

DRAFT END-POINT ASSESSMENT PLAN FOR THE AEROSPACE ENGINEERING TECHNICIAN APPRENTICESHIP

APPRENTICESHIP REFERENCE NUMBER	LEVEL OF THIS END-POINT ASSESSMENT (EPA)	INTEGRATION
ST1313	3	None

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Key Fields

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This EPA has options. Display the EPA for:

All Aerospace technical support technician Aerospace fitting technician Aerospace machining technician

Introduction and overview

[Edit introduction and overview form](#)

This document explains the requirements for end-point assessment (EPA) for the aerospace engineering technician apprenticeship. End-point assessment organisations (EPAOs) must follow this when designing and delivering the EPA. This apprenticeship has integrated qualifications which are used for EPA purposes.

The awarding organisation (AO) is accountable for the mandated qualifications that are used as the integrated assessment methods (knowledge test and development competence assessment). The end-point assessment organisation (EPAO) must take responsibility for the interview underpinned by a portfolio of evidence. EPAOs and AOs must work collaboratively to manage the delivery of the EPA.

The Institute for Apprenticeships and Technical Education (IfATE) have agreed a unique EPA model for those apprenticeships where the UK Civil Aviation Authority (CAA), the regulatory body for aviation within the UK, specifies the qualifying requirements for aircraft maintenance and aircraft worthiness.

Aerospace engineering technician apprentices, their employers and training providers and other interested parties should read this document.

This is a core and options apprenticeship. An apprentice must be trained and assessed against the core and one option. The options are:

- [Aerospace technical support technician](#)
- [Aerospace fitting technician](#)
- [Aerospace machining technician](#)

A full-time aerospace engineering technician apprentice typically spends 48 months on-programme (this means in training before the gateway). The apprentice must spend at least 12 months on-programme and complete the required amount of off-the-job training in line with the apprenticeship funding rules.

The EPA should be completed within an EPA period lasting typically 3 months.

The apprentice must complete their training and meet the gateway requirements before starting their EPA. The EPA will assess occupational competence.

An approved EPAO must conduct the EPA for this apprenticeship. Employers must work with the training provider to select an approved EPAO from the apprenticeship providers and assessment register (APAR). The integrated assessment method must be conducted in line with the conditions set by the qualification's awarding organisation.

Occupational competence is outlined by the EPA grade descriptors. The integrated assessment methods must be graded by the awarding organisation, or the centre, where centre devised assessment is used. The EPA outcome is determined by the EPAO. The EPAO must combine the outcomes of integrated and non-integrated assessment methods to determine the apprentice's overall grade.

This EPA has 3 assessment methods.

The grades available for each assessment method are below.

Assessment method [1](#) - knowledge test:

- [fail](#)
- [pass](#)

Assessment method [2](#) - development competence assessment:

- [fail](#)
- [pass](#)

Assessment method [3](#) - interview underpinned by a portfolio of evidence:

- [fail](#)
- [pass](#)
- [distinction](#)

The result from each assessment method is combined to decide the overall apprenticeship grade.

The following grades are available for the apprenticeship:

- [fail](#)
- [pass](#)
- [distinction](#)

EPA summary table

[Edit epa gateway form](#)[Edit available grades form](#)[Edit overall epa grading form](#)[Edit re-sits and re-takes form](#)

On-programme - typically 48 months	The apprentice must: • complete training to develop the knowledge, skills and behaviours (KSBs) outlined in this apprenticeship's standard • complete training towards English and mathematics qualifications in line with the apprenticeship funding rules • compile a portfolio of evidence
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	complete training towards the qualifications listed in the aerospace engineering technician apprenticeship standard
End-point assessment gateway	The apprentice's employer must be content that the apprentice is occupationally competent. The apprentice must: - confirm they are ready to take the EPA - have achieved English and mathematics qualifications in line with the apprenticeship funding rules For the interview, the apprentice must submit their portfolio of evidence. The apprentice must also pass the following qualifications: One of the following Level 2 qualifications - Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - Pearson BTEC; QAN 601/7165/0 - Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - C&G No. 4605-02; QAN 601/7310/5 - Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - EAL; QAN 601/7289/7 and, one of the following Level 3 knowledge qualifications - Level 3 Diploma in Aerospace and Aviation Engineering (Development Technical Knowledge) - Pearson BTEC; QAN 601/9063/2 - Level 3 Extended Diploma in Aerospace and Aviation Engineering (Development Technical Knowledge) - Pearson BTEC; QAN 601/9057/7 and, the following Level 3 development competence qualification - Level 3 Diploma in Aerospace Manufacturing (Development Competence) - EAL; QAN 603/0051/6 The apprentice must submit the gateway evidence to their EPAO, including any organisation specific policies and procedures requested by the EPAO.
End-point assessment - typically 3 months	Grades available for each assessment method: Knowledge test fail pass Development competence assessment fail pass Interview underpinned by a portfolio of evidence fail pass distinction Overall EPA and apprenticeship can be graded:

	○fail ○pass ○distinction
Professional recognition	This apprenticeship aligns with Royal Aeronautical Society (RAeS) for Engineering Technician (EngTech) The apprenticeship will either wholly or partially satisfy the requirements for registration at this level. This apprenticeship aligns with Institution of Engineering and Technology (IET) for Engineering Technician (EngTech) The apprenticeship will either wholly or partially satisfy the requirements for registration at this level. This apprenticeship aligns with Institute of Mechanical Engineers (IMechE) for Engineering Technician (EngTech) The apprenticeship will either wholly or partially satisfy the requirements for registration at this level.
Re-sits and re-takes	• Re-take and re-sit grade cap: pass • Re-sit timeframe: typically 3 months • Re-take timeframe: typically 6 months

Duration of end-point assessment period

[Edit duration of end-point assessment period form](#)

The EPA is taken in the EPA period. The EPA period starts when the EPAO confirms the gateway requirements have been met and is typically 3 months.

The EPAO should confirm the gateway requirements have been met and start the EPA as quickly as possible.

EPA gateway

[Edit epa gateway form](#)

The apprentice's employer must be content that the apprentice is occupationally competent. That is, they are deemed to be working at or above the level set out in the occupational standard and ready to undertake the EPA. The employer may take advice from the apprentice's training provider, but the employer must make the decision. The apprentice will then enter the gateway. The apprentice must meet the gateway requirements before starting their EPA.

They must:

- confirm they are ready to take the EPA
- have achieved English and mathematics qualifications in line with the apprenticeship funding rules
- have passed the following qualifications:

One of the following Level 2 qualifications

- Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - Pearson BTEC; QAN 601/7165/0
- Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - C&G No. 4605-02; QAN 601/7310/5
- Level 2 Diploma in Aerospace and Aviation Engineering (Foundation Competence) - EAL; QAN 601/7289/7

and, one of the following Level 3 knowledge qualifications

- Level 3 Diploma in Aerospace and Aviation Engineering (Development Technical Knowledge) - Pearson BTEC; QAN 601/9063/2
- Level 3 Extended Diploma in Aerospace and Aviation Engineering (Development technical Knowledge) - Pearson BTEC; QAN 601/9057/7

and, the following Level 3 development competence qualification

- Level 3 Diploma in Aerospace Manufacturing (Development Competence) - EAL; QAN 603/0051/6
- submit their [portfolio of evidence](#) for the interview

Portfolio of evidence requirements:

The apprentice must compile a portfolio of evidence during the on-programme period of the apprenticeship. It should only contain evidence related to the KSBs that will be assessed by the interview. It will typically contain 10 discrete pieces of evidence. 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 suggested.

