

# Post Graduate Engineer End Point Assessment Plan

Covering the following occupational roles:

1. Research and Development Engineer
2. Design and Development Engineer
3. Systems Integration Engineer
4. Quality Assurance/Compliance Engineer
5. Test / Qualification Engineer
6. Manufacture / Production Engineer
7. Maintenance / Test Engineer
8. Product Support (inc logistics) Engineer
9. Decommissioning/ Disposal Engineer
10. Supply Chain/Procurement
11. Engineering Business Manager

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## Foreword

*The Post Graduate Engineer Apprenticeship is delivered through the following approach:*

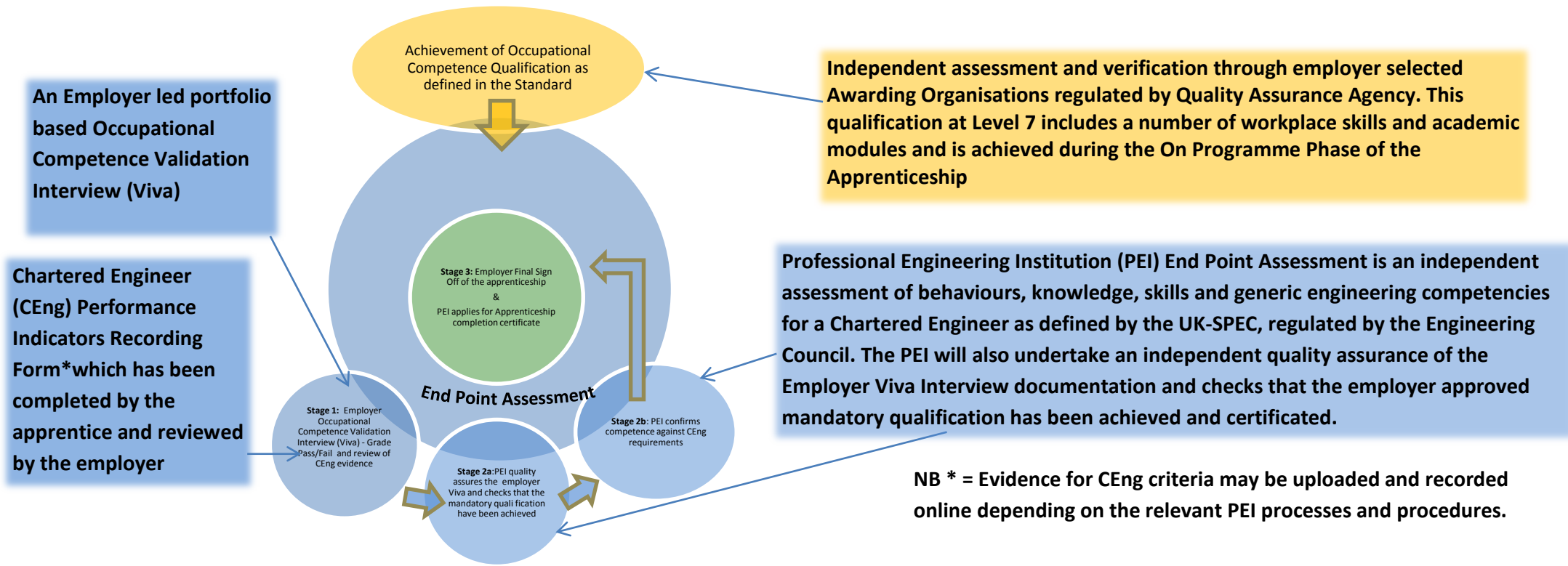
- *A Foundation Phase*
- *A Development Phase*
- *An End Point Assessment*

*We have:*

- 1) *introduced a formal gate review at the conclusion of the foundation stage. Apprentices will not progress beyond this without successful completion of this stage.*
- 2) *introduced a viva and formal overall assessment of competence as part of the end point assessment for the Advanced Manufacturing and Engineering Sector, where, Apprentices will need to demonstrate skills, knowledge and behaviours developed across the Apprenticeship.*
- 3) *introduced an alignment of competence to “CEng” requirements - the recognised generic professional institution standard for a Chartered Engineer. This is totally new and is supported by all the relevant Professional Engineering Institutions (PEIs). This provides an opportunity to establish future development activity for apprentices, linked to continued professional development.*

