End Point Assessment Plan
Aerospace Software Development Engineer Standard

Table of Contents

Note. Apart from Annex 4, 5 and 8 the other Annexes are currently in development. Once complete this Assessment Plan will be re issued along with supporting Annexes including URL links and made available to all relevant apprentices and stakeholders. For interim information, advice and guidance relating to the documentation in development and access to Annexes 5 and 8 please contact Customer.Services@semta.org.uk quoting Trailblazer Assessment Plan documentation.

Foreword

The Aerospace Software Development Engineer assessment plan is delivered within the two phases of the Apprenticeship standard, these being the:

- *Development Phase, and*
- *End Point Assessment & Employer Endorsement Phase*

Taken together the assessment approach we detail here is fundamentally different and represents a significant improvement on current assessment systems, namely:

1) *We have introduced a viva and formal overall assessment of competence as part of the end point assessment for the Aerospace Manufacturing Sector. They will need to demonstrate skills, knowledge and behaviours developed across the Apprenticeship.*
2) *We have introduced an alignment of competence to 'Incorporated Engineer' requirements - the recognised generic professional industry standard for Incorporated Engineers. This is totally new and is supported by all the relevant Professional Engineering Institutions. This provides an opportunity to establish future development activity for apprentices, linked to continued professional development.*
3) *We are also taking a radically different approach with Awarding Organisations to develop new Trailblazer qualifications, including a consistent approach to grading and assessment.*

Due to the safety critical and complex nature of engineering training much of the assessment needs to be carried out 'on a continuous basis' to ensure that the skills, knowledge and behaviours that relate to company processes and procedures are fully embedded in the apprentice's skill set. Because of the safety critical nature of the work roles and the risks to both the apprentice and the business any deficiencies or gaps in skills, knowledge and behaviours must be identified early and corrected rather than being allowed to proliferate, only then to be picked up at the end of training when it is too late.

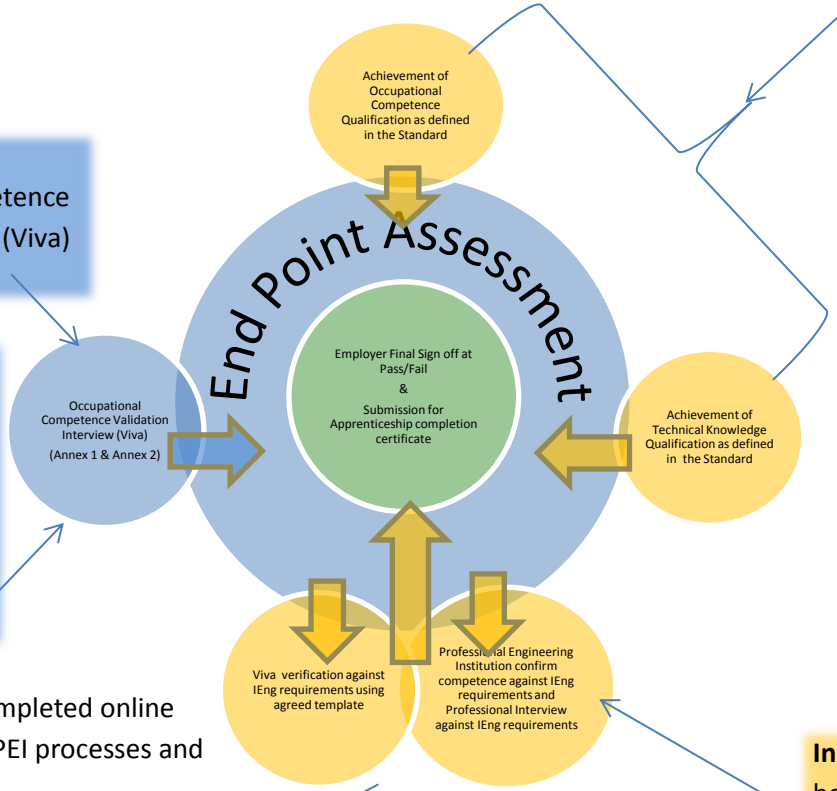
The assessment model, including end point, makes the Standard accessible and appropriate for employers, including SMEs. The mandatory requirements have been carefully selected to ensure that skills, knowledge and behaviours can be transferred across the Aerospace Manufacturing Sector and beyond. ***(Aerospace Manufacturing Sector Trailblazer Group, April 2015)***

Section A: Summary of End Point Assessment

A1 Diagram 1: End Point Assessment for an Aerospace Software Development Engineer

A portfolio based Occupational Competence Validation Interview (Viva) Document (Annex 1)

Incorporated Engineer (IEng) Performance Indicators Recording Form*which has been completed by the apprentice (Annex 2)



NB * = This form may be completed online depending on the relevant PEI processes and procedure.

