

End-point assessment plan for Ordnance Munitions and Explosives Specialist apprenticeship standard

Apprenticeship standard number	Apprenticeship standard level	Integrated end-point assessment
ST0834	7	Integrated degree apprenticeship

Contents

Introduction and overview	2
EPA summary table	3
Length of end-point assessment period	5
Order of assessment methods	5
Gateway	6
Assessment methods.....	7
Reasonable adjustments	14
Grading.....	14
Re-sits and re-takes.....	17
Roles and responsibilities	17
Internal Quality Assurance (IQA).....	20
Affordability.....	20
Professional body recognition	20
Mapping of knowledge, skills and behaviours (KSBs)	21

Introduction and overview

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

Full time apprentices will typically spend 36 months on-programme (before the gateway) working towards the occupational standard, completing the required amount of off-the-job training in line with the apprenticeship funding rules.. All apprentices must spend a minimum of 12 months on-programme.

The EPA period should only start, and the EPA be arranged, once the employer is satisfied that the apprentice is deemed to be consistently working at or above the level set out in the occupational standard, all of the pre-requisite gateway requirements for EPA have been met and can be evidenced to an EPAO.

As a gateway requirement and prior to taking the EPA, apprentices must achieve all approved qualifications mandated in the Ordnance Munitions and Explosives Specialist standard.

These are:

- Explosive Ordnance Engineering (EOE) MSc

The apprentice will have completed 120 credits on programme and the remaining 80 credits will be completed during the EPA period.

Achieve English and mathematics qualifications in line with the apprenticeship funding rules.

The EPA must be completed within an EPA period lasting typically 6 month(s), after the EPA gateway.

The EPA consists of 2 discrete assessment methods.

The individual assessment methods will have the following grades:

Assessment method 1: Work based project with presentation and questions and answers

- Fail
- Pass
- Distinction

Assessment method 2: Professional discussion underpinned by portfolio of evidence

- Fail
- Pass
- Distinction

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

- Fail
- Pass
- Distinction

EPA summary table

On-programme (typically 36 months)	<p>Training to develop the occupation standard's knowledge, skills and behaviours (KSBs).</p> <p>Compiling a portfolio of evidence</p> <p>Complete training towards English and mathematics qualifications in line with the apprenticeship funding rules.</p> <p>Completing on programme modules of the Explosive Ordnance Engineering (EOE) MSc degree</p>
End-point assessment gateway	<ul style="list-style-type: none"> • Employer is satisfied the apprentice is consistently working at, or above, the level of the occupational standard. <p>Apprentices must achieve the following approved qualifications mandated in the occupational standard:</p> <ul style="list-style-type: none"> • Explosive Ordnance Engineering (EOE) MSc • achieve English and mathematics qualifications in line with the apprenticeship funding rules. <p>Apprentices must:</p> <ul style="list-style-type: none"> • complete a portfolio of evidence • agree the project's subject, title and scope between the employer, the apprentice and the EPAO
End-point assessment (which will typically take 6 months)	<p>Assessment method 1: Work based project with presentation and questions and answers.</p> <p>With the following grades:</p> <ul style="list-style-type: none"> · Fail · Pass · Distinction <p>Assessment method 2: Professional discussion underpinned by portfolio of evidence</p> <p>With the following grades:</p> <ul style="list-style-type: none"> · Fail · Pass · Distinction
Professional recognition	<p>Aligns with recognition by:</p> <ul style="list-style-type: none"> • Institution of Mechanical Engineers (IMechE) • Institution of Engineering and Technology (IET)

Length of end-point assessment period

The EPA will be completed within an EPA period lasting typically of 6 month(s), after the EPA gateway. Any supporting material which underpins an EPA assessment method should be submitted at the EPA gateway period.

Order of assessment methods

The assessment methods can be delivered in any order.