*Due to the safety critical and complex nature of work activities undertaken in Advanced Manufacturing and Engineering, which is often externally regulated, training and on-programme assessment must to be carried out ‘on a continuous basis’ to ensure that the skills, knowledge and behaviours that relate to organisation processes and procedures are fully imbedded 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 organisation 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. Moreover, employers in the Advanced Manufacturing and Engineering sector are responsible for the competence of their employees and nobody other than the employer will be able to confirm occupational competence. Therefore, the assessment process we have adopted is more robust than ever before with the End Point Assessment comprising of Occupational Competence assessed by the employer and Professional Competence, assessed by a relevant Professional Engineering Institution. 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 Advanced Manufacturing and Engineering Sector.*

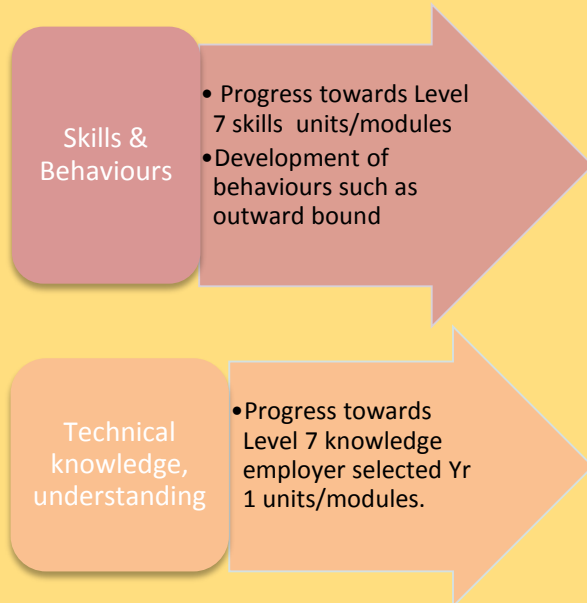
A1 Diagram 1a: End Point Assessment for a Post Graduate Engineer



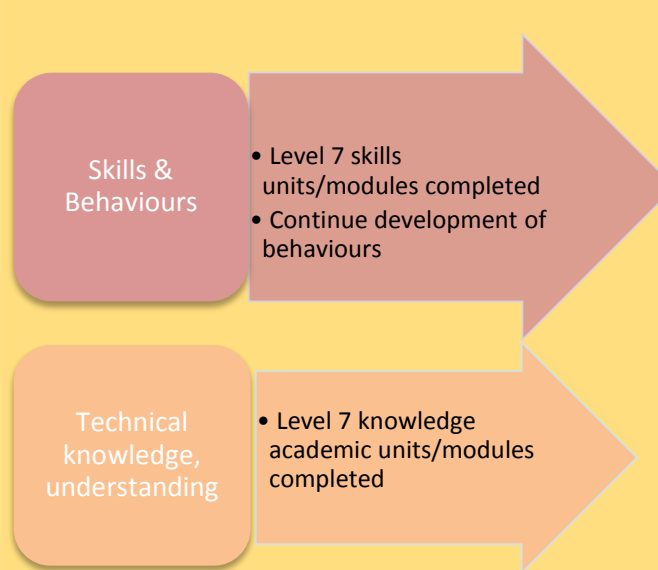
In order for the PEI to apply for the apprenticeship completion certificate the PEI will be in receipt of and have quality assured the Employer Portfolio Based Occupational Competence Viva Interview document (Stage 1) signed by the employer and confirmed that the apprentice has achieved the correct mandatory qualification specified in the Standard and Assessment Plan (Stage 2a). Confirmed that the apprentice has met as a minimum the pass grade criteria for professional competence as specified in this Assessment Plan and aligned to criteria for a Chartered Engineer (CEng) as defined by the UK-SPEC (Stage 2b) and have received a final overall apprentice sign off from the employer (Stage3).

A2 Diagram 2a: Summary approach to “On-Programme” and End Point Assessment – Post Graduate Engineer Gateway 1 Gateway 2 Certificate

### On Programme Assessment: Foundation Phase



### On Programme Assessment: Development Phase



### End Point Assessment

The employer undertakes a Portfolio based Occupational Competence Validation Interview (Viva)

A nominated Professional Engineering Institution (PEI) undertakes the independent assessment to determine if the apprentice has met the Apprenticeship Pass Grade requirements aligned to CEng (UK-SPEC). The PEI will also undertake an independent quality assurance of the Employer Viva Interview documentation and checks that the employer approved mandatory qualification achieved during the on programme phase and checked at Gateway 2 has been achieved and certificated (See Diagram 1a for full illustrated details of End Point Assessment)

**Gateway 1: Review & Assessment – Undertaken by the employer**  
Satisfactory progress towards employer selected Yr 1 skills and knowledge units/modules. Satisfactory progress towards the employer required behaviours.