Independent assessment and verification through employer approved Awarding Organisations regulated by Ofqual and HE qualifications to meet the Quality Assurance Agency (QAA) requirements: These qualifications are achieved during the **On Programme** phase of the apprenticeship (see diagram A2 on next page)

a) Technical Knowledge based assignments and including externally set and marked exams. A grade of pass, merit or distinction (for Level 5) and honours degree classification (for Level 6) will be applied to the knowledge qualifications of the Apprenticeship (HE qualifications)

b) Competency (Knowledge, Skills and Behaviours) will be assessed in the workplace and externally verified using a variety of methods including observation of performance and company job/work records. Apprentices will have achieved a Level 4 competency qualification (binary grade) as part of 'on programme' activity and will also be required to gather additional performance evidence of competency development during the latter stages of their Apprenticeship (Awarding Organisation qualification).

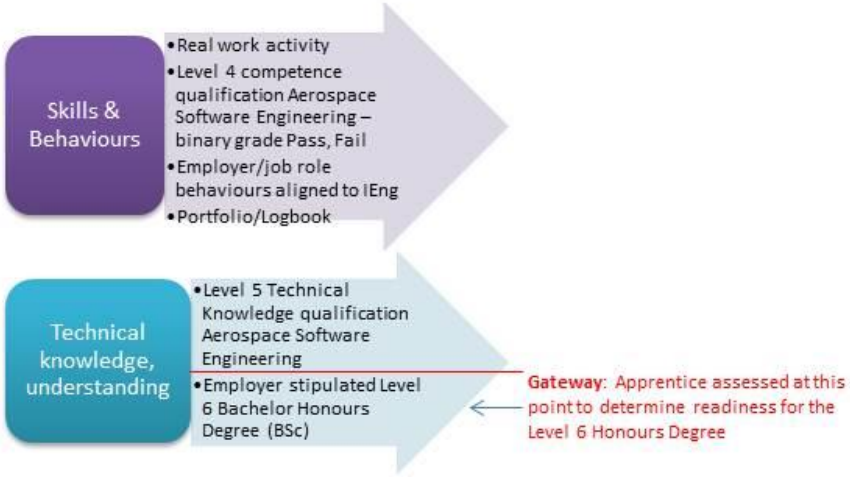
Incorporated Engineer Review is an **independent** assessment of behaviours, knowledge and generic engineering competencies for IEng by the relevant PEI, regulated by the Engineering Council. The PEI will also undertake an **independent** verification of the Employer Viva Interview documentation and will conduct a formal Professional Interview where applicable.

In order to apply for their completion certificate an apprentice will need to have: a fully completed Portfolio Based Occupational Competence Validation Interview (Viva) document signed by the employer; achieved the competency and a knowledge qualifications at Level 4, 5 and 6 as specified on this Standard; have received a pass grade as a minimum on the validated documentation for IEng readiness, where applicable have passed a formal Professional Interview for IEng readiness; and have received final sign off from the employer to apply for the Apprenticeship completion certificate.

A2 Diagram 2: Summary approach to "On-Programme" and End Point Assessment, including interaction with mandatory qualifications

Development Phase Assessment

- Assessment and Verification of Competence at Level 4 and Technical Knowledge qualification at Level 5 designed to meet the Development Phase
- Achieving an employer stipulated Level 6 BSc Degree
- Development of a portfolio of evidence will be a key part of the Level 4, 5 and 6 assessment requirements
- Development of a portfolio of evidence against Incorporated Engineer requirements
- Continuous assessment of behaviours working towards Incorporated Engineer requirements



End Point Assessment & Employer Endorsement

- The apprentice passing the Occupational Competence Validation Interview (Viva) Annex 1, undertaken by the employer at End Point Assessment which includes:
  a) Achieving either a Pass, Merit, Distinction in the Technical Knowledge Qualification
  b) Achieving an employer stipulated Level 6 BSc Degree
  c) Achieving binary grade Pass in the Competence Qualification
  d) Have demonstrated progression towards the required behaviours aligned to IEng
  e) Technical Validation
- As part of the End Point Assessment, an independent assessment will be undertaken by a nominated PEI who will not have any connection with the learner, or have been involved in any previous assessment activity. The nominated PEI will use the following:
  a) The Incorporated Engineer Performance Indicators Recording Form (Annex 2) to determine progress against the IEng requirements as defined by the UK-SPEC and undertake a check of evidence.
  b) Occupational Competence Validation Interview (Viva, Annex 1)
  c) Undertake a Professional Interview – where applicable
- See Diagram 1 for illustrated details of End Point Assessment.
- Final stage employer Sign Off & applies for the Apprentice's certificate

Section B: Detailed explanation of the end point assessment

B1 What skills, knowledge and behaviours are being assessed?

B1.1 Occupational Competence. Employers across the Aerospace and Aviation sectors have worked collaboratively to produce a suite of Employer Units of Competence (EUCs). Each EUC sets out in detail the skills, knowledge and behaviours that the apprentice must achieve in order to demonstrate that they are occupationally competent in the specific job role and employers tailored requirements including areas such as products, processes, procedures, tools, equipment, materials, documentation and information systems.