Evidence sources may include:

- workplace documentation and records
- workplace policies and procedures
- witness statements
- annotated photographs
- video clips with a maximum total duration of 10 minutes; the apprentice must be in view and identifiable

This is not a definitive list; other evidence sources can be included.

The portfolio of evidence should not include reflective accounts or any methods of self-assessment. Any employer contributions should focus on direct observation of performance, for example, witness statements, rather than opinions. The evidence provided should be valid and attributable to the apprentice; the portfolio of evidence should contain a statement from the employer and apprentice confirming this.

The EPAO should not assess the portfolio of evidence directly as it underpins the interview. The independent assessor should review the portfolio of evidence to prepare questions for the interview. They are not required to provide feedback after this review.

Gateway evidence must be submitted to the EPAO, along with any organisation specific policies and procedures requested by the EPAO.

Order of assessment methods

[Edit order of assessment methods form](#)

The knowledge test and development competence assessment must be passed and completed prior to the interview taking place.

Knowledge test

Edit knowledge test form

This is an integrated assessment method. The knowledge statements aligned to this assessment method will be assessed by the apprentice passing one of the knowledge qualifications listed below:

- Level 3 Diploma in Aerospace and Aviation Engineering (Development Technical Knowledge) - Pearson BTEC; QAN 601/9063/2
- Level 3 Extended Diploma in Aerospace and Aviation Engineering (Development Technical Knowledge) - Pearson BTEC; QAN 601/9057/7

The following units are mandatory and ensure the KSBs aligned to this assessment method are delivered:

- 1. Health and safety in the Engineering workplace

and

- 2. Engineering principles

and one of the following two units:

- 3. Aircraft flight principles and practice

or

- 50. Helicopter Aerodynamics and flight principles

plus all of the following units:

- 52. Principles of Aerospace fitting
- 53. Principles of aerospace machining
- 54. Principles of Aerospace technical support
- 55. Human factors in aviation
- 59. Industry 4.0
- 65. Environmental engineering and sustainability

Overview

For the knowledge test assessment method, the apprentice completes the listed knowledge qualification. This will give the apprentice the opportunity to demonstrate the knowledge mapped to this assessment method. The knowledge test must be structured to give the apprentice the opportunity to demonstrate the knowledge mapped to this assessment method.

Rationale

This assessment method is being used because:

- it can assess knowledge it is easy to administer

- it can be conducted remotely and administered to multiple apprentices at the same time, potentially reducing cost.
- it reduces the assessment burden on the apprentice

Delivery

The delivery of the knowledge test, which is assessed by the integrated knowledge qualification, must align with the conditions set out by the awarding organisation for the integrated qualifications. The knowledge can be tested using, for example, assignments, essays, multiple-choice tests or any other method of testing as determined by the AO.

The apprentice must be given at least 2 weeks' notice of the date and time of any tests.

Test administration

The administration of the knowledge tests assessed by the integrated knowledge qualifications must align to the conditions set by the awarding organisation. The tests for the units or modules will either be set, marked and graded by the AO, or the AO may allow centre devised assessment.

Tests that are taken in a controlled environment must be taken in the presence of an invigilator who is the responsibility of the AO. The AO must have an invigilation policy setting out how the test must be conducted. It must state the ratio of apprentices to invigilators for the setting and allow the test to take place in a secure way.

The AO is responsible for the security of the test including the arrangements for on-line testing. The AO must ensure that their security arrangements maintain the validity and reliability of the test. The AO must verify the apprentice's identity and ensure invigilation of the apprentice for example, with 360-degree cameras and screen sharing facilities.

Where centre devised assessments are used, the centre is responsible for invigilation in controlled environments including having an invigilation policy, and for the security of the tests including on-line testing.

Marking

The responsibility for the marking of the test is with the AO. They must produce a marking scheme to be followed. Marking by computer is allowed where question types support this, for example multiple-choice tests. The AO is responsible for overseeing the marking, standardisation and moderation of the test.

To ensure marking judgements are fair and accurate, and uphold the principles of the EPA, the marking of all integrated or parts of the integrated assessments, must be marked or graded by someone independent of the apprentice.

Where centre devised assessments are used, the marking and grading must align with the conditions set by the AO.

Assessment location

Where the test is taken in a controlled and invigilated environment, this must be a quiet room, free from distractions and influence. The AO must check the venue is suitable.

The test could take place remotely if the appropriate technology and systems are in place to prevent malpractice.

Question and resource development

The AO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers or subject matter experts for this occupation. The AO should maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification and question bank must be reviewed to ensure they remain fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The AO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The AO must ensure that apprentice has a different set of questions in the case of re-sits or re-takes.

The AO must produce the following materials to support the test:

- administration materials
- moderation and standardisation materials
- guidance materials
- grading guidance
- specification
- sample test and mark schemes
- live tests and mark schemes
- question bank

The AO must ensure that the materials are subject to quality assurance procedures including standardisation and moderation.

Where centre devised assessment is used, the question and resource development is the responsibility of the centre and should align to the conditions set by the AO.

Development competence assessment

Edit development competence assessment form

This is an integrated assessment method. The KSBs aligned to this integrated assessment method will be assessed and graded in line with the requirements of the awarding organisation and contribute to the overall outcome of the apprenticeship and the qualification. The KSBs aligned to this assessment method will be assessed by the apprentice passing the development competence qualification listed below.

To ensure the aligned KSBs are assessed, the details for the qualification, including mandating some units, are noted below. These requirements are to ensure assessment of KSBs and are outside the requirement to achieve the qualification:

Level 3 Diploma in Aerospace Manufacturing (Development Competence) - EAL; QAN 603/0051/6

All apprentices must complete all mandatory units listed AAED3-001, AAED3-002, AAED3-003 and AAED3-004

Tech support option

- AAED3-076 - Resolving engineering and manufacturing support problems (Aerospace and Aviation)
- Plus three more units; one of which MUST be from list 1 in the qualification handbook

Fitter option

- AAED3-009 - Producing aircraft detail assemblies (Aerospace and Aviation)

or

- AAED3-010 - Producing composite and/or metallic aircraft sub-assemblies (Aerospace and Aviation)

or

- AAED3-011 - Producing composite and/r metallic aircraft major assemblies (Aerospace and Aviation)
- Plus three more units from section B in the qualification handbook

Machinist option

- AAED3-068 - Loading and proving CNC machine tool programs (Aerospace and Aviation)

- Plus a functional pair of optional units from the following:

- - AAED3-070- Setting CNC turning machines (Aerospace and Aviation)
 - AAED3-071 - Machining components using CNC turning machines (Aerospace and Aviation)

or

- - AAED3-072 - Setting CNC milling machines (Aerospace and Aviation)
 - AAED3-073 - Machining components using CNC milling machines (Aerospace and Aviation)

or

- - AAED3-074 - setting CNC machining centres (Aerospace and Aviation)
 - AAED3-075 - Machining components using CNC machining (Aerospace and Aviation)

Overview

In the development competence assessment, an independent assessor completes the assessment of the apprentice in line with the requirements of the qualification. It gives the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

Rationale

This assessment method is being used because:

- this is a practical role which can be demonstrated through completing tasks

- it allows for consistency of opportunity for apprentices to demonstrate their competence against the mapped KSBs
- it assesses KSBs holistically and objectively
- it reduces the assessment burden on the apprentice

Delivery

The development competence assessment must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

The delivery of the development competence assessment must align with the conditions set out by the AO for the integrated qualification.

