

## IMPROVEMENT TECHNICIAN LEVEL 3 (ST0193/AP04)

### OVERVIEW

The UK's Manufacturing Industry is highly regarded worldwide for its innovation and manufacturing excellence and requires constant improvements to remain efficient and productive.

The Improvement Technician Level 3 Apprenticeship Standard provides apprentices with an opportunity to gain the knowledge and skills required to work in a variety of different job roles.

This new standard is suited to apprentices working in a wide range of businesses, from small family run operations to large multinational companies.

### ROLE

Improvement Technicians are responsible for the delivery and coaching of improvement activity within an area of responsibility, often associated with Lean and Six Sigma methodologies.

Improvement Technicians can be found across all industry sectors and functions including automotive, banking, engineering, food products, IT, property, retail, telecoms etc.

In carrying out the role, Improvement Technicians will be required to:

- work as a member of an operational team to resolve problems - preventing re-occurrence, engaging others in issues affecting them and to support the improvement of performance.
- Engage team members in the identification of improvement opportunities and relevant countermeasures and controls.
- Initiate and facilitate improvement activities through to confirmed resolution.
- Provide local expertise in business improvement methods and basic tools to team

### DURATION

The apprenticeship will typically take 14 to 18 months to complete.

### ENTRY REQUIREMENTS

Individual employers will set the selection criteria for the applicant.

### ON-PROGRAMME LEARNING

Apprentices will be taught by a training provider the knowledge, skills and behaviours (KSB's) required to operate as an Improvement Technician. The

apprentice should collate evidence throughout the duration of their apprenticeship. This evidence should include elements of work-based evidence, for example: project records demonstrating a business benefit to the apprentices employer, and following the steps of a recognised Problem Solving methodology (e.g. PPS, DMAIC, 8D) with a clear flow from one step to another and supported by the application/interpretation of appropriate Lean, Six Sigma, Project and Change Management tools. Employers and training providers may also wish to carry out joint reviews of the apprentices' progress at regular intervals during the on-programme period.

## **END-POINT ASSESSMENT GATEWAY (MANDATORY)**

Prior to the End-Point Assessment:

- Level 2 qualifications in English and Mathematics.
- Completion of a log, typically including one piece of evidence for each knowledge, skill and behaviour (KSB) that is assessed by the professional discussion
- Completion of a project portfolio of evidence to evidence completion of an improvement project(s). The improvement project(s) will be the subject of a project report to be produced during the EPA period and the subject of the presentation and questioning.

Apprentices will be eligible to be put forward for the end-point assessment after a minimum of 12 months and must have completed a minimum of 20% off the job training.

## **THE KNOWLEDGE, SKILLS AND BEHAVIOURS THAT WILL BE ASSESSED AS PART OF THE END POINT ASSESSMENT (EPA)**

### **Improvement Technicians have the Knowledge of:**

- Compliance: Legislative and customer compliance requirements including health and safety
- Team formation & leadership: Improvement team roles and responsibilities in a change environment
- Self-development: Different sources for knowledge development
- Project management: Project charter, Gantt chart, reporting documentation, Red Amber Green (RAG) status, communication (verbal and non-verbal channels) and implementation plans
- Change management: Roles of the manager and leader within change. Influencing, reinforcement and coaching principles
- Principles & methods: Six Sigma principles per ISO13053 (International Organisation for Standardisation), interim containment actions, Lean principles
- Project selection & scope: Selection matrix, scoping tree
- Problem definition: Exploratory data analysis, data collection planning, problem and goal statements

- Process mapping & analysis: Supplier Input Process Output Customer (SIPOC), process mapping, value and waste analysis, performance metrics - discrete data
- Data acquisition for analysis: Data stratification, sampling theory, data types, variation types and sources, data collection tools, operational definition and principles of measurement error
- Basic statistics & measures: Control charts - discrete data
- Process capability & performance: Capability analysis - continuous data
- Root cause analysis: Histograms
- Experimentation: Active analysis versus one factor at a time, Plan Do Check Act
- Identification & prioritisation: Brainstorming, selection criteria
- Sustainability & control: Process