This will allow each organisation to develop their own specific and tailored apprentice assessment structure whilst at the same time ensuring that the overall outcome delivers depth, breadth and stretch to enable progression and/or transferability to other employers. The EUCs will form part of the Employer Occupational Brief (EOB) and can be sourced from Annex 3.

B1.2 Professional Competence. Employers in partnership with relevant PEIs will also assess the apprentices' competence against the internationally recognised professional standard for an Incorporated Engineer (IEng). Apprentices will be assessed against the following criteria:

1) Use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.
2) Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and re-cycle engineering processes, systems, services and products.
3) Provide technical and commercial management
4) Demonstrate effective interpersonal skills
5) Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment

To support the end point assessment, Employers and PEIs have developed an Incorporated Engineer Performance Indicators Recording Form (Annex 2). This will form part of the Employer Occupational Brief (EOB) and can be sourced from Annex 3. The document will include guidance produced by PEIs on the detail and level of evidence required to meet the following assessment grades against the 5 competency areas required for Incorporated Engineer (IEng):

- Pass (has made significant progress towards meeting the full competency requirements for IEng expected for an apprentice)
- Pass and Ready to make a formal application to the relevant PEI for IEng recognition via their registration process. (Note. it is likely that the apprentice will be required at attend a formal interview with the PEI to present their evidence of professional competence)

Note. This documentation is currently in development. Once complete the Plan and Annex will be updated/re issued and will be made available to all relevant apprentices and stakeholders along with the relevant URLs as detailed in this Assessment Plan

B1.3 Continuous Professional Development (CPD)

Refers to the process of tracking and documenting the skills, knowledge and experience that an individual gains both formally and informally. It's a record of what they experience, learn and then apply. If the apprentice does decide to apply for registration with a relevant Professional Engineering institution at EngTech and/or IEng they must be committed to maintaining and enhancing their competence. They will be required to show evidence that they have taken steps to ensure this, and that they intend to continue to do this in line with the CPD Code for Registrants

What is it for?

The CPD process helps the individual manage their own development on an ongoing basis. It's function is to help them record, review and reflect on what they learn

The key features of the CPD process

- be a documented process
- be self-directed: driven by the individual and not the employer
- focus on learning from experience, reflective learning and review
- help individuals to set development goals and objectives
- include both formal and informal learning.

What are the benefits?

It can help individuals to reflect, review and document their learning and to develop and update their professional knowledge and skills. It is also very useful to:

- provides an overview of their professional development to date
- reminds them of their achievements and how far they have progressed
- directs their career and helps them keep their eye on their career goals
- uncovers gaps in their skills, knowledge and behaviours
- demonstrates their professional standing to employers and/or clients
- helps with their career development

B2 How will the “what” be assessed?

Typically, this assessment takes place in the final months of the Apprenticeship, using a range of assessment methods:

- Portfolio of evidence of occupational competence
- Independent assessment and verification of employer developed competence and technical knowledge qualifications
- Occupational Competence Validation Interview (Viva)
- Professional competence assessment undertaken by independent assessor(s) (PEI)
- Professional competence (IEng) Interview undertaken by the nominated PEI where applicable
- Final employer endorsement of occupational and professional competence

B2.1 Portfolio of Evidence

Before the Occupational Competence Validation Interview (Viva) each apprentice will prepare and submit a supporting portfolio of evidence to the employer. This portfolio will enable the apprentice to demonstrate to the employer the specific work related tasks that they have completed in order to demonstrate how they have achieved both occupational and professional competence set out in the Aerospace Software Development Engineer Standard and Employer Occupational Brief. The portfolio will also give the apprentice the opportunity to demonstrate to the employer that they understand the company in terms of their products, processes, procedures, tools, equipment, materials, documentation and information systems by showcasing what they have done, what they have learnt and how they have applied this knowledge and skills to real work tasks including solving engineering related problems.

The portfolio of evidence will show how the apprentice has demonstrated the knowledge, skills and behaviours required to be a competent Aerospace Software Development Engineer and professional competence cross referenced to the Incorporated Engineer (IEng) Level. The portfolio will include as a minimum:

B2.1.1 Occupational Competence

Three different examples of competent performance evidence that must include:

- Products of the apprentices work, such software designs, software code, documentation, software analysis reports, configuration management control documentation, software development plans.

together with:

- Evidence of the way the apprentice carried out the activities to meet the requirements of Standard, such as assessor observations, supervisor/mentor references/ witness testimonies or authenticated apprentice reports of the activities undertaken.

B2.1.2 Professional Competence (IEng)

The apprentice's portfolio will also contain sufficient, valid and reliable evidence which is referenced to the **professional competence** requirements for an Incorporated Engineer (IEng). The evidence will be cross referenced to the Incorporated Engineer Performance Indicators form (Annex 2) and contain evidence where the apprentice has met the following criteria:

1) Use a combination of general and specialist engineering knowledge and understanding to apply existing and emerging technology.
2) Apply appropriate theoretical and practical methods to design, develop, manufacture, construct, commission, operate, maintain, decommission and re-cycle engineering processes, systems, services and products.
3) Provide technical and commercial management
4) Demonstrate effective interpersonal skills
5) Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment

Employer Assessors/mentors and/or their nominated Training Provider/Assessor should assist the apprentice in planning, creating and recording evidence to create the portfolio to ensure opportunities to obtain all the necessary competencies, skills and knowledge and behaviours are identified.

