Improvement Specialist Apprenticeship Standard, Level 5 End-Point Assessment Plan

Introduction and overview

This document sets out the requirements for end-point assessment (EPA) for the Improvement 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 Improvement Specialist apprentices, their employers and training providers.

Full time apprentices will typically spend 14-18 months on-programme working towards the apprenticeship standard, with a minimum of 20% off-the-job training.

The EPA 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, the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO.

As a gateway requirement, apprentices must complete a portfolio of evidence generated throughout the apprenticeship, and they must have achieved Level 2 English and maths prior to taking their EPA.[1] Additionally, their employer must confirm that they are consistently working at or above the level of the occupational standard.

The EPA must be completed within a 20-week period, after the apprentice has met the EPA gateway requirements.

EPA must be conducted by an organisation approved to offer services against this apprenticeship standard, as selected by the employer, from the Education & Skills Funding Agency's (ESFAs) Register of End-Point Assessment Organisations (RoEPAOs).

The EPA consists of two distinct assessment methods:

- **Professional discussion,** underpinned by portfolio of evidence
- **Examination,** based on mini case-studies

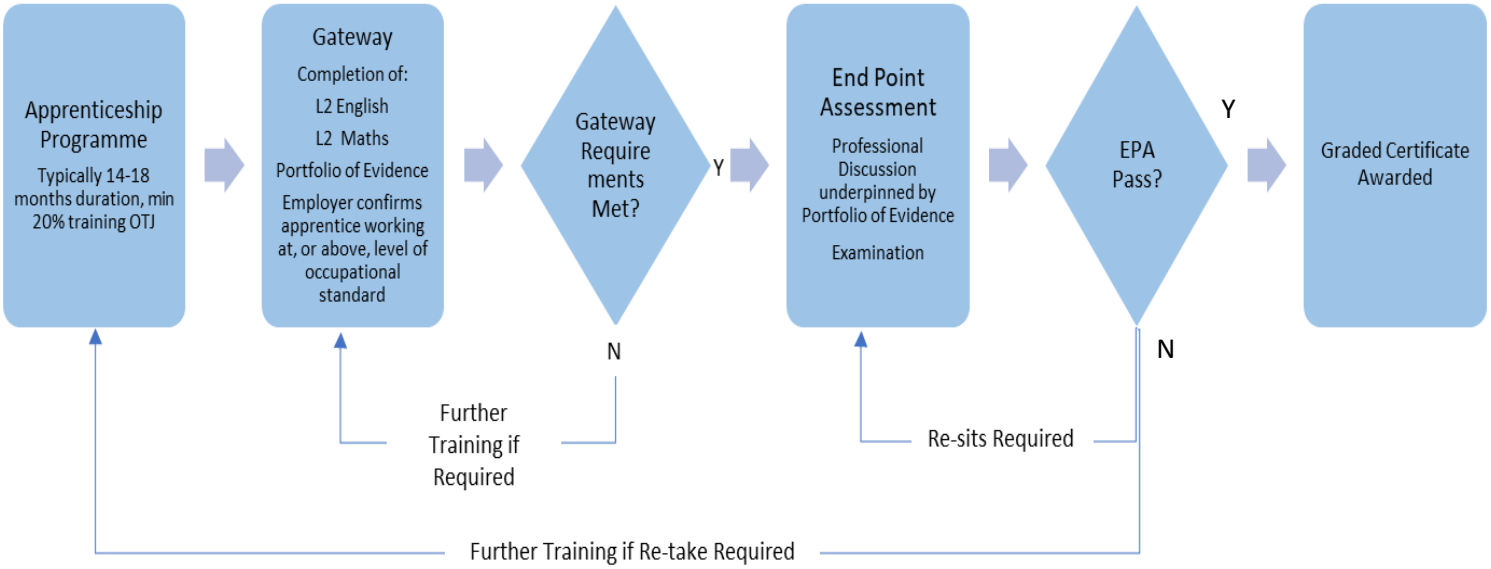
Performance in the EPA will determine the apprenticeship grade of fail, pass, merit or distinction.

[1] For those with an education, health and care plan or a legacy statement the apprenticeships English and maths minimum requirement is Entry Level 3. British Sign Language qualification is an alternative to English qualifications for those whom this is their primary language.