The apprentice must be given notice of the development competence assessment.

Where the AO delivers the assessment, they must manage invigilation of the apprentice during the assessment to maintain security of the EPA, in line with their malpractice policy. This includes breaks and moving between locations.

The apprentice must have the format and timescales of the development competence assessment explained to them before the assessment starts.

The independent assessor must ask questions in line with the requirements of the qualification. Follow-up questions are allowed where clarification is required.

To ensure marking judgements are fair and accurate, and uphold the principles of the EPA, the marking of all integrated or parts of the integrated assessments, must be marked or graded by someone independent of the apprentice.

Where centre devised assessments are used, the centre is responsible for invigilation in controlled environments including having an invigilation policy, and for the security of any assessments.

Where centre devised assessments are used, the marking and grading must align to the conditions set by the AO. To ensure marking judgements are fair and accurate, and uphold the principles of the EPA, the marking of all integrated or parts of the integrated assessments, must be marked or graded by someone independent.

The independent assessor must keep accurate records of the assessment. They must record:

- the KSBs being assessed
- the apprentice's answers to questions
- the KSBs demonstrated in answers to questions
- the grade achieved

Assessment location

The development competence assessment may take place in a simulated environment selected by the AO for example a training provider's premises, a training facility in the employer's premises, a test centre or a similar simulated environment. The environment must relate to the apprentice's natural work environment. Equipment and resources needed for the development competence assessment must be provided or organised by the AO who can liaise with the employer to provide these. Where centre devised assessment is used, the training provider or centre delivering the assessment is responsible for equipment and resources.

Question and resource development

The AO must develop a purpose-built assessment specification. It is recommended this is done in consultation with employers or subject matter experts for this occupation. The AO should

maintain the security and confidentiality of EPA materials when consulting with employers. The assessment specification must be reviewed to ensure it remains fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBs mapped to this assessment method. The AO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The AO must produce the following materials to support the development competence assessment:

- assessment materials which include:
 - training materials
 - administration materials
 - moderation and standardisation materials
 - guidance materials
 - grading guidance

The AO must ensure that the integrated qualification materials are subject to quality assurance procedures including standardisation and moderation.

Where centre devised assessments are used, the question and resource development is the responsibility of the centre and should align to the conditions set by the AO.

Interview underpinned by a portfolio of evidence

Edit interview underpinned by a portfolio of evidence form

Overview

In the interview, an independent assessor asks the apprentice questions. It gives the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method.

Rationale

This assessment method is being used because:

- it assesses KSBs holistically and objectively
- it allows for assessment of KSBs that do not occur on a predictable or regular basis
- it allows for assessment of responses where there are a range of potential answers
- it can be conducted remotely, potentially reducing cost

Delivery

The interview must be structured to give the apprentice the opportunity to demonstrate the KSBs mapped to this assessment method to the highest available grade.

An independent assessor must conduct and assess the interview.

The purpose of the independent assessor's questions will be to assess the apprentice's competence against the following themes:

The purpose is to assess the apprentice's competence against the following themes:

Core:

- aerospace engineering and manufacturing ways of working
- aerospace materials, testing and systems
- problem solving and continuous improvement techniques
- quality management systems
- digital and information technology
- team working, communication and inclusion
- continual professional development

Aerospace fitting technician:

- automated manufacturing machinery

The EPAO must give an apprentice 2 weeks' notice of the interview.

The independent assessor must have at least 2 weeks to review the supporting documentation.

The apprentice must have access to their portfolio of evidence during the interview.

The apprentice can refer to and illustrate their answers with evidence from their portfolio of evidence however, the portfolio of evidence is not directly assessed.

The interview must last for 60 minutes. The independent assessor can increase the time of the interview by up to 10%. This time is to allow the apprentice to respond to a question if necessary.

The independent assessor must explain to the apprentice the format and timescales of the interview before it starts. This does not count towards the assessment time.

The independent assessor must ask at least 6 questions. The independent assessor must use the questions from the EPAO's question bank or create their own questions in line with the EPAO's training. Follow-up questions are allowed where clarification is required.

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

The independent assessor must make the grading decision.

The independent assessor must keep accurate records of the assessment. They must record:

- the apprentice's answers to questions
- the KSBs demonstrated in answers to questions
- the grade achieved

Assessment location

The interview must take place in a suitable venue selected by the EPAO for example, the EPAO's or employer's premises.

The interview can be conducted by video conferencing. The EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided.

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

Question and resource development

The EPAO must develop a purpose-built assessment specification and question bank. It is recommended this is done in consultation with employers of this occupation. The EPAO must maintain the security and confidentiality of EPA materials when consulting with employers. The

assessment specification and question bank must be reviewed at least once a year to ensure they remain fit-for-purpose.

The assessment specification must be relevant to the occupation and demonstrate how to assess the KSBS mapped to this assessment method. The EPAO must ensure that questions are refined and developed to a high standard. The questions must be unpredictable. A question bank of sufficient size will support this.

The EPAO must ensure that the apprentice has a different set of questions in the case of re-sits or re-takes.

The EPAO must produce the following materials to support the interview underpinned by a portfolio of evidence:

- independent assessor assessment materials which include:
 - training materials
 - administration materials
 - moderation and standardisation materials
 - guidance materials
 - grading guidance
 - question bank
- EPA guidance for the apprentice and the employer

The EPAO must ensure that the EPA materials are subject to quality assurance procedures including standardisation and moderation.

Grading

[Edit add grade descriptor form](#)[Edit mapping of ksbs to grade themes form](#)[Edit available grades form](#)

Knowledge test

Fail - does not meet pass criteria

THEME KSBS	PASS A PASS FOR THIS ASSESSMENT METHOD WILL BE ACHIEVED AS DETAILED BELOW.
Core - Knowledge qualification K4 K6 K10 K13 K18 K19 K25 K26 K28 K29 K30 S15	The apprentice will be assessed in line with the conditions set by the awarding organisation. In order to pass, the apprentice must achieve the requirements of the pass criteria of the integrated qualification. Awarding organisations or centres must make clear in their marking criteria which grade boundary for the integrated assessment method

THEME KSBS	PASS A PASS FOR THIS ASSESSMENT METHOD WILL BE ACHIEVED AS DETAILED BELOW.
	represents a pass grade for the EPA.

Development competence assessment

Fail - does not meet pass criteria

THEME KSBS	PASS A PASS FOR THIS ASSESSMENT METHOD WILL BE ACHIEVED AS DETAILED BELOW.
Core - Development competence assessment K7 K9 S2 S3 S6 S9 S10 S12 B1	The apprentice will be assessed in line with the conditions set by the awarding organisation. In order to pass, the apprentice must achieve the requirements of the pass criteria of the integrated qualification. Awarding organisations or centres must make clear in their marking criteria which grade boundary for the integrated assessment method represents a pass grade for the EPA.