Gateway

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

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

Apprentices must achieve the following approved qualifications as mandated in the occupational standard:

- completed and passed all credit carrying modules of the Explosive Ordnance Engineering (EOE) MSc which will be achieved as part of the end point assessment as it is an integrated degree apprenticeship
- *achieve English and mathematics qualifications in line with the apprenticeship funding rules.*

For the Work based project with presentation and questions and answers:

- the project's subject, title and scope will be agreed between the employer and the EPAO at the gateway

For the Professional discussion underpinned by portfolio of evidence, the apprentice will be required to submit:

- a portfolio of evidence

The portfolio of evidence requirements are as follows:

- The apprentice will have prepared a portfolio of evidence during the on-programme phase to support the professional discussion. The format and structure of the portfolio must be agreed between the employer and apprentice and will be presented electronically
- the portfolio of evidence will be submitted to the EPAO at the gateway
- reflective accounts and self-evaluation cannot be included as evidence
- the portfolio should contain written accounts of activities that have been completed and referenced against the knowledge, skills and behaviours, supported by appropriate evidence, such as written statements; project plans; reports; minutes; observation reports; presentations; feedback from managers, supervisors or peers (any employer or peer contributions should focus only direct observation of evidence (for example witness statements) rather than opinions); papers or reports written by the apprentices; performance reviews. This is not a definitive list; other evidence sources are allowable
- the content must be sufficient to evidence the apprentice can apply the knowledge, skills and behaviours required as mapped to assessment method 2 (professional discussion). There must be at least one piece of evidence relating to each knowledge, skill and behaviour mapped to assessment method 2. One piece of evidence can be referenced against more than one knowledge, skill or behavioural requirement. It is expected that there will be typically be a minimum of 13 pieces and a maximum of 18 pieces of evidence
- the evidence provided must be valid and attributable to the apprentice; the portfolio of

evidence must contain a statement from the employer confirming this

The portfolio of evidence is not directly assessed. It underpins the professional discussion and therefore should not be marked by the EPAO. EPAOs should review the portfolio of evidence in preparation for the professional discussion but are not required to provide feedback after this review.

Assessment methods

Assessment method 1: Work based project with presentation and questions and answers (This assessment method has 2 components.)

Assessment method 1 component 1: Work based project

The project report must be based on a real research project carried out in the employer's workplace or an appropriate facility as part of the apprentice's typical activities. The employer or the project sponsor must sign-off the project report, thereby authenticating it.

The work-based project should be designed to ensure that the apprentice's work meets the needs of the business, is relevant to their role and allows the relevant KSBs to be demonstrated for the EPA. Therefore, the project's subject, title and scope will be agreed between the employer and the EPAO at the gateway as the apprentice enters the EPA period. The employer will ensure it has a real business application and the EPAO will ensure it meets the requirements of the EPA (including suitable coverage of the KSBs assigned to this assessment method) and degree accreditation requirements. The EPAO should sign-off the project title to confirm its suitability prior to the project commencing. It is envisaged that the project will typically be completed over 16 weeks and the report write up will typically take up to 2 weeks.

In order for the employer and EPAO to confirm the project title and scope, the apprentice will provide a brief summary of what the project will cover and will submit to the independent assessor a term of reference of what will be undertaken by themselves and an initial project plan for agreement. The summary should be submitted during the Gateway and confirmation of the title received from the employer and independent assessor at the gateway before entering the EPA period. No part of the summary is assessed and there is no word count for this element.

All elements must be completed and submitted to the EPAO within 22 weeks of the apprentice entering the EPA period.

The rationale for this assessment method is:

- the work-based project is the most valid method as it allows a practical demonstration of professional competence. The project will contribute to the employer's business and be part of the apprentice's everyday work, ensuring that they can demonstrate KSBs in practice. Producing a report reflects normal practice in the workplace for an Ordnance Munitions and Explosives Specialist, so this assessment method is appropriate
- it is a significant and complex piece of work that thoroughly tests both higher and lower order knowledge and skills as well as behaviours

- note that it is essential that the project articulates the apprentice's own work practice rather than the activities performed by the team of which they were part

Delivery

Apprentices will conduct a project in the form of a report. The project is compiled after the apprentice has gone through the Gateway process. The apprentice will conduct their project and submit it to the EPAO within 22 weeks of the EPA start date.