The compiled portfolio of evidence will be reviewed internally by the Employer Assessors/mentor and/or their nominated Training Provider/Assessor to ensure it meets the required standard for occupational and professional competence. When agreed it does, the portfolio will be submitted to the employer representative undertaking the Occupational Competence Validation Interview (Viva) (Annex 1).

If the review and assessment of the portfolio of evidence, in its entirety **does not** contain sufficient evidence to meet the standard then it will be deemed not yet ready to submit for Occupational Competence Validation Interview (Viva) (Annex 1). The apprentice will be advised about the shortfalls in evidence and how this can be addressed.

B2.2 Occupational Competence Validation Interview (Viva)

The Occupational Competence Validation Interview (Annex 1) is an interactive interview focused on all the components of the Apprenticeship Standard, which will enable the employer to validate the apprentices' **occupational competence**. It is a structured and formal discussion between

the apprentice and their employer, drawing upon a portfolio of evidence, and records of how the apprentice has performed during the Apprenticeship. It covers both what tasks the apprentice has completed in the workplace, the standard of their work, and the behaviours they have demonstrated throughout, such as, being a team player, having a positive attitude, a strong work ethic, being responsible employee, self-motivated and a proven commitment to the organisation. This enables the end point assessment to cover a broad range of knowledge and understanding, skills and behaviours, such as:

- the technical requirements, processes and procedures used in their designated work area/department
- company quality processes and procedures and documentation
- understanding the practical and theoretical requirements to be a competent Aerospace Software Development Engineer in their designated work area/department
- being proactive in finding solutions to problems and identifying areas for improving the business
- contribute to providing technical and/or commercial management within the organisation
- complying with statutory, organisational and health and safety regulations

It will also be an opportunity for the employer to:

- clarify any points and/or probe the apprentice on the evidence they have presented in their portfolio
- confirm and validate that the portfolio of evidence is the apprentices own work
- confirm and validate the judgements about the quality of the work the apprentice has completed
- explore particular areas of work presented in the portfolio, how it was carried out, any problems that they encountered and how these were resolved.
- validate the apprentices skills and knowledge and understanding of the company in terms of their products, processes, procedures, tools, equipment, materials, documentation and information systems.

The Occupational Competence Validation Interview will also elicit the apprentice's depth and breadth of understanding of the **professional competence** requirements for an Incorporated Engineer (IEng). These will be evidenced in the apprentice's Incorporated Engineer Performance Indicators form (Annex 2).

To ensure a consistency of approach, a guidance document on how to conduct a robust Occupational Competence Validation Interview (Viva) (Annex 1) will be published and available (Annex 7).

Note: Before the Occupational Competence Validation Interview (Viva) (Annex 1) can take place, the employer must have evidence that the apprentice has completed and will be awarded the mandatory vocational qualifications required for this Standard - completed during the "On Programme" phase of the Apprenticeship i.e in this case:

- Level 4 Aerospace Software Engineering (Development Competence)
- Level 5 Aerospace Software Engineering (Development Technical Knowledge)
- Employer stipulated Level 6 Bachelor Honours degree (BSc)

(NB: working titles -currently in development)

On completion of the Occupational Competence Validation Interview (Viva) (Annex 1) the apprentice will be awarded a grade of Pass or Fail. i.e. Competent or not yet Competent.

Professional Engineering Institution (PEI) IEng Independent Assessment, Viva Verification and Professional Interview (where applicable)

On successful completion of the Occupational Competence Validation Interview (Viva) (Annex 1) i.e. achieving a pass grade, the completed incorporated Engineer Performance Indicators Form (Annex 2) and any supporting evidence will be sent to the employer designated Professional Engineering Institution (PEI) to assess the apprentice's readiness for professional recognition at IEng Level.

Evidence against all 5 UK-Spec Incorporated Engineer (IEng) competency areas must be completed to meet the requirements of the Aerospace Engineer Standard. In partnership with employers, relevant PEIs will work collaboratively to produce a common approach to grading the apprentices' evidence detailed in the Incorporated Engineer (IEng) Performance Indicators Recording Form (Annex 2). There will be three potential assessment grades.

- Not pass (guidance/feedback provided by PEI)
- Pass (has made significant progress towards meeting the full competency requirements for IEng expected for an apprentice)
- Pass and Ready to make a formal application to the relevant PEI for IEng recognition via their registration process. (Note. it is likely that the apprentice will be required at attend a formal interview with the PEI to present their evidence of professional competence)

Achieving a **Pass** grade demonstrates that the apprentice has made significant progress towards their journey towards demonstrating professional competence in all 5 areas required for IEng. The grading system will take into account that apprentices may not have had the opportunity or time to demonstrate and put into practice their experiential learning to provide sufficient evidence they have been working competently at the required level for a sufficient amount of time during the apprenticeship to achieve professional registration for IEng.