**Apprentice Completion Certificate: Final employer Sign Off & PEI applies for the Apprentice's completion certificate.**

**Gateway 2: Review & Assessment - Undertaken by the employer**  
In order to be ready for End Point Assessment the apprentice must have achieved:

- A binary grade Pass in the Level 7 Post Graduate Diploma in Engineering Competence Qualification
- The required Behaviours aligned to CEng
- English and Maths qualifications at Level 2

## Section B: Detailed explanation of the end point assessment

### B1 What skills, knowledge and behaviours are being assessed?

#### B1.1 Occupational Competence

As part of the End Point Assessment Viva Interview employers will assess apprentices against the core and the relevant occupational specific knowledge, skills and behaviours set out in the Standard pathways 1 to 11.

#### B1.2 Professional Competence (CEng)

Employers in partnership with relevant Professional Engineering Institutions (PEIs) will also assess the apprentices' competence against the internationally recognised professional standard for a Chartered Engineer (CEng). Apprentices will be assessed against the following criteria:

- Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology
- Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
- Provide technical and commercial leadership
- Demonstrate effective interpersonal skills
- Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment.

#### 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 CEng level, 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.

##### B1.3.1 What is it for?

The CPD process helps the individual manage their own development on an ongoing basis. Its 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.

### **B1.3.2 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:

- provide an overview of their professional development to date
- remind them of their achievements and how far they have progressed
- direct their career and helps them keep their eye on their career goals
- uncover gaps in their skills, knowledge and behaviours
- demonstrate their professional standing to employers and/or clients
- help with their career development.

## **B2 Assessment Methods**

This assessment must take place in the final months of the Apprenticeship, using the following methods:

- An Occupational Competence Validation Interview (Viva) drawing from a portfolio of evidence of occupational competence
- Professional competence assessment undertaken by independent assessor(s) from the relevant Professional Engineering Institutions (PEIs) [using the Performance Indicators Recording Form]
- Final employer endorsement of occupational and professional competence and overall completion of the apprenticeship

To support the end point assessment, employers and PEIs have developed the following:

- a) an Occupational Competence Validation Interview (Viva) Recording Form and supporting guidance including how to prepare and undertake an effective and robust Viva interview and the technical requirements for employer assessors
- b) a Chartered Engineer (CEng) Performance Indicators Recording Form and supporting guidance

These can be accessed by contacting, as applicable, the relevant Professional Engineering Institution (PEI) who are on the Register of Apprentice Assessment Organisations.



These methods of assessment are designed to test the following:

Chartered Engineer Professional Competencies	Post Graduate Engineer Core knowledge, Skills and Behaviours
<p>A. Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology.</p>	<p>Knowledge</p> <ul style="list-style-type: none"> <li>- the theoretical knowledge to solve problems in existing and emerging technologies, applying and developing analytical techniques</li> <li>- specific specialist knowledge for Specific Role Profile</li> </ul> <p>Skills</p> <ul style="list-style-type: none"> <li>- practical competence to deliver innovative products and services</li> <li>- specific specialist skills relating to each role profile</li> </ul> <p>Core Behaviours</p> <ul style="list-style-type: none"> <li>- Knowledge and Understanding: Demonstrating commitment to continue personal development, refreshing and expanding Engineering knowledge keeping up-to-date with emerging technologies</li> <li>- Design and development of processes, systems, services and products: Contributing proactively to the continuing development of Engineering within their domain</li> </ul>
<p>B. Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems.</p>	<p>Knowledge</p> <p>the theoretical knowledge to solve problems in existing and emerging technologies, applying and developing analytical techniques</p> <p>specific specialist knowledge for Specific Role Profile</p> <p>Skills</p> <p>management of trade-offs between technical and socio-economic factors</p> <p>specific specialist knowledge for Specific Role Profile</p> <p>Core Behaviours</p> <p>Design and development of processes, systems, services and products: Contributing proactively to the continuing development of Engineering within their domain</p>

