the required checks (such as quality, compliance, or testing) using the correct procedures, processes and/or equipment.	<b>PD</b>
<b>S7</b>	Deal promptly and effectively with problems within the limits of their responsibility using approved diagnostic methods and techniques and report those which cannot be resolved to the appropriate personnel.	<b>PD</b>
<b>S8</b>	Complete any required documentation using the defined recording systems at the appropriate stages of the work activity.	<b>PD</b>
<b>S9</b>	Restore the work area on completion of the activity and where applicable return any resources and consumables to the appropriate location.	<b>O</b>
<b>S10</b>	Identify and follow correct metal work instructions, specifications, drawing etc.	<b>O</b>
<b>S11</b>	Mark out using appropriate tools and techniques.	<b>PD</b>
<b>S12</b>	Cut and form metal for the production of fabricated products.	<b>O</b>
<b>S13</b>	Produce and assemble metal products to required specification and quality requirements.	<b>O</b>
<b>S14</b>	Identify and follow correct joining instructions, specifications, drawing etc.	<b>O</b>
<b>S15</b>	Carry out the relevant preparation before starting the joining fabrication activity.	<b>PD</b>
<b>S16</b>	Set up, check, adjust and use joining and related equipment.	<b>PD</b>
<b>S17</b>	Weld joints in accordance with approved welding procedures and quality requirements.	<b>O</b>
<b>Behaviours</b>		
<b>B1</b>	<b>Personal responsibility and resilience</b> – Comply with the health and safety guidance and procedures, be disciplined, and have a responsible	<b>PD</b>

Ref	KSB to be assessed	Assessment Method
	approach to risk, work diligently regardless of how much they are being supervised, accept responsibility for managing time and workload and stay motivated and committed when facing challenges.	
<b>B2</b>	<b>Work effectively in teams</b> – Integrate with the team, support other people, consider implications of their own actions on other people and the business whilst working effectively to get the task completed.	<b>PD</b>
<b>B3</b>	<b>Effective communication and interpersonal skills</b> – An open and honest communicator, communicates clearly using appropriate methods, listen well to others and have a positive and respectful attitude.	<b>PD</b>
<b>B4</b>	<b>Focus on quality and problem solving</b> – Follow instructions and guidance, demonstrate attention to detail, follow a logical approach to problem solving and seek opportunities to improve quality, speed, and efficiency.	<b>PD</b>
<b>B5</b>	<b>Continuous personal development</b> – Reflect on skills, knowledge and behaviours and seek opportunities to develop, adapt to different situations, environments or technologies and have a positive attitude to feedback and advice.	<b>PD</b>

### Further Information

For information about SIAS policies, quality assurance, re-sits, appeals, complaints and general enquiries please see our website: [www.siasuk.com](http://www.siasuk.com)

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