On completion of the assessment if there is a shortfall in the evidence requirements, a **Not pass** grade will be given. The PEI will then provide detailed feedback on the areas where the apprentice needs to provide more evidence of competence and/or experience to meet the minimum **Pass** grade. This will

enable the apprentice and the employer to develop a CPD plan (as part of the Annex 2) to enable the apprentice to develop the additional competencies/experience required to achieve either the **Pass** grade or the **Pass and Ready to apply for IEng** grade for IEng recognition.

On completion of the assessment if all minimum requirements have been met, where applicable the PEI will produce a letter stating that the apprentice has met the **Pass** grade requirements for the Level 6 Apprenticeship Standard. The PEI will also provide detailed feedback on the areas the apprentice needs to provide more evidence of competence and/or experience to meet the Pass and Ready to apply for IEng. This will enable the employer and the apprentice to progress toward the **Final Sign Off – Endorsement Phase** and where applicable apply for the apprenticeship completion certificate. Although the apprentice has achieved a pass grade, meeting the requirements of the apprenticeship they will be encouraged to develop a CPD plan (as part of the Annex 2) to enable the apprentice to develop the additional competencies/experience required to achieve the **Pass and Ready to apply for IEng** recognition

On completion of the assessment if the apprentice is deemed to have achieved a **Pass and Ready to Apply** for IEng grade, means that the apprentice has provided sufficient initial evidence for all 5 competency areas required for IEng, as detailed in the Incorporated Engineer (IEng) Performance Indicators Recording Form (Annex 2), to progress to formal application for IEng registration – and progress to Professional Review Interview with the relevant PEI.

PEI Incorporated Engineer (IEng) – Professional Registration Interview (where applicable)

If the apprentice, on achievement of the Pass and Ready to apply for IEng grade wishes to progress towards professional registration, they can apply at this point to their chosen PEI. All applicants will be required to attend a Professional Review Interview by 2 volunteer professionally registered engineers to assess eligibility for professional registration.

The purpose of the interview is to confirm that apprentice has met the five professional competencies in full as detailed in the **Incorporated Engineer (IEng) Performance Indicators Recording Form (Annex 2)**. Each PEI will be able to provide specific details on the requirements, content and structure of the Professional Registration Interview.

If the apprentice is successful, they will be formally confirmed as an Incorporated Engineer and added to the Engineering Council register on payment of appropriate PEI membership and Engineering Council registration subscription fees. If the apprentice does not meet the requirements following the professional review, they will be given feedback as to the areas where full competence was not demonstrated, and can re-apply following further CPD at a later time if they wish.

B3) Who will do the assessment?

The end point assessment will be undertaken by a range of parties depending upon the nature of what is being assessed. For final judgements to be made the following is required:

1) The employer and where applicable in partnership with their designated Training Provider/Assessor will have final judgement on the Occupational Competence of the apprentice. **Note:** Prior to the end point assessment the employer will already have received confirmation from the relevant Awarding Organisation(s) that the required mandatory vocational qualifications have been achieved, as part of the "on-programme" assessment. This will be recorded on the Occupational Competence Validation Interview (Viva) Annex 1.
2) The Independent Assessor(s) from the relevant Professional Engineering Institution will have final judgement on the Professional Competence of the apprentice by reviewing, assessing and verifying the evidence and any supporting documentation contained in the following:
    - Occupational Competence Validation Interview (Viva) (Annex 1)
    - Incorporated Engineer Performance Indicators Form (Annex 2)

B3.1 The Employer

The employer

- The employer will conduct the Occupational Competence Validation Interview (Viva) (Annex 1) to judge Occupational Competence. The employer is best placed to determine whether an apprentice has the required knowledge, skills and behaviours to fulfil the designated role, a support guide will be produced and available to assist the employer during the interview (Annex 7). The employer will have understanding and expertise in the area in which the apprentice works and will know what questions to ask the apprentice in order to ascertain their level of competency. This will be particularly important due to the health and safety critical nature of the sector. During this Viva the apprentice will need to demonstrate competence of the appropriate knowledge, skills and behaviours to the employer, drawing from real work based tasks accomplished, presenting not only what they have done, but how they have done it and why. The apprentice's use of a Portfolio of Evidence is important here so that the employer can see tangible evidence.
  (Occupational Competence Validation Interview (Viva) (Annex 1).

- The employer will also review the Professional Competence Performance Indicators Form (Annex 2) in preparation for submission to the relevant PEI for a final independent judgement to be made.

B3.2 Independent Assessor(s) from the relevant Professional Engineering Institution

- Independent assessor(s) will validate the initial judgement made by the employer recorded on the IEng Performance Indicators Form (Annex 2). In terms of making their final independent judgement of Professional Competence this will be based on IEng requirements as defined in the Engineering Council's UKSPEC. The independent assessor(s) must be affiliated to the PEI with which the employer initially confirmed to undertake end point assessment. Incorporated Engineer Performance Indicators Form (Annex 2) and a process flow of the steps the PEI will complete can be found in Section D4 diagram 3.