<p>C. Plan for effective project implementation.</p>	<p>Knowledge knowledge and understanding of own competencies capabilities and limitations, ability to work within these and highlight when work goes outside of these</p> <p>Skills the skill sets necessary to develop other technical staff technical responsibility for complex engineering systems accountability for project(s)/programme(s), finance and personnel management management of trade-offs between technical and socio-economic factors understanding of business and commercial needs/constraints the skill sets necessary to develop other technical staff</p> <p>Core Behaviours Communication and inter-personal skills: Being able to demonstrate a range of communication styles and methods. Understanding the importance of networks within and across functions, handling conflict, giving and using feedback effectively. Able to understand the different needs for business relationships and their associated communication requirements. Responsibility, management or leadership: Taking personal responsibility for their actions, managing projects, including resource management within their remit and able to mentor and instruct others in associated standards and best practice</p>
<p>D. Demonstrate effective interpersonal skills.</p>	<p>Knowledge knowledge and understanding of own competencies capabilities and limitations, ability to work within these and highlight when work goes outside of these</p> <p>Skills the skill sets necessary to develop other technical staff</p> <p>Core Behaviours Communication and inter-personal skills Being able to demonstrate a range of communication styles and methods. Understanding the importance of networks within and across functions, handling conflict, giving and using feedback effectively. Able to understand the different needs for business relationships and their associated communication requirements.</p>

E. Comply with relevant codes of conduct.	<p><b>Knowledge</b>  understanding of technical sign off responsibilities, who within their organisation needs to be involved in the sign off of product/processes  understanding of financial responsibilities and authorisation processes</p> <p><b>Skills</b>  safe working practices, an understanding of technical governance and quality management  compliance with legislation and codes, but be able to seek improvements</p> <p><b>Core Behaviours</b>  Professional commitment: Demonstrating a personal, ethical and professional 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 and fulfilling requirements with respect to maintenance of personal records for Professional Registration.</p>
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### 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 which will be assessed during the interview. 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 Post Graduate Engineer Standard and Employer Occupational Brief. The portfolio will also give the apprentice the opportunity to demonstrate to the employer that they understand the organisation in terms of their products, processes, procedures, resources, 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 problems encountered whilst undertaking activities in the workplace. The interview will cover all of the knowledge, skills and behaviours in the standard, through a combination of the work produced in the portfolio, and the apprentice's responses to the questions raised during the viva. Apprentices will need to respond to a bank of questions which will cover core knowledge, skills and behaviours and include questions on the relevant optional pathway they have chosen. This will confirm occupational competence.

The portfolio of evidence will show how the apprentice has demonstrated the knowledge, skills and behaviours required to be competent in the selected occupational job role as detailed in Post Graduate Engineer Standard including professional competence at CEng Level.

The portfolio will include as a minimum:

### **B2.1.1 Occupational Competence**

Three different examples of competent performance evidence that must include:

- Specific records of the work undertaken by the apprentice including any quality/compliance records, reports or documents produced as part of the work activity

together with:

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

### **B2.1.2 Professional Competence – Chartered Engineer (CEng)**

The apprentice's portfolio will also contain sufficient, valid and reliable evidence which is referenced to the professional competence requirements. This will be recorded in the appropriate professional competence Performance Indicators Recording Form demonstrating where and how the apprentice has met the appropriate professional competence criteria:

#### **Chartered Engineer (CEng)**

- Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology
- Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems
- Provide technical and commercial leadership
- Demonstrate effective interpersonal skills
- 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, and assist them to identify any need for additional opportunities to enable them to obtain all the necessary competencies, skills and knowledge and behaviours are identified but it is the employer who determines whether the portfolio demonstrates the required standard for occupational competence, the portfolio will be submitted to the employer representative undertaking the Occupational Competence Validation Interview (Viva). Further guidance on how to conduct a viva interview will be provided by the relevant PEI.

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). 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 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 set out in the standard, such as:

- the different methods and techniques used, including equipment and resources applicable to the work tasks undertaken
- the organisation's quality/compliance processes and procedures and documentation
- the academic knowledge required to carry out work tasks safely and effectively
- being proactive in finding solutions to problems and identifying areas for improving the organisation
- demonstrate effective interpersonal skills (behaviours)
- complying with statutory, regulatory, organisational and health and safety regulations while carrying out the engineering or manufacturing activities.

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 apprentice's skills and knowledge and understanding of the organisation in terms of their products, processes, procedures, resources, 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. This will be evidenced in the Professional Competence Performance Indicators Recording Form.