The employer will ensure the apprentice has sufficient time and the necessary resources, within this period, to plan and undertake the project.

Whilst completing the project, the apprentice should be subject to the supervision arrangements outlined below:

- normal line management controls

The apprentice may work as part of a team which could include internal or external support (typically for someone in this role this may be advice from Ministers or senior forces personnel) however the report will be the apprentices own work and will be reflective of their own role and contribution.

The project should be either paper based or electronic.

The work based project represents the skills, knowledge and behaviours in the Standard assigned to the project. It provides a substantive evidence base from a business related project to demonstrate the application of skills and knowledge.

Each project must enable the following to be demonstrated:

- the application of knowledge, skills and behaviours to meet the outcomes in the standard
- the approach to planning and completion of the project

It is designed to assess apprentices in a consistent way, irrespective of their workplace.

Typical project subjects could be (these are examples):

- the continuous improvement review of a current OME Manufacturing process or service or product to ensure it is still fit for purpose and meets the current needs of the business
- recommend and implement a directed saving (for example percentage decrease in direct and operating) across their team, department or organisation following a change in OME business direction or withdrawal of obsolete OME article or product)
- the definition of critical OME design features with respect to achieving desired performance and meeting safety and environmental legislation
- recommend mitigations for design changes which may be required to achieve safe and reliable operation and manufacture of OME Products based on trials and or test data

The project will be a contextualised work-based project report of 8,000 words, making use of graphs and pictorial representations of findings (+ or -10% at the apprentice's discretion) excluding annexes (which could include graphs, pictorial representations or diagrams). It should be based on an area of work that the apprentice works in.

The work-based project report will be reviewed for evidence that the knowledge, skills and behaviours assigned to the work-based project are inherent in the apprentice's practice. It should cover their use of

different analytical development techniques in the workplace to identify and produce key findings and judgements in assessments; how they identified gaps and opportunities for further analysis; how they engaged with clients, their own organisation and other interested parties and should explain their own critical thinking in both their analysis and generation of their overall findings and recommendations. The content of the project must enable the KSBs mapped to this assessment method to be met.

As a minimum, the work-based project report must include:

- introduction
- background
- aims and objectives
- research and methodology
- approach taken
- stakeholder engagement
- risks to consider
- outcomes
- discussion
- impact of the project
- business implications
- measure of success
- conclusions
- recommendations

The apprentice will be required to document their assumptions and to highlight the consequences of those assumptions, enabling them to demonstrate their understanding of commercial pressures, and the application of their thinking and problem-solving skills. This will form part of their findings and recommendations.

The report must be the apprentice's own work and will be reflective of their own role and contribution.

The project must map, in an appendix, how it evidences the relevant KSBs for this assessment method.

The project report and presentation in component 2 will be assessed holistically.

Venue

The work-based project should be real and should take place in the apprentice's normal workplace or an appropriate facility such as an off-site establishment.

Other relevant information

All of the work-based project and project overview must be attributable to the apprentice in full, and must be accompanied by a statement outlining the apprentice's contribution, signed by the apprentice and their employer.

Supporting material

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

- outline of the assessment method's requirements
- marking materials

- template to record questions selected
- a guidance document for employers and apprentices on how the assessment will take place, including timescales

The independent assessor will make all grading decisions.

Assessment method 1 component 2: Presentation with questions and answers

Overview

Apprentices will prepare and deliver a presentation that appropriately covers the KSBs assigned to this method of assessment.

The presentation will be based on a work-based project completed on-programme and will be produced during the EPA period.