Diagram 1. Improvement Specialist apprenticeship end-point assessment summary

On-programme (typically 14-18 months)	**End-point assessment gateway**	**End-point assessment (maximum 12 weeks)**
Training to develop the improvement specialist occupational standard's knowledge, skills and behaviours Working towards English/maths Level 2 (if required) Compilation of portfolio of evidence	English/maths Level 2 Portfolio of evidence Employer satisfied apprentice is consistently working at, or above, the level of the occupational standard	Professional discussion, underpinned by portfolio of evidence Examination, based on mini case-studies Graded fail, pass, merit or distinction

Diagram 2. Improvement Specialist apprenticeship end-point assessment summary – flow chart



End-point assessment gateway

The EPA commences once the employer is satisfied that the apprentice is consistently working at or above the level set out in the occupational standard, the pre-requisite gateway requirements for EPA have been met and that they can be evidenced to an EPAO. Employers may wish to take advice from their apprentice's training provider(s) on the apprentice's readiness for EPA.

Gateway requirements:

1. English and mathematics at level 2, as a minimum[2]
2. Portfolio of evidence (see below)
3. Written confirmation from the apprentice's employer that they are satisfied the apprentice is consistently working at or above the level of the standard

   Portfolio of evidence requirements:
   - The portfolio of evidence must include a minimum of one set of evidence for each of the topic areas assessed by the professional discussion as shown in annex A
   - The above evidence must include a range of documents, such as reports from process improvement projects, graphs showing process analysis, charts showing impact readiness, image of House of Quality and extracts from project plans
   - The portfolio of evidence must also include evidence relating to the preparation and delivery of a training session which can have been delivered during the on-programme phase of the apprenticeship with Level 4 learning outcomes linked to one or two improvement topics

     Training session and evidence requirements:
     - It must cover a subject selected from the following list: Project Management, Change Management, Process Mapping and Analysis, Lean Principles and Tools, Measurement System Analysis, Data Collection Planning, Graphical Analysis, Process Capability, Root Cause Analysis, Designed Experiments, Statistical Process Control
     - The training materials must be prepared by the apprentice (i.e. they must not deliver published training material prepared by someone else and this requirement will be authenticated by a signed statement provided by the apprentice's employer)

[2] For those with an education, health and care plan or a legacy statement the apprenticeships English and maths minimum requirement is Entry Level 3. British Sign Language qualification are an alternative to English qualifications for those whom this is their primary language.

    - It must be delivered to a group of Level 4 delegates in their normal working environment and last 35-40 minutes in duration
    - A continuous video recording of the session must be included in the portfolio of evidence
    - Training materials may include for example PowerPoint presentation, lesson plan, training notes, photographs of white boards, handouts, flipcharts
    - All training materials and records of delegate feedback must be included in the portfolio of evidence
- The evidence must be mapped holistically against the KSBs, as shown in Annex A
- Apprentices should focus on the quality of evidence rather than quantity
- The evidence must be generated by the apprentice (either independently or in a team-based environment) with the apprentice's role and that of a team, clearly identified and authenticated by a signed statement provided by the apprentice's employer (which should be included in the portfolio of evidence)
- The portfolio of evidence must be used to underpin the professional discussion in the EPA and is not assessed as part of the EPA
- The completed portfolio of evidence must be submitted to the EPAO within two weeks of EPA gateway completion to allow time for the EPAO to review it and prepare for the EPA

End-point assessment methods, timescales and location

The EPA consists of two distinct assessment methods:

- **Professional discussion,** underpinned by portfolio of evidence
- **Examination,** based on mini case-studies

The EPA must be completed within a 20-week period, after the apprentice has met the EPA gateway requirements. Assessment methods can be completed in any order, allowing EPAOs flexibility in scheduling and cost-effective allocation of resources. EPAOs must ensure that each assessment method is scheduled for an apprentice within their maximum 20-week EPA period. It is recommended that the professional discussion and examination components be completed on the same day however this is not a requirement.

The requirements for each assessment method are detailed below.

1. **Professional discussion, underpinned by portfolio of evidence**
    - This must be a discussion between the apprentice and their assessor, with a technical expert from the apprentice's employer present. The technical expert's role is to

provide the assessor with clarifications around specific company policy and procedure or technical knowledge only. They must not provide information on behalf of the apprentice, ask the apprentice questions or influence the apprentice in any way. The technical expert must not amplify or clarify points made by the apprentice. Note that the EPA judgement lies solely with the assessor who grades the professional discussion.

- It must last 2-hours to 2-hours 20 minutes in duration.
- Assessors must ask open/competency based questions to cover the KSBs mapped against this method as shown in Annex A.
- Questions must be devised by the apprentice's assessor following a review of the evidence in the apprentice's portfolio of evidence, including the video of the training session, prior to the professional discussion.
- The skill/judgement of assessors will be necessary to formulate and ask sufficient questions (including follow-up questions if required to seek clarification) to make a sound assessment against the grading criteria set-out in Annex B.
- Apprentices may refer to the portfolio of evidence when answering questions.