Interview underpinned by a portfolio of evidence

Fail - does not meet pass criteria

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
Core - Aerospace engineering and manufacturing ways of working K5 K11 K14 S13	Describes regulatory compliance framework policies and procedures for aerospace parts, products and	Explains the importance and benefits to the business of regulatory compliance frameworks, for

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	appliances and for technical management of non-conforming items in line with organisational requirements. (K5) Describes how they comply with safe systems of working, regulations and guidance, considering the workplace situation, procedures to take, and use of safety equipment. (K11) Describes how they use manufacturing related documentation and notifications to complete tasks. Describes how they provide information to colleagues and stakeholders for working progress in relation to work process and outcomes. (K14, S13)	aerospace parts, products and appliances, and the impact on the business for technical mis-management of non-conforming items. (K5)

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
Core - Aerospace materials, testing and systems K15 K16 K17	Describes the use of composite and metallic materials in aviation manufacturing, their properties, applications and the bonding techniques used for composite materials. Describes how non-destructive testing techniques are used to test the integrity of bonded composite materials. (K15, K17) Describes the purpose and application of aviation sector systems including electrical systems, low and high pressure systems, control and operational systems and fluid systems. (K16)	Explains the importance to the business for verifying the integrity of bonded composite materials using non-destructive testing techniques on aviation assemblies and sub-assemblies. (K17)
Core - Problem solving and continuous improvement techniques K1 K3 S1 S8	Describes how they have applied problem solving techniques to resolve	Explains how their improvement suggestion has the potential to improve the work

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	engineering or manufacturing problems. (K1, S1) Describes how they have applied continuous improvement techniques to provide a solution to an aerospace engineering related issue or process in their own work. (K3, S8)	of the wider team, workplace, or system. (K3, S8)
Core - Quality management systems K12 K23	Explains the principle focus of quality management systems BS9001 and AS9100. (K12) Describes the importance of following policies and procedures, and the impact to individuals and the business, of breaches to policies and procedures, for data management. (K23)	None.

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
Core - Digital and information technology K20 K27 S14	Describes how they use information and digital technology in work tasks in compliance with cyber security requirements and GDPR. (K20, S14) Describes integrated digital and physical models, and virtual verification and validation of manufacturing processes or technology implementations. (K27)	Outlines the benefits to the business of ensuring GDPR and cyber security regulations and company policies are followed. (K20, S14)
Core - Team working, communications, and inclusion K2 K8 K21 K22 K24 S4 S5 S7 S11 B2 B4 B5 B6	Describes the aerospace engineering and manufacturing sector, products and supply chain and their role within it. How they apply team working principles for team integration, their own work responsibilities, and to meet their team's work goals and how they respond and adapt	Explains how their team focus supports wider teams to meet their goals. (K8, S7) Explains the benefits of supporting a diverse and inclusive culture for the business. (K24, S11)

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	to work demands and situations. Describe how they seek to resolve conflicts and manage difficult conversations. (K2, K8, S7, B4, B5, B6) Describes how they communicate with others using verbal techniques in a way that is suitable for the context and supports task completion. (K21, S4) Describes how they communicate with colleagues and stakeholders using written techniques, using aerospace engineering terminology for the context. (K22, S5) Describes how they apply equity, diversity and inclusion rules to support social inclusion in the workplace with colleagues and	

THEME KSBS	PASS APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS	DISTINCTION APPRENTICES MUST DEMONSTRATE ALL OF THE PASS DESCRIPTORS AND ALL OF THE DISTINCTION DESCRIPTORS
	stakeholders. (K24, S11, B2)	
Core - Continual professional development B3	Outlines the planned and unplanned learning and development activities they have carried out and shows a commitment to future continued professional development to maintain and enhance competence. (B3)	None.
Aerospace fitting technician - Automated manufacturing machinery K40	Describes how as an aerospace fitting technician they set up automated manufacturing machinery, validate programs, and operate automated manufacturing machinery in the production of aircraft assemblies and sub-assemblies. (K40)	None.

Overall EPA grading

[Edit overall epa grading form](#)

Performance in the EPA determines the apprenticeship grade of:

- fail
- pass
- distinction

An independent assessor must grade the interview in line with this EPA plan.

The EPAO must combine the individual assessment method grades to determine the overall EPA grade.

If the apprentice fails one or more assessment methods, they will be awarded an overall fail.

To achieve an overall pass, the apprentice must achieve at least a pass in all the assessment methods. To achieve a distinction, the apprentice must achieve a pass in the knowledge test and the development competence assessment and a distinction in the interview underpinned by a portfolio of evidence. Awarding organisations should make clear in their marking criteria which grade boundary for the integrated assessment method represents a pass grade for the EPA. This pass grade must reflect demonstration of occupational competence in the KSBs. Grades from individual assessment methods must be combined in the following way to determine the grade of the EPA overall.

KNOWLEDGE TEST	DEVELOPMENT COMPETENCE ASSESSMENT	INTERVIEW UNDERPINNED BY A PORTFOLIO OF EVIDENCE	OVERALL GRADING
Fail	Any grade	Any grade	Fail
Any grade	Fail	Any grade	Fail
Any grade	Any grade	Fail	Fail
Pass	Pass	Pass	Pass
Pass	Pass	Distinction	Distinction

Re-sits and re-takes

Edit re-sits and re-takes form

If the apprentice fails one assessment method or more, they can take a re-sit or a re-take at their employer's discretion. The apprentice's employer needs to agree that a re-sit or re-take is appropriate. A re-sit does not need further learning, whereas a re-take does. The apprentice should have a supportive action plan to prepare for a re-sit or a re-take.

The employer and the EPAO should agree the timescale for a re-sit or re-take. A re-sit is typically taken within 3 months of the EPA outcome notification. The timescale for a re-take is dependent on how much re-training is required and is typically taken within 6 months of the EPA outcome notification.

Failed assessment methods must be re-sat or re-taken within a 6-month period from the EPA outcome notification, otherwise the entire EPA will need to be re-sat or re-taken in full.

Re-sits and re-takes are not offered to an apprentice wishing to move from pass to a higher grade.

The apprentice will get a maximum EPA grade of pass for a re-sit or re-take, unless the EPAO determines there are exceptional circumstances.