**Improvement Technicians have the following Skills within the context of their own organisation to:**

- Compliance: Work in accordance with organisational controls and statutory regulations
- Communication: Share improvement progress through appropriate reporting
- Project management: Plan, manage and implement improvement activities. Identify and support management of risks. Develop the business case for improvement activity and implementation
- Change management: Engage through communications. Reinforce – positively and negatively. Effectively coach peers
- Principles and methods: Use a structured method and appropriate improvement tools engaging with subject matter experts to deliver business benefits
- Project selection and Scoping: Identify and scope improvement projects and establish clear measurable objectives
- Problem definition: Develop a problem/opportunity statement supported by validated data
- Voice of the customer: Apply techniques to identify customers, their requirements and translate these to metrics
- Process mapping & analysis: Apply process mapping tools to visualise processes, analyse process performance establishing key insights for performance improvement
- Lean tools: Apply techniques such as identification and removal of 8 wastes, 5S (Sort, Shine, Set, Standardise, Sustain), standard work, kaizen, visual displays and controls, error proofing, preventative maintenance
- Data acquisition for analysis: Develop data collection plan and validated measurement processes to understand performance
- Basic statistics & measures: Establish patterns and trends in data over time using tally, pie, run/trend and pareto charts
- Data analysis-statistical methods: Identify common and special cause variation

- Process capability & performance: Analyse product/process performance using good quality data
- Root cause analysis: Use cause and effect diagrams, technique of 5 whys and graphical analysis to understand and verify root causes
- Identification & prioritisation: Identify and prioritise improvement solutions
- Benchmarking: Recognise the value of sharing best practice
- Sustainability & control: Create control and reaction plans with detection measures, identify opportunities to embed changes to leverage benefit to the business.

### **Improvement Technicians demonstrate the following Behaviours:**

- Drive for results: Clear commitment for identifying opportunities and delivering improvements, pays attention to detail
- Team-working: Helps when asked, works effectively in a diverse team, considers impact of own actions on others, motivates peers
- Professionalism: Acts in a moral, legal and socially appropriate manner, aligns behaviours to the organisations values, trusted to working on own when appropriate
- Continuous development: Acts upon feedback, reflects on performance and has a desire for learning
- Safe working: Ensures safety of self and others, challenges safety

### **END POINT ASSESSMENT OVERVIEW**

There are three methods of assessment used during the EPA. These are:

- Multiple choice examination
- Project report, presentation and questioning
- Professional Discussion underpinned by log

#### **Multiple choice examination**

It will be an invigilated on-line test. Each question will present the apprentice with four options to be selected, from which they must select one option. They may refer to training material/reference books but may not access computer search engines or similar.

#### **Project Report, Presentation & Questioning**

A project report must be submitted after the gateway as part of EPA. The report must detail the improvement project(s) the apprentice has carried out. This improvement project(s) must clearly show a business benefit to your employer. This will be reviewed by the assessor in advance of the apprentice delivering a presentation, based on the project(s). Following this presentation, the assessor will ask questions to enable accurate assessment against the pass/merit/distinction criteria.

## Professional Discussion underpinned by log

A log must also be submitted after the gateway but in advance of the EPA. This will be reviewed by the assessor in advance of the professional discussion. This discussion will be a structured discussion between the apprentice and the Independent Assessor, to establish the apprentice's understanding and application of knowledge, skills and behaviours relating to the Apprenticeship Standard.

## CRITERIA AGAINST WHICH APPRENTICES LEVELS OF ATTAINMENT WILL BE MEASURED

### Grading Criteria for Multiple choice examination

Multiple Choice Examination (maximum obtainable = 40 marks)			
Fail	Pass mark	Merit mark	Distinction mark
0-24	25-29	30-35	36-40

### Grading Criteria for Project Report and Presentation

Pass	Merit	Distinction
<p>Apprentices must demonstrate all the following criteria:</p> <p>1. Prepare, submit and present a project report to agreed timescales that details one improvement project. The project must:</p> <ul style="list-style-type: none"> <li>- Show business benefit to the apprentice's employer (S18)</li> <li>- Follow the steps of a recognised Problem Solving methodology (e.g. PPS, DMAIC, 8D) with a clear flow from one step to another and supported by the application/interpretation of appropriate Lean, Six</li> </ul>	<p>In addition to satisfying all criteria for a <b>Pass</b>:</p> <ul style="list-style-type: none"> <li>1. Clearly explains how the outputs of each tool are used to inform the next step (S6, S7, S8, S9, S10, S11, S12, S13, S14, S15, S16, S18,)</li> <li>2. Takes the opportunity to share and/or replicate the improvements made to one other area / system where there are differences in the solutions/controls required to deliver successful outcomes (B1)</li> </ul>	<p>In addition to satisfying all criteria for a <b>Pass and Merit</b>:</p> <ul style="list-style-type: none"> <li>1. Takes the opportunity to share and/or replicate the improvements made to one other area / system where there are differences in baseline metrics (B1)</li> <li>2. Seeks opportunities to apply Lean, Six Sigma, Project and Change Management tools in daily work (B4)</li> </ul>