Note: Before the Occupational Competence Validation Interview (Viva) can take place, the employer must have evidence that the apprentice has achieved the mandatory vocational qualification requirements for this Standard - completed during the “On Programme” phase of the apprenticeship. On completion of the Occupational Competence Validation Interview (Viva) the apprentice will be awarded a grade of Pass or Fail. i.e. Competent or not yet Competent.

### **B2.2.1 Independent Assessment of Professional Competence (CEng) and quality assurance of the Employer Viva**

On successful completion of the Occupational Competence Validation Interview (Viva) i.e. achieving a pass grade, this along with the completed Professional Competence Performance Indicators Form and any supporting evidence, will be sent to the employer designated End Point Assessment Organisation i.e. a relevant Professional Engineering Institution (PEI) to assess the apprentice’s readiness for professional competence.

Evidence against all 5 UK-Spec Chartered Engineer (CEng) competency areas must be provided in order to meet the requirements of the Post Graduate Engineer Standard. In partnership with employers, relevant PEIs will work collaboratively to produce a common approach to grading the apprentices’ evidence detailed in the Chartered Engineer (CEng) Performance Indicators Recording Form. There will be two potential assessment grades:

- Not pass (feedback provided by PEI)
- Pass (meets minimum requirements) as specified in the Assessment Plan

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 CEng. 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.

On completion of the assessment if there is a shortfall in the evidence against the minimum 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 **Pass** grade. This will enable the apprentice and the employer to develop a CPD plan to enable the apprentice to develop the additional competencies/experience required to achieve the **Pass** grade.

On completion of the assessment if all minimum requirements ARE met, where applicable the PEI will confirm in writing stating that the apprentice has met the **Pass** grade requirements for the Level 7 Post Graduate Engineer Standard. 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.

This will also enable the employer and the apprentice to progress toward the **Final Sign Off – Endorsement Phase** for the apprenticeship and where applicable apply for the apprenticeship completion certificate.

### B2.2.3 Chartered Engineer (CEng) – Summary of Minimum Requirements for achieving a Pass Grade for the Post Graduate Engineer Apprenticeship at Level 7

UKSPEC Chartered Engineer Criteria	Evidence requirements of Knowledge and Understanding	Evidence requirements of Professional Competence
<b>A Use a combination of general and specialist engineering knowledge and understanding to optimise the application of existing and emerging technology</b>		
A1 Maintain and extend a sound theoretical approach in enabling the introduction and exploitation of new and advancing technology.	Meet in Full	Meet in Full
A2 Engage in the creative and innovative development of engineering technology and continuous improvement systems. .	Meet in Full	Meet in Full
<b>B Apply appropriate theoretical and practical methods to the analysis and solution of engineering problems</b>		
B1 Identify potential projects and opportunities	Demonstration of progress towards achieving full knowledge and understanding	Demonstration of progress towards achieving full competence
B2 Conduct appropriate research, and undertake design and development of engineering solutions.	Meet in Full	Meet in Full
B3 Manage implementation of design solutions, and evaluate their effectiveness.	Meet in Full	Working towards
<b>C Provide technical and commercial leadership</b>		
C1 Plan for effective project implementation.	Demonstration of progress towards achieving full knowledge and understanding	Demonstration of progress towards achieving full competence
C2 Plan, budget, organise, direct and control tasks, people and resources.	Demonstration of progress towards achieving full knowledge and understanding	Demonstration of progress towards achieving full competence
C3 Lead teams and develop staff to meet changing technical and managerial needs.	Demonstration of progress towards achieving full knowledge and understanding	Demonstration of progress towards achieving full competence
C4 Bring about continuous improvement through quality management.	Meet in Full	Meet in Full

<b>D Demonstrate effective interpersonal skills</b>		
D1 Communicate in English <sup>3</sup> with others at all levels.	Meet in Full	Meet in Full
D2 Present and discuss proposals.	Meet in Full	Meet in Full
D3 Demonstrate personal and social skills.	Meet in Full	Meet in Full
<b>E Demonstrate a personal commitment to professional standards, recognising obligations to society, the profession and the environment</b>		
E1 Comply with relevant codes of conduct.	Meet in Full	Meet in Full
E2 Manage, evaluate and improve these systems	Meet in Full	Meet in Full
E3 Undertake engineering activities in a way that contributes to sustainable development.	Meet in Full	Demonstration of progress towards achieving full competence
E4 Carry out and record CPD necessary to maintain and enhance competence in own area of practice	Meet in Full	Meet in Full
E5 Exercise responsibilities in an ethical manner.	Meet in Full	Meet in Full

On receipt of the completed apprentice End Point Assessment documentation, the designated Professional Engineering Institution (PEI) quality assures the documentation including checking that the employer approved mandatory qualification has been achieved and certificated. They will then notify the employer in writing if the apprentice has been successful or not. If not, the apprentice will be advised of the shortfall in evidence in either the employer Viva or Professional Competencies (CEng).