Roles and responsibilities

Edit roles and responsibilities form

ROLES	RESPONSIBILITIES
Apprentice	As a minimum, the apprentice should: • complete on-programme training to meet the KSBs as outlined in the apprenticeship standard for a minimum of 12 months • complete the required amount of off-the-job training specified by the apprenticeship funding rules and as arranged by the employer and training provider • understand the purpose and importance of EPA • prepare for and undertake the EPA including meeting all gateway requirements
Employer	As a minimum, the apprentice's employer must: • select the training provider • work with the training provider to select the EPAO • work with the training provider, where applicable, to support the apprentice in the workplace and to provide the opportunities for the apprentice to develop the KSBs • arrange and support off-the-job training to be undertaken by the apprentice • decide when the apprentice is working at or above the apprenticeship standard and is ready for EPA • ensure the apprentice is prepared for the EPA • ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan • confirm arrangements with the EPAO for the EPA in a timely manner, including who, when, where • provide the EPAO with access to any employer-specific documentation as required for example, company policies • ensure that the EPA is scheduled with the EPAO for a date and time which allows appropriate opportunity for the apprentice to meet the KSBs • ensure the apprentice is given sufficient time away from regular duties to prepare for, and complete the EPA • ensure that any required supervision during the EPA period, as stated within this EPA plan, is in place

ROLES	RESPONSIBILITIES
	• ensure the apprentice has access to the resources used to fulfil their role and carry out the EPA for workplace based assessments • remain independent from the delivery of the EPA • pass the certificate to the apprentice upon receipt
EPAO	As a minimum, the EPAO must: • conform to the requirements of this EPA plan and deliver its requirements in a timely manner • conform to the requirements of the apprenticeship provider and assessment register • conform to the requirements of the external quality assurance provider (EQAP) • understand the apprenticeship including the occupational standard and EPA plan • make all necessary contractual arrangements including agreeing the price of the EPA • develop and produce assessment materials including specifications and marking materials, for example mark schemes, practice materials, training material • maintain and apply a policy for the declaration and management of conflict of interests and independence. This must ensure, as a minimum, there is no personal benefit or detriment for those delivering the EPA or from the result of an assessment. It must cover: ○ apprentices ○ employers ○ independent assessors ○ any other roles involved in delivery or grading of the EPA • have quality assurance systems and procedures that ensure fair, reliable and consistent assessment and maintain records of internal quality assurance (IQA) activity for external quality assurance (EQA) purposes • appoint independent, competent, and suitably qualified assessors in line with the requirements of this EPA plan • appoint administrators, invigilators and any other roles where required to facilitate the EPA • deliver induction, initial and on-going training for all their independent assessors and any other roles involved in

ROLES	RESPONSIBILITIES
	the delivery or grading of the EPA as specified within this EPA plan. This should include how to record the rationale and evidence for grading decisions where required • conduct standardisation with all their independent assessors before allowing them to deliver an EPA, when the EPA is updated, and at least once a year • conduct moderation across all of their independent assessors' decisions once EPAs have started according to a sampling plan, with associated risk rating of independent assessors • monitor the performance of all their independent assessors and provide additional training where necessary • develop and provide assessment recording documentation to ensure a clear and auditable process is in place for providing assessment decisions and feedback to all relevant stakeholders • use language in the development and delivery of the EPA that is appropriate to the level of the apprenticeship • arrange for the EPA to take place in a timely manner, in consultation with the employer • provide information, advice, and guidance documentation to enable apprentices, employers and training providers to prepare for the EPA • confirm the gateway requirements have been met before they start the EPA for an apprentice • arrange a suitable venue for the EPA • maintain the security of the EPA including, but not limited to, verifying the identity of the apprentice, invigilation and security of materials • where the EPA plan permits assessment away from the workplace, ensure that the apprentice has access to the required resources and liaise with the employer to agree this if necessary • confirm the overall grade awarded • maintain and apply a policy for conducting appeals
Independent assessor	As a minimum, an independent assessor must: • be independent, with no conflict of interest with the apprentice, their employer or training provider, specifically, they must not receive a personal benefit or detriment from the result of the assessment • have, maintain and be able to evidence up-to-date knowledge and expertise of the occupation

ROLES	RESPONSIBILITIES
	• have the competence to assess the EPA and meet the requirements of the IQA section of this EPA plan • understand the apprenticeship's occupational standard and EPA plan • attend induction and standardisation events before they conduct an EPA for the first time, when the EPA is updated, and at least once a year • use language in the delivery of the EPA that is appropriate to the level of the apprenticeship • work with other personnel, where used, in the preparation and delivery of assessment methods • conduct the EPA to assess the apprentice against the KSBs and in line with the EPA plan • make final grading decisions in line with this EPA plan • record and report assessment outcome decisions • comply with the IQA requirements of the EPAO • comply with external quality assurance (EQA) requirements
Training provider	As a minimum, the training provider must: • conform to the requirements of the apprenticeship provider and assessment register • ensure procedures are in place to mitigate against any conflict of interest • work with the employer and support the apprentice during the off-the-job training to provide the opportunities to develop the KSBs as outlined in the occupational standard • deliver training to the apprentice as outlined in their apprenticeship agreement • monitor the apprentice's progress during any training provider led on-programme learning • ensure the apprentice is prepared for the EPA • work with the employer to select the EPAO • advise the employer, upon request, on the apprentice's readiness for EPA • ensure that all supporting evidence required at the gateway is submitted in line with this EPA plan • remain independent from the delivery of the EPA

Reasonable adjustments

Edit reasonable adjustments form

The EPAO, AO and training provider must have reasonable adjustments arrangements for the EPA.

This should include:

- how an apprentice qualifies for a reasonable adjustment
- what reasonable adjustments may be made

Adjustments must maintain the validity, reliability and integrity of the EPA as outlined in this EPA plan.

The EPAO, AO and training provider must have special considerations arrangements for the EPA. This should include:

- how an apprentice qualifies for a special consideration
- what special considerations may be made

Special considerations must maintain the validity, reliability and integrity of the EPA as outlined in this EPA plan.

Internal quality assurance

Edit internal quality assurance form

Internal quality assurance refers to the strategies, policies and procedures that an EPAO and AO must have in place to ensure valid, consistent and reliable EPA decisions.

EPAOs and AOs for this EPA must adhere to the requirements within the roles and responsibilities table.

They must also appoint independent assessors who:

- have recent relevant experience of the occupation or sector to at least occupational level 3 gained in the last 3 years or significant experience of the occupation or sector

Value for money

Edit value for money form

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

- completing applicable assessment methods online, for example computer-based assessment
- utilising digital remote platforms to conduct applicable assessment methods
- using the employer's premises

Professional recognition

Edit professional recognition form

This apprenticeship aligns with:

Royal Aeronautical Society (RAeS) for Engineering Technician (EngTech)

Institution of Engineering and Technology (IET) for Engineering Technician (EngTech)
 Institute of Mechanical Engineers (IMechE) for Engineering Technician (EngTech)

Mapping of KSBs to assessment methods

[Edit mapping of ksbs to assessment methods form](#)