2. **Examination**
   - Apprentices must complete an examination consisting of eight separate mini case-studies, covering topics where there is a series of right/wrong answers.
   - Each case-study must include a brief description of a scenario and a set of data in Excel, Minitab or an alternative software package. It must require the apprentice to work with the set of data in Excel, Minitab or an alternative software package, apply tools and draw conclusions. The case studies and the questions must be constructed such that capability to link outputs from one tool into another is tested.
   - Apprentices must answer 10 multiple-choice questions in relation to each case-study.
   - Apprentices must select the correct answer from a multiple-choice set of four possible answers where one answer is correct.
   - Each question answered correctly must be assigned 1 mark; any incorrect or missing answers must be assigned 0 marks, with each case-study having a maximum 10 marks.
   - Each case study must cover a different topic from the following list: Sampling, Measurement System Analysis, Capability Analysis, Transformation, Hypothesis Testing, Correlation/Regression, Statistical Process Control.
   - Apprentices must have four hours to complete the examination, allowing approximately 30 minutes to answer the questions for each mini case-study.
   - The examination must be open-book i.e. apprentices can refer to notes or materials, since this is representative of the working environment of Improvement Specialists; however, the quantity and complexity of questions must mean that apprentices will not have time to consult reference material for every question.

- The examination must be conducted on a computer with the necessary software package(s).
- The examination must be completed under exam conditions i.e. quiet space free from distraction and influence with an EPAO invigilator present. The ratio of apprentices to invigilators must not exceed 16:1 if face-to-face and 5:1 if remote.
- The examination must be marked by EPAO independent assessors or markers following a marking guide produced by the EPAO; electronic marking is permissible.
- EPAOs must devise a bank of case-studies and questions of sufficient size to prevent predictability and review them regularly (and at least once a year) to ensure they, and the specifications they contain, are fit for purpose.

EPAOs must ensure that both assessment methods are conducted suitable controlled environments i.e. quiet room free from distraction and influence, with the necessary equipment for each assessment method, for example computer for the examination and observation and questioning (if required). It is anticipated that EPAOs will use the apprentice's employer's premises wherever possible to minimise costs. Assessments may be conducted face-to-face or via an online platform, for example. video-conferencing. EPAOs must ensure appropriate methods to prevent mis-representation are in place. For example, screen share and 360-degree camera function with an administrator/invigilator when taking the examination on-line.

Each assessment method must assess the KSBs as set out in Annex A.

Apprenticeship grading

Each assessment method will be individually graded – fail, pass, merit, distinction using the criteria in Annex B.

For the professional discussion, the apprentice's assessor must make independent judgements against each set of KSBs as set out in Annex A using the grading criteria set out in Annex B.

The EPAO must combine the grades of the two assessment methods to determine the overall EPA grade. In order to get an overall pass apprentices must achieve a pass as a minimum in both assessment methods. Apprentices will be awarded an overall merit where they achieve a merit or higher in both assessment methods **or** a distinction and pass. In order to get a distinction apprentices must get a distinction in both assessment methods.

See table in Annex C for grading combinations. Note that restrictions on grading apply where apprentices re-sit/re-take an assessment method – see re-sit/re-take section below.

Assessors' decisions must be subject to moderation by the EPAO – see internal quality assurance section below. Decisions must not be confirmed until after moderation.

Re-sit and re-take information

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

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

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

The maximum grade awarded to a re-sit/re-take will be pass, unless the EPAO identifies exceptional circumstances accounting for the original fail.

EPAOs must ensure that apprentices complete a different examination when taking a re-sit/re-take.

End-point assessment organisations

Employers must choose an independent EPAO approved to deliver the EPA for this apprenticeship from the Education & Skills Funding Agency's (ESFAs) Register of End-Point Assessment Organisations (RoEPAOs).

Requirements for Assessors, invigilators and markers

EPAOs must appoint:

- Administrators/invigilators and markers to administer/invigilate and mark the examination.
- Assessors to assess and grade the professional discussion
- Quality assurance staff to undertake moderation of EPA

Administrators/invigilators and markers must meet the following requirements:

- Be independent of the apprentice, their employer and training provider(s) - there must be no conflict of interest
- be trained in the task(s) by their EPAO and operate according to their guidance

There are no specific qualification or experience requirements for administrators/invigilators/markers.