The presentation will be presented to the independent assessor, with follow up questioning immediately after the presentation.

The presentation will be completed after gateway and presented to an independent assessor.

Apprentices must be given at least a week's notice ahead of the presentation. This also gives the assessor at least a week to review the project report and presentation in preparation for the presentation. The apprentice should submit the presentation with the project report, so that the independent assessor can review the contents and prepare any questions pertinent to the project to ensure appropriate coverage of the KSBs.

The presentation will be completed and submitted after the gateway and will be presented to an independent assessor, either face-to-face or via online video conferencing. If using an online platform, EPAOs must ensure appropriate measures are in place to prevent misrepresentation.

Delivery

The independent assessor will review the project prior to the presentation and select a minimum of 5 open questions from a bank of questions provided by the EPAO, as well as designing their own, covering multiple learning outcomes, to confirm the independent assessor's understanding of the project presentation and how it demonstrates the relevant KSBs.

The assessment method will last for 60 minutes in total.

The presentation of the work-based project will last for typically 30 minutes (+10% at the discretion of the independent assessor) followed by typically 30 minutes (+10%, at the discretion of the independent assessor) for questions and answers.

The presentation with questions and answers will take place on a one to one basis between the independent assessor and the apprentice.

The presentation will be conducted as follows:

Apprentices can use presentation tools of their choice such as PowerPoint, video clips, flip chart, work products etc.

Apprentices and EPAOs must ensure that any reasonable presentation requirements are in place, for example PowerPoint facilities; apprentices must make any additional requirement requests at least one week prior to the scheduled date for the presentation and questioning.

The presentation will only be on a specific part of the project but must include the following (for the specific element that is being covered):

- a summary of the project report and an explanation of the apprentice's role and level of responsibility
- the outcomes of the project, the project tools used, and how risks were mitigated to ensure required outcomes
- the challenges of the project and an explanation of how and why specific techniques have been selected and used within the project
- the practical application of relevant knowledge, skills and behaviours whilst undertaking the project
- recommendations moving forward to meet business needs including solutions identified and reasons why some options were not feasible
- lessons learned and a critical evaluation of the project approach and outcomes

Apprentices may refer to their work-based project report, and presentation aides such as PowerPoint slides, flipcharts etc when answering the questions.

The independent assessor must use the assessment tools and procedures that are set by the EPAO to record the response to questions. If using an online platform, EPAOs must ensure appropriate measures are in place to prevent misrepresentation and ensure that the apprentice is not aided in any way, for example by the use of a 360-degree camera.

Audio recordings of the presentation and questioning must be taken for moderation purposes and must be destroyed within one month of moderation.

Independent assessors must allocate a grade of fail, pass or distinction for the assessment method using the grading criteria. All components of this assessment method must be graded holistically.

The independent assessor will make all grading decisions.

Venue

EPAOs must ensure that the presentation and questioning elements are conducted in a suitable controlled environment in any of the following:

- employer or training provider's premises
- via video conferencing

The venue should be a quiet room, free from distraction and external influence.

Other relevant information

A structured question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that

it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs.

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

Independent assessors must be developed and trained by the EPAO in reaching consistent judgement.

Supporting material

EPAOs will produce the following materials to ensure that this assessment method is marked consistently and accurately:

- outline of the assessment method's requirements
- marking materials
- template to record answers to questions
- EPAO bank of questions

Assessment method 2: Professional discussion underpinned by portfolio of evidence (This assessment method has 1 component.)

Assessment method 2 component 1: Professional discussion

Overview

This assessment will take the form of a professional discussion which must be appropriately structured to draw out the best of the apprentice's competence and excellence and cover the KSBs assigned to this assessment method. Questioning should assess the KSBs assigned to this assessment method and the apprentice may use their portfolio to support their responses.