#### **B2.2.4 Final Sign Off – Employer Endorsement & Application for Apprenticeship Completion Certificate**

If successful, i.e. the employer is in receipt of the written statement from the selected Professional Engineering Institution confirming that the apprentice has met as a minimum the pass grade requirements for CEng, the employer will undertake the Final Sign Off of the Apprenticeship by signing the last section on the Occupational Competence Validation Interview (Viva) document along with the apprentice. The relevant Professional Engineering Institution on the Register of Apprentice Assessment Organisations then applies for the apprenticeship completion certificate.



## 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 will have final judgement on the Occupational Competence of the apprentice.
- 2) The Independent Assessor(s) from the Professional Engineering Institution (PEI) 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)
  - Professional Competence Performance Indicators Recording Form

### B3.1 The Employer

- The employer will conduct the Occupational Competence Validation Interview (Viva) to assess 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 and is available from the relevant Professional Engineering Institution (PEI). 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 specified in the Standard 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. This will be recorded in the Occupational Competence Validation Interview (Viva) document.
- The employer will also review the relevant Professional Competence Performance Indicators Recording Form in preparation for submission to the relevant Professional Engineering Institution (PEI) for a final independent assessment of professional competence.

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

- Independent assessor(s) will assess the initial judgement made by the employer recorded on the appropriate Professional Competence Performance Indicators Recording Form. In terms of making their final independent judgement of Professional Competence this will be based on CEng requirements as defined in the Engineering Council's UKSPEC and the minimum Pass Grade criteria set out in section B2.2.3. The independent assessor(s) must be affiliated to the relevant Professional Engineering Institution (PEI) with which the employer selected to undertake the independent end point assessment.

- Assessor(s) from the Professional Engineering Institution (PEI) will also quality assure the Viva documentation, signed by the employer and used to assess Occupational Competence. They will also check that the employer approved mandatory qualification has been achieved and certificated. However, it is the employer who will make the final judgement of an apprentice's Occupational Competence.

### **B3.3 Final Sign Off – Employer Endorsement & Application for Apprenticeship Completion Certificate**

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

- accepting the assessment decision of the Professional Engineering Institution (PEI) including the quality assurance of the Viva, the confirmation that the apprentice has achieved the correct mandatory qualification and have received confirmation from the Professional Engineering institution (PEI) that the apprentice has achieved as a minimum the pass grade criteria for professional competence appropriate professional competencies i.e. CEng as specified in the Assessment Plan.
- signing the last section on the Occupational Competence Validation Interview (Viva) document along with the apprentice

#### **Applying for the Apprenticeship completion certificate**

- On receipt of the fully signed Viva Form the selected Professional Engineering Institution (PEI), who are on the Register of Apprentice Assessment Organisations then applies for the apprenticeship completion certificate.

## **B4 How will assessments be quality assured?**

### **B4.1 Internal QA –Professional Competence – Chartered Engineer (CEng)**

- The Professional Engineering Institutions (PEIs). All end point assessment applications will be reviewed by a minimum of 2 trained assessors against the Engineering Council UKSPEC requirements. The performance of CEng assessors is continuously monitored. In addition, all PEIs are required by the Engineering Council to conduct internal audit reviews of the process, on a sampling basis.
- All those involved in the assessment process, are required to undertake initial and on-going training. This includes updating on UK-SPEC requirements, good practice in assessing, process and any quality issues that could be raised during the assessment process.
- Requirements for CEng Assessors:
  - CEng Assessors must be registered via a relevant Professional Engineering Institution at CEng level
  - Have up to date working knowledge of the engineering sector including the specific competencies required by a Post Graduate Engineer

- They will understand the Apprenticeship Standard End Point Assessment process including the evidence required to meet the CEng criteria and Employer Occupational Competence Validation Interview (Viva).
- As the licencing body for the professional engineering institutions, the UK Engineering Council sets and upholds the standards for professional registration against which all assessments are made in all PEIs – UK-SPEC. The Engineering Council undertakes regular monitoring of the PEIs, including a full audit every 5 years, with an interim review audit in between.