Assessors must meet the following requirements:

- Be independent of the apprentice, their employer and training provider(s) i.e. there must be no conflict of interest
- Hold or be working towards an assessor qualification, for example CAVA (Certificate in Assessing Vocational Achievement) or A1 and have had training from their EPAO in terms of good assessment practice, operating the assessment tools and grading
- Be qualified at level 6 or above in an improvement discipline (Lean, Six Sigma, etc.) and have recent (within last 5 years) experience working in improvement, or be approved by the EPAO as meeting this requirement through demonstrable knowledge and experience and currently working in the improvement sector
- Have attended all of the training for the delivery elements of this standard, or attended an induction with a recognised provider which details the delivery elements prior to carrying out any EPA activities in order to be familiar with the learner journey and KSB of the occupational standard
- Undertake a minimum of 2 standardisation events per year

Quality assurance staff must meet the following requirements:

- Hold or be working towards quality assurance qualifications for example, TAQA (Training, Assessment and Quality Assurance)
- Be independent of the apprentice, their employer and training provider - there must be no conflict of interest

Requirements for technical experts

Employers must appoint technical experts to support assessors of the Professional Discussion and they must:

- Have knowledge and experience of the processes being measured and improved by the apprentice.
- Ideally be trained to Level 6 in Improvement principles and tools for example, certified as a Lean Six Sigma Master Black Belt or have equivalent experience

Internal quality assurance

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

- Appoint assessors, administrators/invigilators and makers and quality assurance staff that meet the requirements as detailed in this plan – see above

- Provide training for assessors in terms of good assessment practice, operating the assessment tools and grading
- Have quality assurance systems and procedures that support fair, reliable and consistent assessment across organisation and over time
- Operate regular standardisation events that enable assessors to attend a minimum of 2 events per year
- Operate moderation of assessment activity and decisions through examination of documentation and observation of activity, with a minimum of 10 percent of each assessors' assessments moderated every six months.

Assessment tools and materials

EPAOs must produce assessment tools and supporting materials for the EPA that follow best assessment practice, as follows:

- Guidance for apprentices, their employers and training providers on the EPA including both written and verbal instructions on the tasks to be completed by apprentices for each assessment method including timescales
- Template documents for recording all assessment evidence and decisions to enable: a sound assessment against the grading criteria set-out in Annex B; identification of trend-data that can be shared with Training Providers to enable continuous improvement of provision; cost-effective quality assurance by third parties
- Sample questions to enable assessors to assess and grade the professional discussion assessment method
- A bank of mini-case studies with questions. The bank must be of sufficient size to prevent predictability and be reviewed regularly (and at least once a year) to ensure they are fit for purpose and allow a different set of questions to be used in the case of re-sits/re-takes. It is recommended that mini case-studies and questions are developed in consultation with representative employers; EPAOs must put measures in place to ensure question security

External quality assurance

External quality assurance arrangements will ensure that EPAOs delivering EPA for this apprenticeship standard operate consistently and in line with this plan.

The Institute for Apprenticeships will undertake external quality assurance for this apprenticeship standard.

Implementation

Affordability

Flexibility in the scheduling of assessments and the ability to use technology and employers' premises should enable EPAOs to minimise costs and deliver the EPA in the volumes required.

Volumes

It is anticipated that there will be initially 50 starts per year on this apprenticeship but it is expected that this number will grow substantially within the first three years of delivery, with a minimum number of 200 starts by this point.

Annex A – Knowledge, skills and behaviours to be assessed by each assessment method

Assessment method	Key
Professional discussion underpinned by portfolio of evidence	P
Examination	E

Knowledge statement - Improvement Specialists have the Knowledge and understanding of:	**Assessment method**
1. **Leading improvement teams:** Personality types, team development stages, motivational techniques, situational leadership, learning styles, mentoring models	**P**
2. **Project planning:** Multi-element business case, financial plan, benefits realisation plan, risk management plan, project plan	**P**
3. **Project reviews & coaching:** Coaching models, Maslow's hierarchy of needs	**P**
4. **Change planning:** Change management methods, impact/readiness, influencing strategies	**P**
5. **Commercial environment:** Business and economic risks including changes in legislation, government regulation or trading conditions that can impact all aspects of improvement from Project Selection through to selection/implementation of improvements	**P**
6. **Principles & methods for Improvement:** How to apply Improvement Methods (e.g. Practical Problem Solving, Define-Measure-Analyse-Improve-Control, 8-Disciplines, Identify-Define-Optimise-Verify) across all functions, policy deployment principles, Lean culture	**P**
7. **Voice of the customer:** Interviewing and focus groups, Quality Function Deployment principles and how to build a House of Quality	**P**
8. **Process mapping & analysis:** Activity network diagrams, design structure matrix, process modelling, key function diagrams and analysis	**P**
9. **Data acquisition planning:** Stratification, rational sub-groups, power and sample size	**E**
10. **Statistics & measures:** Probability distributions and how to test for fit of probability distributions to data. Confidence intervals, central limit theorem. How to test data for stability	**E**