- Independent assessor(s) from the PEI will also examine the Viva documentation, signed by the employer and used as evidence to judge Occupational Competence, this enabling a validation of the Viva process and documentation. However, it is the employer who will make the final judgement of an apprentice's Occupational Competence.

B3.3 Final Sign Off – Employer Endorsement

If successful, the employer will undertake the Final Sign Off / Employer Endorsement stage of the Apprenticeship by:

- signing the Occupational Competence Validation Interview (Viva) (Annex 1) document along with the apprentice and the employer nominated Training/HE Provider (optional)
- making an application to the designated body for the Apprenticeship completion certificate

B4 How will assessments be quality assured?

B4.1 General note on future Governance and Quality Assurance arrangements

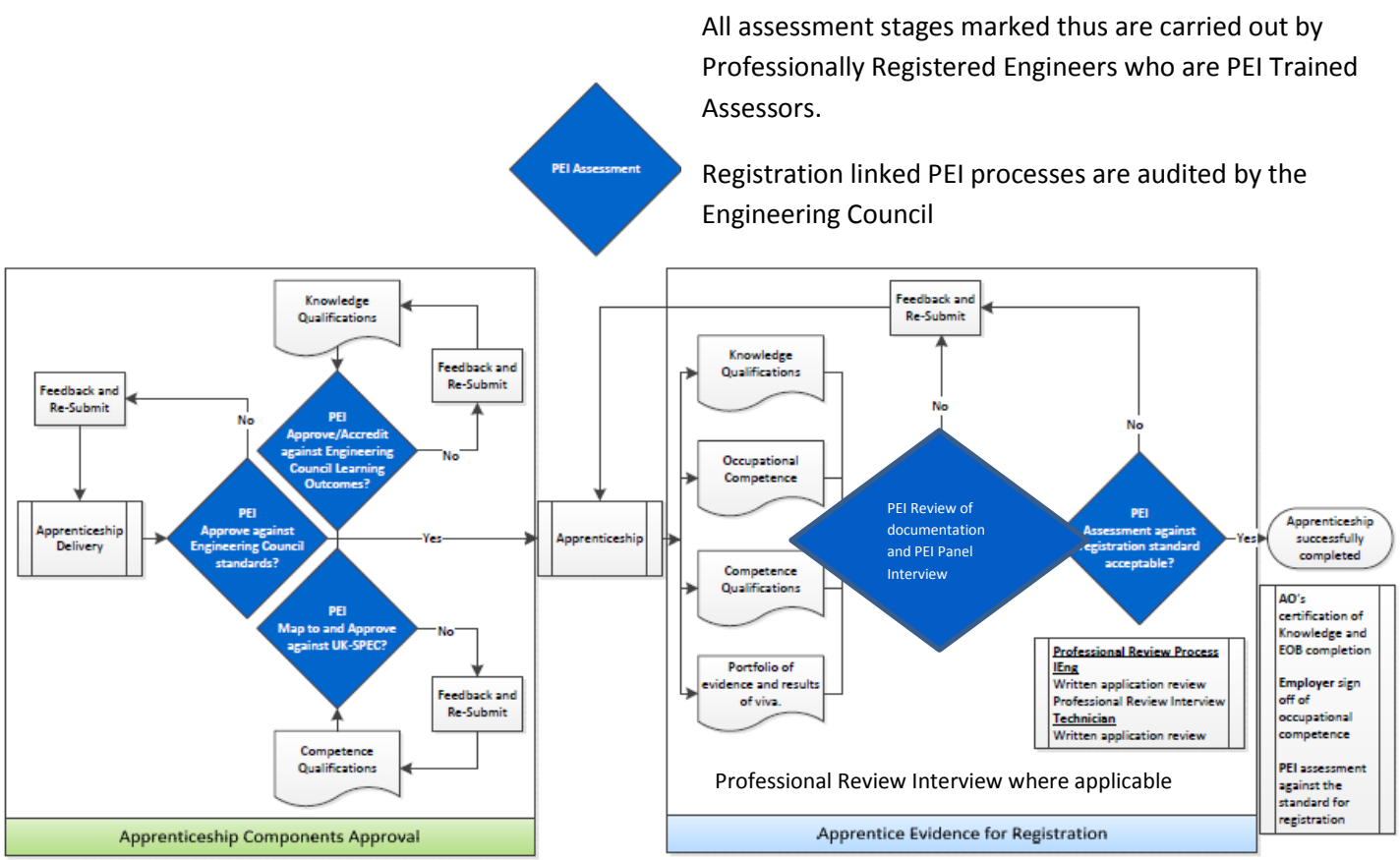
We are considering employer led approaches for quality assurance and governance, and are working through the options with BIS. At the moment awarding organisations who wish to deliver against the standard will need to be on the SFA register of assessment organisations.