KNOWLEDGE	ASSESSMENT METHODS
K1: Core. Problem solving techniques: diagnostics, 6 thinking hats, DMAIC (Define, Measure, Analyse, Improve, Control), PDCA (Plan Do Check Act), 5 Why's, fishbone, half-split, practical problem solving (PPS), root cause analysis (RCA) and process failure effect mode analysis (PFEMA).	Interview underpinned by a portfolio of evidence
K2: Core. The aerospace engineering and manufacturing sector: Associated organisations. Types of products. Supply chain.	Interview underpinned by a portfolio of evidence
K3: Core. Continuous improvement techniques: Six Sigma, 7 Wastes (Transportation, Inventory, Motion, Waiting, Over-production, Over-processing, Defects), 5C's (Clear out, Configure, Clean and check, Conformity, Custom and practice), SMED (Single-minute Exchange of Dies), Kaizen.	Interview underpinned by a portfolio of evidence
K4: Core. Principles of digital devices, application of digital technologies and information systems: Future factory, Industrial Internet of Things (IIoT), automation, connected technologies, cyber security, industry and autonomous robotics – Cobotics, virtual and augmented reality, Artificial Intelligence (AI) and its applications.	Knowledge test
K5: Core. Regulatory compliance frameworks: rules for compliance for parts, products and appliances. Technical management of non-conforming items.	Interview underpinned by a portfolio of evidence
K6: Core. Aerospace manufacturing systems: measurement equipment, production flow lines and process requirements for the introduction of new technologies.	Knowledge test
K7: Core. Processes and procedures for recording aerospace engineering and manufacturing activities: work process, outcomes, traceability and compliance.	Development competence assessment

KNOWLEDGE	ASSESSMENT METHODS
K8: Core. Team working principles: team integration, conflict resolution and managing difficult conversations.	Interview underpinned by a portfolio of evidence
K9: Core. Housekeeping practices: preparation of work area and restoration on completion of work.	Development competence assessment
K10: Core. Awareness of health and safety regulations, standards and guidance: Health and Safety at Work Act. Control of Substances Hazardous to Health (COSHH). Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations (RIDDOR). Risk assessments. Manual handling. Types of hazards. Near miss reporting. Personal Protective Equipment (PPE). Working in confined spaces. Working at height. Provision and Use of Work Equipment Regulations (PUWER). Lifting Operations and Lifting Equipment Regulations (LOLER).	Knowledge test
K11: Core. Safe systems of working: Situational awareness. Isolation and emergency stop procedures. Emergency evacuation procedures. Slips, trips and falls. Safety equipment: guards, signage, fire extinguishers. Lone working. Noise regulation. Display screen equipment (DSE).	Interview underpinned by a portfolio of evidence
K12: Core. Quality management systems: BS9001 and AS9100.	Interview underpinned by a portfolio of evidence
K13: Core. Human factors: influence on decision making process.	Knowledge test
K14: Core. Manufacturing related documentation: Job cards or build records, Bill of Materials (BOM), Standard Operating Instructions (SOP's), Standard Process Instructions (SPI's), Engineering Query Notifications (EQN's) and Drawing Query Notifications (DQN's).	Interview underpinned by a portfolio of evidence
K15: Core. Aviation metallic and composite materials: composite component materials used in manufacture and hot and cold bonding techniques. Metallic materials, properties, and applications.	Interview underpinned by a portfolio of evidence
K16: Core. Aviation sector systems: Electrical, high and low pressure systems, control and operation and fluid systems.	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
K17: Core. Non-destructive testing techniques: radiography, ultrasound, penetrant flaw detection and pressure testing.	Interview underpinned by a portfolio of evidence
K18: Core. Environmental and sustainability regulations and guidance: Types of pollution and control measures: noise, smells, spills, and waste. Waste management. Hazardous waste regulations. Re-cyclable materials and waste disposal. Environmental management systems including energy and waste.	Knowledge test
K19: Core. Engineering mathematical methods and scientific principles: calculations, conversions.	Knowledge test
K20: Core. Information technology: Management Information Systems (MIS), spreadsheets, presentation, word processing, email, virtual communication and learning platforms. General Data Protection Regulation (GDPR).	Interview underpinned by a portfolio of evidence
K21: Core. Verbal communication techniques: Giving and receiving information. Adapting style to audience. Barriers in communication and how to overcome them.	Interview underpinned by a portfolio of evidence
K22: Core. Written communication techniques: Aerospace engineering terminology. Report writing.	Interview underpinned by a portfolio of evidence
K23: Core. Data: policies and procedures and governance. Implication of breaches to policies and procedures.	Interview underpinned by a portfolio of evidence
K24: Core. Principles of equity, diversity, and inclusion in the workplace.	Interview underpinned by a portfolio of evidence
K25: Core. Emerging power sources: electrification, hydrogen-based propulsion, Sustainable Aviation Fuels (SAF).	Knowledge test
K26: Core. Integrated digital and physical models: Digital twinning.	Knowledge test

KNOWLEDGE	ASSESSMENT METHODS
K27: Core. Virtual verification and validation of manufacturing processes or technology implementations.	Interview underpinned by a portfolio of evidence
K28: Core. Fundamental principles of technical support: status reports to internal and external stakeholders. Inspection, testing, validation and analysis of aerospace components. Written reports on engineering, manufacturing or maintenance activities. Technical documentation and information from Computer aided design (CAD), Computer aided manufacturing (CAM), engineering drawings and representations.	Knowledge test
K29: Core. Fundamental principles of aerospace engineering fitter: purpose and operation of tools and equipment, setting machinery, jigs and fixtures, marking out, validation of automated manufacturing programmes, automated production operations, production of aerospace assemblies and sub assemblies.	Knowledge test
K30: Core. Fundamental principles of machining: setting machine operations, program validation and operation of CNC machinery, component production. Subtractive manufacturing, Additive manufacturing and Near-Net-Shape manufacturing techniques (NNS).	Knowledge test
K31: Aerospace technical support technician. Technical support option: Product and process models. Realtime data capture, information flow and collaborative interrogation.	Development competence assessment
K32: Aerospace technical support technician. Technical support option: Statistical methods and tools in data sharing and communication with blockchain to assure origins of shared data.	Development competence assessment
K33: Aerospace technical support technician. Technical support option: Planning engineering activities techniques: Strengths, Weaknesses, Opportunities, Threats (SWOT), stakeholder matrices, work organisation, risk mapping, radar chart and summary risk profiles.	Development competence assessment
K34: Aerospace technical support technician. Technical support option: Statistical data analysis, observational patterns and trends, conclusions.	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
K35: Aerospace technical support technician. Technical support option: Technical report writing, representations, drawings and documentation.	Development competence assessment
K36: Aerospace fitting technician. Fitter option: Tools, jigs and fixtures for aerospace engineering assemblies and sub assemblies.	Development competence assessment
K37: Aerospace fitting technician. Fitter option: Specialist aviation mechanical fasteners, joining techniques, riveting, fastener installation, tightening processes and electrical connections for aerospace engineering assemblies and sub assemblies.	Development competence assessment
K38: Aerospace fitting technician. Fitter option: Mechanical and electrical measuring equipment. Purpose and use in production of assemblies and sub assemblies, including torque measurement, electrical continuity.	Knowledge test
K39: Aerospace fitting technician. Fitter option: Inspection and testing methods of completed assemblies and sub assemblies.	Development competence assessment
K40: Aerospace fitting technician. Fitter option: Automated manufacturing machinery. Setting up of machinery, programme validation and operation for production of assemblies and sub assemblies.	Interview underpinned by a portfolio of evidence
K41: Aerospace machining technician. Machinist option: Computer aided design (CAD) and Computer aided manufacturing (CAM): Tools and techniques.	Development competence assessment
K42: Aerospace machining technician. Machinist option: Machine and operator safety mechanisms.	Development competence assessment
K43: Aerospace machining technician. Machinist option: Tooling and work-holding devices. Purpose and operation of devices for carrying out machining tasks.	Development competence assessment
K44: Aerospace machining technician. Machinist option: CNC programming, verifying and proving CNC programmes.	Development competence assessment
K45: Aerospace machining technician.	Development competence assessment