and normality and strategies for dealing with non-stable or non-normal data	
11. **Lean concepts and tools:** Principles of Lean Thinking and Lean tools including origins and cultural aspects critical to successful application within an organisation	**P**
12. **Measurement system analysis:** Repeatability & Reproducibility analysis. Long term measurement error	**E**
13. **Process capability:** Data transformation, life data analysis and prediction	**E**
14. **Root cause analysis:** Matrix plots, multi-vari charts, hypothesis testing principles and methods, correlation and regression principles and methods	**E**
15. **Experimentation:** Principles of full and fractional designed experiments including replicates, repeats, randomisation, blocking and centre points, resolution and confounding. Planning and analysis using residuals, main effects & interaction plots, hierarchy of terms, Response Surface Method, Split plots, Analysis of variance (ANOVA). Approaches for model optimisation	**P**
16. **Identification & prioritisation:** Creativity tools e.g. theory of inventive problem solving (TRIZ), Pugh matrix	**P**
17. **Failure mode avoidance:** System state flow, boundary diagram, interface analysis tables, fault tree analysis, robustness checklist, tolerance design and analysis. Principles and links between Failure Modes and Effects analysis for concepts, designs, processes.	**P**
18. **Sustainability & control:** Control and reaction plans. Prevention controls	**P**

Skills statements - Improvement Specialists have the following **Skills**:	**Assessment method**
1. **Leading improvement teams:** Holding team members/stakeholders to account for delivering agreed actions within an improvement project and building/maintaining appropriate stakeholder relationships inside and outside the organisation to deliver improvement project objectives	**P**
2. **Strategic Deployment of Continuous Improvement:** Contribute to deployment of improvement strategy, participating as an active member of the improvement community	**P**

3. **Communication:** Prepare and present concise proposals and plans. Capture and share progress through effective formats and channels. Use and handle questions effectively. Build rapport with others.	**P**
4. **Capability Development:** Train, facilitate and critique the application of tools used by improvement practitioners including tool-selection, links between tools, how they are used within a structured method, analysis of results and presentation of recommendations	**P**
5. **Project planning:** Plan and manage finances, multi-stakeholder delivery and benefits realisation	**P**
6. **Change planning:** Design reinforcement, engagement and communication strategies	**P**
7. **Principles and Methods for Improvement:** Guide others on the selection of appropriate methods (eg. Practical Problem Solving, Define-Measure-Analyse-Improve-Control, 8-Disciplines, Identify-Define-Optimise-Verify) to deliver improvements. Conduct gateway assessments to ensure suitability of projects to progress	**P**
8. **Project selection & scope:** Guides others on the selection and scoping of improvement projects and the initial response to product/process performance issues. Identify, scope and prioritise improvement opportunities that map to high-level organisation objectives and key value-streams	**P**
9. **Process mapping & analysis:** Guide others on the selection of appropriate process mapping and analysis tools. Critique improved state	**P**
10. **Lean tools:** Identify and analyse value-streams using appropriate methods and tools to optimise flow to customer**.** Develop a plan for Lean deployment within the organisation including effective and relevant performance metrics	**P**
11. **Measurement**: Guide others on the planning, analysis and interpretation of data collection & measurement studies including the design of tests to recreate failures & steps to diagnose/reduce short & long-term measurement variation	**P**
12. **Statistics & measures:** Confirm data and fit for a range distribution models. Establish predictions. Calculate confidence intervals	**E**
13. **Data analysis-statistical methods:** Model random behaviour and make inferences with levels of confidence.	**E**

Calculate/recommend sample size. Test hypotheses for all data types. Assess input/output correlation. Generate, analyse and interpret simple and multiple predictive relationship models	
14. **Process capability & performance:** Identify data stability/distribution issues and apply appropriate strategies to enable robust Capability Analysis. Analyse life data to establish rates and patterns	**E**
15. **Root cause analysis:** Make appropriate use of data to assess contribution of critical inputs/root cause(s) to product/process performance using appropriate graphical and statistical tools to draw and communicate conclusions	**E**
16. **Experimentation & optimisation:** Guide others on the planning, analysis and interpretation of experiments. Plan, conduct, analyse and optimise both full & fractional experiments	**P**
17. **Data analysis – Statistical Process Control:** Monitor and asses ongoing process variation and changes through chart-selection, control-limit setting, sample sizing/frequency and control-rules	**E**
18. **Benchmarking:** Guide others on benchmarking to support all stages of improvement projects including future-state design	**P**
19. **Failure mode avoidance:** Decompose complex systems in order to define main functions. Analyse system interactions. Cascade knowledge through fault tree analysis. Create and assess design rules, standards & verification methods. Complete robustness studies to select appropriate control strategies and detection methods	**P**
20. **Sustainability & control:** Guide others on control and sustainability planning including methods and tools to maintain benefits, extraction of learning, replication, sharing and consolidation of new knowledge into organisational learning.	**P**

Behaviour statements - Improvement Specialists demonstrate the following **Behaviours**:	**Assessment method**
1. **Drive for results:** Co-ordinates and delivers sustained improvement across the business by engaging with, and inspiring stakeholders; adopting a can-do attitude	**P**