The rationale for this assessment method is:

Due to the nature of the work undertaken and the safety and security requirements within the industry sector, some KSBs cannot be reliably assessed in the work-based project and a professional discussion is the most appropriate way to assess those KSBs that will not naturally occur during the work-based project, allowing the apprentice to draw on their experience to demonstrate competence. The purpose of the questioning is to assess the depth of understanding of the KSBs.

Delivery

The independent assessors will conduct and assess the professional discussion.

The professional discussion must last for 60 minutes. The independent assessor has the discretion to increase the time of the professional discussion by up to 10% to allow the apprentice to complete their last answer.

The professional discussion will be conducted as set out here:

A professional discussion is a two-way discussion which involves both the independent assessor and the apprentice actively listening and participating in a formal conversation. The apprentice is leading,

giving them the opportunity to make detailed and proactive contributions to confirm their competency across the KSBs mapped to this method. It will be undertaken in an appropriate environment (a quiet room free from distraction). Evidence must be captured using documentation produced by the EPAO. The assessor will ask a minimum of 12 open questions taken from an EPAO question bank and those generated by the assessor. Follow up questions can be used to draw out further evidence.

The apprentice should be encouraged to refer to their portfolio of evidence during the professional discussion to support their responses. The assessor should have a minimum of 10 days to review the contents of the portfolio in order to generate appropriate questions.

Video conferencing can be used to conduct the professional discussion, but the EPAO must have processes in place to verify the identity of the apprentice and ensure the apprentice is not being aided in any way for example use of a 360 degree camera to allow the assessor to look around the room during the interview.

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

The independent assessor will make all grading decisions.

Venue

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

The professional discussion can take place in any of the following:

- employer's premises
- a suitable venue selected by the EPAO (for example a training provider's premises)

Other relevant information

A structured question bank must be developed by EPAOs. The 'question bank' must be of sufficient size to prevent predictability and the EPAO must review it regularly (at least once a year) to ensure that it, and its content, are fit for purpose. The questions relating to the underpinning KSBs, must be varied yet allow assessment of the relevant KSBs.

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

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

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

- outline of the assessment method's requirements
- marking materials
- data capture form for evidence and gaps
- bank of questions to be maintained and meet current rules
- guidance document for employers and apprentices on the process / timescales for the discussion as well as a description of the purpose of the discussion
- guidance document for independent assessors on how to carry out the assessment

Reasonable adjustments

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

Weighting of assessment methods

All assessment methods are weighted equally in their contribution to the overall EPA grade.

Grading

Assessment method 1: Work based project with presentation and questions and answers

KSBs	Fail	Pass The apprentice must meet all of the pass descriptors below	Distinction The apprentice must meet all of the distinction descriptors below
K1 K3 K5 K6 K10 S1 S2 S3 S6 S9 S10 S11 B3	Does not meet the pass criteria	<p>Describes and gives reasons for the specialised tools, techniques and methodologies used in advanced OME concepts.</p> <p>Outlines a systems approach to OME lifecycle management within their topic area in line with corporate policies.</p> <p>Justifies the application of selected principles to design, predict, plan, and analyse results from OME research and development.</p> <p>Demonstrates a proactive approach to OME manufacture and performance with regards to trials, environment and legislation including evaluation between the trade-off between modelling and measured data.</p> <p>Communicates technical information using styles and methods appropriate to the audience.</p>	<p>Gives evidence of critically evaluating and appraising complex or novel solutions used in advanced OME concepts, from a holistic perspective including consequences of integration into the system.</p> <p>Identifies and applies extended theories and tool sets such as target responses for chemical and kinetic energy attack, advanced aerodynamics and the physics of ballistics to facilitate integration up and down system layers across OME functions or systems.</p> <p>Critically evaluates the results of the application of selected principles for their specialist area from OME research and proposes recommendations for the future direction of research and development.</p>

--	--	--	--

Assessment method 2: Professional discussion underpinned by portfolio of evidence