<p>Sigma, Project and Change Management tools (S1, S3, S4, S5, S6, S7, S8, S9, S10, S16, S18)</p> <ul style="list-style-type: none"> <li>- Demonstrate data-backed</li> </ul> <p>decision making to support definition, measurement, analysis and improvement (S11, S12, S13, S14, S15)</p> <p>2. Present the project using a concise, visual format and include:</p> <ul style="list-style-type: none"> <li>- Explanation of why the project was chosen (S3)</li> <li>- How they used each tool (S5)</li> <li>- How they worked with others in a team during the project (K2, K4)</li> </ul>		
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### **Project Report(s) – Fail Criteria**

The apprentice will be deemed as a 'fail' for the project report element if the criteria for 'Pass' grade are not met, specifically the apprentice will fail should they meet any one or more of the criteria below:-

- Not submit their project report to the EPAO within one month following the gateway
- Not provide a statement signed by their employer authenticating the project report and presentation and confirming business benefits associated with the improvement project
- Not demonstrate their role in working with others in an improvement team (i.e. worked alone without communication and consultation throughout the project)
- Fail to address a substantive business problem/opportunity in the workplace

- Are unable to demonstrate that sustainable business benefits have been delivered into the business as a result of any project(s) carried out
- Not demonstrate that they have applied a recognised methodology (e.g. PPS, DMAIC, 8D)
- Not correctly applied and/or interpreted Lean, Six Sigma, Project and Change Management tools
- Fail to demonstrate data-backed decision making to support definition, measurement, analysis and improvement or equivalent phases of the recognised methodology being applied.
- Not present the project using a concise, visual format
- Not demonstrate holistically through the project report, presentation and questioning, their knowledge and skills as set out in the L3 standard

### Grading Criteria for Professional Discussion Underpinned by Log

Pass	Merit	Distinction
<p>1. Provide evidence of their behaviours as detailed in the L3 standard (B1, B2, B3, B4, B5)</p> <p>2. Clearly explain:</p> <ul style="list-style-type: none"> <li>• Their role in the team (K2)</li> <li>• The different sources used to develop knowledge (K3)</li> <li>• How they shared progress throughout the project (S2)</li> <li>• Their approach to Project Management including identification and approach to risks (S3)</li> <li>• How they engaged others</li> </ul>	<p>In addition to satisfying all criteria for a <b>Pass</b>, satisfies 3 of the following criteria:</p> <p>1. Identifies other opportunities for improvement in their area (B1)</p> <p>2. Uses own knowledge and skills to support colleagues in their application of improvement tools (B4)</p> <p>3. Takes the opportunity to co-deliver training to upskill colleagues (B1)</p>	<p>In addition to satisfying all criteria for a <b>Pass</b>, satisfies 4 of the following criteria:</p> <p>1. Critically evaluates their improvement journey and identifies recommendations for improvement/change (e.g. "If I were to do this again I would...") (B4)</p> <p>2. Identifies other opportunities for improvement (B1)</p> <p>3. Uses own knowledge and skills to support colleagues in their application of improvement tools (B4)</p> <p>4. Takes the opportunity to co-deliver training to</p>

<p>through Change Management (S4)</p> <ul style="list-style-type: none"> <li>• How best practice can be shared with others (S17)</li> </ul>		<p>upskill colleagues (B1)</p>
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### Professional Discussion – Fail Criteria

The apprentice will be deemed as a 'fail' for the professional discussion element if the criteria for 'Pass' grade are not met, specifically the apprentice will fail should they meet any one or more of the criteria below:-

- Not submit their CPD log to the EPAO within one month following the gateway
- Not demonstrate holistically, their knowledge skills and behaviours as set out in Annex 3 and as detailed in the L3 standard
- Not clearly explained how they worked with others
- Not regularly communicated progress of their project with others

## GRADING

This apprenticeship EPA has three assessment methods.

Each assessment method will be individually graded – fail, pass, merit, distinction. A fail in one or more of the assessment methods will result in a fail in the EPA.

The overall apprenticeship will be graded:

- fail
- pass
- merit
- distinction

## FURTHER INFORMATION

Please contact us for registration and cost information:

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