2. **Team-working:** Leads cross functional project teams proactively, regularly supports others and replicates learning	**P**
3. **Professionalism:** Exemplifies high standard of professional integrity, ethics and trust within the organisation, whilst maintaining flexibility to the needs of the business	**P**
4. **Process Thinking:** Drives process-thinking and customer-focused, data-driven decision making	**P**
5. **Continuous development:** Identifies & models opportunities for development of self & others	**P**
6. **Safe working:** Adopts a proactive approach to safety, encouraging others and suggesting improvements on compliance.	**P**

Annex B – Pass, Merit and Distinction criteria

Professional Discussion underpinned by Portfolio				
Area of Standard	**Fail Criteria** **the Apprentice will display any of the following**	**Pass Criteria** **the apprentice must demonstrate all of the following**	**Merit Criteria** **In addition to the pass criteria the Apprentice must demonstrate 12 or more of the following, two-three of which must be behaviours**	**Distinction Criteria** **In addition to the merit criteria the Apprentice must demonstrate 10 or more of the following, one-two must be behaviours**
K1 & S1. Leading improvement teams: Personality types, team development stages, motivational techniques, situational leadership, learning styles, mentoring models Holding team members/stakeholders to account for delivering agreed actions within an improvement project and building/maintaining appropriate stakeholder relationships inside and outside the organisation to	Work alone, without engaging appropriate stakeholders.	Set-up and lead an improvement team to deliver strategically-aligned business benefits, following the steps of a recognised Problem Solving Methodology (e.g DMAIC, PPS) and conducting gateway reviews to assess suitability to proceed. Select and apply published approaches (such as situational leadership and mentoring models) to communicate with and lead an improvement team over the course of an	1. Mentor others in setting up and leading effective improvement teams.	1. Set-up or lead new activities that contribute to the selection and application of methods or the processes for conducting gateway assessments to ensure suitability of projects to progress. 2. Promote the principles and benefits of coaching.

deliver improvement project objectives		improvement project, engaging with stakeholders throughout.		
K2 & S5. Project planning: Multi-element business case, financial plan, benefits realisation plan, risk management plan, project plan Plan and manage finances, multi-stakeholder delivery and benefits realisation	Incorrect or missing details in the business case, financial plan, benefits realisation plan and/or project plan. Fail to consider risk.	Manage a portfolio of multiple improvement projects, ensuring appropriate financial planning, benefits realisation and governance.	2. Establish or improve processes for identifying, prioritising and allocating improvement projects.	3. Use Failure Modes and Effects Analysis principles and tools to identify and manage/mitigate risk in the context of managing a multi-project improvement programme.
K3. Project reviews & coaching: Coaching models, Maslow's hierarchy of needs	Fail to use coaching techniques to enable and encourage delegates to think and learn independently.	Understand at least 1 coaching model.		
K4 & S6. Change planning: Change management methods, impact/readiness, influencing strategies Design reinforcement, engagement and communication strategies	Fail to consider the impact of change in the context of an improvement project. Fail communicate status and progress of improvement project to stakeholders.	Apply Change Management tools to ensure effective and efficient delivery of business benefits through an improvement project. Develop a plan and use a range of strategies to	3. Guide others in the preparation and/or presentation of proposals and plans.	4. Promote Improvement principles, methods and tools to others.

		influence others over the course of an improvement project.		
K5. Commercial environment: Business and economic risks including changes in legislation, government regulation or trading conditions that can impact all aspects of improvement from Project Selection through to selection/implementation of improvements	Fail to consider the wider business operating environment when identifying, managing and implementing improvement projects.	Identify and prioritise business and economic risk in the context of identifying, managing and implementing improvement projects.	4. Identify new approaches to identifying and prioritising business and economic risk in the context of managing a multi-project improvement programme.	5. Consider, and improve awareness across the business, of new risks that may arise in the future (e.g. the impact of Industry 4.0).
K6. Principles & methods for Improvement: How to apply Improvement Methods (e.g. Practical Problem Solving, Define-Measure-Analyse-Improve-Control, 8-Disciplines, Identify-Define-Optimise-Verify) across all functions, policy deployment principles, Lean culture	Fail to apply a recognised methodology and to select and use tools linked together in a logical and clear flow. Fail to link improvement activities to business strategy through policy-deployment principles.	Apply Improvement methodologies to improve processes in at least 2 different parts of the business.	5. Apply a recognised methodology to design a new process, product or service right first time.	