KSBs	Fail	Pass The apprentice must meet all of the pass descriptors below	Distinction The apprentice must meet all of the distinction descriptors below
K2 K4 K7 K8 K9 S4 S5 S7 S8 S12 S13 S14 B1 B2 B4 B5	Does not meet the pass criteria	<p>Explains the target response of a particular OME system and explains how to determine an appropriate method to analyse risks and hazards associated from design to use or disposal.</p> <p>Explains how to keep abreast of developments in the OME sector.</p> <p>Describes how they have undertaken a review of an OME product or item across its design lifecycle from a legal, technical and systems perspective which leads to an evaluation of implications and outcomes to inform next steps.</p> <p>Justifies the use computer modelling tools over traditional tools.</p> <p>Justifies their selection of scientific literature in deriving a solution to an OME issue, critically evaluating the content and exploiting the appropriate operational outcomes.</p> <p>Describes how they take responsibility for their own actions, demonstrating resilience and a duty of care for the safety and wellbeing of themselves and others.</p> <p>Describes how they comply with the organisation's codes of conduct, manage and apply safe systems of work, undertake activities in accordance with sustainable development. Describes how they</p>	<p>Provides evidence for the safety and suitability of each design parameter chosen, at a formal design review, and validating the design to meet verified design requirements throughout the service life of the OME system, subsystem or component.</p> <p>Describes how they have critically evaluated multiple sources of information and used a broad cross section of source material including papers outside their normal domain knowledge to facilitate operational goals and objectives.</p> <p>Describes how they use a range of approaches, for example coaching, mentoring to develop others, outlining the impact that it has had on the individual and the business.</p>

		<p>carry out responsibilities in an ethical manner.</p> <p>Describes how they have established a reliable and consistent leadership style, challenged areas of concern and promoted best practice.</p> <p>Describes how they have assumed responsibility for their own and others professional development by seeking out opportunities that enhance their knowledge, skills and experience and understanding of emerging technologies within OME.</p>	
--	--	--	--

Overall EPA grading

All EPA methods must be passed for the EPA to be passed overall.

To achieve a pass, the apprentice must achieve a pass in both assessment methods by achieving at least a pass in all pass criteria.

To achieve a distinction, the apprentice must achieve a distinction in both assessment methods by achieving all pass criteria and all distinction criteria.

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

Assessment method 1	Assessment method 2	Overall grading
Fail	Fail	Fail
Pass	Fail	Fail
Fail	Pass	Fail
Distinction	Fail	Fail
Fail	Distinction	Fail
Pass	Pass	Pass
Pass	Distinction	Pass
Distinction	Pass	Pass
Distinction	Distinction	Distinction

Re-sits and re-takes

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

Apprentices should have a supportive action plan to prepare for the re-sit or a re-take. The apprentice's employer will need to agree that either a re-sit or re-take is an appropriate course of action. In addition, the re-sit or re-take must be in line with the University's regulations.

An apprentice who fails an assessment method, and therefore the EPA in the first instance, will be required to re-sit or re-take any failed assessment methods only. If the apprentice fails the project they will be required to amend the project in line with the independent assessor's feedback. If the apprentice fails the presentation, they will need to complete a new presentation. If the apprentice fails the professional discussion, they will not have to resubmit a new portfolio of evidence.

The timescales for a resit or retake is agreed between the employer and EPAO. A resit is typically taken within 3 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. All assessment methods must be taken within a 6 month period, otherwise the entire EPA will need to be resat/retaken, unless in the opinion of the EPAO exceptional circumstances apply outside the control of the apprentice or their employer.