B4.2 HE Quality Assurance

The Level 5 and Level 6 which form part of “on programme assessment” qualifications will be quality assured by the university in line with Quality Assurance Agency for Higher Education (QAA) requirements. The QAA is the independent body entrusted with monitoring, and advising on, standards and quality in UK Higher Education.

B4.3 PEI Quality Assurance

Diagram 2: PEI Quality Assurance Process



SECTION C – Grading

C1 How will grading be applied?

The following grading will apply for the End Point Assessment:

- For the Occupational Competence Validation Interview (viva) (Annex 1) this will be a binary pass /fail grade
- For the Professional Competence this will be either Pass/ Fail or "Pass and ready to apply for IEng".
    - i.e. a pass will mean the apprentice has met the 'Pass' grade requirements for this Standard towards IEng as stipulated by the PEIs.
    - Pass and ready to apply for IEng - will mean they will have fully met IEng requirements and can apply for registration with a PEI as Incorporated Engineer.

It is important to note the Standard has mandatory qualifications as part of "On programme assessment". The technical knowledge qualifications will be assessed on a pass, merit and distinction grading for the Foundation Degree together with Bachelors degree classifications, the occupational competence will be a binary grade Pass/Fail i.e. "competent" "not yet competent". Due to the complex and safety critical nature of the industry a grading exemption note was approved by the Skills Minister for this Standard (Annex 8).

SECTION D - Implementation

D1 Milestone Planner

A planner has been developed to highlight the key development milestones in order for the assessment plan to be successfully implemented. This approach to development and implementation will continue to be informed by close consultation with training providers, awarding organisations and professional bodies, as well as other assessment specialists. The planner is located here **Aerospace Software Development Engineer Standard - Implementation Milestone Planner <Insert URL>**

Organisations involved in the development and delivery of Assessment tools

The sector has required a collaborative approach involving the following:

- Employer representatives (development)
- Awarding Organisations (development & delivery)
- Sector Skills Council (development)
- Higher Education Institutions (development & delivery)
- Professional Engineering Institutions (development & independent assessment)
- Training Providers and their representative bodies (Development, delivery and communications)

To ensure standardisation and consistency the sector has worked on a collaborative basis with Automotive, Maritime and the wider Advanced Manufacturing Sector. As part of the pilot process the sector will be trialling some of the assessment tools with a view to full role out in September 2016.

There is good evidence of collaboration between the AOs to minimise potential future risk in terms of capacity and infrastructure. PEIs currently involved in the assessment of IEng applicants, which includes apprentices, are modelling the impact and gearing up to deliver the expected growth.

D2 Communications Strategy for the Sector

A communications plan has been prepared to ensure that appropriate and timely advice and guidance is rolled out. In particular, briefings have been delivered across the country since March 2015 to enable all relevant stakeholders to be involved in new Apprenticeship Standards. These briefings have been conducted in conjunction with other AME sectors such as Automotive to ensure consistency of message and maximisation of reach. There will be a further roll out of briefings during 2015 and 2016.

D3 Costs of End Point Assessment

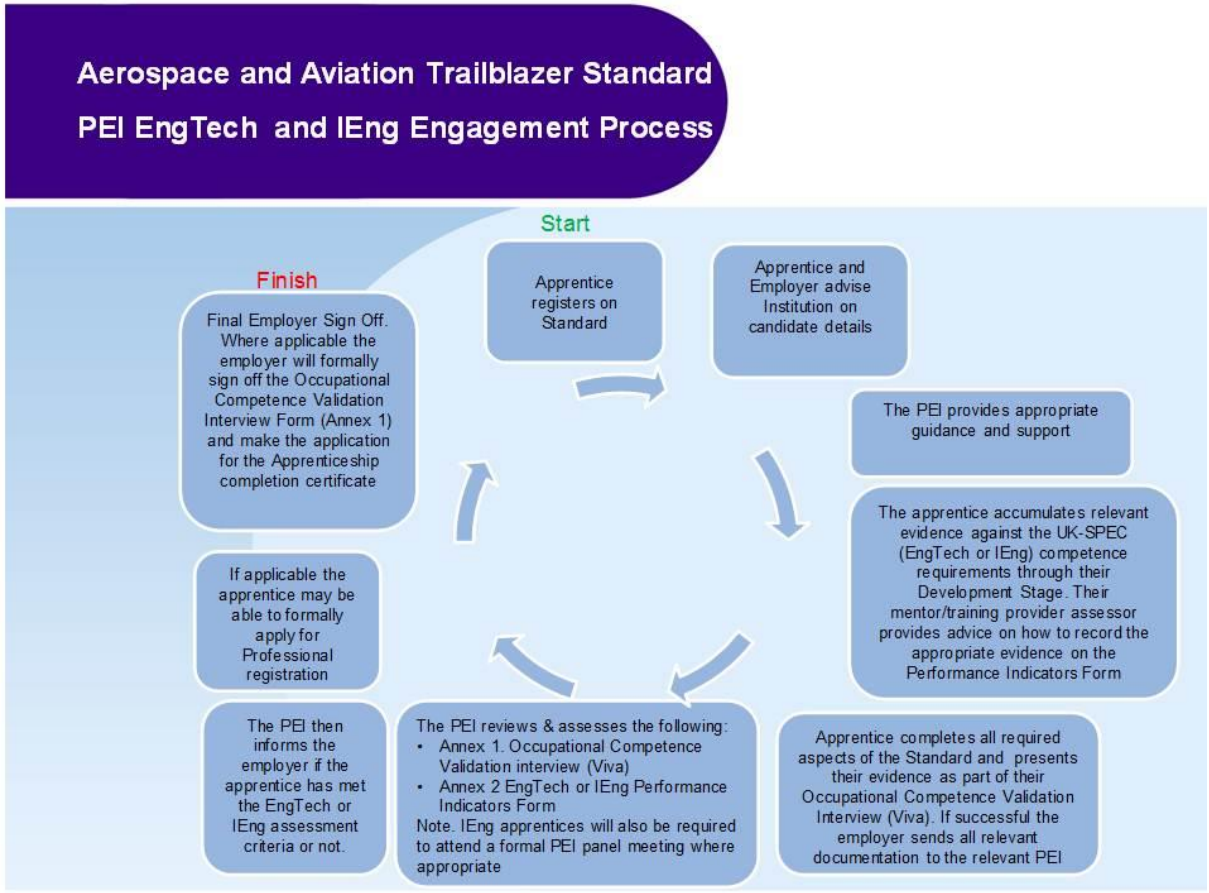
The costs allocated to end point assessment equates to approximately 2% of the overall costing for the delivery and assessment requirements for the Apprenticeship. The cost for end point assessment includes the following