	Fail to consider key inputs required to build a Lean culture.			
K7. Voice of the customer: Interviewing and focus groups, Quality Function Deployment principles and how to build a House of Quality	Fail to identify all customer groups and to select and take steps to understand their requirements.	Use methods to understand the voice of customers.	6. Build a House of Quality to support the design of a new process, product or service.	6. Guide others in the application of Voice of Customer principles and tools.
K8 & S9. Process mapping & analysis: Activity network diagrams, design structure matrix, process modelling, key function diagrams and analysis Guide others on the selection of appropriate process mapping and analysis tools. Critique improved state	Rely only on documents and reports from others to understand a process as part of an improvement project.	Use methods to map and analyse processes. Seek opportunities to guide others in the application of Process Mapping and Analysis principles and tools.		
K11 & S10. Lean concepts and tools: Principles of Lean Thinking and Lean tools including origins and cultural aspects critical to successful application within an organisation	Fail to apply Lean thinking, principles and tools as part of an improvement project.	Apply Lean tools to identify to improve processes in at least 2 different parts of the business. Select and apply methods and tools to identify and	7. Guide others in the application of Lean principles and thinking and tools.	7. Develop and implement a plan to build a Lean culture in their area of responsibility.

Identify and analyse value-streams using appropriate methods and tools to optimise flow to customer**.** Develop a plan for Lean deployment within the organisation including effective and relevant performance metrics		analyse a value-stream to optimise flow to customer**.** Develop a plan to deploy Lean principles, methods and tools in their area of responsibility.		
K15 & S16. Experimentation: Principles of full and fractional designed experiments including replicates, repeats, randomisation, blocking and centre points, resolution and confounding. Planning and analysis using residuals, main effects & interaction plots, hierarchy of terms, Response Surface Method, Split plots, Analysis of variance (ANOVA). Approaches for model optimisation Guide others on the planning, analysis and interpretation of experiments. Plan, conduct,	Fail to select appropriate tools, to accurately interpret results and to make appropriate recommendations regarding next steps.	Guide others on the planning, analysis and interpretation of experiments. Plan, conduct, analyse and optimise both full and fractional experiments.	8. Select and apply tools to optimise models.	8. Promote the principles and benefits of designed experiments to others.

analyse and optimise both full & fractional experiments				
K16. Identification & prioritisation: Creativity tools e.g. theory of inventive problem solving (TRIZ), Pugh matrix			9. Apply creativity tools to support the identification and prioritisation of improvement opportunities and/or solutions.	9. Guide others in the principles and benefits of applying creativity tools.
K17 & S19. Failure mode avoidance: System state flow, boundary diagram, interface analysis tables, fault tree analysis, robustness checklist, tolerance design and analysis. Principles and links between Failure Modes and Effects analysis for concepts, designs, processes. Decompose complex systems in order to define main functions. Analyse system interactions. Cascade knowledge through fault tree analysis. Create and assess design rules, standards &		Apply Failure Mode Avoidance tools to support the design and implementation of an improved process, product or service in the workplace.	10. Apply Failure Mode Avoidance tools to support the design and implementation of a new process, product or service in the workplace.	10. Guide others in the principles and benefits of applying Failure Mode Avoidance principles and tools.

verification methods. Complete robustness studies to select appropriate control strategies and detection methods				
K18 & S20. Sustainability & control: Control and reaction plans. Prevention controls. Guide others on control and sustainability planning including methods and tools to maintain benefits, extraction of learning, replication, sharing and consolidation of new knowledge into organisational learning.	Fail to build a control plan for critical process inputs and outputs to support sustainment of improvements.	Guide others on control and sustainability planning including methods and tools to maintain benefits, extraction of learning, replication, sharing and consolidation of new knowledge into organisational learning.		
S2. Strategic Deployment of Continuous Improvement: Contribute to deployment of improvement strategy, participating as an active member of the improvement community	Fail to engage with others outside of their role in the pursuit of continuous improvement.	Contribute to deployment of improvement strategy, participating as an active member of the improvement community within the business.	11. Participate in the improvement community outside of the business.	11. Set-up or lead new activities that contribute to the improvement community outside the business.
S3. Communication: Prepare and present concise proposals and plans. Capture	Fail to apply appropriate methods for effective	Identify and communicate key points concisely.		

and share progress through effective formats	communication taking account of the situation.			
S4. Capability Development: Train, facilitate and critique the application of tools used by improvement practitioners including tool-selection, links between tools, how they are used within a structured method, analysis of results and presentation of recommendations	Fail to identify needs/learning outcomes, plan and take steps to meet these needs/outcomes, measure effectiveness of the intervention and identify opportunities to improve in the future.	Training session delivered during includes: • a range of delivery methods to suit different learning styles • Delivery and resources that are clear, technically correct, logically presented and pitched at the correct level for the audience • Checks of learning throughout the session, correcting/reinforcing learning where necessary Provide specific and accurate feedback to others such there is a clear understanding of gaps and next steps required.	12. Guide others in developing capability.	12. Set-up or lead new activities that contribute to the development of capability in others.