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

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

Roles and responsibilities

Role	Responsibility
Apprentice	<ul style="list-style-type: none"> • participate in development opportunities to improve their knowledge skills and behaviours as outlined in the standard • meet all gateway requirements when advised by the employer • understand the purpose and importance of EPA and undertake EPA
Employer	<ul style="list-style-type: none"> • support the apprentice to achieve the KSBs outlined in the standard to their best ability • determines when the apprentice is working at or above the level outlined in the standard and is ready for EPA

	<ul style="list-style-type: none"> • select the EPAO • confirm all EPA gateway requirements have been met • confirm arrangements with EPAO for the EPA (who, when, where) in a timely manner • ensure apprentice is well prepared for the EPA • Should not be involved in the delivery of the EPA
EPAO	<p>As a minimum EPAOs should:</p> <ul style="list-style-type: none"> • understand the occupational role • appoint administrators, invigilators and markers to administer, invigilate and mark the EPA • provide training and CPD to the independent assessors they employ to undertake the EPA • provide adequate information, advice and guidance documentation to enable apprentices, employers and providers to prepare for the EPA • deliver the end-point assessment outlined in this EPA plan in a timely manner • prepare and provide all required material and resources required for delivery of the EPA in-line with best practices • use appropriate assessment recording documentation to ensure a clear and auditable mechanism for providing assessment decision feedback to the apprentice • appoint independent assessors who are independent of the apprentice and their employer(s). Where the training provider is the EPAO (for example HEI) there must be procedures in place to mitigate any conflict of interest which will be monitored by EQA activity. • maintain robust internal quality assurance (IQA) procedures and processes, and conducts these on a regular basis • conform to the requirements of the nominated external quality assurance body • organise standardisation events and activities in accordance with this plan's IQA section • organise and conduct moderation of independent assessors' marking in accordance with this plan • have, and operate, an appeals process • arrange for certification with the relevant training provider
Independent assessor	<p>As a minimum an independent assessor should:</p> <ul style="list-style-type: none"> • understand the standard and assessment plan • deliver the end-point assessment in-line with the EPA plan • comply to the IQA requirements of the EPAO • be independent of the apprentice, their employer and training provider(s) for example there must be no conflict of interest • satisfy the criteria outlined in this EPA plan • hold or be working towards an independent assessor qualification e.g. A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading

	<ul style="list-style-type: none"> • have the capability to assess the apprentice at this level • attend the required number of EPAOs standardisation and training events per year (as defined in the IQA section)
Training provider	<p>As a minimum the training provider should:</p> <ul style="list-style-type: none"> • work with the employer to ensure that the apprentice is given the opportunities to develop the KSBs outlined in the standard and monitor their progress during the on-programme period • advise the employer, upon request, on the apprentice's readiness for EPA prior to the gateway • conduct training covering any knowledge, skill or behaviour requirement agreed as part of the Commitment Statement (often known as the Individual Learning Plan). • monitor apprentices progress during any training provider led on-programme learning • remain independent from delivery of the EPA. Where the training provider is the EPA (for example HEI) there must be procedures in place to mitigate against any conflict of interest

Internal Quality Assurance (IQA)

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

- appoint independent assessors who are independent of the apprentice and their employer(s). Where the training provider is the EPAO (for example HEI) there must be procedures in place to mitigate any conflict of interest which will be monitored by EQA activity.
- appoint independent assessors who have knowledge of the following occupational areas: OME engineering and material science, manufacture, disposal or testing, including all safety and environmental aspects within the OME Specialist Apprenticeship Standard
- appoint independent assessors who have recent relevant experience of the occupation and or sector at least one level above the apprentice gained in the last three years or independent assessors at the same level who have significant experience of the occupation or sector.
- appoint independent assessors who are members of relevant professional bodies.
- provide training for independent assessors in terms of good assessment practice, operating the assessment tools and grading
- have robust quality assurance systems and procedures that support fair, reliable and consistent assessment across the organisation and over time
- operate induction training and standardisation events for independent assessors when they begin working for the EPAO on this standard and before they deliver an updated assessment method for the first time
- ensure independent assessors attend standardisation events on an ongoing basis and at least once per year