- Occupational Competence Validation Portfolio Collation
- Occupational Competence Validation Interview (Viva)
- Professional Engineering Institution Validation Costs (IEng)
- Employer "Final sign off"
- Apprenticeship Certificate

D4 Supporting Information

Annex 5 contains letters of support from Professional Engineering Institutions, as the Apprenticeship Standard aligns to IEng requirements. A model for the PEI employer engagement process has been agreed, which is outlined in diagram 3 below.

Diagram 3 - IEng Engagement Process



Annexes

Annex 1 Occupational Competence Validation Interview (Viva) <Insert URL>

Annex 2 Incorporated Engineer (IEng) Performance Indicators Recording Form <Insert URL>

Annex 3 Employer Occupational Brief <Insert URL>

The Employer Occupation Brief is an all-embracing term being used by employers and will contain a number of separate documents.

Employer Occupational Brief
Development Phase - Employer Units of Competence Level 4
Development Phase - Qualification Structure(s) Level 4 & 5 Foundation Degree
Qualification Assessment Strategy for Development Phase Level 4 Competency Qualification
Employer Approved Awarding Organisation Qualifications Document – including Higher Education (A register will be kept on PEI accredited degrees)

Note: In order to articulate the specific level of skills, knowledge and behaviours required to be achieved and assessed to demonstrate full occupational competence in the foundation and development phase of the Apprenticeship. The employers on the Trailblazer group have developed a more detailed **Employer Occupational Brief (EOB)**.

The brief will inform the awarding organisations of the required elements of both knowledge and vocational skills within this Apprenticeship Standard. It will also provide a clear basis for the development of the assessment of this Apprenticeship and will enable the sector to maintain world class levels of quality and ensure that the credibility and consistency of Apprenticeship outcome is maintained.

Annex 4 – The journey to End Point Assessment

Whilst there is significant emphasis placed on the end point assessment it is important to describe the learner journey an apprentice will undergo to be ready for end point assessment and employer sign off. The Aerospace Employer Trailblazer group has developed a mandatory development phase which the apprentice must complete.

The Development Phase

In this Phase advanced vocational and academic learning will be developed including developing on-the-job skills capability. The assessment of achievement is based on 3 elements:

- **Vocational Skills:** A vocational skills qualification at Level 4 developed to cover the skills capability identified in 'Aerospace Software Development Engineer Standard'. Again we have involved a wide range of employers, particularly small employers in the design and specification process, and have taken advice with regard to both content and assessment practice.
- **Technical Knowledge:** A complementary Level 5 Technical Knowledge Qualification that underpins the vocational skills requirements identified above and articulated in the Standard. On completion of the Level 5, apprentices will progress onto the Level 6 BSc Honours Degree.
- **Behavioural** achievement is graded "competent" or "not yet competent" and is linked to the requirements of the Incorporated Engineer UK-SPEC produced by the Engineering Council.

Annex 5 – Letters of Endorsement

Letters of endorsement have been submitted by Professional Engineering Institutions and are located here < Insert URL>

Annex 6 – Occupational Architecture

The Employer Trailblazer Group has undertaken an occupational mapping exercise displaying the Apprenticeship Standards produced and to be developed. This exercise is being undertaken across the wider Advanced Manufacturing and Engineering sector and is located here < Insert URL>

Annex 7 - Employer Guide for the Occupational Competence Validation Interview (Viva) <Insert URL>

Annex 8 - Grading Exemption Note <Insert URL>