KNOWLEDGE	ASSESSMENT METHODS
Machinist option: Engineering machinery, and machining processes tools and equipment. Milling, turning, grinding, electro discharge machine (EDM), gear cutting, drilling.	
K46: Aerospace machining technician. Machinist option: Machining operations and techniques to produce components.	Development competence assessment
SKILL	ASSESSMENT METHODS
S1: Core. Resolve engineering or manufacturing engineering problems utilising problem solving techniques. For example, practical problem solving (PPS), root cause analysis (RCA), advanced product quality planning (APQP), and process failure effect mode analysis (PFEMA).	Interview underpinned by a portfolio of evidence
S2: Core. Review and select technical information from multiple sources. For example, dimensional requirements, tolerances, surface finishes and operational sequences using drawings, measurement and production output statistical data.	Development competence assessment
S3: Core. Read and interpret information. For example, text, data, design drawings, engineering drawings, job cards, work instructions, risk assessments, method statements, operation manuals.	Development competence assessment
S4: Core. Communicate with others verbally. For example, colleagues and stakeholders.	Interview underpinned by a portfolio of evidence
S5: Core. Communicate in writing. For example, prepare written technical reports for stakeholders using aerospace terminology where appropriate.	Interview underpinned by a portfolio of evidence
S6: Core. Apply safe systems of work. For example, risk assessments, safe working practises for machinery, equipment, and tools in workplace environments.	Development competence assessment
S7: Core. Apply team working principles. For example, contribute to team meetings. Identify and report on work progress, issues or concerns.	Interview underpinned by a portfolio of evidence
S8: Core.	Interview underpinned by a portfolio of evidence

KNOWLEDGE	ASSESSMENT METHODS
Apply continuous improvement techniques. Devise suggestions for improvement.	
S9: Core. Apply health and safety procedures, safe working practises in compliance with regulations and standards.	Development competence assessment
S10: Core. Apply environmental and sustainability procedures in compliance with regulations and standards. For example, segregate resources for reuse, recycling, and disposal.	Development competence assessment
S11: Core. Apply equity, diversity and inclusion procedures.	Interview underpinned by a portfolio of evidence
S12: Core. Follow manufacturers' instructions and procedures.	Development competence assessment
S13: Core. Provide information on work process and outcomes to colleagues and stakeholders.	Interview underpinned by a portfolio of evidence
S14: Core. Use information technology prioritising data protection and cyber security. Comply with GDPR. For example, digital tools for presentation of data, digital communication and collaboration.	Interview underpinned by a portfolio of evidence
S15: Core. Use science and engineering principles to solve engineering problems. For example, solve engineering problems using calculus, statistics, probability, needs analysis and systems engineering.	Knowledge test
S16: Aerospace technical support technician. Technical support option: Organise and plan technical engineering activities.	Development competence assessment
S17: Aerospace technical support technician. Technical support option: Apply statistical methods analysis to generate reports. For example, parts per million (PPM), quality adherence.	Development competence assessment
S18: Aerospace technical support technician.	Development competence assessment

KNOWLEDGE	ASSESSMENT METHODS
Technical support option: Produce technical information. For example, technical reports on engineering, manufacturing or maintenance activities.	
S19: Aerospace fitting technician. Fitter option: Maintain the work area prior to, during, and on completion of the activity. Restore work area and return resources and consumables on completion.	Development competence assessment
S20: Aerospace fitting technician. Fitter options: Select, check and use tools, jigs and marking out equipment for aerospace production activities.	Development competence assessment
S21: Aerospace fitting technician. Fitter options: Assemble, position and fix mechanical fasteners or electrical connections.	Development competence assessment
S22: Aerospace fitting technician. Fitter options: Select and use measuring equipment. For example, digital micrometers, callipers, go and no-go gauges, torque measuring equipment, electrical continuity measuring equipment.	Development competence assessment
S23: Aerospace fitting technician. Fitter options: Produce aerospace assemblies in accordance with specified manufacturing instructions.	Development competence assessment
S24: Aerospace fitting technician. Fitter options: Inspect completed aerospace assemblies in line with specified manufacturing tolerances.	Development competence assessment
S25: Aerospace machining technician. Machinist option: Interpret information from Computer Aided Design or Computer Aided Manufacturing (CAD, CAM) software.	Development competence assessment
S26: Aerospace machining technician. Machinist options: Maintain the machining work area prior to, during and on completion of the activity. Restore area and return resources and consumables on completion.	Development competence assessment
S27: Aerospace machining technician. Machinist option: Inspect condition and operation of all safety mechanisms. For example, interlocks.	Development competence assessment
S28: Aerospace machining technician.	Development competence assessment

KNOWLEDGE	ASSESSMENT METHODS
Machinist option: Select and validate CNC Programmes.	
S29: Aerospace machining technician. Machinist option: Mount and set work-holding devices, work piece and cutting tools.	Development competence assessment
S30: Aerospace machining technician. Machinist option: Select machine type and prepare tooling for machining operations.	Development competence assessment
S31: Aerospace machining technician. Machinist option: Set the machine tool operating parameters to component specification.	Development competence assessment
S32: Aerospace machining technician. Machinist option: Perform machining operations.	Development competence assessment
S33: Aerospace machining technician. Machinist option: Inspect completed aerospace components in line with specified manufacturing tolerances.	Development competence assessment
BEHAVIOUR	ASSESSMENT METHODS
B1: Core. Prioritise and promote health and safety. For example, hazard and risk awareness, proactive prevention of accidents.	Development competence assessment
B2: Core. Support social inclusion in the workplace with colleagues, and stakeholders.	Interview underpinned by a portfolio of evidence
B3: Core. Committed to continued professional development (CPD) to maintain and enhance competence in their own area of practice.	Interview underpinned by a portfolio of evidence
B4: Core. Take personal responsibility for their own work.	Interview underpinned by a portfolio of evidence
B5: Core. Respond and adapt to work demands.	Interview underpinned by a portfolio of evidence
B6: Core. Team-focus to meet work goals.	Interview underpinned by a portfolio of evidence