Affordability

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

- using an employer's premises
 - a suitable venue selected by the EPAO (for example a training provider's premises or another employer's premises)
- use of skype or video conferencing

Professional body recognition

This apprenticeship is designed to prepare successful apprentices to meet the requirements for registration as an Ordnance Munitions and Explosives Specialist with:

- Institution of Mechanical Engineers (IMechE)
- Institution of Engineering and Technology (IET)

Mapping of knowledge, skills and behaviours (KSBs)

Assessment method 1: Work based project with presentation and questions and answers

Knowledge
K1 The advanced concepts in specialist areas of OME, such as chemistry, materials science, engineering, detonics, explosive effect, ballistics, manufacturing, safety, test and evaluation.
K3 The techniques, tools and methodologies used in the design, realisation, verification and testing of OME, such as specialist methods used for the manufacture of OME devices, or the totality of design for OME safety.
K5 The environmental (e.g. accelerated ageing, thermal cycling) principles and mitigations which impact upon OME.
K6 How and why OME lifecycle and environmental protection should be compatible with safety and environmental protection standards.
K10 The operational features and principles of a wide variety of OME used within their business, underpinned by a detailed knowledge of their sub-systems and design methodology.

Skills
S1 Compare a range of principles involved in OME, for example, production methods, formulation, detonation techniques, explosive effect.
S2 Evaluate and predict the material science characteristics of OME.
S3 Apply the correct Interpretation of legislation and associated documentation in the testing, approval and use of OME and their articles (e.g. AOP, STANAG, UN test Book).
S6 Assess and identify environmental impact (e.g. thermal cycling, ageing) issues surrounding OME.
S9 Present scientific OME ideas in a clear and concise manner i.e. reports, slides and presentations.
S10 Appraise the design and performance of OME for use as intended.
S11 Analyse the performance of OME based on trials/test data; including modelling methods.

Behaviours
B3 Able to communicate using a range of styles and methods with fellow professionals, stakeholders (internal/external) and others from a range of backgrounds.

Assessment method 2: Professional discussion underpinned by portfolio of evidence

Knowledge
K2 The processes involved in undertaking technical reviews, including legal and technical aspects relating to OME.
K4 How to recognise the applicability of various risk assessments methods and the appropriateness of "Tolerable" and "As Low As Reasonably Practicable" (ALARP) statements as applied to accidents involving OME.
K7 The use of a range of methods used to conceptually demonstrate the meaning of "scanning the horizon" in an OME context
K8 The intentional and unintentional effects from OME upon the target environment, e.g. blast effect, smoke effect, toxicity.
K9 Systems design principles appropriate for OME, e.g. explosive train, design for safety.

Skills
S4 Propose and evaluate design investigations which may lead to safer/economic/improved performance OME.
S5 Construct a complex Risk Assessment involving the hazards of OME.
S7 Critically evaluate and make decisions on environmental grounds (e.g. soil contamination) balanced with operational capabilities and cost effectiveness over the whole life cycle of an OME product.
S8 Critically appraise the facts, principles, concepts and theories relating to a specific area of OME.
S12 Evaluate published scientific literature to produce a coherent summary of one aspect of detonations, explosions and their initiation mechanisms.
S13 Assess the accuracy, relevance, advantages and disadvantages of using computer modelling tools in OMEs.
S14 Exploit research and development outputs to achieve operational goals and objectives.

Behaviours
B1 Takes responsibility for their own and others professional development by seeking out opportunities that enhance their knowledge, skills and experience and understanding of emerging technologies within OME.
B2 Able to take responsibility for their actions, demonstrates resilience and acts with integrity by demonstrating a duty of care for others and for their own safety.
B4 Demonstrate a commitment to society, their profession and the environment, adopting a set of values and behaviours that will maintain and enhance the reputation of the profession as well as their organisation.

B5 Reliable and consistent and willing to challenge areas of concern and promotes best practice.