#### **B4.2 PEI Internal QA of Employer Occupational Competence Validation Interview**

- Hold and maintain a register of employer designated technical experts approved to undertake the occupational competence validation interview aligned to the criteria specified in the guidance documentation. These experts are likely to have been selected from the apprentice's employer, and will have been identified as competent to do this role.
- Provide training for employer designated technical experts undertaking the end point assessment - occupational competence validation
- Monitor employer designated technical experts' moderate outcomes
- The relevant PEI holds regular standardisation events with employer designated technical experts including the review and moderation of assessment decisions and provide feedback to ensure the standardisation of assessment decisions and to provide the basis for improvement and CPD opportunities
- Provide employers with Internal Quality Assurance process and End Point Assessment recording documents including
  - The Occupational Competence Interview (Viva) Recording Form and supporting guidance
  - The Chartered Engineer (CEng) Performance Indicators Recording Form and supporting guidance
  - A register of employer and PEI approved Awarding Organisation qualifications
- Maintain and manage a complaints' and appeals procedure for both the occupational competence and professional competence stages of the End Point Assessment. If unresolved the Independent Assessment Organisation will contact the EQA organisation and follow their appeals process

### B4.3 External Quality Assurance

We are investigating options for External Quality Assurance with the Engineering Council and the Assessment Plan will be updated once those arrangements are confirmed.

## 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) this will be a binary pass / fail grade
- For the Professional Competence this will be Pass/ Fail i.e. a pass will mean they have met the requirements for the apprenticeship, a Pass and Ready to apply for CEng will mean that if they wish to apply for professional registration they are, subject to professional interview, deemed as CEng ready.

Due to the complex and safety critical nature of the industry a grading exemption note has been granted.

## SECTION D - Implementation

### D1 Affordability

The costs allocated to end point assessment equates to no more than 10% of the overall cost of this apprenticeship. The cost for end point assessment includes the following:

- Occupational Competence Validation Portfolio Collation
- Occupational Competence Validation Interview (Viva)
- Assessment of Professional competence
- Viva quality assurance including checking that the mandatory qualification has been achieved
- Employer "Final sign off"
- Apprenticeship Certificate
- External Quality Assurance

## D2 Capacity planning for End Point Assessment Volumes

Employers and the relevant Professional Engineering Institutions (PEIs) have conducted a feasibility analysis to ensure that there will be sufficient capacity to meet the number of apprentices requiring End Point Assessment including when, during the calendar year that the assessment is likely to be required. We are planning to start with 200 in order to test the process and this will allow us to fully understand the challenges and plan accordingly to meet future needs of the 2000+ apprentices by 2020 that will be using this Standard.

## SECTION E – The Journey to End Point Assessment - “On Programme”

### E1 Apprenticeship Mandatory Qualifications

- Level 2 Maths and Level 2 English
- Plus**
- Level 7 Post Graduate Diploma in Engineering Competence

### E2 The Employer Occupational Brief (EOB) – Information for Awarding Organisations

The EOB will inform relevant Awarding Organisations of the required elements of vocational knowledge and skills to be achieved in the mandated occupational competence qualification specified within this Apprenticeship Standard. This will enable the sector to develop world class levels of on programme training and development linked to specified qualifications and ensures that the credibility and consistency of Apprenticeship outcome is maintained. Key components of the Employer Occupational Brief (EOB) are the Unit/Module Learning Outcomes developed and owned by employers. Each Unit/Module specification sets out in detail the specific skills, knowledge and behaviours that the apprentice must achieve in order to demonstrate that they are occupationally competent in the specific job role. The Unit/Modules must be used by Awarding Organisations in order to develop the mandatory occupational competence qualification achieved during the on programme phase of the apprenticeship and achievement checked by the employer during the Gateway 2 assessment. The Unit/Modules will still allow each organisation to develop their own specific and tailored apprentice programme.

The Employer Occupation Brief is an all-embracing term and will contain a number of separate documents including

- a) Development Phase - Employer Units/Modules of Engineering Competence
- b) Development Phase - Qualification Structure
- c) Qualification Assessment Strategy for the qualification

The Employer Occupational Brief and associated documents can be accessed from Semta [standards@semta.org.uk](mailto:standards@semta.org.uk)