S7. Principles and Methods for Improvement: Guide others on the selection of appropriate methods (e.g. Practical Problem Solving, Define-Measure-Analyse-Improve-Control, 8-Disciplines, Identify-Define-Optimise-Verify) to deliver improvements. Conduct gateway assessments to ensure suitability of projects to progress	Fail to articulate the links between different methods and the similarities/differences.	Guide improvement practitioners on the selection of improvement methods (eg. Practical Problem Solving, Define-Measure-Analyse-Improve-Control, 8-Disciplines, Identify-Define-Optimise-Verify) and the selection and application of tools linked together to deliver improvements.		
S8. Project selection & scope: Guides others on the selection and scoping of improvement projects and the initial response to product/process performance issues. Identify, scope and prioritise improvement opportunities that map to high-level organisation objectives and key value-streams	Fail to apply improvement principles, methods and tools when delivering an initial response to problems.	Identify and prioritise new opportunities in the context of a portfolio of multiple improvement projects.	13. Identify new approaches to identifying and prioritising improvement opportunities that map to high-level organisation objectives and key value-streams.	13. Consider new opportunities that may arise in the future (e.g. the impact of Industry 4.0).
S11. Measurement: Guide others on the planning,	Fail to identify the need for a planned	Guide others on the planning, analysis and	14. Identify new approaches to improving	

analysis and interpretation of data collection & measurement studies including the design of tests to recreate failures & steps to diagnose/reduce short & long-term measurement variation	measurement study as part on an improvement project.	interpretation of data collection and measurement studies including the design of tests to recreate failures and steps to diagnose/reduce short and long-term measurement variation.	the repeatability and/or reproducibility of data in the context of an improvement project.	
S18. Benchmarking: Guide others on benchmarking to support all stages of improvement projects including future-state design	Fail to conduct benchmarking to support the setting of targets.	Guide others on benchmarking to support all stages of improvement projects including future-state design.	15. Promote the principles and benefits of benchmarking.	
B1. Drive for results: Co-ordinates and delivers sustained improvement across the business by engaging with, and inspiring stakeholders; adopting a can-do attitude	Fail to deliver sustained improvement across the business.	Overcome barriers in the pursuit of continuous improvement.	16. Guide others in overcoming barriers to continuous improvement.	
B2. Team-working: Leads cross functional project teams proactively, regularly supports others and replicates learning	Fails to lead cross functional project teams proactively. Does not provide regular support for others and does not replicate learning	Leads cross functional project teams proactively, regularly supports others and replicates learning.	17. Diagnose potential causes for ineffective teams and plan actions to address these.	

B3. Professionalism: Exemplifies high standard of professional integrity, ethics and trust within the organisation, whilst maintaining flexibility to the needs of the business	Fail to maintain high standard of professional integrity, ethics and trust within the organisation, whilst maintaining flexibility to the needs of the business.	Exemplifies high standard of professional integrity, ethics and trust within the organisation, whilst maintaining flexibility to the needs of the business.	18. Drive high standards of professional integrity, ethics and trust within the organisation.	
B4. Process Thinking: Drives process-thinking and customer-focused, data-driven decision making	Fail to use data to drive decision making.	Drives process-thinking and customer-focused, data-driven decision making		14. Promote the principles and benefits of process-thinking and customer-focused, data-driven decision making
B5. Continuous development: Identifies & models opportunities for development of self & others	Fail to recognise/identify gaps in own capability and to implement plans to close these gaps.	Identifies & models opportunities for development of self & others.		15. Set-up or lead new activities that contribute to recognising/identifying gaps in capability and to developing plans to close these gaps.
B6. Safe working: Adopts a proactive approach to safety, encouraging others and suggesting improvements on compliance.	Fail to adopt a proactive approach to safety, encourage others and suggest improvements on compliance.	Adopts a proactive approach to safety, encouraging others and suggesting improvements on compliance.		

Examination				
	Fail Criteria	**Pass Criteria**	**Merit Criteria**	**Distinction Criteria**
	0-74	75-79	80-84	85-100

Annex C – Grading matrix

Professional discussion, underpinned by portfolio of evidence	**Examination,** based on mini case-studies	**Overall grade to be awarded**
FAIL	ANY	**FAIL**
ANY	FAIL	**FAIL**
PASS	PASS	**PASS**
PASS	MERIT	**PASS**
PASS	DISTINCTION	**MERIT**
MERIT	PASS	**PASS**
MERIT	MERIT	**MERIT**
DISTINCTION	PASS	**MERIT**
DISTINCTION	DISTINCTION	**DISTINCTION**