Mapping of KSBs to grade themes

Knowledge test

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Core - Knowledge qualification K4 K6 K10 K13 K18 K19 K25 K26 K28 K29 K30 S15	Principles of digital devices, application of digital technologies and information systems: Future factory, Industrial Internet of Things (IIoT), automation, connected technologies, cyber security, industry and autonomous robotics – Cobotics, virtual and augmented reality, Artificial Intelligence (AI) and its applications. (K4) Aerospace manufacturing systems: measurement equipment, production flow lines and process requirements for the introduction of new technologies. (K6) Awareness of health and safety regulations, standards and guidance: Health and Safety at Work Act. Control of Substances Hazardous to Health (COSHH). Reporting of Injuries, Diseases, and Dangerous Occurrences Regulations (RIDDOR). Risk assessments. Manual handling. Types of hazards. Near miss reporting. Personal Protective Equipment (PPE). Working in confined spaces. Working at height. Provision and Use of Work Equipment Regulations (PUWER). Lifting Operations and Lifting Equipment Regulations (LOLER). (K10) Human factors: influence on decision making process. (K13) Environmental and sustainability regulations and guidance: Types of pollution and control measures: noise, smells, spills, and waste. Waste management. Hazardous waste regulations. Re-cyclable materials and waste disposal. Environmental	Use science and engineering principles to solve engineering problems. For example, solve engineering problems using calculus, statistics, probability, needs analysis and systems engineering. (S15)	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
	management systems including energy and waste. (K18) Engineering mathematical methods and scientific principles: calculations, conversions. (K19) Emerging power sources: electrification, hydrogen-based propulsion, Sustainable Aviation Fuels (SAF). (K25) Integrated digital and physical models: Digital twinning. (K26) Fundamental principles of technical support: status reports to internal and external stakeholders. Inspection, testing, validation and analysis of aerospace components. Written reports on engineering, manufacturing or maintenance activities. Technical documentation and information from Computer aided design (CAD), Computer aided manufacturing (CAM), engineering drawings and representations. (K28) Fundamental principles of aerospace engineering fitter: purpose and operation of tools and equipment, setting machinery, jigs and fixtures, marking out, validation of automated manufacturing programmes, automated production operations, production of aerospace assemblies and sub assemblies. (K29) Fundamental principles of machining: setting machine operations, program validation and operation of CNC machinery, component production. Subtractive manufacturing, Additive manufacturing and Near-Net-Shape manufacturing techniques (NNS). (K30)		

Development competence assessment

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Core - Development competence assessment K7 K9 S2 S3 S6 S9 S10 S12 B1	Processes and procedures for recording aerospace engineering and manufacturing activities: work process, outcomes, traceability and compliance. (K7) Housekeeping practices: preparation of work area and restoration on completion of work. (K9)	Review and select technical information from multiple sources. For example, dimensional requirements, tolerances, surface finishes and operational sequences using drawings, measurement and production output statistical data. (S2) Read and interpret information. For example, text, data, design drawings, engineering drawings, job cards, work instructions, risk assessments, method statements, operation manuals. (S3) Apply safe systems of work. For example, risk assessments, safe working practises for machinery, equipment, and tools in workplace environments. (S6) Apply health and safety procedures, safe working practises in compliance with regulations and standards. (S9) Apply environmental and sustainability procedures in compliance with regulations and standards. For example, segregate resources for reuse, recycling, and disposal. (S10) Follow manufacturers' instructions and procedures. (S12)	Prioritise and promote health and safety. For example, hazard and risk awareness, proactive prevention of accidents. (B1)

Interview underpinned by a portfolio of evidence

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
Core - Aerospace engineering and manufacturing ways of working K5 K11 K14 S13	Regulatory compliance frameworks: rules for compliance for parts, products and appliances. Technical management of non-conforming items. (K5) Safe systems of working: Situational awareness. Isolation and emergency stop procedures. Emergency evacuation procedures. Slips, trips and falls. Safety equipment: guards, signage, fire extinguishers. Lone working. Noise regulation. Display screen equipment (DSE). (K11) Manufacturing related documentation: Job cards or build records, Bill of Materials (BOM), Standard Operating Instructions (SOI's), Standard Process Instructions (SPI's), Engineering Query Notifications (EQN's) and Drawing Query Notifications (DQN's). (K14)	Provide information on work process and outcomes to colleagues and stakeholders. (S13)	None
Core - Aerospace materials, testing and systems K15 K16 K17	Aviation metallic and composite materials: composite component materials used in manufacture and hot and cold bonding techniques. Metallic materials, properties, and applications. (K15) Aviation sector systems: Electrical, high and low pressure systems, control	None	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
	and operation and fluid systems. (K16) Non-destructive testing techniques: radiography, ultrasound, penetrant flaw detection and pressure testing. (K17)		
Core - Problem solving and continuous improvement techniques K1 K3 S1 S8	Problem solving techniques: diagnostics, 6 thinking hats, DMAIC (Define, Measure, Analyse, Improve, Control), PDCA (Plan Do Check Act), 5 Why's, fishbone, half-split, practical problem solving (PPS), root cause analysis (RCA) and process failure effect mode analysis (PFEMA). (K1) Continuous improvement techniques: Six Sigma, 7 Wastes (Transportation, Inventory, Motion, Waiting, Over-production, Over-processing, Defects), 5C's (Clear out, Configure, Clean and check, Conformity, Custom and practice), SMED (Single-minute Exchange of Dies), Kaizen. (K3)	Resolve engineering or manufacturing engineering problems utilising problem solving techniques. For example, practical problem solving (PPS), root cause analysis (RCA), advanced product quality planning (APQP), and process failure effect mode analysis (PFEMA). (S1) Apply continuous improvement techniques. Devise suggestions for improvement. (S8)	None
Core - Quality management systems K12 K23	Quality management systems: BS9001 and AS9100. (K12) Data: policies and procedures and governance. Implication of breaches to policies and procedures. (K23)	None	None
Core - Digital and information	Information technology: Management Information	Use information technology prioritising	None

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
technology K20 K27 S14	Systems (MIS), spreadsheets, presentation, word processing, email, virtual communication and learning platforms. General Data Protection Regulation (GDPR). (K20) Virtual verification and validation of manufacturing processes or technology implementations. (K27)	data protection and cyber security. Comply with GDPR. For example, digital tools for presentation of data, digital communication and collaboration. (S14)	
Core - Team working, communications, and inclusion K2 K8 K21 K22 K24 S4 S5 S7 S11 B2 B4 B5 B6	The aerospace engineering and manufacturing sector: Associated organisations. Types of products. Supply chain. (K2) Team working principles: team integration, conflict resolution and managing difficult conversations. (K8) Verbal communication techniques: Giving and receiving information. Adapting style to audience. Barriers in communication and how to overcome them. (K21) Written communication techniques: Aerospace engineering terminology. Report writing. (K22) Principles of equity, diversity, and inclusion in the workplace. (K24)	Communicate with others verbally. For example, colleagues and stakeholders. (S4) Communicate in writing. For example, prepare written technical reports for stakeholders using aerospace terminology where appropriate. (S5) Apply team working principles. For example, contribute to team meetings. Identify and report on work progress, issues or concerns. (S7) Apply equity, diversity and inclusion procedures. (S11)	Support social inclusion in the workplace with colleagues, and stakeholders. (B2) Take personal responsibility for their own work. (B4) Respond and adapt to work demands. (B5) Team-focus to meet work goals. (B6)
Core - Continual professional development B3	None	None	Committed to continued professional development (CPD) to maintain and enhance

KSBS GROUPED BY THEME	KNOWLEDGE	SKILLS	BEHAVIOUR
			competence in their own area of practice. (B3)
Aerospace fitting technician - Automated manufacturing machinery K40	Fitter option: Automated manufacturing machinery. Setting up of machinery, programme validation and operation for production of assemblies and sub assemblies. (K40)	None	None

Supporting information

External quality assurance

[Edit external quality assurance - eqa form](#)

Option selected: Ofqual

Involved employers

Airbus, BAE Systems, Collins Aerospace, GKN Aerospace, Leonardo Helicopters, MBDA, Rolls Royce.

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EPA menu